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Tanushree Pendharkar April 12, 2022

Willingness-to-Pay for “Sustainable” Fashion: The Effects of Information

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Abstract

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This study investigates the impact of consumer education on the willingness-to-pay for fast fashion ecolabeled as sustainable fashion. Utilizing two rounds of an nth price auction through a within-subjects design, the study tracks the difference between bids for fashion items with an ecolabel before and after undergraduate participants are informed of the misleading nature of ecolabels. Subjects’ attitudes towards sustainability were also measured on two parameters to evaluate if more positive attitudes towards sustainability predict a lower willingness-to-pay across rounds. Results show that subjects bid a lower amount for the fashion item after reading the educational article on ecolabels, however, there are no significant relationships between learning about ecolabels and higher sustainability scores with willingness-to-pay. This may be the result of several contributing factors, including but not limited to the hypothetical nature of the design, selection bias in participants noticing the ecolabel, and other sample characteristics.

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1 Introduction

Many retailers in the fashion and apparel industry employ fast fashion, a new system of production and market delivery that has emerged over the last few decades. They use this system to compete with other retailers through speedy delivery of products to market, while adhering to rapidly-evolving fashion trends determined by fashion shows and runways (Bhardwaj & Fairhurst, 2010). Until the late 1980s, fashion apparel retailers would forecast consumer demand and fashion trends in advance of the actual time of consumption, but the advent of fast fashion has completely disrupted these preexisting systems. This structural revolution in the industry had far-reaching consequences on international trade, global economies, labor standards and human rights, and the environment.

The rising environmental impact of the fast fashion industry can be attributed to the substantial increase in clothing consumption and, therefore, textile production. Global consumption has risen to an estimated 62 million tons of apparel per year, and is projected to reach 102 million tons by 2030 (Niinimäki et al., 2020). Each production step, starting from agriculture and petrochemical production (for fiber production) to manufacturing, logistics and retail has an environmental impact due to water, material, chemical, and energy use. On the consumer side, current consumption practices result in large amounts of textile waste, most of which is incinerated, landfilled or exported to developing countries. The short garment lifetimes alongside increased consumption has led to a 40% increase in landfilled textile waste in the United States between 1999 and 2009, with low

recycling rates despite large volumes of waste, and most of it being exported to developing countries like Pakistan and Bangladesh.

Economics and fast fashion intersect at consumer behavior, an area of research that has been burgeoning recently. Understanding the motivation behind shopping behavior for fast fashion is a step towards guiding it to more sustainable options and reducing the undesirable environmental impact. However, this is not an easy task. Buyer behavior is influenced by a variety of factors, including low prices, quick response to demand, enhanced design, marketing strategies and increased availability.

In recent years, there has been a shift in consumer attitudes regarding fast fashion. What was initially characterized by high levels of satisfaction due to stylish, low-cost clothing that reproduced the present luxurious fashion trend soon became tainted by its massive environmental impact. Conscious consumers with a growing social and environmental awareness wanted to make a shift away from fast fashion brands and production practices and sought out other sustainable options that would satisfy their demand. Fast fashion brands such as Zara, H&M, Asos, and Forever 21 were quick to respond. Some companies modified their actual production practices to incorporate more environment-friendly processes, by using organic fabrics, reusing and recycling materials, and using scraps and bottles as material of their sustainable fashion (Shen, 2014). Most of them, however, changed their marketing strategies to appeal to this emerging ethical consumer market.

A great deal of existing literature has shown that consumers are willing to purchase eco-fashion products if green marketing is successful, due to strengthening customer interest

and loyalty[1]. Ethical practices in green retailing such as offering recycling services in stores and publicizing the sustainability of a product can enhance fashion consumers' awareness of sustainability. Consumers are increasingly interested in purchasing sustainable fashion, and are willing to pay more for it, but they lack the corresponding information in terms of the materials used and manufacturing, distribution, and retailing practices (Fraj & Martinez, 2006; Joergens, 2006).

Companies addressed this issue by introducing the concept of ecolabels beginning in the early 2000s. According to its website, "[an ecolabel] is a voluntary method of environmental performance certification and labelling that is practiced around the world. [It] identifies products or services proven [to be] environmentally preferable" (*All Ecolabels*, 2022). However, not all ecolabels convey reliable information, and they cannot be judged by the same standards. They can even be used as a tool by retailers to influence consumer behavior without fully engaging in the pro-environmental practices disclosed on an ecolabel, because of substantial returns. Presently, the ecolabel is a 'non-verifiable expert property' for the consumer and there have been investigations into its lack of objectivity and transparency, resulting from non-standardized methods whose accuracy cannot be measured (Lavallée & Plouffe, 2004).

This study aims to investigate whether informing consumers about this deception and their attitudes towards sustainability influences their willingness-to-pay for falsely ecolabeled fast fashion. These questions are answered using an nth price auction, an economic experiment designed to quantitatively measure a person's willingness-to-pay based on

[1]Ecological food products saw an annual increase in sales of 20% after the introduction of ecolabels (Rex & Baumann, 2007).

their bids for the product in question. This study utilizes a within-groups experimental economics design to compare outcomes across two separate experimental conditions: the control condition and the learning condition.

Through the experiment, I find that willingness to pay for deceptively labeled sustainable goods insignificantly reduces when consumers are informed of such labeling practices and reduces when individuals have more positive attitudes towards sustainability. This research suggests that encouraging consumer education in making sustainable purchasing decisions is useful at identifying behavioral economic tools that could be used to encourage fashion companies to implement sustainability into their production cycles and be held accountable to their ecolabels.

2 Literature Review

2.1 Sustainability and Economics

With climate change, biodiversity loss, a global water crisis, and other manifestations of global environmental change becoming increasingly apparent, there is a widespread feeling among both economists and society that economics should address issues of sustainability. Sustainability is a normative notion about the way how humans should act towards nature, and how they are responsible towards one another and future generations (Baumgärtner & Quaas, 2010). According to the World Commission on Environment and Development, sustainability is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their needs".

Sustainable development is at the root of sustainability economics, which is the combination of economic efficiency and justice in the distribution of nature's services (Baumgärtner & Quaas, 2010). Taking a step back, environmental economics, which is a branch of resource economics, views the environment as a scarce resource. It is essentially about market failures, the costs of pollution and pollution abatement, and the economics of regulation. Within that field, sustainability economics includes the problem of maintaining economic growth, while reducing pollution and/or its impacts, with special attention to the linked problems of energy supply (and other exhaustible resources), climate change, and fossil fuel consumption (Ayres, 2008).

Economists usually frame the idea of welfare in terms of wealth creation and distribution. But if this creation is at the cost of harming the scarce resource that is the environment, this conception of welfare must be challenged by concerns for the unsustainability of

expanding material wealth. One way to influence decision making towards a more ethical and sustainable direction is by highlighting the outcomes of one's individual choices on the environment.

2.2 A Short History of Fast Fashion

Fashion is defined as an expression that is widely accepted by a group of people over time and has been characterized by several marketing factors such as low predictability, high impulse purchase, shorter life cycle, and high volatility of market demand (Fernie & Sparks, 2004). Within this industry, fast fashion can be described as a streamlined system involving rapid design, production, distribution, and marketing (Cachon & Swinney, 2011).

After the industrial revolution, garments started to be churned out in factories at a faster rate than when made by hand, labor wages dropped, and the fashion industry flourished. Until the mid 1980s, success in the fashion industry was based on low-cost mass production of standardized styles that did not change frequently due to the design restrictions of factories. Consumers during that time were also less sensitive toward style and fashion, and preferred basic apparel.

Starting in the 1990s, fashion runways and shows that were primarily restricted to designers, buyers and other fashion managers, became a public phenomenon. Photographs of recent fashion shows could be seen in magazines and on the internet, leading to a demystification of the fashion process. As a result, mass retailers like Zara and H&M were able to replicate these coveted designs within a minimum of 3-5 weeks, process that used to take 3-6 months (Barnes & Lea-Greenwood, 2006). An increase in population disposable

income also significantly increased the ability of clothing brands to cater to their customers in the present day.

Shopping began to be considered a form of entertainment rather than a necessity around the same time, and this increased the frequency with which people shopped for new clothes (Hayes, 2021). The instant gratification that consumers experience when they shop, or the notion of “retail therapy”, has also been associated with greater impulsivity and a lack of behavioral control that could lead to mindless shopping when consumers experience a dip in moods (Atalay & Meloy, 2011). Finally, purchasing choices in younger generations like Generation Z are fueled by influencer culture and the idea of not “repeating” outfits for social media (Paton et al., 2019).

2.3 Greenwashing Through the Use of Ecolabels

Greenwashing is the process of conveying a false impression or providing misleading information about a company’s efforts to produce products are environmentally sound. It is an unsubstantiated claim to deceive consumers into believing that a company’s products are environmentally friendly. Greenwashing is not a recent phenomenon, it has gained broad recognition and acceptance since the mid-1980s to describe the practice of making unwarranted or overblown claims of sustainability or environmental friendliness in a ploy to gain market share (Dahl, 2010). Nyilsy et al. (2012) showed that green advertising messages led to more positive attitudes towards the brand than general messaging. However, 98% of these products advertised as green have some element of greenwashing to them (TerraChoice, 2010).

Although greenwashing has been around for many years, its use has escalated sharply in recent years as companies have strived to meet escalating consumer demand for greener products and services (a 79% increase between 2008 and 2011). Companies also see this growing demand as an opportunity to increase sales by making perhaps dubious environmental claims. Compounding this problem is the fact that environmental advertising in the United States is not tightly regulated. The Federal Trade Commission does have a set of environmental marketing guidelines, however, the proliferation of green claims in the marketplace are not currently addressed by these. Ideally, regulating green marketing claims could be done through comprehensive labeling and certification requirements, such as using ecolabels (Dahl, 2010).

The bulk of research on ecolabels is focused on the food and energy industry, with very few academic studies in the realm of fashion. Within the organic food market, ecolabelling is proven to induce a greater willingness-to-pay in consumers and more positive brand evaluation (Vlaeminck et al., 2014). Even closer to my research, McFadden & Huffman (2017) found that when consumers are specifically informed about organic foods (labels, nutrition, taste, and appearance), there are large asymmetric cross-market effects for natural and organic foods. Demographics like higher education and income, access to organic food, and being married increase the likelihood of buying organics as well. There is statistical evidence to support the same trend within the fashion industry; A survey found that 37% of respondents would pay an extra 10% for sustainable fashion products compared to normal fashion (KPMG, 2019).

2.4 The Sustainable Consumer

A review of relevant literature provided multiple definitions of a sustainable consumer. Combining pertinent aspects from these sources, a sustainable consumer is concerned with the effects that a purchasing choice has, not only on themselves, but also on the external world around them, and seeks to express their values through ethical consumption (Carrington et al., 2010).

Consumers develop their perceptions of sustainable and organic products according to their own experiences or information received from other sources (media, anecdotal evidence, etc.). Some consumers believe organic products are expensive and others think that it is not necessary to buy organic products based on the claim that they are just a marketing trend (Coskun et al., 2016).

Often, despite their ethical intentions, ethically minded consumers rarely purchase ethical products. This could be because consumers’ positive attitudes towards sustainable clothing are negatively influenced by their greenwashing concerns (Rausch & Kopplin, 2021). Consumers also trade off price, quality, and sustainability attributes when making choices, and this study aims to focus on the intersection of price and ecolabel information in making fashion purchase decisions.

3 Experimental Design

Based on previous literature, **I hypothesize that individuals will be willing to pay less for fashion with an ecolabel once they have learned about the nature of such labels (Hypothesis 1) and that those with a higher score on the sustainability parameters will also be willing to pay less in the same scenario (Hypothesis 2).** The experiment I have designed to investigate this is described in the following section.

3.1 Setting and Recruitment

The sample for this study consisted of 81[2] participants recruited from Emory University's campus. The age of participants ranged from 18 to 23 and above (12 subjects who were 18, 15 who were 19, 18 who were 20, 25 who were 21, 8 who were 22, and 2 who were 23 and above). The sample comprised of 46 females (57.50%) and 34 males (42.50%). Ethnically, 48 participants were Asian (60.00%), 18 participants were White (22.50%), 3 were Black or African American (3.75%), 7 were Hispanic or Latino (8.75%), and 4 were either multi-ethnic or identified as a separate ethnicity (5.00%). Participants came from a variety of academic majors, including but not limited to Business Administration, Chemistry, Economics, Psychology, and Human Health.

Participants were recruited via convenience sampling through public chat forums, academic extra credit incentives, and on Emory OPEN (Opportunity, Partnership and

[2] A total of 129 students agreed to participate in the study. Many students who signed up did not show up to the experiment location, and they were not included in the study. Subjects were withdrawn from the research when their responses were recorded after the completion deadline. Additionally, they were also withdrawn if they answered the quiz that tests their understanding of the study wrongly. This is to ensure a full understanding of the procedure and the accuracy of responses. Subjects were able to withdraw from the experiment at any point in the experiment.

Engagement Network that facilitates collaboration between community partners). To ensure the diversity of the subject pool, students of different majors were made aware of the opportunity through recruitment announcements disseminated by academic departmental offices. Subjects were rewarded in the form of extra credit for their classes and/or a white t-shirt they won from the experimental auction. The different types of incentives served as a method to attract multiple subsets of the Emory population and diversify the subject pool. The eligibility criteria highlighted individuals with clearance to Emory University’s campus during the COVID-19 pandemic. Data collection occurred on the Emory University campus in the Rich Building, home to the Economics department, over February 21 to March 4, 2022.

12 experimental sessions had an average of 8 participants per session, with a minimum of 6 and maximum of 12 across all sessions. All participants were assigned to the same experimental condition. All participants provided informed consent prior to data collection, and participants received no monetary compensation solely for their involvement but had the opportunity to earn money based on their performance in the experiment. Each session took around half an hour to complete.

3.2 Pre-Experiment

The experiment was conducted in-person using the online survey tool, Qualtrics, to collect demographic data and help participants answer the survey questions, as well as pen and paper instructions for the nth price auction and space to fill out their bids. Upon arrival, subjects were seated with ample space between them and assigned identification numbers

that were used to identify their decisions for the duration of the experiment. They were asked to fill out a sign-up sheet for extra credit purposes, and this was not associated with their identification number. Subjects were informed that they would have $15 credited to their accounts. All instructions were distributed to the subjects and read aloud by the experimenter throughout the experiment.

Subjects were then instructed to fill out a consent form which was the first part of the Qualtrics survey. The consent form highlighted all possible risks, reminded subjects that they could withdraw from the study at any time with no consequences, and required an electronic signature (see Appendix A).

Next, subjects were given certain steps to ensure that they understood the auction. These steps included clear and unbiased instructions, a quiz to determine whether the subjects thoroughly understood the experimental procedures, and a set of practice rounds to further familiarize subjects with the auction mechanism and to inform them of the dominant strategy (i.e., to bid their true value). In the practice rounds, subjects were given a record sheet with their randomly generated redemption values drawn from a uniform distribution between [$5, $15] with integer increments. Redemption values were private information, and some subjects retained the value for both rounds whereas others had different ones. Subjects were asked to make bids for each of the two rounds; then, the experimenter determined the cutoff bidder for each round at random to determine the market price. After each of the two rounds, subjects were provided with feedback about the market price and were asked to calculate their earnings. It was made clear that the earnings in this practice part were hypothetical.

3.3 Nth Price Auction

Auction theory is a topic that arguably should be learned in part by every economist (Klemperer, 2000). While it has not been historically included in mainstream economics and has been seen as a specialized field, there is increasing evidence that supports the idea that the connections between auction theory and standard economic theory run deeper than many people realize. We can use auction theory as a tool to develop insights that can inform the analysis of many mainstream economic settings, and we used it for the fast fashion market in this case.

We considered different mechanisms to reveal participant demand for the auctioned goods. These included the Becker-DeGroot-Marschak (BDM) mechanism, the second-price Vickrey auction, and the random nth-price auction. While each technique has proven successful at eliciting value, we found the nth-price auction best suited to our purposes (Shogren et al., 2001).

Second-price auctions are designed to induce people to reveal their private preferences for a good. Under this mechanism, the highest bidder is able to purchase one unit of a good by paying the second highest bid. Although these auctions are able to establish an aggregate price, they might not do the best job at revealing the true value of each bidder, especially for those who are not close to the market clearing price from either side. Such bidders might not be engaged if they think they will always lose, or on the contrary, if they are bored of winning every round. Other auctions are also more time-consuming, expensive and can lead to competitive behavior when consumers pay a premium for the satisfaction of being the winner.

Shogren et al. introduced the random nth-price auction as a mechanism designed to engage otherwise disengaged off-margin bidders. They combined elements of the aforementioned classic demand-revealing mechanisms and found that the random nth-price auction can induce sincere bidding in theory and practice. It is incentive compatible because the dominant strategy is to bid the true value. Since the winning position remains a mystery until after all bids are submitted, it lessens the competitive biases that could exist in the Second-price Vickrey auction, and it gives more subjects a chance to purchase the good (i.e., off-margin bidders are engaged). In addition, unlike the BDM mechanism, the price is endogenously determined, which guarantees that the market-clearing price is directly related to the bidders’ values.

The random nth-price auction works as follows: each bidder submits a bid; each bid is rank-ordered from highest to lowest; the monitor selects a random number (the n in the nth-price auction), from a distribution between 2 to k (k bidders); and the monitor sells one unit of the good to each of the $(n - 1)$ highest bidders at the nth-price. For instance, if the monitor randomly selected n = 5, the four highest bidders each purchase one unit priced at the fifth-highest bid. Ex ante, bidders with low or moderate valuation now have a non-trivial chance to buy the good since the price is determined randomly. The auction ups the odds that insincere bidding will lead to a loss. Each bidder, on- or off-margin, should have more incentive to bid their private value (Capra et al., 2010).

Figure 1: Practice exercise for nth price auction

Exercise:
To make sure you understand the auction rules, please fill in the gaps. Suppose that the computer generates a random number equal to 85 (remember that any number between 50 and 150 is equally likely). Suppose that your bid is 85, and that all players' bids (including yours) are, in descending order, equal to: 142, 110, 87, 85, 70, 59, 55 and 0. Suppose the experimenter randomly selects the bid of the 6th highest bidder to be the market price, and therefore states that the market price is 59.

1. Do you obtain X? _____
2. Does the player who submitted 59 obtain X? _____
3. How much does each bidder who obtains X pay? _____
4. Suppose that the participant who submits 142 has a value of 52, what are their earnings equal to? _____
5. Suppose that the participant who submits 85 has a value of 150, what are their earnings equal to? _____. If they had submitted a bid of 85, what would their earnings be equal to? _____.
6. Suppose that the participant who submits a bid of 85 has a value of 50. What would their earnings be equal to? _____.

Notice that you always make money if you can buy a unit at a price that is less than your redemption value, but you lose money if you buy a unit at a price that is more than your redemption value.

Because only bidders who bid above the market price can obtain the item, you will always receive the unit for less than the amount you bid, so the most profitable strategy is to bid an amount equal to your redemption value. By bidding any amount less than your value, you only decrease the chance that you will make some money.

3.4 Materials

In the experiment, we chose to auction off generic white t-shirts that were available on the H&M website based on List and Shogren (1999) who revealed that bids in an experimental auction converge more rapidly when products are familiar. We modified product presentation and labels from what was available on the website by omitting information about price, brand, composition, and product reviews. We did not give any information

explaining the label apart from it saying “conscious”, representing sustainability. This was an intentional decision based on the literature review for greenwashing, because most brands use ambiguous terms such as “conscious” to dupe customers into believing they are more sustainable than what such ecolabels represent.

Figure 2a: White t-shirt available on H&M website for $5.99

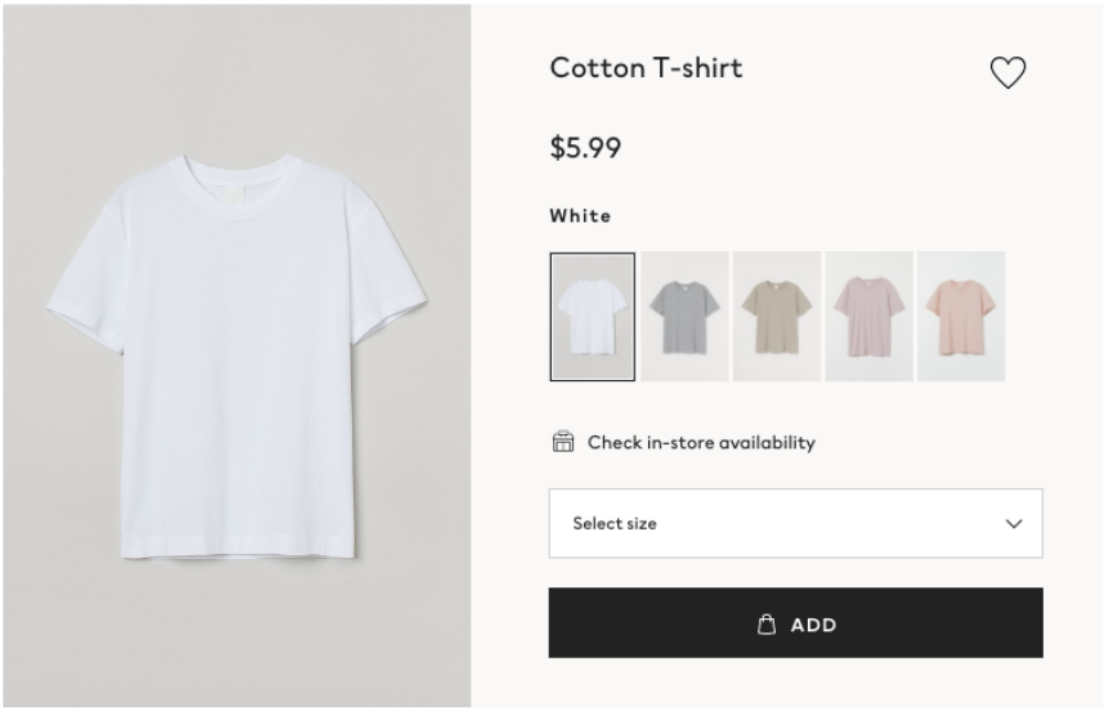
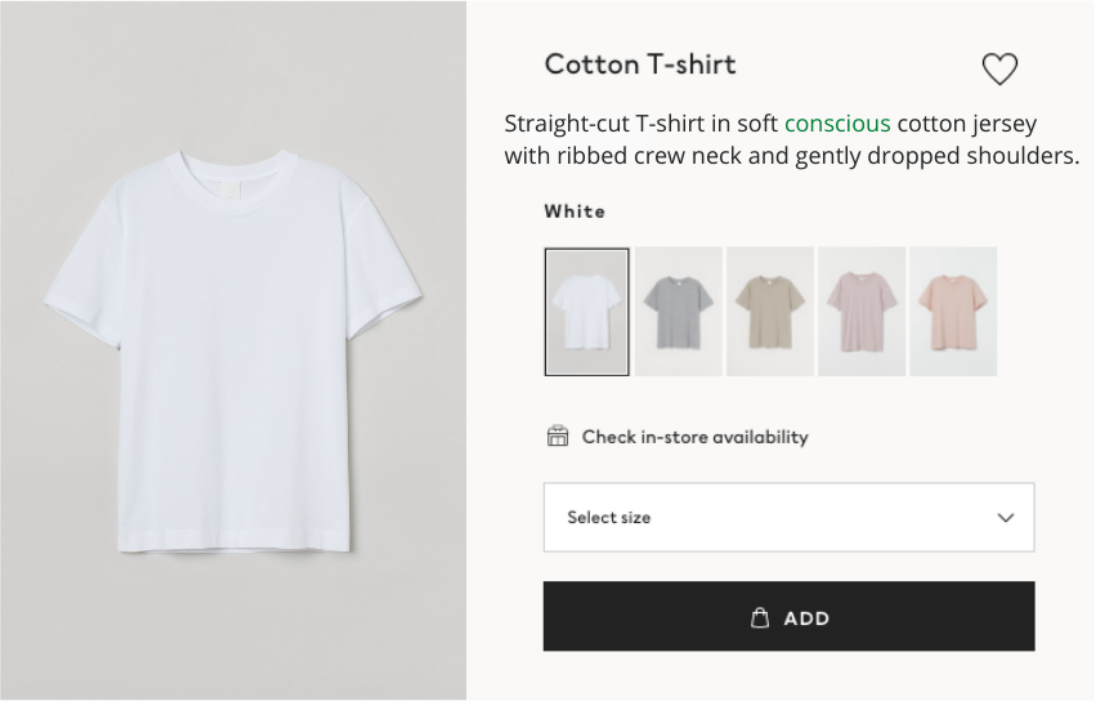


Figure 2b: Generic white t-shirt used in experiment



Subjects were made to engage in two rounds of the nth-price auction once they had played the first two hypothetical (practice) rounds. During the actual experiment, subjects bid for a white t-shirt from an unnamed brand using the $15.00 that was credited to their accounts. The value elicitation mechanism used in this part was the same as the one used in the practice rounds (i.e., one-shot auction with two trials and feedback). Our auction was designed with special emphasis to avoid methodological problems that have been raised in the experimental literature (see Harrison et al., 2004). Indeed, the one-shot nature of our auctions precludes the possibility of affiliated beliefs about the value or quality of the commodity; affiliated beliefs arise when subjects anchor their bids to previously observed bids or prices. This anchoring happens in auctions that have sequential revelation of the bids and prices. Moreover, the fact that such t-shirts are sold across different brands at a

generic price point rules out the possibility of uncontrolled field-price censoring, which happens when the subjects’ bids are censored by the perceived price of the item outside the laboratory.

In the first round, subjects were simply presented the generic white t-shirt and asked to place their bids, without having any redemption value as a benchmark to make those decisions. After placing their bids, they received a market value and calculated their respective earnings. Before the next round, they were asked to read a short article on fast fashion and ecolabels (see Appendix A). The article was prepared by the researchers based on numerous sources such as the official ecolabel website. The article was designed to inform participants about the ambiguous nature of ecolabels and influence their bids for the second round of the nth-price auction. It also included an image of a sample ecolabel from the brand Zara. After giving subjects a few minutes to read the article, they submitted their bids for the final round of the nth-price auction.

3.5 Post-Experiment

After the nth-price auction, subjects were asked to fill out a post-experiment questionnaire. The questionnaire consisted of additional demographic questions covering potentially sensitive topics such as household income. These questions were designed to be included in the post-experiment questionnaire rather than the sign-up questionnaire because responses to the sign-up questionnaire were not anonymous. The anonymity of the post-experiment questionnaire is expected to encourage more disclosure of sensitive information (Murdoch et al., 2014).

After the demographic questions, subjects were faced with a free response question regarding what motivated their decisions when bidding on the white t-shirt, before and after reading the short article. This was designed to give them a chance to explicitly explain their motives. Finally, subjects were asked to rate how much they agreed with 15 statements using a Likert scale from 1-5 (where 1 is agree the least and 5 is agree the most). All statements were displayed in a random sequence to each subject using a Qualtrics function. The randomization helped eliminate any biases that could be introduced by the topics and sequence of the questions.

The purpose of this questionnaire was to elicit information regarding participants’ attitudes towards sustainability and run the regression based on these attitudes. Following this short questionnaire, participants were asked to show the end screen to confirm that they had submitted the Qualtrics survey and were informed that they would be informed if they were randomly selected to win a t-shirt, after which the experiment concluded.

The items on the questionnaire were adapted from the Socially Responsible Consumer Behavior (SRCB) scale (Roberts, 1993). The SRCB scale utilizes wording that asks consumers to recall their actual ethical consumption (as opposed to intended, hypothetical, or attitudes toward ethical issues) from an environmental perspective. Items on the questionnaire were grouped into buckets based on what aspect of sustainability they measured. The scores from each of the items in these buckets were averaged to calculate Sustainability Scores (SS) and Consumer Consciousness Scores (CCS) which were in the range of 1-5. Some of the statements were about attitudes towards sustainability in

general, and these included how people felt in overall terms about the concept of sustainability and towards the environment. For example:

- “I have discussions with my family and/or friends about environmental issues.”
- “I try to use less water.”
- “Over-consumption is one of the main factors that causes environmental damage.”

Six of the questions collected information on environmentally conscious consumer behaviors. These were more tangible in nature and tried to measure whether people engaged in behavior that supported the environment or cause of sustainability. These questions’ specificity in context allows them to have greater predictive value than general questions about sustainability. The questions were as follows:

- “I choose the environmentally friendly alternative of a product, if there is one.”
- “I prefer to buy organic fruit and vegetables.”
- “I separate my trash and recycling.”

4 Results

All data analyses were conducted on RStudio version 2022.02.0+443 “Prairie Trillium”, using an alpha level of $p<0.05$. Summary statistics were first calculated for all relevant variables, followed by a paired-samples t-test to assess how bids varied across the two experimental conditions. See *Figure 3* in Appendix for descriptive statistics of demographics and the observed measures.

Specific characteristics were regressed with the hypothesis in questions to check if there were any correlations. Additional factors that determined willingness-to-pay in the auction bids were identified using regression models. Finally, factors affecting the indices measuring attitudes towards sustainability through the survey questions were also analyzed through regressions models. In total, 81 subjects successfully completed the experiment, engaging in both the control and experimental conditions of the experiment through its within-subjects design.

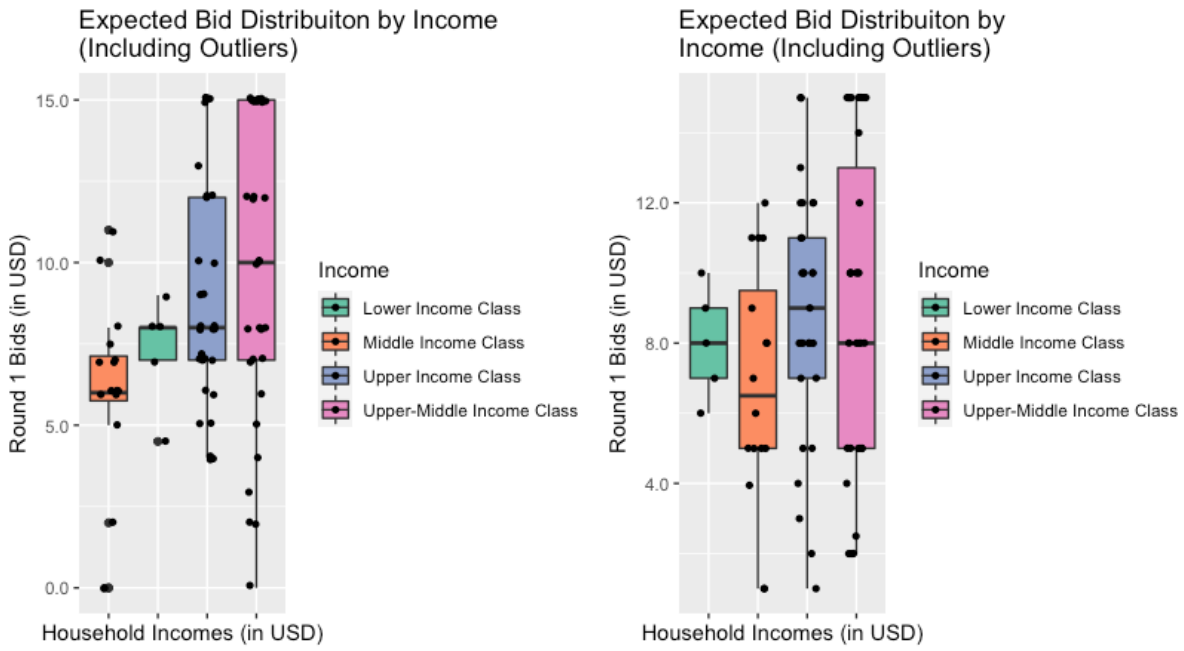
4.1 Understanding the Sample

Figure 3 in the appendix visually represents the characteristics of the sample, such as age, income, gender, year, major, race, and interest in the fashion and entertainment industry. Of these, a few distributions are further discussed. The ethnicities of participants were overwhelmingly Asian, which could possibly influence the results, and could be correlated to the fact that the majority of participants were studying Social Science majors in college, the category includes Economics as a major. Furthermore, there were more women than men in the sample and most participants were not interested in the fashion and

entertainment industry. This category was included in the demographics section of the survey because I believed that those looking to enter this industry in the future might be more concerned with the phenomenon at hand and behave in a distinct manner.

The boxplots in figure 4 show that participants from lower income brackets tend to bid less than participants from higher brackets, and this pattern is present across both experimental rounds. Since the frequency of participants belonging to the upper-middle income bracket was the highest, this could also influence the size of the boxplots. The effect of difference in income levels will be investigated further in subsequent sections by employing regression models with additional control factors.

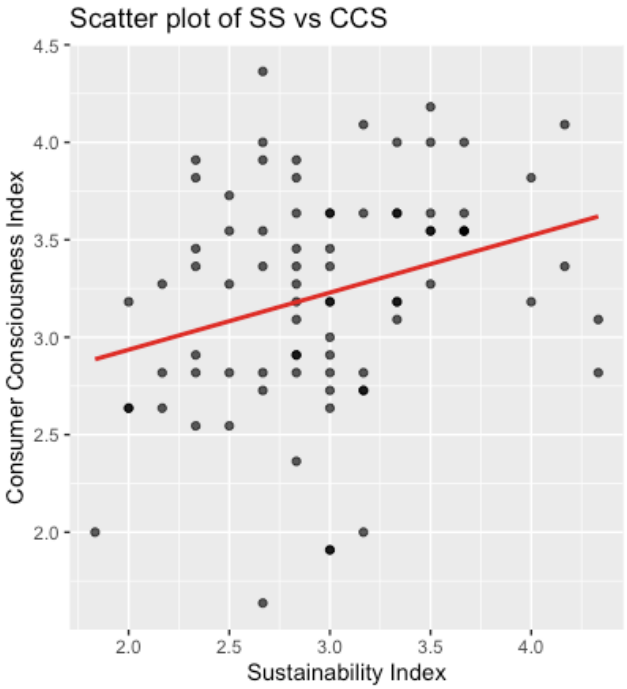
Figure 4



I then went on to see if sustainability and consumer consciousness scores were correlated. It would make sense that there would be a strong positive correlation between the two, because if people have positive attitudes towards one thing, they would also engage in

those behaviors as well. Oftentimes, however, there is a gap between intention and action. There could be other factors that affect how much individuals are able to embody their attitudes towards sustainability, such as income levels or how old they are. Based on the scatterplot below, there is a weak positive correlation between the sustainability and consumer consciousness scores. The effect of this correlation will also be investigated further in subsequent sections by employing regression models with additional control factors.

Figure 5



Finally, a paired-samples t-test was conducted to compare the averages of the bids for the white t-shirt from rounds 1 and 2. The difference in average bids for the white t-shirt was not significant across the rounds ($t = 0.44$, $p = .661$). The mean of the differences was -0.17 (approximately 17 cents) with a 95% confidence interval. This shows that there wasn’t a

specific trend in the bids themselves, however, we can gain a better understanding of people’s reasoning based on the proportionate difference between the bids made by individuals in rounds 1 and 2 instead of looking at an aggregate. The results were also in the same direction as hypothesized when participants underwent the learning condition (Hypothesis 1), however they do not explicitly support the hypothesis.

4.2 Distribution of Bids

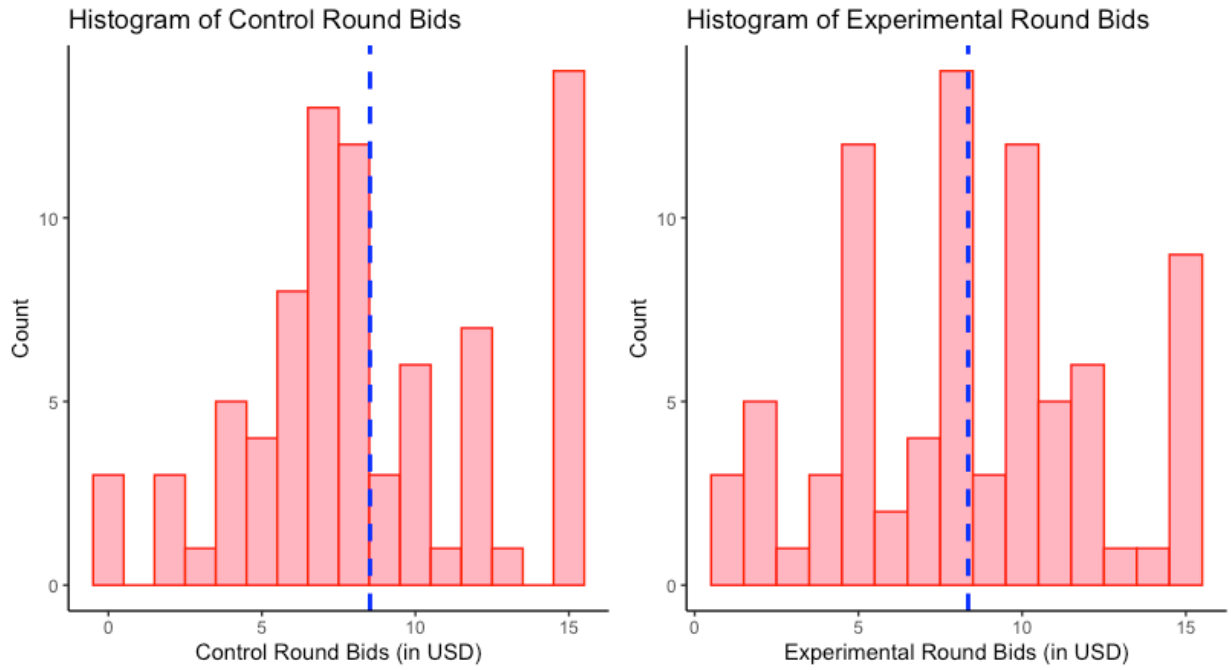
The following table shows the summary statistics for the amounts that subjects bid across both rounds of the experiment, with the control being the first round and the experimental being the second round after subjects read the learning article. The mean of the control round was slightly higher, however the paired samples t-test revealed that there was still a decline in the overall amount bid across rounds. These summary statistics could be due to certain outlying bids and the higher standard deviation in the control round.

Table 1: Summary Statistics for Bids

Statistic	N	Mean	St. Dev.	Min	Max
Control Round Bids	81	8.5	4.1	0.0	15.0
Experimental Round Bids	81	8.4	3.9	1.0	15.0

The distributions can also be visualized through histograms in figure 6, and they confirm the nature of the summary statistics with a higher number of bids for the full $15 endowment in the control round as compared to the experimental round.

Figure 6



4.3 Determinants of Willingness-to-Pay

Regression models are employed to better understand what is driving the variation in the sample. As shown in *Table 2* in Appendix B, I regressed the average amount bid by participants in the nth price auction as a function of their characteristics and how they bid in each of the experimental conditions. The regression models control for demographic variables like gender, year in college, ethnicity, and household income.

Model 1 takes into consideration the effects of demographic characteristics on the average amount bid by participants in the nth price auction. Generally, these variables are insignificant. The amount bid decreases insignificantly as the individual becomes older and is insignificantly higher when they are interested in the fashion and entertainment industries. However, in certain cases, the amount bid decreases significantly, such as when

the individual is a sophomore in college, or when their major in college is Business. A negative coefficient demonstrates that there are certain characteristics that predict a lower average bid, and a positive coefficient demonstrates that there are certain characteristics that predict a higher average bid. However, note that the standard errors are quite large, and more variables should be added to increase precision of this model.

Willingness-to-pay can also be compared across experimental conditions in Model 2 taking the participants’ attitudes towards sustainability into consideration. As shown below in Table 2, I regressed the average amount bid by participants in the nth price auction as a function of the SS and CCS, and how they bid in each of the experimental conditions. These scores were calculated using the methodology described in the post-experiment section. The sustainability score insignificantly explained a larger part of participants’ bids, both in the control and experimental conditions. As the sustainability score of an individual increased by 1 point, they would be more likely to insignificantly decrease their bids for the white t-shirt by 50 cents. It is interesting to note that the CCS coefficient went in a different direction, but this could be explained by the gap between consumer intention for sustainability and actual purchase behavior. This result is consistent with the direction of my hypothesis that those with a higher sustainability score would bid less (Hypothesis 2).

Table 3: Regression results on bidding behavior by sustainability and consumer consciousness indices

	(Control)	(Experimental)
	(1)	(2)
Sustainability Score	−0.512	−0.551
	(0.839)	(0.799)
Consumer Consciousness Score	0.352	0.130
	(0.859)	(0.819)
Constant	9.123***	9.741***
	(3.175)	(3.026)
Observations	81	81
R^2	0.006	0.006
Adjusted R^2	−0.020	−0.019
Residual Std. Error (df = 78)	4.100	3.908
F Statistic (df = 2; 78)	0.216	0.239
Note:	*p<0.1; **p<0.05; ***p<0.01	

While Model 2 compared willingness-to-pay across experimental conditions, Model 3 looks at the regression of sustainability and consumer consciousness scores on only the bid change proportion. The change in bids is what really quantifies the effect of the learning treatment, and in this case, we can tell that those with a higher consumer consciousness score tend to have an insignificantly higher change in bids across experimental rounds. Although this model does not inform us what the direction of the change is, we know that bids reduce between rounds from the previous model and the t-test.

Table 4: Regression results of change in bidding behavior on consumer consciousness and sustainability indices

	Change in Bid
Sustainability Score	−0.040
	(0.720)
Consumer Consciousness Score	−0.222
	(0.738)
Constant	0.618
	(2.728)
Observations	81
R^2	0.001
Adjusted R^2	−0.024
Residual Std. Error	3.522 (df = 78)
F Statistic	0.056 (df = 2; 78)
Note:	*p<0.1; **p<0.05; ***p<0.01

4.4 Determinants of Sustainability and Consumer Consciousness Scores

Now that we have established that the sustainability and consumer consciousness scores have a role to play in the variability of bids for the "sustainable" product, it is important to investigate the factors that covary with these scores. *Table 5* in Appendix B shows the regression results of sustainability score on participant demographics. As age increases, the

consumer consciousness score decreases insignificantly. This could be because younger generations are more aware of the phenomenon of fast fashion and sustainability. There is also a difference in those who are interested in the fashion and media industry, who tend to have a higher sustainability score compared to those who are not interested.

Finally, Table 6 regresses the sustainability score on the consumer consciousness score. Consistent with the scatterplot in the section above on understanding the population, there is a significant positive relationship between the sustainability and consumer consciousness scores. For every increase in points in the consumer consciousness score, there is approximately a 0.3-point increase in the sustainability score.

Table 6: Regression results of sustainability on consumer consciousness score

	Sustainability Score
Consumer Consciousness Score	0.293***
	(0.110)
Constant	2.350***
	(0.334)
Observations	81
R^2	0.082
Adjusted R^2	0.070
Residual Std. Error	0.550 (df = 79)
F Statistic	7.037*** (df = 1; 79)
Note:	*p<0.1; **p<0.05; ***p<0.01

5 Discussion

This study investigates the relationship between educating consumers about the ambiguous nature of ecolabels in the fashion industry and their willingness to pay for fast fashion items. The results are unable to support the theory that the education treatment influences willingness-to-pay and consumer behavior, due to statistical insignificance. However, consistent with the direction of the hypothesis, subjects bid a lower amount in the experimental round, after reading the educational article on ecolabels.

I found mixed results when investigating the relationship between sustainability scores and willingness to pay. Those with a higher score on the sustainability parameter did not bid as much on both the control and experimental round. However, inconsistent with the hypothesis, there was an increase in bids between rounds for participants who had higher sustainability and consumer consciousness scores. The results are inconsistent with some past studies and the predictions for this study. These findings may be significant due to a selection bias in that people who were more sustainability-minded might have been bidding higher in the first place.

The following sections highlight the limitations of the study, provide alternative explanations for the inconsistency in results, elaborate on future research directions, and conclude with the significance and implications of the study findings. Although further data collection is required to pinpoint the true motivation driving these results, this discussion section utilizes past behavioral economics literature and the open-ended responses provided by current study participants to further analyze the results, exploring factors that affected the amounts bid, the nature of the participant, and the nature of the study itself.

5.1 Strengths

Clothing can communicate a lot of information about people and their lives, and the decisions they make around it has implications for all sorts of environmental effects. This study tries to answer questions that are growing in relevance as the influence of fast fashion spreads in a time when there are few academic studies investigating phenomena in this industry. Although the results of the study were unexpected, strengths of this study design include its design set-up, reliance on both quantitative and qualitative measures, novelty, and relevance for real-world applications.

The mechanism of the nth price auction was able to accurately capture the willingness-to-pay of subjects because it is incentive-compatible and was able to reveal the true value of each of the participants (Shogren et al., 2001). The learning article was carefully drafted after exploring existing literature on the nature of ecolabels, why they are misleading to consumers, and what should be done about it. This ensured that participants were exposed to most of the facts they needed to make an informed decision.

The surveys utilized in this study generated both quantitative and qualitative data from participants, requesting participants to quantify attitudes and behaviors towards sustainability via Likert scales and soliciting free-response descriptions of the reasoning behind the amounts they bid. The quantitative values that participants provided helped quantify the willingness-to-pay each participant had, ultimately lending itself to analyze the impact of the learning treatment.

Lastly, this study’s primary strength rests in its novelty and relevance for sustainability and consumer culture in today’s world. Although past studies have established the misleading

nature of ecolabels, there is a gap in the literature when it comes to addressing this issue and empowering consumers, especially in the fashion industry. While this study was inconclusive in its effort to move consumers away from fast fashion items by educating them, the free-response answers and discussion section still provide noteworthy takeaways for consumers and producers alike.

Although the difference in bids for the white t-shirt before and after the learning condition were not significantly different, the free-response section reveals that several of the participants' decisions to bid a certain amount were impacted by the article they read on ecolabels. Some indicated that learning about greenwashing made them want to reduce their bids (e.g., *"After [reading] the article, I learned the idea of "greenwashing", so I lowered my bidding price."*); others indicated losing interest in purchasing the product all together (e.g., *"I actually bid less because I realized I didn't need or want the shirt."; "Delicately fabricated marketing claims made me lose interest at once."*). Thus, while the bids may not have been lowered substantially, there was evidence to suggest that this method had an impact on participants, although it might be subject to the nature of the participant and their attitudes towards sustainability as well.

From a brand perspective, the information gauged from the results and the discussion can also help producers in retaining customers who have a higher SS and CCS and are moving away from fast fashion practices. As seen in the free-response section, educated consumers may be willing to pay less for such items, so introducing transparency and accountability about the production processes in the ecolabels for these goods would have some merit in preserving such brands' customer bases. This can be accomplished via having a section on

their website or in their stores that describes their environmental impact to take accountability for their practices, something that is already occurring in brands such as ASOS that has a “Responsible Edit” and explicitly outlines what that means. While such measures could add to greenwashing and further misdirection of consumers, having industry standards that regulate all the content shared by brands could alleviate these concerns and ensure candid, reliable communication.

5.2 Limitations

In spite of its novelty and relevance, this study faced several shortcomings that may be addressed and improved upon in future iterations. Due to the COVID-19 pandemic, several data collection limitations and precautions had to be enforced, restricting the amount of data and interaction present in the study. Other limitations include the incentive structures, interpretation of the learning article, the convenience sampling method, reliance on self-report data, limited style considerations and being able to control for these factors in the data analysis of the study.

One of the biggest drawbacks of the study was the hypothetical nature of the design and incentive structures. Most participants took part in the research to avail extra credit opportunities offered by select professors. The other incentive of potentially being selected to win the auction and receive a white t-shirt, or receive the $15 instead was not strong enough for students from the majority income bracket. Consequently, once participants put their names down for extra credit, they did not put much effort into understanding the experiment, since they knew that their performance was not correlated to the amount of

extra credit they would receive. Additionally, since not all participants would be compensated or receive the actual amount they were bidding with, the hypothetical nature of the design meant that true values were not bid (e.g., *“I had $15 with no actual costs associated in the real world.”*).

Many participants were not attracted by the prospect of buying a white t-shirt, perhaps because they did not need one, or had other style considerations that were not verbalized or recorded in the experiment. This could have influenced the results of the experiment, because ideally, bidding behavior should be generalizable to other clothing items and not just white t-shirts (e.g., *“I didn’t care about getting the white t-shirt, so I bid very low.”*).

Another unexpected limitation was that certain participants did not understand what was being communicated via the learning article, and some of them didn’t even notice the ecolabel on the product. Or, even worse, they took away from the article that having an ecolabel on a product was a sign of sustainability and ended up bidding more in the subsequent round (e.g., *“After reading the article, I realized that the website mentioned ‘sustainable cotton jersey’, I figured that the item would cost more because it might have had a more ethical production process.”*). The actual ecolabel presented in the article also could have influenced bidding behavior, because it was not same to the one in the description of the product in question, but belonged to another brand because ecolabels come in many different formats.

Finally, beyond the demographic information and survey statements, there were many factors that were not quantified and controlled for in this study. For example, the product was presented in an online shopping format, however, persons with a preference for in-

person shopping may have been unfamiliar with it. Conversely, recognizing the brand and website aesthetic from which the product was modeled after could have been another confounding element.

5.3 Sample Characteristics

Even though efforts were put in to improve subject pool diversity, the recruited Emory population had questionable generalizability which could have introduced unintended biases in the study.

5.3.1 Sampling Method and Size

Although this study was able to recruit a sample size of ≥60, a larger sample would improve the statistical power of the study, providing greater credence to the results. Furthermore, because the sampling method utilized was not truly random (many students took part due to familiarity with the research team or due to extra credit incentives), it is possible that the convenience sampling method utilized may have biased the nature of participants recruited. Ideally, a larger and more randomized sample would improve the statistical soundness of the study in future iterations. The study was also conducted in conjunction with another study in the Economics Honors department at Emory University, and this could have had unintended order effects, although measures were taken to counter the same.

5.3.2 Education

All subjects were highly educated undergraduate students pursuing a college degree. Those who are more highly educated are more likely to display their environmental credentials through what they buy rather than with actions (ESRC, 2011). This could have an impact on both bidding behavior and sustainability scores, by having them inconsistent with each other. Although such subjects might have a high SC, they could have low bids as well. Hoffman and (Hoffmann & Muttarak, 2020) also found that an additional year of schooling significantly increases the probability of pro-environmental action, and in the context of the highly educated individuals who made up the sample, they might be more susceptible to the effects of this experiment as compared to other groups with differing levels of education.

5.3.3 Diversity

Emory has a relatively diverse campus in terms of ethnicity and nationality. It has a good representation of White, Asian, Black or African American, Hispanic or Latino students as shown in Figure B1 in the Appendix (Undergraduate Ethnic Diversity at Emory University, 2021). However, this diversity of Emory students was not well represented in the sample, with 60% of the sample constituting of participants who ethnically identified as Asian. This has implications for racial influences and other unidentifiable biases in the data.

5.3.4 Age

Subjects' age ranged from 18 to 23, which is a relatively small subset of the general public. This age group has inherent preferences and characteristics that could have introduced biases in the study. However, young adults are a powerful force in shaping demand for consumer products, with expenditure over their life span projected to reach into the $10 trillion range (Workman & Studak, 2006). Researching this group in particular can help provide insight into what kinds of products and messages will appeal to them as lifelong consumers. As such, it would be interesting to conduct the study with subjects across all ages in the future to better understand the effect of consumer education on shopping behavior.

5.4 Experimental Design

The strengths of the nth price auction are extolled in the previous sections, however, there is a certain amount of confusion that comes with conducting it, especially for participants that have pre-existing notions about what an auction should be like (highest bidder "wins" product at stake). Due to this, many participants did not bid their true value, either because they misunderstood that winners were randomly selected (e.g., *"Since the experimenter said a random person would be selected to get the shirt, and I really don't care how much money I bid and I just wanted the shirt, I bid for 15 dollars every time."*), or because they changed their bids according to the market value from the previous round, which was unrelated to the following round (e.g., *"I wanted the white t shirt more than money, so I bid $15 at first.*

But when I saw that the market price was only $10, I lowered the bid to $12 in the next actual round.").

While the learning article was one method of educating consumers about the ambiguity of ecolabels, its adoptability in an actual retail environment is subject to further research. Another method of intervention would be the development of traditional sewing skills as a means to offer school age consumers options as to how they choose to engage with the challenges of fast fashion consumerism (Henry & Michell, 2019).

This study exclusively relied on self-report data, provided directly from participants themselves. While research fueled by self-report is common in the behavioral economics realm, it is important to acknowledge that this data may not always be as honest, accurate, or precise as other more objective metrics. Furthermore, different interpretations of common terms – such as "sustainability" or "consciousness" – may skew the results in ways that bias study findings. Increased precision with terminology and the assurance of participants' understanding of the terms would benefit the study.

5.5 Future Directions

Based on the strengths, limitations, and relevance of the study, future studies and extensions are highly encouraged to further explore the role of consumer education in exposing the ambiguous nature of ecolabels and willingness to pay for fast fashion items.

As stated prior, this study was limited by its hypothetical nature and incentive model, misinterpreting the learning article, confusion around the auction mechanism, a restricted

sample size, reliance on self-report data, and certain skewed sample characteristics. Future studies may improve upon the current one by increasing the sample size utilized, incentivizing participants in other ways, and using a different methodology to measure willingness-to-pay. While the CCS and SS served to understand how attitudes towards sustainability impacted overall bidding behavior, it would be interesting to identify other areas that might do the same. Political ideologies, general shopping behavior and attitudes towards corporations could be potential variables influencing willingness to pay for fast fashion items after learning about ecolabels.

Future variations may also choose to explore other ways to explain the findings of this study. Researchers can explain bidding behavior of participants via certain cognitive fallacies that are central to the field of behavioral economics. The learning article could be analyzed from an interactive marketing perspective to understand if its impact was meaningful and how it can be tweaked to increase effectiveness. Finally, it is important to keep sight of the final goal of reducing the environmental impact of fast fashion. Using this research to drive a change in regulation and industry standards of ecolabels to help consumers make more informed decisions and drive them towards sustainable choices is a way to align future research with the final goal.

5.6 Conclusion

Fast fashion is a valid and growing concern in today’s consumer culture, and as the collective consciousness builds a focus on sustainability, there is a growing need for more scientific and economic research in making environmentally friendly decisions.

This study set out to bring attention to the ambiguous nature of ecolabels to help consumers make more informed and conscious decisions in the kind of clothing they purchase. The motivation underscoring this proposal came from past studies that highlighted how consumers’ willingness-to-pay for organic food items differed based on their labels (Marette et al., 2012; Vecchio & Annunziata, 2015), and what kind of behavioral economic tools could be used to influence consumers’ choice for sustainable fashion (Roozen et al., 2021). Thus, this study sought to combine the approach from these studies in order to add to the literature in sustainability economics for fast fashion.

This study was unable to support the motivating hypotheses that individuals will be willing to pay less for fashion with an ecolabel once they have learned about the nature of such labels (Hypothesis 1) and that those with a higher score on the sustainability parameter will also be willing to pay less in the same scenario (Hypothesis 2). However, despite results being insignificant and relatively small effect sizes, the direction of the associations was as hypothesized.

Several areas for improvement and potential extensions were identified based on the data analysis methods and the free-response section of the survey. The characteristics of the sample coupled with the design of the experiment had a substantial impact on the results. However, this study develops a framework that could be replicated in future studies on other fast fashion phenomena, and the novelty and replicability of this study contributes to its significance in the field of experimental economics.

Overall, it is important to remember the power that we as consumers hold when making decisions regarding clothing and fashion. While those with higher SS and CCS were

projected to spend less on fast fashion items with ecolabels, even well-intentioned consumers could fall victim to the ambiguous nature of ecolabels. By casting light on this issue, we can better educate more consumers and build a substantial influence to make brands either more transparent in their production practices or modify them to be more sustainable.

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Appendix A

Nth-Price Auction Instructions

General Instructions:

This is an experiment in the economics of decision-making. The instructions are simple, and if you follow them carefully, you might be able to win a product and earn money. The experiment consists of several parts. In each part you will be asked to respond to a series of survey questions or make decisions. At the beginning of the experiment, you will be assigned an ID number. Only the ID number, not your name, will be used to identify your answers and decisions.

Earnings: We will now credit to you $15.00 for participating in this experiment. As you will learn later, you will be able to use this money to win a product. Your final earnings, which may or may not include the product, will partly depend on your own decisions, on others' decisions and on chance. **The responses to the survey questions do not affect your earnings**. Finally, the final earnings in dollars and the product that you may win during this experiment will be given to you privately at the end of the experiment.

Please do not communicate with other participants, and keep silent during the experiment. If you have a question, raise your hand and one of the experimenters will approach you. We will now start with the first part of the experiment. At this time, do you have any questions?

Part 1: Practice Decisions

Instructions:

Your ID number is written in the upper-right side of this sheet. In this part you will participate in two rounds of a sealed-bid auction. Please pay close attention to the rules of the auction. The purpose of this part is to help you understand the auction format. **All earnings in this part are hypothetical**.

Auction Rules:

There will be two rounds of this auction. In each round, we will auction a random number of units of a fictitious good. You will participate in the auction together with the other participants.

The value of the good to you is called "your redemption value." "Your redemption value" represents how much you value a unit of the good in US Dollars.

Your redemption value was determined randomly using a random number generator. Any value between 5 and 15 was equally likely. All other bidders also receive their own random redemption values. Since each bidder receives their own random redemption value, your redemption value will typically be different than those of other players.

Now pay attention to the Record Table attached to these instructions on **page 4**. This table contains two columns and four rows. During each round, "YOUR REDEMPTION VALUE" will correspond to the randomly generated number you have been provided.

How to bid:

Again, please pay attention to Record Table below. You may submit a bid for one unit of the good by filling out the second row of the second column that corresponds to "YOUR BID". Once you have filled out your form, you must turn it in to the experimenter. Once all participants have submitted their bids, all of the bids will be ordered from highest to lowest by the experimenter.

How to obtain a unit of the good:

The experimenter will use a randomly generated cut-off bidder to determine the market price. She will then write the price of the cut-off bidder on the board. Each bidder who bid above the market price will be able to purchase one unit of the good at the market price. Record the market price in the third row of the record table that corresponds to "MARKET PRICE".

In this auction, you receive the good if you bid **above** the randomly selected market price. If you obtain a unit of the good, you pay the market price. If you do not obtain the unit of the good, then you receive and pay nothing.

Earnings:

You may use a calculator to calculate your earnings (phone calculators are accepted). Your earnings in US Dollars in each round will be rounded to the nearest dollar and will equal:

= Your redemption value – the market price (if you obtain the good)

OR

= 0 (if you do not obtain the good)

Record your earnings in the last row of the Record Table.

Exercise:

To make sure you understand the auction rules, please fill in the gaps. Suppose that the computer generates a random number equal to 8.5 (remember that any number between 5 and 15 is equally likely). Suppose that your bid is 8.5, and that all players' bids (including yours) are, in descending order, equal to: 14.2, 11, 8.7, 8.5, 7, 5.9, 5.5 and 0. Suppose the experimenter randomly selects the bid of the 6^{th} highest bidder to be the market price, and therefore states that the market price is 5.9.

1. Do you obtain the good? _____
2. Does the player who submitted 5.9 obtain the good? _____
3. How much does each bidder who obtains the good pay? _____
4. Suppose that the participant who submits 14.2 has a value of 5.2, what are their earnings equal to? _____
5. Suppose that the participant who submits 8.5 has a value of 15, what are their earnings equal to? _____. If they had submitted a bid of 8.5, what would their earnings be equal to? _____.
6. Suppose that the participant who submits a bid of 8.5 has a value of 5. What would their earnings be equal to? _____.

Notice that you always make money if you can buy a unit at a price that is less than your redemption value, but you lose money if you buy a unit at a price that is more than your redemption value.

Because only bidders who bid above the market price can obtain the item, you will always receive the unit for less than the amount you bid, so the most profitable strategy is to bid an amount equal to your redemption value. By bidding any amount less than your value, you only decrease the chance that you will make some money.

Record Table – round 1

Please fill in the cells. You are allowed to use phone calculators for any calculations.

YOUR REDEMPTION VALUE (given)	
YOUR BID	
MARKET PRICE (given)	
YOUR EARNINGS FOR THE ROUND	

Earnings:

Your earnings in US dollars in each round will be rounded to the nearest quarter and will equal:

= Your redemption value – the market price (if you obtain the good)

OR

= 0 (if you do not obtain the good)

Record Table – round 2

Please fill in the cells.

YOUR REDEMPTION VALUE	
YOUR BID	
MARKET PRICE	
YOUR EARNINGS FOR THE ROUND	

Earnings:

Your earnings in US dollars in each round will be rounded to the nearest quarter and will equal:

= Your redemption value – the market price (if you obtain the good)

OR

= 0 (if you do not obtain the good)

Part 2: Decisions

Instructions:

Your ID number is written in the upper-right side of this sheet. In this part you will participate in two rounds of a sealed-bid auction. Please pay close attention to the rules of the auction. Your earnings in this part will depend on your decision, the decision made by other participants and chance.

In this part you will participate in a sealed-bid auction. The rules of the auction will be explained later. You may use the $15.00 that you were credited at the beginning of the experiment to make your bids in this auction. Please note that the $15.00 you were credited are yours and you should feel free to spend them or save them as you would any other money that you have.

Auction Rules:

There will be two rounds of this auction. In each round, instead of bidding for a fictitious good, you will be bidding for a plain white t-shirt. The rules of the auction will be similar to those in the previous auction. You will participate in the auction together with the other participants. There will be two rounds of bidding in which a randomly selected number of white t-shirts will be auctioned; however, there is a caveat. **Only one of the auctions will count, out of which one of the participants will be compensated.**

At the end of today's session, the experimenter will randomly determine the auction in which the white t-shirts will actually be sold. You will not know, at the time that you make your bids, which auction will be the one that counts.

All auctions have an equal chance of counting. This means that you can use as much of the 15 dollars in your account as you like in *each* auction without reducing the amount you have available to bid in other auctions. Since only one auction will count, you will receive a maximum of one white t-shirt. It is possible to win the t-shirt only in the one auction that is randomly selected after the experiment. Of course, if you win, you will only be required to pay the price of the t-shirt in that particular auction. If you do not win the t-shirt, you will receive all the money remaining in your account.

How to bid:

Please pay attention to Record Table attached to these instructions on **page 8**. You may submit a bid for a white t-shirt by filling out the first row of the second column that corresponds to "YOUR BID". Once you have filled out your form, you must turn it in to the experimenter. Once all participants have submitted their bids, all of the bids will be ordered from highest to lowest, and posted on the board.

How to obtain a white t-shirt:

All bidders bidding above the market price will receive one white t-shirt each and will pay the market price determined by the randomly selected cut-off bidder. Record the market value price in the third row of the record table that corresponds to "THE MARKET PRICE."

In this auction, you receive a white t-shirt if you bid above the market price. If you receive the t-shirt, you pay the market price. If you do not receive the t-shirt, you pay nothing.

Gains in product and dollars:

You may use a calculator to calculate your earnings (phone calculators are accepted). Your earnings in US dollars in each round will be rounded to the nearest dollar. The individuals bidding below the market price in the auction will **not** receive the t-shirt, and no money will be deducted from their accounts.

Thus, your gains equal:

= A white t-shirt + $15.00 – the market price (if you obtain the t-shirt)

OR

= $15.00 (if you do not obtain the t-shirt)

Record your earnings in the last row of the Record Table.

In each of the two rounds, you will bid on the same product. Remember all auctions have an equal chance of counting, but only one auction will be randomly selected.

You will receive a bidding sheet for each of the auction rounds. Please write your bid and return the sheet to the experimenter.

As in the prior auction, you will not be informed of the market price until the end of the exercise when all rounds have been completed.

Remember, all auctions have an equal chance of counting, but *at the end of today's session, the experimenter will randomly determine only **ONE** auction in which the t-shirt will actually be sold.* This will allow you to use as much of the 15 dollars in your account as you like in *each* auction.

Record Table – round 1

Please fill in the cells. You are allowed to use phone calculators for any calculations.

YOUR BID	
THE MARKET PRICE	
YOUR GAINS FOR THE ROUND	

NOTE:

Gains for the round:

= A white t-shirt + $15.00 – the market price (if you obtain the t-shirt)

OR

= $15.00 (if you do not obtain the t-shirt)

Please take a few minutes to read the following information before the second round of auctions.

Ecolabels in the Fashion Industry

The following is a statement on ecolabeling in the fast fashion industry that is meant to empower consumers to make choices that align with their values on sustainability.

Clothing labels bear a new responsibility as concern for sustainability takes up more space in consumers’ consciousnesses while shopping for apparel. The ethical fashion industry is currently worth over $6.35 billion (as of July 2021) and is predicted to almost triple in less than a decade. More ethical brands are being created to match this demand, but there are also many fast fashion brands that are trying to take advantage of this sentiment by launching their own “eco” collections. This is a part of “greenwashing”, a common marketing ploy designed to make products seem more sustainable than they are. It’s a way to convince customers that a company is making positive environmental choices, often through eco-conscious terms designed to convince shoppers that the product is more natural, wholesome, or free of toxins than competitors.

One method that brands use to engage in greenwashing is by using ecolabels on their finished products. “Ecolabels” are voluntary labels that qualify a product as ethically friendly and list a brand’s sustainability credentials directly on its garments. These credentials may include information regarding environmental impact and ethical issues like workers’ rights. Below is an image of one of Zara’s *Join Life* collection ecolabels.

However, there are multiple issues with the use of ecolabels by such fast fashion brands:

- There is usually no third-party verification or regulation, and this makes it easy for brands to make unsubstantiated claims about being environmentally friendly.

- These “greener” clothing ranges represent a tiny portion of these fast fashion brands’ overall production.
- For example, Zara’s *Join Life* line only represents 6% of its entire collection.
- A lack of a shared understanding and clear rules allows fast fashion brands to market themselves as sustainable. For example, in the above image, what does “care for fiber” mean exactly? Does it mean less water was used in the production of this garment? Or that it was made from recycled materials? These vague statements do not provide any concrete information, and allow brands to define sustainability in a way that helps them attract shoppers and maximize their profit.

All of this makes it difficult for consumers who are concerned about these issues to discern which retailers promote sustainably and responsibly made items to trust and which to discontinue buying from.

You will now be shown the item you are bidding on once again.

Part 3: Decisions

Record Table – round 2

Please fill in the cells. You are allowed to use phone calculators for any calculations.

YOUR BID	
THE MARKET PRICE	
YOUR GAINS FOR THE ROUND	

NOTE:

Gains for the round:

= A white t-shirt + $15.00 – the market price (if you obtain the t-shirt)

OR

= $15.00 (if you do not obtain the t-shirt)

Part 4: Survey Questions

Your ID number is written in the upper-right side of this sheet. Please answer the following questions:

Demographics

1. What is your age in years? ____
2. What gender do you identify as?

Male Female Non-Binary Other _____ Prefer Not to Answer

3. What year are you in at Emory?

Freshman Sophomore Junior Senior

4. What is your major (intended major, or academic interest – *list only one*)? _____
5. What is your race?

Asian/Pacific Islander Hispanic or Latino White

Black or African American Native American Other _____

6. What is your (or your family's) income level?

Under $20,000 $20,000-$80,000

$80,000-$200,000 $200,000 and above

7. Do you plan on entering the arts, entertainment or media industry in the future? Y/N

How much do you agree with the following statements on a scale of 1-5?

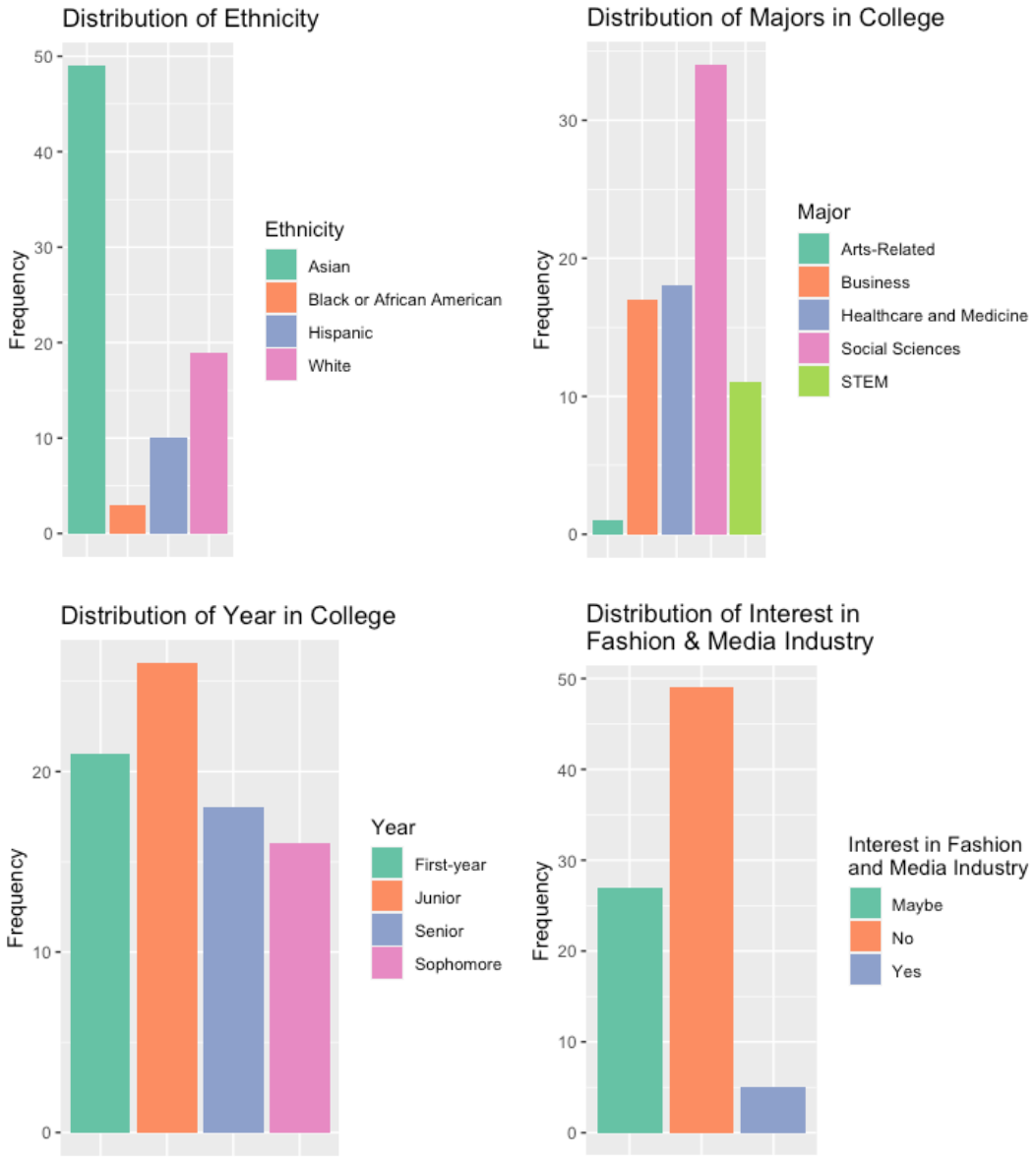
1. I'm willing to pay more for clothes that are considered trendy at the moment.
2. I try to find products with the ecological badge (ecolabel).
3. I try to use less water.
4. I prefer to purchase clothes from popular and/or well-known brands.
5. I have discussions with my family and/or friends about environmental issues.
6. I prefer online shopping to in-person shopping.
7. I am a student at Emory University.
8. I trust labels given by retailers and the information they are communicating.

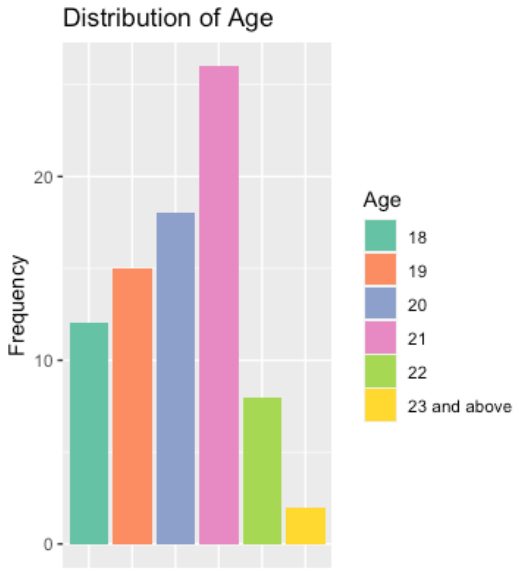
9. I choose the environmentally friendly alternative of a product, if there is one.
10. I prefer to buy organic fruit and vegetables.
11. Social media influences the kind of clothes I buy.
12. I try to avoid environmentally harmful products.
13. I separate my trash and recycling.
14. I know what the environmental impact of the brands I buy from is.
15. Over-consumption is one of the main factors that causes environmental damage.

Appendix B

Tables and Figures

Figure 3




Distribution of Age
Frequency
0
10
20
Age
18
19
20
21
22
23 and above

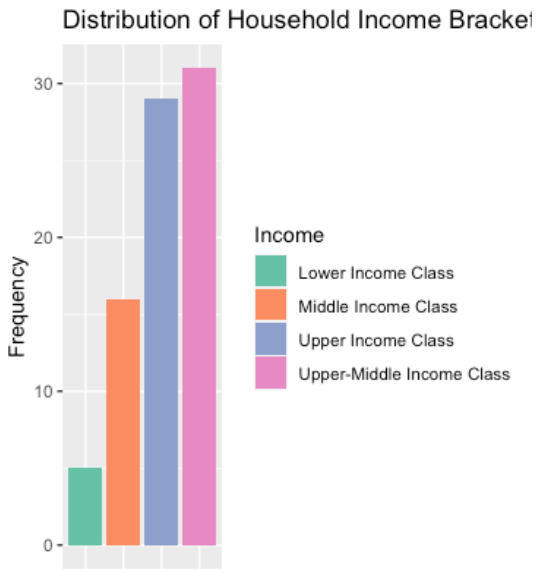

Distribution of Household Income Bracket
Frequency
0
10
20
30
Income
Lower Income Class
Middle Income Class
Upper Income Class
Upper-Middle Income Class

Table 2: Regression results on bidding behavior by participant demographics

	Bids across experimental conditions	
	(Control)	(Experimental)
	(1)	(2)
Gender		
Male	−0.672 (1.041)	0.391 (1.010)
Age in Years		
18 Years	3.105 (4.387)	−0.183 (4.258)
19 Years	2.447 (3.958)	1.336 (3.842)
20 Years	1.609 (3.401)	−1.012 (3.301)
21 Years	−0.204 (3.082)	−2.956 (2.992)
22 Years	−0.660 (3.359)	−2.384 (3.260)
Year In College		
First-Year	−5.136 (3.183)	−4.678 (3.089)
Sophomore	−3.939 (2.645)	−5.545** (2.567)
Junior	−1.502 (1.541)	−1.256 (1.496)
Ethnicity		
Asian	−0.651 (1.297)	−0.296 (1.258)
Black	−4.272 (3.079)	−2.327 (2.989)
Hispanic	0.944 (1.801)	−2.095 (1.748)
Major In College		
Arts-Related	−1.065 (5.047)	−4.040 (4.898)
Business	−3.503** (1.705)	−0.540 (1.655)
Healthcare and Medicine	−1.099 (1.826)	1.128 (1.772)
Social Sciences	−0.299 (1.527)	0.565 (1.482)
Household Income		
Lower Income Class	−0.299 (2.258)	−0.583 (2.192)
Middle Income Class	−3.247** (1.369)	−1.597 (1.329)
Upper-Middle Income Class	0.314 (1.126)	0.158 (1.093)
Interest in Fashion and Media Industry		
Yes	3.681 (2.301)	2.801 (2.234)
No	0.790 (1.098)	2.183** (1.066)
Constant	11.644*** (3.741)	11.084*** (3.630)
Observations	81	81
R^2	0.295	0.269
Adjusted R^2	0.044	0.009
Residual Std. Error (df = 59)	3.969	3.852
F Statistic (df = 21; 59)	1.175	1.036
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 5: Regression results of sustainability and consumer consciousness scores on participant demographics

	Sustainability Score	Consumer Consciousness Score
	(1)	(2)
Gender		
Male	−0.095 (0.151)	−0.200 (0.137)
Age in Years		
18 Years	−0.215 (0.635)	−0.427 (0.577)
19 Years	−0.557 (0.573)	−0.613 (0.521)
20 Years	−0.732 (0.493)	−0.632 (0.447)
21 Years	−0.847* (0.447)	−0.672 (0.405)
22 Years	−0.597 (0.487)	−0.687 (0.442)
Year In College		
First-Year	−0.314 (0.461)	−0.344 (0.419)
Sophomore	0.255 (0.383)	0.410 (0.348)
Junior	0.124 (0.223)	0.031 (0.203)
Ethnicity		
Asian	0.136 (0.188)	0.563*** (0.171)
Black	0.133 (0.446)	0.091 (0.405)
Hispanic	−0.076 (0.261)	0.337 (0.237)
Major In College		
Arts-Related	−0.562 (0.731)	0.041 (0.664)
Business	−0.030 (0.247)	0.317 (0.224)
Healthcare and Medicine	−0.236 (0.265)	−0.030 (0.240)
Social Sciences	−0.485** (0.221)	−0.071 (0.201)
Household Income		
Lower Income Class	0.056 (0.327)	0.025 (0.297)
Middle Income Class	−0.094 (0.198)	−0.118 (0.180)
Upper-Middle Income Class	0.009 (0.163)	−0.179 (0.148)
Interest in Fashion and Media Industry		
Yes	0.213 (0.333)	0.228 (0.303)
No	−0.034 (0.159)	0.066 (0.144)
Constant	4.092*** (0.542)	3.276*** (0.492)
Observations	81	81
R^2	0.251	0.352
Adjusted R^2	−0.016	0.121
Residual Std. Error (df = 59)	0.575	0.522
F Statistic (df = 21; 59)	0.940	1.524
Note:		*p<0.1; **p<0.05; ***p<0.01