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# Differences in Eco-Friendly Attitudes and Behaviors among Consumers in the United States Across an Array of Demographics

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## ABSTRACT

A sample of 938 consumers residing in the United States responded, by invitation, to an online survey on anti-consumption attitudes and behaviors. Drawing from one aspect of that survey, the primary focus of this study is sustainability. The relationship between four of the measured sustainability-related variables and five commonly examined demographics was evaluated using a t-test, ANOVA, and the Scheffé Method of Multiple Comparisons. Age was the most common variable to be associated with attitudes and behavior regarding sustainability. The most common dependent variable to be associated with the five demographic variables was the frequency in which the respondent chose to engage in a personal boycott. Other meaningful results were documented and are discussed. This discussion includes pertinent information regarding a marketer's efforts to enact green initiatives that focus on sustainability.

**Keywords:** *Sustainability, Anti-consumption, Eco-friendly, Green consumption, Demographics*

## INTRODUCTION

Almost 50 years ago, it was stated that the ecologically concerned market segment may be large enough to warrant exploitation (Kinnear, Taylor, & Ahmed, 1974). Since that time, sustainability has become one of the most commonly expressed buzzwords of the 21<sup>st</sup> century. But it is far from being a new phenomenon; research has long addressed a plethora of issues germane to the concept. Businesses have sought to implement green marketing initiatives; consumers engage in green consumption and environmental consumption; and they seek to neutralize their carbon footprint. We even speak of traceless consumption, an endeavor which focuses on consumers not engaging in production, consumption and disposal practices which damage Earth's ecosystem.

Air pollution, non-biodegradable waste, non-optimal use of global resources, bleaching of the Great Barrier Reef, and deforestation are all associated with issues such as climate change, rising oceanic shorelines, and the pollution of ground waters. And many of these issues have been attributed to consumers' consumption and disposal habits. While there are a multitude of green warriors who protest and fight for environmentally-friendly behaviors by governments, businesses, and consumers, there is the other side of the green-brown dyad. Brown consumers

tend to be indifferent, even destructive. Perhaps the world they leave behind is of no concern to them; let those who follow them deal with it. So, who are the green consumers?

The current study seeks answers to that question. It examines attitudes and behaviors germane to sustainability among adult consumers in the United States. Specifically, it seeks to identify points of demarcation among various demographic groups. Is Gen Z truly the most environmentally aware generational cohort group; are women greener than men; does educational attainment separate green consumers from their brown counterparts; how are sustainable behaviors and attitudes impacted by one's ethnicity; and is income related to those same behaviors and attitudes? These are the questions that this research seeks to answer.

## **THE LITERATURE**

Sustainability, environmental consumption, green consumption – the list is virtually endless. There are numerous entities that have long stressed the importance of preserving the welfare of the planet so that we leave our descendants with the opportunity to live comfortably in the not-so-distant future. Much of the critical commentary comes from the popular press, and much of it has focused on corporate misbehavior. In addition to the popular press, we have watchdog groups, consumer advocates, social organizations, and governmental bodies that examine the present with an eye towards the future. Yet concurrently, we have witnessed an abundance of research by academicians who explore the consumer side of the buyer-seller dyad. Many of the studies emerging from the academic world have examined consumer demographics, and the findings have been mixed. A study by Anderson and Cunningham (1972) holds pioneering relevance while noting that green consumers were usually observed to be females, educated, middle-aged and possessing a higher socio-economic status (Akehurst *et al.*, 2012). But is what was true fifty years ago still true today? While there are recent articles stating that a consumer's gender impacts their perspective on sustainability, there are others that refute that claim. The current study looks at five demographic variables that are commonly used by marketers as they seek to better understand consumer behavior, four of which were used in the aforementioned seminal study by Anderson and Cunningham (1972). The five demographic variables are gender, age, education, income, and ethnicity. As such, this literature review will focus on research that has examined the relationship between issues specific to sustainability and these five demographic variables. It begins with an overview of the research that has focused on gender.

### ***Gender and Sustainability***

Much like what is seen in research on consumer ethics, gender is one of the more commonly explored demographic variables when the researcher is seeking to identify differences in the ways that identifiable segments of the population think and behave. And like consumer ethics, while research has identified gender-based tendencies, we must acknowledge the existence of studies which find no differences in the way men and women think and behave as the researcher seeks to better understand sustainability. So, the bottom line is that there is a need to identify the prevailing condition. Is there a relationship between the two variables? If so, which gender, men or women, tends to behave in a more environmentally-friendly manner? If we are to believe the previous research, it appears that there is a relationship and that women are more inclined to embrace sustainability than are men. So, what does the more recent extant literature tell us?

Two interesting studies concluded that women are more eco-friendly than are their male counterparts because eco-friendliness is associated with *femininity*, a characteristic that many men view as *unmanly* (Phersen and Risan, 2019; Brough and Wilkie, 2017). Regarding gender, numerous recent studies in the United States have suggested that women are more likely to partake in green consumption as well the recycling of waste, so-called *ecological conscious consumer behaviour* (ECCB) (Mainieri et al., 1997; Straughan and Roberts, 1999; Laroche et al., 2002). Akehurst et al. (2012) surmised that studies have found that female consumers are more sensitive towards the purchase of environmentally-friendly household products than are men. And women are also willing-to-pay (WTP) more for eco-friendly products (Laroche et al. (2001). From a different perspective, and one similar to one focal point of the current study, Sudbury-Riley and Kohlbacher (2018) documented a significant impact for gender with women more favorably predisposed to the two anti-consumption constructs that they measured. A relationship between one's green personality and their gender was documented in a study where a higher percentage of women self-classified themselves into one of the two greener categories (eco-worrier and eco-warriors) of an identified typology whereas men were more prone to place themselves in the two browner categories (eco-indifferent and eco-destroyer) (Fullerton, 2019).

While women are commonly characterized as the more eco-friendly sex, that characterization is not without its detractors. For example, one study outright concluded that men are greener consumers than are women (Shields and Zeng, 2012). Another study examined 22 green characteristics; significant differences were documented for 15 of them. In 14 cases, women expressed greater concern; however, men were more oriented towards sustainability on a single dimension (Fullerton, et al., 2019). To further cloud the issue, several studies found no difference between men and women in regard to overt behaviors intended to promote sustainability. Among the recent studies that drew this conclusion are those by Paço and Gouveia (2016), Khare (2016), and Bhati (2021). But while some studies find no difference between women and men when it comes to sustainability, the majority find that women are more prone to behave in an eco-friendly manner, albeit that conclusion is far from unanimous.

### ***Age and Sustainability***

Of the five demographic variables under examination, it is perhaps age which has been subjected to the greatest scrutiny. And despite this intense focus, there is still no universal agreement as to whether or not there is an identifiable, systematic relationship between age and the myriad issues germane to sustainability. This section of the review begins with an overview of the research that failed to document this relationship. The aforementioned study by Bhati (2021) found no significant differences in the concern for sustainability across the various age groups. But this outcome tends to be the exception rather than the rule. Though not looking at how one's beliefs regarding environmental exigencies are translated into overt green purchasing behavior, Pickett-Baker and Osaki (2008) found there to be no difference in the environmental beliefs of the various age groups in their study. On the other hand, two early studies documented a direct relationship between age and sustainability-related issues; as age increases, so does environmental awareness (Van Liere and Dunlap, 1981; Zimmer, Strafford, and Strafford, 1994). This relationship was more recently supported by the results from a large national sample of consumers in the United States (Fullerton, 2019) which was in congruence with the often-cited

results from a study by Sudbury-Riley and Kohlbacher (2018) that found a noteworthy direct relationship between age and issues germane to sustainability.

Looking at studies that have focused on generational cohort groups, conclusions that a relationship between age and sustainability exists are commonplace. However, many of these studies focus on one or two cohort groups rather than the five predominant ones today. While these studies tend to support the presence of a relationship, they tend to conclude that an inverse relationship exists in that it is the younger segments that represent the greenest consumers. For example, two global studies found millennials to be the cohort group that was the most willing to pay (WTP) extra for sustainable offerings. In a comparison of Millennials and Gen Z consumers, again it was the Millennials who were found to exhibit a greater WTP more for green products than are other generational cohort groups (Lu, et al., 2013). Despite the fact that millennials grew up in one of the most difficult economic climates (prior to COVID-19), a global study found that millennials comprise the most willing generation to pay extra for sustainable offerings (Nielsen, 2015). Differences in the purchase of green products have been identified when comparing the two youngest groups – Millennials and Gen Z consumers (Lavuri, et al., 2021). In regard to intentions to behave in a responsible manner, a generational influence for personal consumption expenditures (PCE) has been documented (Ivanova, et al., 2019). The primary findings of a study of post-millennials (Gen Z) were that their environmental concern trait does in fact trigger green purchasing behavior on their part (Balut, et al., 2021). As evidence of this phenomenon, it has been reported by Deloitte that “Gen Z are adopting more sustainable behaviours than any other groups: 50% reduced how much they buy and 45% stopped purchasing certain brands because of ethical or sustainability concerns.” (Cromwell and Perkins, 2022).

A recent study by Fullerton, McCullough and Moore (2019) also documented an inverse relationship between age and behavior directed towards sustainability and protection of the environment. Thus, they concluded that it is the younger consumers whose purchases are more likely to be influenced by their environmental concerns. Additional research has surmised that younger consumers are more environmentally conscious than are older consumers (Straughan and Roberts, 1999), but that there is a gap between intention and overt purchase behavior. In other words, green attitudes do not necessarily translate into green behavior (Yilmazsoy, et al., 2015; Bhati, 2021). In 2011, this phenomenon was characterized as the *green gap* (Nielsen, 2011). For example, while Gen Z consumers are more concerned about nature, there is little evidence indicating that these concerns have translated into eco-friendly purchases (Mueller and Mullenbach, 2018). Conversely, more recent research concluded that younger consumers were, in fact, more likely to purchase green products and that that these purchases were influenced by their emotional connection regarding environmental concerns (Olivia-Ban, et al. 2022). So, despite all of the research on the topic, there is still no universal agreement as to the nature of any identifiable relationship between age and eco-friendly attitudes and behaviors.

### ***Education and Sustainability***

As with the other demographic variables, most – but not all – studies find that there is a relationship with sustainability. Some studies discuss the relationship between education and income, thus concluding that it is education (that increases one’s income) which drives attitudes and behavior deemed to be fostering sustainability. Perhaps most intriguingly, an early study on

the subject actually documented an inverse relationship thereby indicating that as educational attainment increases, the more highly educated consumers are less concerned about long-term sustainability (Coleman, et al., 2011). Others have not identified the existence of any relationship – either positive or negative – at all (Kinnear et. al., 1974). That same outcome was evident in a more recent study by Fullerton (2019). Similarly, but beyond the borders of the United States, it was stated that one’s “level of education does not translate into the cognitive decision of green shopping” (Nittala, 2014, p. 150). Even more recently, it was suggested “that there is no significant difference in concern for environmental protection across the groups of respondents having any level of education qualification” (Bhati, 2021). One study that looked at five demographic variables documented a significant relationship with sustainability for four of the variables; only education was determined to be unrelated (Jaiswal, et al., 2020).

Despite the findings of the aforementioned studies, others have identified a meaningful positive relationship between the two constructs. One study goes so far as to state that one’s level of education is a key predictor of sustainable consumption (Panzone, et al., 2016). Three earlier studies documented a positive relationship in concluding that consumers with higher educational attainment tended to exhibit a greater level of concern for the environment, a concern that leads to consumption and disposal decisions that are less destructive to the ecosystem (Makower and Pike, 2009; Granzin and Olsen, 1991; Roberts, 1996). With a focus on the ecosystem, it was determined that consumers with higher levels of education stressed the importance of a company not contributing to water pollution as an influence for their consumption – thus their purchase decisions (Rizkallah, 2012). So, the preponderance of the evidence supports the premise that there is a positive correlation between education and sustainability.

### ***Income and Sustainability***

One of the earliest studies that examined the existence of a relationship between one’s income and their concern for the environment *suggested* that there was a positive correlation between the two constructs while concluding that consumers with middle-to-high annual incomes were more likely to engage in consumption designed to impose less harm upon the ecosystem (Berkowitz and Lutterman, 1968). More recently, Sudbury-Riley and Kohlbacher (2018) documented a similar relationship between income and sustainability. Another study that reached the same conclusion that there is a positive relationship between one’s income and their propensity to engage in more eco-friendly behavior was by Martenson (2018). Outside of the United States, research by Melo and de Farais (2014) found that higher income consumers possess a higher level of concern regarding environmental degradation in Brazil and Holland. The same relationship was documented in Poland (Apaydin and Szczepaniak, 2017) as well as five major Asian cities (Hori, et al., 2013).

Contrary to the aforementioned results, a study of Indian consumers concluded that income was not related to one’s green mindset or behavior (Laheri 2017). Another study where no relationship between income and sustainability was documented was one that identified five segments of consumers: eco-warriors, eco-worriers, eco-conscious, eco-indifferents, and eco-destroyers (Fullerton, 2019). Despite results indicating that income is not directly related to sustainability, it has been argued that higher income translates into higher consumption in general. One natural consequence of higher consumption is higher carbon emissions; therefore,

irrespective of one's environmental leaning, higher income consumers inflict more damage to the environment than do those consumers who have less money to spend (Dietz et al. (2012; Csutora, 2012). So, the preponderance of the evidence seems to identify a relationship that is best characterized as higher incomes translate into greater environmental concern, thus a tendency to behave in a more eco-friendly manner; however, that verdict is not universal.

### ***Ethnicity and Sustainability***

Of the five demographics under scrutiny, the least attention has been directed towards the consumers' ethnicity. And of the limited studies available in the extant literature, most focus on either a single segment or a comparison of two segments. Still, there are some meaningful results. In general, it has been stated that, within the United States, Caucasians tend to behave in a greener manner than do the various minority segments (Gleim, et al., 2013). Within this realm of thinking is the perception that racial and ethnic minorities are the least concerned of the large segments of the US population about issues related to sustainability; but while noting that perception, the authors of a more recent study concluded that it was incorrect (Pearson, et al., 2018). As a partial testimony to this misperception, while earlier studies found that African Americans and foreign-born Hispanics are less likely to recycle than are Caucasians (Johnson, et al., 2004), other research found that the Hispanic and Asian segments were more likely to engage in green consumption than is the African American segment (Makower and Pike 2009). Johnson et al. (2004) also compared European Americans and Asian Americans on environmental concerns, but did not focus on differences in consumption patterns. Similarly, a more recent study on these same two ethnic segments failed to document a significant difference (Burns, et al., 2012). In a study of Chinese immigrants and US-born whites, Ma (2019) found that the Asian segment was more likely to conserve energy, drive fewer miles, and recycle waste.

Of the research addressing ethnicity and sustainability, much of it has focused on the Hispanic population in America. And the findings are somewhat mixed. For example, while stating that Hispanic consumers are more likely to engage in eco-friendly activities, they are simultaneously less inclined to dispose of waste in an eco-friendly manner (McCabe and Corona, 2011). And though Hispanics are viewed as clinging to their old culture and habits, they are said to care about being at the forefront of the move towards sustainability (Fackler, 2011). A broader study concluded that Hispanics and African Americans are more likely to be *alarmed* or *concerned* about global warming than are whites. In contrast, white consumers are more likely to be *doubtful* or *dismissive* than are their Hispanic and African American compatriots. If people of color are more concerned about climate change, then their actions as consumers are deemed likely to mirror this reality (Ballew, et al., 2020). So, much like the research on age and gender, the results emanating from research that has focused on ethnicity have been inconsistent.

### ***Overview of the Literature***

In terms of demographic segmentation, early global research on green consumers typically characterized them as young, married, with higher education, and higher income (Gilg et al., 2005). And while research of this ilk offers the premise that consumers of certain socio-demographic groups are more prone to engage in behavior aimed at sustainability, such findings are far from unanimous. Unfortunately, it was also stated that even if we know more about consumers as it relates to sustainability, that knowledge might not be converted into additional

sales. Why not? Because even when distinct relationships can be documented, it may well be that while consumers seem “willing to embrace sustainable behavior, the reality is that much like research on consumer ethics has shown, there is a likely gap between what they say and what they do” (Fullerton, 2019, p. 7). Thus, this stream of research is in need of further scrutiny in an effort to clarify the persistent contradictions and ambiguities.

## **RESEARCH OBJECTIVES**

The primary objective of the current study is to determine the relationship between an array of demographic variables and issues specific to sustainability. As with many studies, two of the demographic variables being examined are age and gender. But this study also includes ethnicity, education, and income – three demographic variables which have historically been less scrutinized. For sustainability, four specific issues are placed under the microscope. The dependent variables focus on two important aspects of the consumer – attitudes and behavior. Regarding attitudes, respondents provided input on two dependent variables: appropriateness for consumers to consider sustainability as a basis for making a decision to engage in anti-consumption behavior and the potential benefits of green consumption. The behavioral constructs include the frequency with which the respondent uses a marketer’s record on sustainability as a basis for excluding it from their personal consideration set of alternative brands that they might purchase and a broader measure of their own anti-consumption behavior.

## **METHODOLOGY**

A preliminary questionnaire for an omnibus study on anti-consumption was developed. Among the issues under scrutiny was sustainability. In order to monitor and control the demographic composition of the sample, the survey opened with questions designed to identify each respondent’s demographic makeup. Because demographic questions are often perceived as intrusive, these questions were unforced; reluctant respondents could simply click “I prefer not to answer.” A question regarding the appropriateness of consumers considering a marketer’s record on environmental sustainability as a basis for engaging in anti-consumption behavior (such as boycotts and the dissemination of negative reviews and word-of-mouth (WOM) about that marketer) was asked. Then the question of how frequently they personally used a marketer’s record on sustainability as a basis for excluding it from their own consideration set of alternatives – thereby engaging in a personal boycott – was asked. The final section included thirteen psychographic dimensions that were measured using multi-item scales for which previous research had assessed and confirmed their validity and reliability. Two of those psychographic dimensions were specifically related to behavior and attitudes that are associated with sustainability. Using an Internet-based protocol, this preliminary questionnaire was then pretested with a sample of 175 students at two universities in different geographic regions of the United States. A small number of changes were made, and the final questionnaire was readied for distribution to prospective participants for the study. Perhaps the most important changes that were made were the incorporation of multiple quality control checks which were designed to identify careless and inattentive respondents.



Upon completing the pretest and making the requisite modifications, the survey was delivered to Dynata, a large multinational provider of online research services. It was placed online and beta-tested in order to assure functionality. Once approved by the research team and the project manager, invitations to participate were sent to a representative sample of members of the Dynata consumer panel. The demographic composition of the sample was monitored as the results were compiled. The second and third waves of invitations were disproportionately sent to underrepresented demographic groups. This emphasis on younger consumers and those with lower levels of education brought the sample more in line with population parameters as reported in the 2020 Census of the US population. Data collection was completed in five days.

The preliminary step taken prior to the analysis process involved the cleansing of the data by identifying careless and inattentive respondents. The aforementioned quality control checks were fourfold. First, the opening question was a uniform identifier where respondents were asked to indicate the country where they were when completing the survey. The IP address for each respondent was used to verify that they were in the United States, so anyone responding otherwise (from the short list of countries) failed the initial QC check. The second QC check was an instructional manipulation check (IMC), also known as a directed response. Located at the approximate midpoint of the instrument (timewise), respondents were told that their attention was being checked, and they were directed to respond with “Frequently” which was second answer in the list of six potential responses. Anyone who clicked any answer other than the one that they were directed to click failed the second QC check. The third quality control check was a ReCAPTCHA question that was based upon common knowledge for people living in the United States. Respondents were given a list of six alternatives, and they were asked to click the one that was a city and not a country. Anyone who did not click on “Los Angeles” failed the third QC check. The final QC check was a time check. The lead investigator and the project manager estimated that completion of the 85-question survey by anyone giving it their full attention would take approximately eight minutes. Recognizing that there are speedier readers within the population, a timeframe of five minutes was deemed appropriate as the cut point. Anyone completing the survey in less than five minutes failed the final quality control check. While some fully attentive respondents may have been wrongfully dropped from the database and some inattentive respondents may well have passed all four QC checks, this cleansing process was deemed critical in the effort to acquire accurate data from the respondents who were retained for the subsequent analyses.

With the data in hand, the task turned to data analyses. The demographic variables were all structured as multiple-choice questions. For age, which was the third question on the questionnaire, the respondents were asked to indicate the age group to which they would belong at the end of the current calendar year. These groups used age ranges that corresponded to five generational cohort groups: Gen Z, Millennials, Gen X, Baby Boomers, and the Silent Generation. The Silent Generation segment also included a small number of our oldest citizens – known as the Greatest Generation – because no separate distinction was made for them in the age groupings. It is also important to note that respondents who indicated that they were “under 18” were not allowed to complete the survey, so the Gen Z segment does not include any of the youngest members of this generational cohort group. For the behavioral variables, appropriateness was measured using a balanced, six-point itemized rating scale that was

anchored by “Totally Appropriate” and “Totally Inappropriate;” whereas attitudes towards green consumption were measured using a three-item scale where each item was likewise measured using a balanced, six-point itemized rating scale. For behavior, the frequency in which the respondent used sustainability as an exclusionary basis for a marketer was measured using an unbalanced, six-point itemized rating scale that was anchored by “Always” and “Never.” Their own broad-based anti-consumption behavior was measured using a scale comprised of four items, each measured with a balanced, six-point itemized rating scale. All questions and scale items included a short descriptive term for each of the six potential responses. Furthermore, all four dependent variables were coded such that lower means represented a greener outcome, thus a stronger sustainability-based mindset – whether the focus was on attitudes or behavior. The reliability of the two multi-item scales was measured using Cronbach’s coefficient alpha.

Means were compared using a t-test when there were two groups (gender). When the demographic variable under scrutiny comprised three or more groups (generational cohort group, ethnicity, educational attainment, and income), then One-Way Analysis of Variance (ANOVA) in conjunction with the Scheffé Method of Multiple Comparisons were used to identify statistically significant differences. For each procedure, the benchmark for declaring that the means for the groups under scrutiny for a given demographic were not equal was  $p \leq .05$ .

## **RESULTS**

The initial process of cleansing the database was meaningful in the task of assuring the integrity of the data, thus the accuracy of the results. The original sample comprised 1,452 respondents who had answered all 85 questions. However, 514 respondents failed at least one of the four quality control checks. In fact, nine respondents failed all four. After dropping these 514 careless and inattentive respondents from the database, a final sample of 938 respondents was retained for the subsequent analytical procedures.

In regard to the quality control checks, there were several meaningful results. Of the 168 respondents who failed the time check, fully 137 of them (81.55%) failed at least one additional quality control check. So, there were 31 who failed the time check, but correctly responded to the other three checks. Still, the importance of the quality control checks cannot be overstated. While 256 respondents failed a single QC check, there were 184 who failed two. Another 65 failed three, and as earlier reported, nine respondents failed all four of the checks. Even the QC check that was the very first question that the respondents were asked to answer was missed by 30 individuals, or 2.1%, of the aggregate sample. Parenthetically, it should also be noted that respondents who identified as male were far more likely to be excluded due to the failure of one or more quality control checks than were the respondents who identified as female. The percentages of excluded respondents were 40.77% and 28.22% for men and women, respectively, thus combining for a disappointing aggregate drop rate of 35.40%. An overview of these results is provided in Table 1.

**Table 1. Results Pertinent to the Four Quality Control Checks**

<b>Number Failed</b>					<b>Number Failing</b>			
4	3	2	1	0	UI	IMC	ReC	TC
9	65	184	256	938	30	352	305	168

UI=Uniform Identifier IMC=Instructional Manipulation Check ReC=ReCAPTCHA TC=Time Check

Attention now shifts to the results based on the sample of 938 attentive respondents. The initial focus is on gender. The cleansed sample comprised 519 women and 417 men. One identified as gender neutral/binary while one other opted for the “I prefer not to answer” alternative. Given that only one individual responded with “gender neutral/binary,” the logical decision to examine gender from a dichotomous perspective was made. As such, t-tests were used to compare the answers of women and men. Thus, there were a total of 936 respondents used when examining gender. Prior to the comparison of group means, the reliability of the two multi-item scales was measured using Cronbach’s coefficient alpha. The alpha measure for the green consumption scale was a robust .901. For the anti-consumption scale, the alpha metric was .784. Both values were sufficiently high and support their use in the current study (Cronbach, 1951).

The initial demographic variable under scrutiny was gender. In contrast to the vast majority of studies on this subject, little difference was documented between men and women. Only one of the four variables was found to exhibit a significant difference between the means for the men and the women. That one variable was their attitude regarding the benefits of engaging in green consumption. As one would anticipate, with a mean of 7.57, women exhibited a more favorable opinion of the benefits associated with green consumption than did the men as indicated by their higher mean score of 8.08. The difference was significant at a level of .02. The results emanating from the gender-based tests are presented in Table 2. Note that the number in parentheses after each variable in the following tables represents the number of items comprising each scale.

**Table 2. Gender-Based Results**

<b>Variable</b>	<b>Beh/Att</b>	<b>Group Means</b>		<b>Significance</b>
		<b>Female</b>	<b>Male</b>	
Appropriateness/Sustain (1)	Attitude	2.14	2.19	.516
Frequency/Sustainability (1)	Behavior	4.26	4.14	.219
Green Consumption (3)	Attitude	7.57	8.08	.021
Anti-Consumption (4)	Behavior	12.67	12.83	.552

The next variable under scrutiny is age. It is important to recall that respondents were placed in age groups that represent the commonly articulated generational cohort groups. Based on historical precedent as identified in the preponderance of the evidence in the extant literature, one would anticipate that younger respondents are also greener respondents. First off, the assessment of means with ANOVA indicated that three of the four dependent variables exhibited unequal means across the comparisons of the five generational cohort groups. It was only the measure reflecting the perceived appropriateness of consumers using sustainability as a basis for engaging in anti-consumption behavior where the means across the five generational cohort groups were not shown to vary, thus the five group means are presumed to be equal. For the other three dependent variables, the hypothesis of equal means across the five groups was

rejected. The Scheffé Method of Multiple Comparisons provided some interesting results when assessing the differences two groups at a time. When looking at the frequency in which one uses sustainability as a basis for engaging in a personal boycott, the statistically significant results indicate that the mean score for Gen Z respondents was lower, thereby indicating a higher frequency of engaging in sustainability-based boycott decisions. Similarly, significant differences were documented for Millennials and the three older cohort groups. In each case, the Millennials exhibited a greater reliance on sustainability as a basis for a personal boycott; however, the nominal difference between Gen Z consumers and Millennials was not statistically significant. Turning to Gen Xers, they tended to agree with the youngest group and the oldest group while differing from Millennials and Baby Boomers. In that regard, they were less likely than were Millennials, while being more likely than Baby Boomers, to engage in personal boycotts because of perceived breaches in sustainability-based initiatives. When attention shifts to the Baby Boomers, as previously noted, there are differences between themselves and the Gen Z consumers, Millennials, and Gen X consumers; however, the difference when compared to the Silent Generation was not statistically significant. For the Silent Generation, as noted, the differences between them and the two youngest groups were statistically significant, but a difference between them and the Baby Boomers and Gen X consumers could not be confirmed. When attention was directed towards the green consumption scale, some interesting results surfaced. Even though the hypothesis of equal group means was rejected by virtue of ANOVA exhibiting a .003 level of significance, no pairwise comparison of group means using the Scheffé Method of Multiple Comparisons identified any specific group differences at the benchmark level of .05. The final dependent variable under scrutiny for this part of the analysis is the anti-consumption scale. The ANOVA results led to the rejection of the hypothesis of equal group means. When examining pairs of groups, one statistically significant outcome was apparent. Millennials were shown to be more inclined to engage in anti-consumption behavior in general. The statistics associated with the results regarding age are summarized in Table 3.

**Table 3. Age-Based Results**

<b>Variable</b>	<b>Beh/Att</b>	<b>Group Means</b>					<b>Sig.</b>
		<b>Gen Z</b>	<b>Mil</b>	<b>Gen X</b>	<b>BB</b>	<b>SG</b>	
Appropriateness/Sustain (1)	Attitude	2.24	2.08	2.05	2.30	2.00	.084
Frequency/Sustainability (1)	Behavior	3.50	3.60	4.14	4.62	4.50	.000
Green Consumption (3)	Attitude	7.30	6.24	6.53	7.09	7.78	.003
Anti-Consumption (4)	Behavior	12.50	11.74	13.46	13.40	12.88	.000

The third demographic variable to be examined is ethnicity. Despite the anecdotal evidence that might lead one to believe that different ethnic groups believe and behave in different ways, the evidence, as generated with ANOVA, failed to reject the hypothesis of equal means for any of the four dependent variables. Thus, irrespective of ethnicity, consumers in the United States appear to have much in common when it comes to sustainability – in terms of both attitudes and behaviors. The statistics associated with ethnicity-based results are presented in Table 4.

**Table 4. Ethnicity-Based Results**

Variable	Beh/Att	Group Means					Sig.
		AA	A/B	HIS	W/C	OTH	
Appropriateness/Sustain (1)	Attitude	1.89	2.17	2.10	2.20	1.76	.265
Frequency/Sustainability (1)	Behavior	4.09	4.27	3.82	4.25	4.00	.153
Green Consumption (3)	Attitude	6.25	6.42	6.54	7.89	5.84	.394
Anti-Consumption (4)	Behavior	12.73	12.46	12.28	12.83	12.84	.789

AA=Asian American A/B=African American/Black HIS=Hispanic W/C=White/Caucasian OTH=Other

The penultimate independent variable for which a detailed analysis was performed was the respondents' level of education. Of the four sustainability-based variables being investigated, only one exhibited statistically significant differences across the six group means. The hypothesis of equal means was rejected for the variable measuring the frequency with which the respondent used a marketer's record on sustainability as the basis for engaging in a personal boycott. So, there was no discernable difference in the two variables that measured attitudes, nor was there a statistically significant difference on the scale measuring general anti-consumption behavior. Focusing on the group means for the frequency variable where differences were documented, there are several identifiable comparisons where the group means are not equal. Of note is the finding that the mean scores for those with a bachelor's degree and an advanced degree were almost identical, thus no difference could be inferred. But both of these groups reportedly engaged in sustainability-based boycotts more frequently than did those with only a high school education. Furthermore, those with a bachelor's degree were more active in this regard than were the respondents who had completed some college, but had not earned a degree. This group could be former students who dropped out of college or current students who had not yet completed their studies. The results associated with education are presented in Table 5.

**Table 5. Education-Based Results**

Variable	Beh/Att	Group Means						Sig.
		<HS	HS	SC	AD	BD	AV	
Appropriateness/Sustain (1)	Att.	2.89	2.26	2.16	2.17	2.08	2.13	.375
Frequency/Sustainability (1)	Beh.	4.44	4.55	4.44	4.30	3.96	3.93	.000
Green Consumption (3)	Att.	6.22	6.83	7.15	6.77	6.50	6.77	.100
Anti-Consumption (4)	Beh.	16.00	12.89	12.90	13.19	12.52	12.29	.083

<HS=<High School HS=High School SC=Some College AD=Associate Degree BD=Bachelor Degree AV=Advanced Degree

The final demographic variable examined in this study was the respondent's annual income. The survey question had eight income categories from which the respondents were directed to indicate the category into which they fell. But, since the top three categories were comprised of comparatively small numbers of respondents, they were combined into a single category ( $\geq \$150,000$ ). Therefore, the final analysis comprised six groups rather than the original eight. The ANOVA assessment resulted in a common outcome being identified. Neither of the attitudinal variables exhibited a significant difference across the group means. However, significant differences were documented – in this case – for both of the behavioral variables. Different income groups were shown to behave differently in terms of the frequency in which they engage in sustainability-related boycotts as well as the extent to which they engage in general anti-consumption behavior as measured by the four-item scale on anti-consumption

behavior. Though the hypothesis of equal group means was rejected for these two variables, few pairwise differences were identified by the Scheffé procedure. For the frequency variable, the comparisons indicated that consumers earning between \$100,000 and \$149,999 were more inclined to engage in a personal boycott than were those who reported their annual income to fall within the range of \$25,000 and \$49,999. No other groups were found to significantly differ. For the anti-consumption behavior scale, again only one significant pairwise difference was documented. For that variable, respondents with an income of \$100,000 to \$149,999 were found to engage in anti-consumption behavior more frequently than did the lowest income group (those with an annual income of less than \$25,000). The income-based results are presented in Table 6.

**Table 6. Income-Based Results**

Variable	Beh/Att	Group Means						Sig.
		<\$25k	\$25k- \$50k	\$50k- \$75k	\$75k- \$100k	\$100k- \$150k	>\$150k	
Appropriateness/Sustain (1)	Att.	2.13	2.21	2.22	2.14	1.86	2.27	.341
Frequency/Sustainability (1)	Beh.	4.34	4.37	4.20	3.98	3.75	4.21	.011
Green Consumption (3)	Att.	6.69	6.88	7.04	6.57	6.76	6.30	.629
Anti-Consumption (4)	Beh.	13.24	12.69	13.02	12.86	11.26	12.62	.017

Note: Higher measure of each range is \$1 higher than survey answer, e.g., \$50k was actually \$49,999

## DISCUSSION

This discussion will begin by addressing a point regarding a procedural issue rather than the research objectives that were earlier delineated. The dropping of 31 individuals who failed the time check while concurrently passing all three of the other quality control checks may indicate that the benchmark for failure was too high. For future studies, rather than making a subjective *a priori* decision regarding the requisite time, it is suggested that the entire data set be examined in order to determine the ideal cut point *post hoc*. While some of those 31 respondents may have gotten lucky on the three multiple-choice questions, the idea of dropping over two percent of the sample is somewhat disconcerting, especially if it turns out that the researcher has deleted a number of valid responses. The use of multiple quality control checks proved beneficial. On a multiple-choice question, some respondents who provide a random answer will get it correct by happenstance, thereby passing the QC check. But those odds go down when there are multiple checks as there were in this study. Thus, there is no doubt that the resultant database was comprised of attentive respondents and that the accuracy of the data has been enhanced via this cleansing process. As a consequence, managerial decisions based upon the clean dataset stand a better chance of being effective.

Next, attention is redirected to the original set of research objectives. Of interest, and surprise, was the finding that there was little difference between men and women. The bulk of the research over the years has concluded that women are more supportive of green initiatives than are men, and that women are more likely to engage in boycotts and other forms of anti-consumption behavior. In this study, women were found to be more supportive than were men on one of the four dependent variables; however, no significant difference was documented for the

other three. Are the two genders converging towards congruence? More research that examines this relationship is called for.

When looking at age, the only dependent variable where the hypothesis of equal group means could not be rejected was the variable measuring the perceived appropriateness of consumers considering sustainability as a rationale for engaging in anti-consumption behavior. So, that consideration is consistent across all five cohort groups. But when assessing the relationship between age and the frequency of using a marketer's record on sustainability as a basis for engaging in personal boycotts, several differences were identified. In general, Gen Z and the Millennials were more likely to engage in such behavior. When assessing attitudes towards green consumption, the hypothesis of equal group means was rejected, but no pairwise differences were identifiable. Anecdotally though, one might be led to believe that it is the Millennials who most strongly believe in the benefits associated with green consumption. When evaluating the anti-consumption scale, the Millennials were the group that stood out as most oriented towards sustainability due to their tendency to engage in a broader array of anti-consumption actions. Though there is no definitive progression of means from youngest to oldest, the evidence does point towards the two younger groups being more oriented towards actions based upon sustainability-related goals. As a point of emphasis, it is important to note that there were almost no differences when comparing attitudes across the five groups, but there were several discernable differences when sustainability-based behavior was the focus.

When looking at ethnicity, despite evidence in the literature that might lead one to anticipate differences in regard to sustainability, no significant differences were found. Thus, it appears that within the United States, the various ethnic groups are all on the same page with similar attitudes and similar behavior in regard to sustainability and anti-consumption.

The sample was segmented into six groups based on the respondents' level of educational attainment. Significant differences were documented for only one of the four dependent variables under scrutiny: frequency. The broad implication is that consumers with at least a bachelor's degree exhibit a tendency to engage in personal boycotts more frequently than do those with a lower level of education. And while the anecdotal evidence seems to support this premise, the comparatively small segment of respondents without a high school diploma made it difficult to attain statistically significant results that would provide substantive evidence in support of the premise that that relationship does exist. So, based upon the evidence that did surface, the oft-stated premise that a higher level of education is associated with a greater propensity to engage in a boycott as a form of anti-consumption behavior is supported.

Income was found to be related to both of the variables that represented measures of the consumer's individual behavior, but neither variable that measured attitudes. Though there was no uniform progression from one income level to the next, the results did indicate that one of the highest earning groups tended to engage in sustainability-based behavior more so than did two of the somewhat lower income groups. So, there is rudimentary evidence that higher income is related to green behavior.

One noteworthy trend is apparent when one looks at the extent to which each dependent variable was associated with unequal group means. For each of the four dependent variables, there was the maximum potential to have the hypothesis of equal means rejected five times (once for each demographic variable). When evaluating this possibility for the respondents' overall belief that it is appropriate to consider a marketer's record on sustainability as a reason to engage in anti-consumption behavior, the hypothesis of equal means was not rejected for any of the five demographics. The implication is that, irrespective of one's demographic make-up, and based upon a grand mean of 2.16 on the six-point scale, we all tend to be in agreement that the use of sustainability as a basis for punishing a marketer via anti-consumption behavior is appropriate. However, when focusing on one's decision to personally avoid a marketer due to concerns about sustainability, there were three variables (age, education, and income) where differences were apparent. So, when it comes to action, consumers appear to not all be on the same page. Shifting back to attitudes, demographics were found to be associated with the consumers' attitudes on the benefits of green consumption a total of two times (gender and age). These two demographic variables have often been part of studies examining green behavior, and they are most always found to be associated with green consumption behavior. A final look at behavior focuses on one's frequency of engaging in an array of anti-consumption behaviors. In this regard, this behavior was associated with two demographic variables (age and income). Age is related to three of four dependent variables, so it may represent best basis to use to segment the market for the purpose of developing customized initiatives designed to influence green behavior.

Also of interest is the fact that when the focus was on attitudes there were two cases where the presence of unequal means was concluded. Conversely, there were five associated with overt behavior where the same conclusion of unequal group means was drawn. Thus, it appears that consumers in the United States are relatively uniform with regard to attitudes about sustainability, but that there are more meaningful differences when the focus turns to individual behavior. Undoubtedly, this disparity is in keeping with research that has documented the *green gap* – a difference between what we say and what we do in regard to green behavior. Still, the positive attitudes in general represent an opportunity to convert green thinkers into green doers.

## CONCLUSIONS

Despite being far from a new concept, sustainability is one of the buzzwords that has grown in stature in the 21<sup>st</sup> century. And buzzwords always get the attention of researchers. This research has found that attitudes regarding sustainability and anti-consumption differ little across groups of consumers defined on the basis of five key demographic variables. The primary exception to that statement is age. Confirming much of the earlier work on sustainability, it is evident that younger consumers, particularly Millennials, have a stronger commitment to maintaining a clean, vibrant world far into the future. The green gap is also apparent as there are noticeable differences between what consumers think and what they do in regard to sustainability. The bottom line is that other than age, consumers in the United States tend to believe and behave in a similar manner. This reality should provide marketers with better ideas as to how to engage green consumers as well as brown consumers. It should also provide watchdog groups and government entities that promote sustainability ideas as to how to better target consumers with



initiatives and promotional efforts designed to influence their decision to voluntarily behave in a greener manner.

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