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Consumers and Eco-labels: A Quantitative Analysis of the Effects of Various Sustainability Certification Models on Consumer Opinions

William F. Joseph
University of South Carolina - Columbia

CONSUMERS AND ECO-LABELS: A QUANTITATIVE ANALYSIS OF THE EFFECTS OF VARIOUS SUSTAINABILITY CERTIFICATION MODELS ON CONSUMER OPINIONS

By

William F. Joseph

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Approved:

Tamara Sheldon

Dr. Tamara Sheldon
Director of Thesis

Sarah Carroll

Dr. Sarah Carroll
Second Reader

Steve Lynn, Dean
For South Carolina Honors College

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Abstract

This research consists of an econometric analysis of the efficacy of a privatized sustainability certification model versus a proposed government-endorsed sustainability certification model within the United Sates market. Today, the widely accepted model of sustainability certification is constituted by a large market of private certifiers. By analyzing the effects of the current model and alongside the effects of a hypothetical government-endorsed system on consumer preferences for sustainably produced goods, the thesis aims to motivate further discussion into the possible benefit of adopting a government-sponsored sustainability certification system. In general, analysis of the data suggests much more promising and significant effects of the government-endorsed sustainability certification, especially for food products.

Acknowledgements

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Introduction

Recent demand for sustainably produced goods has led to a major rise in private third-party sustainability certification companies. These certifications grant consumers additional information pertaining to many different areas of production depending on the industry. Applications range from specific assurances like protection of dolphins for canned tuna producers or use of recycled fabrics to more general standards referring to sustainable farming practices or the Global Organic Textile Standard (GOTS) which ensures several organic, ecological, and social criteria. As consumers develop more emphasis on factors relating to sustainability in production, certification systems are crucial in not only meeting this added demand but also advancing sustainable practices across industries.

There are, however, many reasons which make the current widely accepted model of private certification inefficient. These can be summarized by two significant issues. The first issue with the privatization of sustainability certification is the incentive system which can lead certifiers to bribery and reduced standards (Yun, 2021). As certifiers license labels out to more and more companies, they accumulate more licensing fees while growing the recognition of their label which, in turn, raises licensing fees and demand by companies for the label. Companies looking to market their products to sustainable minded consumers have two options in acquiring certifications: legitimate investment in quality and bribe. The reality of this situation is that certifiers are economically incentivized to print their label on everything that comes across their desk, regardless of whether or not the product adheres to their previously set-forth standards. The second issue is the flooding of certifiers in the market. The sheer amount of sustainability certifications a consumer encounters when shopping detracts from the value certifications provide. This is well illustrated in the wine industry where the surplus of certifiers has harmed

the effectiveness of sustainability certification (Moscovici & Reed, 2018). These issues have led to a great amount of research on optimal regulation of certifiers like in the 2015 study by Chkanikova, O., & Lehner, M. as well as a push to transition away from private certification all-together like in the 2019 study by Murali, K., Lim, M. K., & Petruzzi, N. C..

While prior research into the effects on consumer preferences caused by sustainability certifications exists, there is a general lack of research in the community dissecting and comparing the marginal effects of privatized certification models and those sponsored by a government agency. The thesis aims to answer the question of how different models (specifically, a privatized certification model versus a government agency sponsored certification model) would affect consumer willingness to pay for sustainably produced goods. The relevance of this research is seeded in the severe need for a system that grants consumers accurate and useful information as well as advances and incentivizes a business landscape more dedicated to sustainable practices. Because consumer behavior in response to certification labels is so closely associated with factors affecting overall uptake of sustainable practices, it is imperative to identify the sustainability certification model which is best received by consumers. This thesis examines, within the broader United Sates market, the efficacy of a privatized sustainability certification model versus a proposed government sponsored sustainability certification model by quantifying both models' marginal effect on consumer preferences for sustainably produced goods through the employment of a discrete choice experiment.

Background

A developed foundation of research has been conducted investigating consumer willingness to pay for products with environmental sustainability certifications across many markets, contexts, and product categories, particularly regarding sustainably produced foods. A meta-analysis of the effect of sustainably certified food and milk products on consumer willingness to pay conducted by Bastounis et al. (2021) consolidating research from 35 separate experiments, yields conclusions beneficial to the discussion of sustainability certifications in general and a foundation for this thesis' further inquiry into the differentiation between private certifiers and government-sponsored models of certification. The meta-analysis, combining observations from 35,725 participants across studies conducted in North America, Central America, Japan, China, Vietnam, Australia, the United Kingdom, and broader Europe, generated a mean marginal willingness to pay of 3.79 PPP$/kg (95%CI = [2.7, 4.89]) for a sustainability certification on a food or dairy product (Bastounis et al., 2021). These findings present wholistic relevance for sustainability certifications in a global context but do not consider the effects a certification logo tied to a government program might have on consumer opinions.

It is additionally important to mention the existence and development of standards and certifications for sustainably produced products provided by government agencies internationally. A widespread and consequentially significant example is that of France's "Eco-Score", a certification label granted by the country's ecological transition agency, ADEME (Askew, 2023). The labeling system utilizes a scoring system granting food products a grade ranging from A to E, extremely similarly to the previously adopted and widely accepted "Nutri-Score" which informs European Union shoppers of the nutrition value of various food products on shelves. Other countries have been slow to adopt similar systems and there is a severe lack of

investigation into how a certification like the "Eco-Score" effects marginal willingness to pay in comparison to one granted by a private certifier and what factors influence it, such as trust towards the government or corporations among consumers, influence it.

In the United States, no such widespread government-sponsored sustainability certification system exists currently and legitimate discussion into the creation of one has not yet taken place. Therefore, the scope of this thesis is to measure and compare the efficacy of a hypothetical government sponsored certification to provide context into the possible benefit of such a program as the country embarks on its own version of an ecological transition. At the same time, measures of respondent trust towards the government and towards corporations as well as indicators of environmentally-minded behavior contextualize cultural characteristics of United States residents to observe the broader possible benefit of the proposed certification model.

Data

The data used in the experiment was gathered through the use of a designed survey instrument distributed through the Qualtrics platform that was reviewed and approved by the Institutional Review Board (IRB) at the University of South Carolina. 541 individual, complete responses were recorded. The survey, which can be found in the appendix, is divided into three parts: Screening, Preference, and Background. This survey was designed, in majority, utilizing procedures and bias minimalization methods specified in the study by Johnson et al. (2017).

The first section of the survey in sequence, the screening section, records the gender, age, United States region of residence, race, ethnicity, education level, household income, and political leaning of the respondent. The sample is characterized by a socio-demographic spread which is representative of the US adult population shown in Table 1.

Table 1: Data Summary

		Observations
Overall		541
Gender	Male	247
	Female	289
	Non-Binary	5
Age	18 to 34	167
	35 to 54	177
	55+	197
Region	Northeast	95
	Midwest	117
	West	118
	South	211
Race/Ethnicity	Hispanic	95
	Non-Hispanic	446
	Non-Hispanic, White	313
	Non-Hispanic, Black/African American	69
	Non-Hispanic Asian or Pacific Islander	32
	Non-Hispanic Native American/Alaskan Native or Other	32
Household Income	Less than 50,000	194
	50,000 to 99,999	194
	100,000 and above	153
Education	No college degree	347
	4-year degree or higher	194

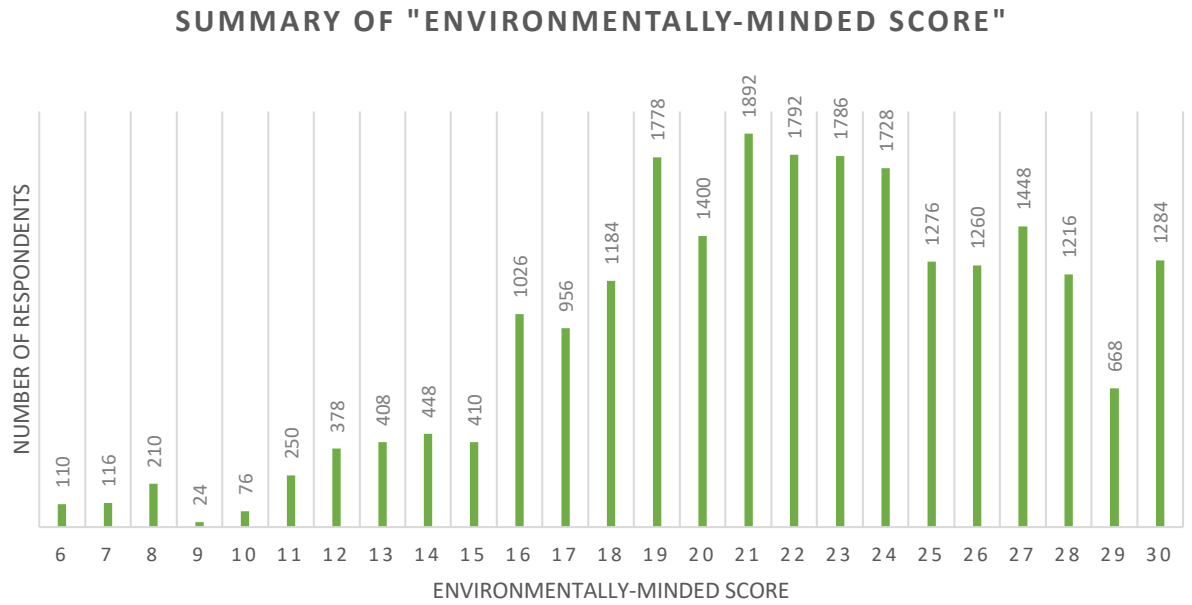
The second section of the survey, which analyzes the preferences among respondents employing a discrete choice experiment, by presenting a choice between two like products belonging to four categories: rice, coffee, jeans, and white t-shirts. These four product categories were chosen on the basis that they are mainly staple products that many respondents would have purchased before and might have already encountered versions of the products advertised as being sustainable to avoid confusion. To account for respondents who are unfamiliar with purchasing a certain product category, a preemptive screening question was used asking whether the respondent purchased the good often, sometimes, or never.

Because the survey aims to compare consumer preferences between goods marked as sustainable by a private certifier and those similarly branded through a government-endorsed certification, which currently does not exist a hypothetical eco-label representing one produced by the United States Department of Agriculture (USDA) was generated, presented, and explained thoroughly to survey-takers. An alternative sustainability certification granted by a hypothetical private certifier was introduced as well for comparison.

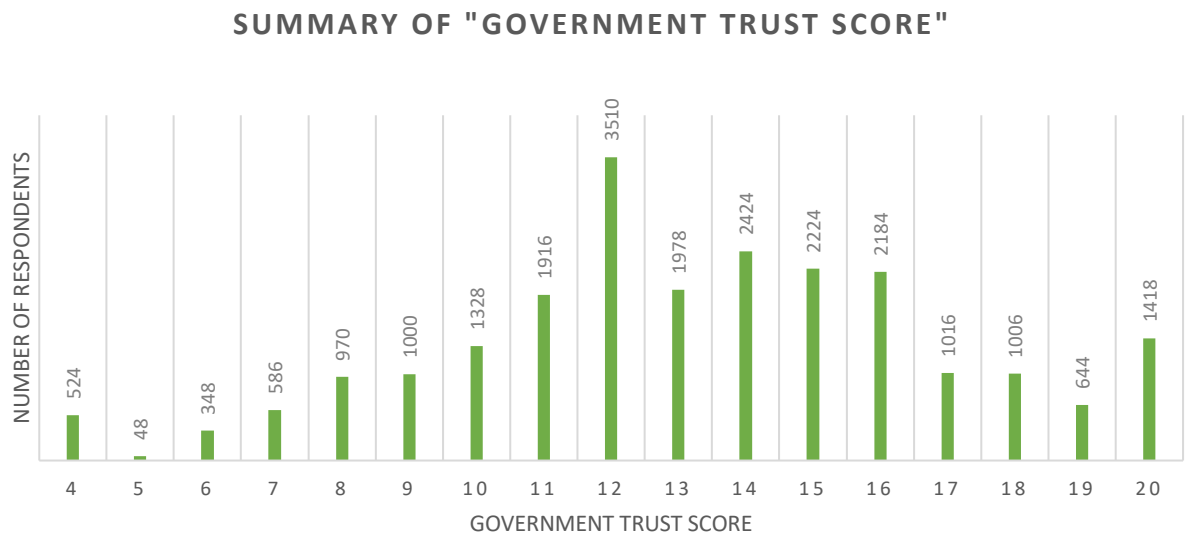
In the preference section, each respondent was presented with 6 choices for each product category for a total of 24 questions. The questions were structured so that respondents could choose “Product A” which was specified by product type, sustainability certification (private, government sponsored, or none), and price, “Product B” which was similarly specified, or “Neither”. To generate the prices for the choice products, popular options with no sustainability certification at common, large, chain grocery stores and retailers were gauged to produce 10 data points. The mean of these, one standard deviation above the mean, and one standard deviation below it, would serve as the three price points attached to products with no sustainability certification that the survey would draw from randomly. For products holding a private or government-sponsored sustainability certification, the three price points were determined by calculating one standard deviation, two standard deviations, and three standard deviations above the previously mentioned mean in order to create an identical price range for like products with either sustainability certification. This way, the upper limit of the price range for products with no certification was equal to the lower limit for like products with either a private or government-sponsored sustainability certification to increase the efficiency of individual observations.

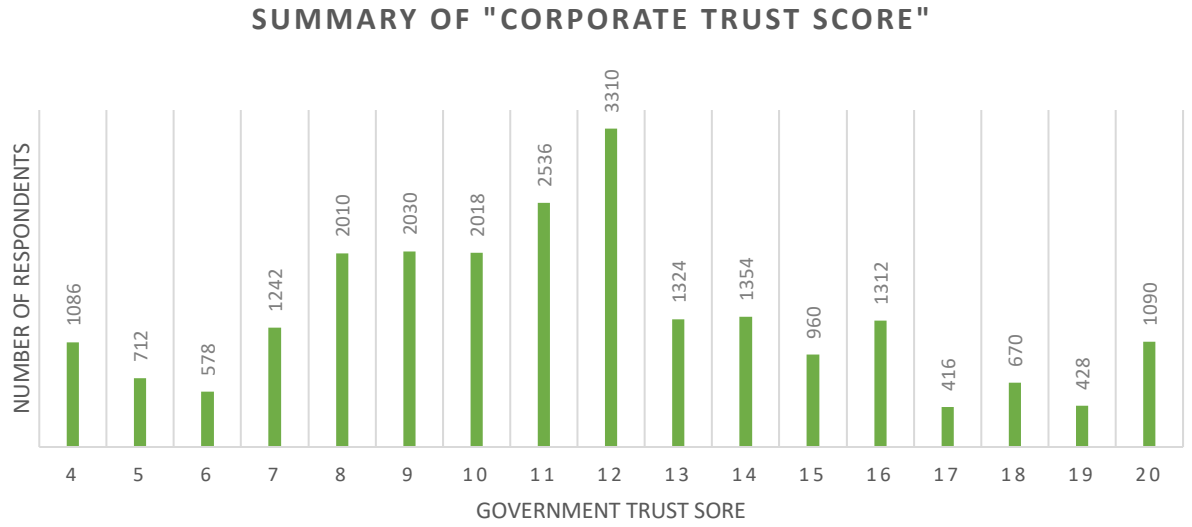
To further increase the efficiency of observations, randomized grouping of products were limited to pairs of products with a different level of sustainability certification yielding 27 possible questions for each product category for which the survey randomly presented 6 to each respondent. Between the 541 individual respondents, 12,984 choice observations were recorded out of which "Neither" responses were left out of the analyses.

The third and final section of the survey, which asked a total of 14 background Likert scale questions, aimed to draw conclusions on the viewpoint of each respondent regarding three areas: the environment, trust towards the government, and trust towards corporations. Because each statement carried a positive sentiment for each of the question categories and each Likert scale response option set was identical (Strongly disagree, Disagree, Neither agree nor disagree, Agree, or Strongly agree), a relative score could be generated for the respondents for the three question categories. That is to say, by assigning a value of 1 to "Strongly disagree", 2 to "Disagree", and so on, an "Environmentally-Minded Score", "Government Trust Score", and "Corporate Trust Score" could be generated for each respondent by simply adding these values.



An indicator variable was created to segment observations between environmentally minded respondents and non-environmentally minded respondents. The cutoff was set at an average score greater than 60% or a count of 19 or more because there were 6 Likert scale questions in the section. For both government trust and corporate trust scores, the cutoff was placed at 13 to reflect the fact that there were only 4 Likert scale questions in each section. 75.9% of respondents met the criteria to be environmentally minded while 55.9% were trusting in the government and 33.1% were trusting in corporations.





Model

The data collected from the discrete choice experiment is used in conditional logit analysis. Specified by Daniel McFadden (1973), the conditional logistic model allows for the regression of choice characteristics and, at the same time, respondent characteristics in estimating their coefficients through likelihood maximization. It is particularly useful in the case of introducing interaction, specifying the marginal effects of the two tested sustainability certifications, and, ultimately, determining the willingness to pay for certifications by interpreting price and certification coefficients.

The most basic regression iteration determines the marginal effects of price, private certification, and government-sponsored certification on the likelihood of the respondent choosing to purchase a given product (unspecified between the four product categories) and is regressed using the following utility function:

$$u_i = \beta_1 \, Price_i + \beta_2 \, Private\ Certification_i + \beta_3 \, Government\ Certification_i + \ \varepsilon_i \quad (1)$$

where "Choice" denotes whether or not a product is chosen and can take values of 0 (meaning it is not chosen) or 1 (indicating it is chosen) and both explanatory variables "Private Certification" and "Government Certification" take the value of 1 or 0 depending on whether or not the product that's purchase is being contemplated has the certification. The survey instrument allows for products to have only one certification distinction.

This utility function is then used through the following equation calculating the respondent's probability of choosing product *i* over alternative *j:*

$$\pi_i = \frac{\exp\,(u_i)}{\sum_{k=0}^{k} \exp\,(u_k)}$$

where *k* attributes distinguish the alternatives and alternative *i* is assumed to be chosen if it produces a higher utility. The analysis is based on three further assumptions: (1) that irrelevant alternatives are independent, (2) that error terms are independent and uniformly distributed, and (3) that preferences across respondents are homogenous across respondents (Thomson et al., 2017).

Separate regression iterations of the same model are run by segmenting choice data between product categories and additionally by choices made for food products (rice and coffee) and clothing products (jeans and t-shirts). Other respondent specific explanatory variables are introduced to the model in subsequent iterations through interaction variables with the two certification distinctions. Gender, region, environmentally friendliness, corporate trust, and government trust are all introduced through interaction with the certification distinctions given by the following utility functions:

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Private\ Certification_i * Female_i) + \varepsilon_i \quad (2)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Government\ Certification_i * Female_i) + \varepsilon_i \quad (3)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Private\ Certification_i * Environmental\ Friendliness_i) + \varepsilon_i \quad (4)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Government\ Certification_i * Environmental\ Friendliness_i) + \varepsilon_i \quad (5)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Private\ Certification_i * Corporate\ Trust_i) + \varepsilon_i \quad (6)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Government\ Certification_i * Government\ Trust_i) + \varepsilon_i \quad (7)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Private\ Certification_i * Household\ Income_i) + \varepsilon_i \quad (8)$$

$$u_i = \beta_1\, Price_i + \beta_2\, Private\ Certification_i + \beta_3\, Government\ Certification_i + \beta_4\, (Government\ Certification_i * Household\ Income_i) + \varepsilon_i \quad (9)$$

In these expressions “Environmental Friendliness”, “Corporate Trust”, and “Government Trust” serve as indicator variables specifying whether or not the respondent averaged a response of “Agree” on the Likert-scale questions associated with the respective factor.

Results

Base Model Regression Iterations

The first regressions using the first specified utility function from the model section aim to lay a foundation from which to understand the effects of various other factors and also to

determine the most basic observed effects of the different certification models on respondent preferences. Table 2 describes the log odds estimates for price, private sustainability certification, and government sustainability certification in reference to a consumer's decision of whether or not to purchase a good.

Table 2: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, and Government Sustainability Certification

VARIABLES	(1) Model 1(Base Model)
price	-0.124***
	(0.00540)
privatecert	-0.00344
	(0.0332)
govcert	0.193***
	(0.0333)
Observations	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper. In the output, log odds estimates for price, private government certification, and government certification are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Intuitively, a negative coefficient for price is observed which describes a higher price reduces the log odds of a consumer's willingness to buy a good. A non-significant negative estimate is then observed for private sustainability certification log odds and a highly significant positive estimate for government certifications. This points out an inefficiency in the model. Below, in Table 3, the data is subsequently segmented into the two food product categories and again into the two clothing product categories.

Table 3: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, and Government Sustainability Certification for Food and Clothing Product Categories

VARIABLES	(1) Food and Clothing	(2) Food	(3) Clothing
price	-0.124***	-0.462***	-0.0966***
	(0.00540)	(0.0259)	(0.00566)

privatecert	-0.00344	0.634***	-0.149***
	(0.0332)	(0.0618)	(0.0510)
govcert	0.193***	1.000***	-0.125**
	(0.0333)	(0.0637)	(0.0512)
Observations	23,190	11,646	11,544

Notes: This table shows the conditional logistic regression output using the utility function labeled as (1) in the Model section of the paper firstly for all collected observations, then for just observations related to food product categories, and lastly for observations related to clothing product categories. In the output, log odds estimates for price, private government certification, and government certification are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

After this segmentation, significant log odds outputs are observed for all variables in each extra iteration. The primary finding is that of the relatively extremely high effects of both certifications on food product categories. Additionally, 95% confidence interval outputs of the two estimates describe a significantly higher effect from government certifications (95%CI = [0.88, 1.13]) compared to private certifications (95%CI = [0.51, 0.75]). A much larger log odds effect for price among food products is observed due to the fact that survey food products averaged a much lower price than surveyed clothing products. For the estimates gathered in the second iteration described in Table 3 for food products only, consumer willingness to pay (WTP) can easily be calculated for each of the certifications by dividing their coefficients by the negative of the price coefficient. We observe a WTP of $1.37 for the private certification and a WTP of $2.16 for the government certification.

Due to the puzzling negative estimates observed for clothing product categories in Table 3, a natural next step is to scale the prices and reattempt the basic regression because the prices of jeans in the survey were relatively higher than the other product categories. The prices are scaled by simply dividing the prices for the observations of each product category by the determined mean price for that product category. Table 4 below summarizes the output for this base model regression with scaled prices.

Table 4: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, and Government Sustainability Certification with Price Scaling

VARIABLES	(1) Model 1(Base Model)
price	-3.024***
	(0.113)
privatecert	0.370***
	(0.0416)
govcert	0.577***
	(0.0422)
Observations	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper. In the output, log odds estimates for price, private government certification, and government certification are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

We now observe overall significant effects more in line with the expected outcome. By performing a Chi-squared test to evaluate whether or not there is a significant difference between the effects of private certification and government certification, we confirmed inequality with a p-value of 0.000. We can also calculate separate log odds estimates for each of the product categories as is shown below in Table 5 to observe how consumers react to the different certifications on the different product categories.

Table 5: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, and Government Sustainability Certification for Rice, Coffee, Jeans, and T-Shirts

VARIABLES	(1) All Categories	(2) Rice	(3) Coffee	(4) Jeans	(5) T-Shirts
price	-0.124***	-0.485***	-0.439***	-0.114***	-0.367***
	(0.00540)	(0.0371)	(0.0362)	(0.00687)	(0.0252)
privatecert	-0.00344	0.690***	0.577***	0.344***	0.319***

	(0.0332)	(0.0869)	(0.0879)	(0.0884)	(0.0862)
govcert	0.193***	1.111***	0.888***	0.418***	0.296***
	(0.0333)	(0.0906)	(0.0898)	(0.0881)	(0.0869)
Observations	23,190	5,950	5,696	5,742	5,802

Notes: This table shows the conditional logistic regression output using the utility function labeled as (1) in the Model section of the paper firstly for all collected observations, then for observations specifically for the rice product category, then for coffee, jeans, and lastly for observations related only to white t-shirts. In the output, log odds estimates for price, private government certification, and government certification are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

All four regression iterations run using the observations from each of the product categories produce significant estimates for all tested variables. As expected, the most expensive tested product, jeans, inherits the smallest log odds discount for price. For both certifications, log odds effects for rice are the largest the lowest for t-shirts and government certifications are observed to be more desirable for all product categories except for t-shirts. WTP for private certifications and government certifications for rice is observed to be $1.42 and $2.29 respectively, $1.31 and $2.02 for coffee, $3.02 and $3.67 for jeans, and $0.87 and $0.81 for t-shirts.

Effect of Gender on Choice Behavior

The next regression iteration investigates gender as a factor in consumer behavior. Below, in Table 6, the Base Model using the most basic utility function from the model section (1) is shown alongside models run with utility functions 2 and 3. Model 2 introduces an interaction variable between a female indicator variable and private certification and Model 3 introduces a similar interaction variable but that observes the effect of gender on government certification preferences.

Table 6: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Gender Interaction with the Two Certifications with Price Scaling

VARIABLES	(1) Base Model	(2) Model 2	(3) Model 3
price	-3.024***	-3.024***	-3.024***
	(0.113)	(0.113)	(0.113)
privatecert	0.370***	0.300***	0.370***
	(0.0416)	(0.0490)	(0.0416)
govcert	0.577***	0.578***	0.593***
	(0.0422)	(0.0422)	(0.0495)
privatecert_female		0.131***	
		(0.0482)	
govcert_female			-0.0300
			(0.0479)
Observations	23,190	23,190	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper, then for Model 2 which introduces an interaction variable between a female indicator variable and private certification, and then for Model 3 which introduces an interaction variable between a female indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Using price scaling, significant positive effect can be observed for the estimate for the interaction variable between the female indicator and private certification. We can deduce that female consumers are more willing to pay a premium for the private certification across all product categories. We can calculate that, on average, female consumers have a WTP of 4.3% more, significantly higher than male and non-binary consumers.

Effect of Environmental-Friendliness on Choice Behavior

Tables 7,8, and 9 display results for regressions run using utility functions 4 and 5 from the model section to investigate environmental friendliness as a factor on consumer preferences towards the two sustainability certifications. In Model 4, an interaction variable is introduced

between the environmental friendliness indicator and private certification. In Model 5, a similar interaction variable is introduced that describes the relationship between government certification and environmental friendliness.

Table 7: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Environmental Friendliness Interaction with the Two Certifications with Price Scaling

VARIABLES	(1) Base Model	(2) Model 4	(3) Model 5
price	-3.024***	-3.029***	-3.031***
	(0.113)	(0.113)	(0.113)
privatecert	0.370***	0.0328	0.373***
	(0.0416)	(0.0607)	(0.0416)
govcert	0.577***	0.581***	0.394***
	(0.0422)	(0.0423)	(0.0599)
privatecert_ecofriendly		0.442***	
		(0.0579)	
govcert_ecofriendly			0.242***
			(0.0565)
Observations	23,190	23,190	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper, then for Model 4 which introduces an interaction variable between an environmental friendliness indicator variable and private certification, and then for Model 5 which introduces an interaction variable between an environmental friendliness indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Using price scaling, we observe significant estimates for both interaction variables, deducing a WTP of $3.49 higher among environmentally friendly consumers across all product categories with private sustainability certifications. Environmentally friendly consumers also showed a WTP of 14.6% higher for government certifications. Interestingly, between Models 4

and 5, we observe non-environmentally friendly shoppers are extremely partial against private certifications but much less so when their behavior is investigated for government certifications. A similar discrepancy is more observable when the regression is run using only observations for food product categories.

Table 8: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Environmental Friendliness Interaction with the Two Certifications for Food Product Category Observations

VARIABLES	(1) Base Model (Food)	(2) Model 4 (Food)	(3) Model 5 (Food)
price	-0.462***	-0.463***	-0.462***
	(0.0259)	(0.0260)	(0.0259)
privatecert	0.634***	0.312***	0.633***
	(0.0618)	(0.0864)	(0.0618)
govcert	1.000***	1.006***	0.854***
	(0.0637)	(0.0639)	(0.0877)
privatecert_ecofriendly		0.425***	
		(0.0800)	
govcert_ecofriendly			0.190**
			(0.0788)
Observations	11,646	11,646	11,646

Notes: This table shows the conditional logistic regression output for collected observations pertaining to just the food product categories using the utility function labeled as (1) in the Model section of the paper, then for Model 4 which introduces an interaction variable between an environmental friendliness indicator variable and private certification, and then for Model 5 which introduces an interaction variable between an environmental friendliness indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

In Table 8, we can see the same utility functions of 4 and 5 produce significant estimates for all tested variables. For Model 4 run with food product categories, non-environmentally friendly consumers produce a WTP of $0.67 for private sustainability certifications while environmentally friendly consumers produce a WTP of $0.92 higher for a total WTP of $1.59. For government sustainability certifications, non-environmentally friendly consumers were

willing to pay $1.85, a number drastically higher than the calculated estimate for the same group for food products with private certifications. Environmentally friendly consumers were willing to pay an added premium of $0.41 for a total WTP of $2.00.

Table 9: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Environmental Friendliness Interaction with the Two Certifications for Clothing Product Category Observations with Price Scaling

	(1)	(2)	(3)
VARIABLES	Base Model (Clothing)	Model 4 (Clothing)	Model 5 (Clothing)
price	-3.765***	-3.775***	-3.779***
	(0.170)	(0.170)	(0.170)
privatecert	0.335***	-0.0388	0.341***
	(0.0616)	(0.0900)	(0.0617)
govcert	0.359***	0.363***	0.151*
	(0.0618)	(0.0619)	(0.0879)
privatecert_ecofriendly		0.490***	
		(0.0857)	
govcert_ecofriendly			0.279***
			(0.0843)
Observations	11,544	11,544	11,544

Notes: This table shows the conditional logistic regression output for collected observations pertaining to just the clothing product categories using the utility function labeled as (1) in the Model section of the paper, then for Model 4 which introduces an interaction variable between an environmental friendliness indicator variable and private certification, and then for Model 5 which introduces an interaction variable between an environmental friendliness indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 9 displays outputs for a regression very similar to those of Table 8 but for observations collected for clothing product categories and not for food. The consensus of the table is that environmentally minded consumers are generally willing to pay more for the private

sustainability certification than for the government certification when it comes to clothing purchases. While environmentally friendly consumers are much more receptive to the eco labels than non-environmentally friendly consumers, observe a higher WTP for among non-environmentally friendly respondents for the government certification.

Effect of Trust Indicators on Choice Behavior

The next round of regression iterations use utility functions 6 and 7 from the model section to observe the effects of factors related to trust towards corporations and towards the government in consumer decisions. Tables 10, 11, and 12 use utility function 6 to observe the effects of respondents trust in corporations on their WTP for private sustainability certifications by introducing an interaction variable between a corporate trust indicator and private certifications.

Table 10: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Corporate Trust Interaction with Private Sustainability Certification with Price Scaling

	(1)	(2)
VARIABLES	Base Model	Model 6
price	-3.024***	-3.035***
	(0.113)	(0.113)
privatecert	0.370***	0.218***
	(0.0416)	(0.0448)
govcert	0.577***	0.584***
	(0.0422)	(0.0423)
privatecert_corptrust		0.463***
		(0.0508)
Observations	23,190	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper and then for Model 6 which introduces an interaction variable between a corporate trust indicator variable and private certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variable are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 10 displays regression outputs for utility function 6 which incorporates the interaction variable between the corporate trust indicator and private sustainability certification. We noticed that surveyed respondents who had a relatively high level of trust in corporations were much more willing to purchase goods marked with the private eco-label. Inversely, those with less trust in corporations, which made up 66.93% of respondents, were only willing to pay 7.2% of the cost of the good for a private certification.

Table 11: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Corporate Trust Interaction with Private Sustainability Certification for Food Product Category Observations

	(1)	(2)
VARIABLES	Base Model (Food)	Model 6 (Food)
price	-0.462***	-0.463***
	(0.0259)	(0.0260)
privatecert	0.634***	0.491***
	(0.0618)	(0.0661)
govcert	1.000***	1.006***
	(0.0637)	(0.0639)
privatecert_corptrust		0.426***
		(0.0705)
Observations	11,646	11,646

Notes: This table shows the conditional logistic regression output for collected observations attributed to only food product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 6 which introduces an interaction variable between a corporate trust indicator variable and private certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variable are listed. Standard errors are provided in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Table 11 runs the same regression as Table 10 but only for observations tied to the two food product categories. As is consistent with findings from the analysis of Table 3, Table 4, and Table 5 we observe high, significant estimates for all tested variables other than price. Respondents who were relatively trusting in corporations were willing to pay almost twice as much ($0.92 more) for products with the private sustainability certification.

Table 12: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Corporate Trust Interaction with Private Sustainability Certification for Clothing Product Category Observations

VARIABLES	(1) Base Model (Clothing)	(2) Model 6 (Clothing)
price	-0.0966***	-0.0968***
	(0.00566)	(0.00568)
privatecert	-0.149***	-0.311***
	(0.0510)	(0.0567)
govcert	-0.125**	-0.121**
	(0.0512)	(0.0513)
privatecert_corptrust		0.490***
		(0.0733)
Observations	11,544	11,544

Notes: This table shows the conditional logistic regression output for collected observations attributed to only clothing product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 6 which introduces an interaction variable between a corporate trust indicator variable and private certification. In the output, log odds estimates for price, private government certification, and government certification are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 12, again, reveals a large positive log odds estimate for the interaction variable between the corporate trust indicator and private sustainability certification but for a regression iteration using only clothing product category observations. Consumers with a relatively high trust in corporations are willing to pay, on average, $5.05 more for clothing products with the private certification.

Tables 13, 14, and 15 use utility function 7 to observe the effects of respondents trust in the government on their WTP for government sponsored sustainability certifications by introducing an interaction variable between a government trust indicator and government certifications.

Table 13: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Government Trust Interaction with Government Sustainability Certification with Price Scaling

VARIABLES	(1) Base Model	(2) Model 7
price	-3.024***	-3.052***
	(0.113)	(0.113)
privatecert	0.370***	0.377***
	(0.0416)	(0.0417)
govcert	0.577***	0.323***
	(0.0422)	(0.0497)
govcert_govtrust		0.466***
		(0.0485)
Observations	23,190	23,190

Notes: This table shows the conditional logistic regression output for all collected observations using the utility function labeled as (1) in the Model section of the paper and then for Model 7 which introduces an interaction variable between a government trust indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variable are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 13 reveals that respondents with a relatively high trust in the government are much more willing to pay for a government-sponsored sustainability certification. The group, which makes up 55.89% of respondents, had a WTP 15.3% of higher across all product categories for a total WTP of 25.9% of the cost of a good for the government certification.

Table 14: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Government Trust Interaction with Government Sustainability Certification for Food Product Category Observations

VARIABLES	(1) Base Model (Food)	(2) Model 7 (Food)
price	-0.462***	-0.466***
	(0.0259)	(0.0260)
privatecert	0.634***	0.642***
	(0.0618)	(0.0620)
govcert	1.000***	0.761***
	(0.0637)	(0.0730)

govcert_govtrust		0.442***
		(0.0672)
Observations	11,646	11,646

Notes: This table shows the conditional logistic regression output for collected observations attributed to only food product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 7 which introduces an interaction variable between a government trust indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variable are listed. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

In Table 14, where the same regression used in Table 13 is run but limited to observations for the two food product categories, all estimates were found to be significant. Consumers that were less trusting in the government were, on average, willing to pay $1.63 and consumers that were more trusting in the government were willing to pay $0.91 more.

Table 15: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Government Trust Interaction with Government Sustainability Certification for Clothing Product Category Observations with Price Scaling

	(1)	(2)
VARIABLES	Base Model (Clothing)	Model 7 (Clothing)
price	-3.765***	-3.799***
	(0.170)	(0.171)
privatecert	0.335***	0.342***
	(0.0616)	(0.0618)
govcert	0.359***	0.0769
	(0.0618)	(0.0735)
govcert_govtrust		0.515***
		(0.0726)
Observations	11,544	11,544

Notes: This table shows the conditional logistic regression output for collected observations attributed to only clothing product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 7 which introduces an interaction variable between a government trust indicator variable and government certification. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variable are listed. Prices are scaled by dividing the prices for the observations of each product category by the determined mean price for that product category. Therefore, interpretation of log odds estimate found for price changes to a price percent change rather than a dollar change. Standard errors are provided in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

In Table 15, which depicts a similar model but for clothing product category related

observations, we find results similar to prior regressions using clothing-specific data. Consumers with relatively high trust in the government were willing to pay 13.6% more for clothing products marked with the government-sponsored eco-label. Similarly to the interaction variable presented in Table 12, this results in a total positive log odds estimate and WTP for trusting consumers in the respective eco-label. Those with less trust in the government were not significantly willing to pay for the label.

Effect of Household Income on Choice Behavior

The last round of regression iterations investigates the effect of household income on consumer purchasing behavior regarding the two certifications. Table 16, which utilizes utility function 8 from the model section, introduces 4 separate indicator variables that specify respondents belonging to the latter 4 income categories observed through the sociodemographic section of the survey instrument. These indicators are each interacted with private sustainability certification. In Tables 16 and 17, Income Category 2 specifies a household income of $25,000-$49,999, 3 specifies $50,000-99,999, 4 specifies $100,000-$200,000, and 5 specifies a household income of above $200,000. Income Category 1, which specifies a respondent with a household income below $25,000, is the base group for the model and has no separate specified indicator interacting with private sustainability certification. The model is first run with all observations across product categories, then for just food products, and lastly for just clothing products.

Table 16: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Income Category Interactions with Private Sustainability Certification and for Food and Clothing Product Categories

VARIABLES	(1) Base Model	(2) Model 8	(3) Model 8 (Food)	(4) Model 8 (Clothing)
price	-0.124***	-0.124***	-0.462***	-0.0965***
	(0.00540)	(0.00540)	(0.0259)	(0.00566)
privatecert	-0.00344	-0.163**	0.437***	-0.263***
	(0.0332)	(0.0654)	(0.100)	(0.0967)

govcert	0.193***	0.192***	0.999***	-0.126**
	(0.0333)	(0.0334)	(0.0638)	(0.0512)
inc2_privatecert		0.206**	0.251**	0.161
		(0.0817)	(0.115)	(0.118)
inc3_privatecert		0.249***	0.243**	0.249**
		(0.0727)	(0.102)	(0.106)
inc4_privatecert		0.0887	0.222**	-0.0794
		(0.0780)	(0.109)	(0.114)
inc5_privatecert		0.153	0.130	0.192
		(0.124)	(0.171)	(0.184)
Observations	23,190	23,190	11,646	11,544

Notes: This table shows the conditional logistic regression output for all collected observations, then for observations attributed to only food product categories, and lastly for observations attributed to only clothing product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 8 which introduces interaction variables between income category indicator variables and private certification. Income Category 1 specifies a respondent with a household income below $25,000, 2 specifies $25,000-$49,999, 3 specifies $50,000-99,999, 4 specifies $100,000-$200,000, and 5 specifies above $200,000. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Standard errors are provided in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

In Table 16, significant log odds estimates are observable predominately among the first second and third income categories. Especially for the model run using only observations gathered for food product categories, higher income categories retain a higher WTP for the private certification label. Income Category 2 has a WTP of $0.54 higher than Income Category 1, Income Category 3's WTP is $0.53 higher, and Income Category 4's WTP is $0.48 higher. Although a higher WTP among higher earning groups is expected, it is additionally observed that Income Category 2 has the highest WTP among all income categories.

Table 17 similarly observes interaction variables using the observed income categories but, in this iteration, government certification preferences are investigated. Again, the model is run at first using all data, secondly with just observations for food products, and lasty with just clothing products.

Table 17: Conditional Logistic Log Odds Estimates of Price, Private Sustainability Certification, Government Sustainability Certification, and Income Category Interactions with Government Sustainability Certification and for Food and Clothing Product Categories

VARIABLES	(1) Base Model	(2) Model 9	(3) Model 9 (Food)	(4) Model 9 (Clothing)
price	-0.124***	-0.124***	-0.462***	-0.0970***
	(0.00540)	(0.00540)	(0.0259)	(0.00568)
privatecert	-0.00344	-0.00325	0.634***	-0.149***
	(0.0332)	(0.0332)	(0.0618)	(0.0511)
govcert	0.193***	0.142**	0.923***	-0.166*
	(0.0333)	(0.0635)	(0.0977)	(0.0960)
inc2_govcert		0.00467	0.168	-0.161
		(0.0800)	(0.111)	(0.120)
inc3_govcert		-0.0415	0.0365	-0.0999
		(0.0710)	(0.0990)	(0.106)
inc4_govcert		0.222***	0.124	0.356***
		(0.0762)	(0.106)	(0.113)
inc5_govcert		0.236*	0.0443	0.440**
		(0.123)	(0.173)	(0.177)
Observations	23,190	23,190	11,646	11,544

Notes: This table shows the conditional logistic regression output for all collected observations, then for observations attributed to only food product categories, and lastly for observations attributed to only clothing product categories using the utility function labeled as (1) in the Model section of the paper and then for Model 8 which introduces interaction variables between income category indicator variables and government certification. Income Category 1 specifies a respondent with a household income below $25,000, 2 specifies $25,000-$49,999, 3 specifies $50,000-99,999, 4 specifies $100,000-$200,000, and 5 specifies above $200,000. In the output, log odds estimates for price, private government certification, government certification, and the described interaction variables are listed. Standard errors are provided in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

The most striking findings from Table 17 fall in the last regression iteration which was run using only observations for clothing product categories where the two highest earning income categories were extremely receptive to the government sponsored sustainability certification. Income Categories 4 and 5 wer observed to have WTP of $3.67 and $4.54 higher than Income Category 1 respectively.

Discussion

Results from the many conditional logistic regression specifications using data gathered from the designed survey instrument reveal many notable findings. The primary and most far reaching of these findings is that, for the sample at large, a significantly higher log odds estimate and WTP was observed for the government-sponsored sustainability certification than the private alternative. In the most basic regression iteration using only observations collected for food products, a WTP of $1.37 was observed for the private certification and a WTP of $2.16 was observed for the government certification. Additionally, 95% confidence interval outputs of the two estimates describe a significantly higher effect from government certifications (95%CI = [0.88, 1.13]) compared to private certifications (95%CI = [0.51, 0.75]). When we observe the base model run again with scaled pricing for all product categories, we can conclude a stronger effect for government certifications. By performing a Chi-squared test to evaluate whether or not there is a significant difference between the effects of private certification and government certification, we confirmed inequality with a p-value of 0.000.

By further examining the factors of environmental friendliness and trust (for both corporations and the government), additional deductions can be made that reinforce the argument for the development for a government-sponsored sustainability certification model. Non-environmentally friendly respondents were observed to have a WTP of $1.85 for food products with the government-sponsored certification, a number drastically higher than their WTP recorded for food products with the private certification of $0.67, and, again, even higher than the WTP for private certified food products recorded for environmentally friendly respondents of $1.59. We can deduce that, for food product categories, the government-endorsed label attracted environmentally friendly consumers and non-environmentally friendly consumers alike.

By investigating the effects of corporate and government trust, we can additionally observe that the total WTP observed for food products with private sustainability certifications among respondents with high corporate trust was even lower than the WTP for food products with government-sponsored certifications calculated from the larger sample: $1.59 vs $2.17. Furthermore, respondents who were relatively less trusting in the government also retained a higher WTP of $1.63 for food products with the government-endorsed eco-label.

In general, analysis of the data suggests much more promising and significant effects of the government-endorsed sustainability certification on food products. A great deal of log odds estimates and WTP values calculated for clothing product categories were found to be lesser than for food product categories. This is possibly due to two factors: lack of understanding of the significance of a sustainable article of clothing and confusion associated with the use of a USDA label on clothing goods which is normally associated with products. This raises the important caveat to the research that its findings cannot be simply extended to all private and government-endorsed sustainability certifications. For the employment of a discrete choice experiment, it was necessary to introduce two distinct, hypothetical certifications that would illicit no bias and allow for meaningful analysis. This, ultimately, indicates that the findings gathered in the research are only capturing the effects of these specific eco labels and more research, probably through the launch of an actual government-endorsed eco-label prototype is necessary.

Conclusion

The current generally accepted model of private sustainability certification has its faults. Namely, as can be observed across many markets, two glaring issues exist. The first is that the current model naturally inherits an incentive system that promotes bribery, corruption, and low

standards. The second is that the flooding of the market with thousands of individual certifiers has left consumers confused and discounted their significance. The research, which employed the use of a discrete choice experiment to observe consumer preferences between the existing model and a proposed, government-endorsed model yields promising results. The implication that the development of a standardized, regulated model which is managed by a government agency, would not only reduce the two glaring issues associated with the current system, but would also increase consumer willingness to pay for sustainable products, is significant.

In the future, it would be extremely valuable to investigate the effects of different certification models on actual environmental footprint rather than just consumer behavior. While increasing consumer WTP and WTB for a certain system would naturally improve that system's overall ecological impact, there is certainly work to be done to find the most efficient methods for standard construction and enforcement. If it becomes the goal of a United States government agency to implement a state-sponsored sustainability certification, a study into the successes and shortcomings of the current model might help guide it and ensure that the program accomplishes its goal of sustained sustainably minded producers.

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Appendix

Survey Instrument

Preamble & Consent

Hello and welcome! This survey includes questions about sustainable shopping and its regulation. Your answers may be used to support ongoing research that could shape the way we shop for all types of goods which are produced with more environmentally friendly methods. Thank you for your participation.

You must be 18 years or older to participate in this study. Should you choose to participate, you will be asked to complete a quick, 10-minute online survey. Your responses will be kept anonymous and the information you provide cannot be linked to you in any way. If you agree to participate, please select "I agree" below and click the blue arrow to begin the survey.

The results of this study may be used in reports, presentations, or publications but your name will not be used. If you have any questions regarding the survey, please contact its author, William Joseph, at wjoseph@email.sc.edu.

If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the University of South Carolina Office of Research Integrity at (803) 777-7095.

If you understand the above and agree to complete this survey, please click the "I agree" button below. (Redirect to end if respondent chooses "I do not agree")

I agree
I do not agree

SCREEN BREAK

Section #1 – Screening

1.
How would you describe your gender?
Male
Female
Non-Binary/Third Gender
Prefer not to say **(Terminate Survey)**

SCREEN BREAK

2.
What is your age?
Under 18
18-24
25-34
35-44
45-54
55-64
65-74
75-84
85+
Prefer not to say **(Terminate Survey)**

SCREEN BREAK

3.
In which region of the United States do you live?
Northeast
Midwest
West
South
I do not reside in the United States **(Terminate Survey)**

SCREEN BREAK

4.
Choose one or more races that you consider yourself to be.
White/Caucasian
Black/African American
Native American
Asian
Native Hawaiian/Pacific Islander
Other
I prefer not to say **(Terminate Survey)**

SCREEN BREAK

5.
Are you of Spanish, Hispanic, or Latino origin?
Yes
No
SCREEN BREAK

6.
What is the highest level of education you have achieved or are pursuing?
Some high school or less

High school graduate
Other post high school vocational training
Completed some college, but no degree
Associate's Degree
Bachelor's Degree
Master's or Professional Degree
Doctorate Degree
None of the above

SCREEN BREAK

7.
What is the level of your annual household income?
Less than $25,000
$25,000 - $49,999
$50,000 - $99,999
$100,000 - $200,000
More than $200,000
I prefer not to say **(Terminate Survey)**

SCREEN BREAK

8.
How do you define your political viewpoint?
Very conservative
Slightly conservative
Neutral/ Neither conservative nor liberal
Slightly liberal
Very liberal
I prefer not to say **(Terminate Survey)**

SCREEN BREAK

Section #2 – Preference

This section will prompt you to choose between two different products, specified by three attributes:

1. **Type of product**
2. **Price**
3. **Sustainability certification**

The sustainability certification of the product could be given by a private, third-party organization or by a government agency. Some products will not have a sustainability certification at all.

Assume there is no difference in quality across like products and that all attributes, other than the price and the sustainability certification of the product, are equal.

SCREEN BREAK

The survey contains two types of sustainability certifications.

The first is a given by hypothetical sustainability certifier named 1WORLD. 1WORLD is a private company which operates without government support. You can assume its certification is like other ones you might find when you shop.

The second certification is given by the USDA (United States Department of Agriculture), the same government agency which provides organic certifications (USDA Organic) and beef grades (Prime, Choice, and Select) in the United States. Assume they have started a program which monitors the sustainability of producers.

The two certifications are represented by these labels:

SCREEN BREAK

1.
How often do you purchase white rice at the grocery store?
Often
Sometimes
Never

SCREEN BREAK

When you are answering the following questions about white rice (sold in 5lb bags), assume they are like ones you would see at a common, large grocery store.

SCREEN BREAK

2.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

3.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

4.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

5.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

6.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

7.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE RICE, 5 LBS. – (NO CERTIFICATION, price randomly selected from {$4.12, $5.05, $5.98}), (PRIVATE CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$5.98, $6.90, $7.83})

Product A
Product B
Neither

SCREEN BREAK

8.
How often do you purchase coffee at the grocery store?
Often
Sometimes
Never

SCREEN BREAK

When you are answering the following questions about coffee (sold in 12oz bags as whole beans), assume they are like ones you would see at a common, large grocery store.

SCREEN BREAK

9.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

10.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

11.

Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

12.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

13.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

14.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

COFFEE, 12OZ. – (NO CERTIFICATION, price randomly selected from {$8.73, $9.71, $10.69}), (PRIVATE CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$10.69, $11.67, $12.65})

Product A
Product B
Neither

SCREEN BREAK

15.
How often do you purchase jeans?
Often
Sometimes
Never

SCREEN BREAK

When you are answering the following questions about pairs of jeans, assume they are like ones you would see at a common, large retailer.

SCREEN BREAK

16.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

17.

Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

18.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

19.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

20.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

21.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

JEANS – (NO CERTIFICATION, price randomly selected from {$28.44, $34.08, $39.72}), (PRIVATE CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$39.72, $45.35, $50.99})

Product A
Product B
Neither

SCREEN BREAK

22.
How often do you purchase t-shirts?
Often
Sometimes
Never

SCREEN BREAK

When you are answering the following questions about white t-shirts, assume they are like ones you would see at a common, large retailer.

SCREEN BREAK

23.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

24.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

25.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

26.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

27.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

28.
Please indicate which of the two options you would most likely choose to purchase.

(Two like products of different certification categories randomly selected)

WHITE T-SHIRT – (NO CERTIFICATION, price randomly selected from {$8.39, $9.84, $11.29}), (PRIVATE CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19}), and (GOVERNMENT CERTIFICATION, price randomly selected from {$11.29, $12.74, $14.19})

Product A
Product B
Neither

SCREEN BREAK

<u>Section #3 – Background</u>

Please indicate the degree to which you agree with each of the following statements.

1.
Protecting the environment is a priority for me.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

2.
I bring reusable bags with me to the grocery store.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

3.
I recycle when I can.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

4.
I opt for more sustainable options when I shop, even when they cost a little more.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

5.
I avoid purchasing from fast fashion (inexpensive clothing produced rapidly in large quantities in response to new trends) vendors.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

6.
If we do not change our irresponsible consumption habits, the planet is doomed.

Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

SCREEN BREAK

Section #3 – Background cont.

Please indicate the degree to which you agree with each of the following statements.

7.
The government, ultimately, has its citizens' best interests in mind.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

8.
USDA Organic certifications are accurate and truthful.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

9.
USDA Beef certifications (Prime, Choice, Select, etc.) are accurate and truthful.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

10.
Government agencies such as the USDA adequately protect consumers.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

SCREEN BREAK

Section #3 – Background cont.

Please indicate the degree to which you agree with each of the following statements.

11.
Corporations do more good for society than bad.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

12.
Corporations would be alright with showing customers everything that goes on behind the scenes of their business.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

13.
Corporations are truthful with their customers.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

14.
Without regulation, corporations could be trusted to do the right thing.
Strongly disagree
Disagree
Neither agree nor disagree
Agree
Strongly agree

SCREEN BREAK

Survey Conclusion

Thank you!

We sincerely appreciate you taking the time to complete our survey. Your response has been recorded.

Again, if you have any questions regarding the survey, please contact its author, William Joseph, at wjoseph@email.sc.edu.

If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the University of South Carolina Office of Research Integrity at (803) 777-7095.