

Article

Investigation of a Consumer's Purchase Intentions and Behaviors towards Environmentally Friendly Grocery Packaging

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Abstract: Plastic packaging dominates the US grocery industry. This realization raises the question of whether consumers are purchasing food that is not wrapped in conventional plastic but environmentally friendly packaging. This quantitative study adapted the Theory of Planned Behavior to investigate the relationship between consumers' socio-demographics, purchase intention, and purchasing behavior regarding environmentally friendly grocery packaging. The survey was distributed through Qualtrics, and a sample of 487 eligible US grocery consumers was gathered. The study uncovers some novel findings. First, the results suggest that consumers' subjective norms substantially stimulate environmentally friendly grocery packaging purchase intentions, influencing actual purchasing behavior. Second, we discovered that purchase intention and perceived behavioral control are likely working in conjunction to help bridge the intention-behavior gap in environmentally friendly consumption. Third, this study supplied a fresh perspective on socio-demographics' role in environmentally friendly consumption, confirming that predominantly younger, unmarried consumers are more prone to purchase grocery items packaged in environmentally friendly materials. We hope that these study findings provide marketers with fresh insights into the characteristics of consumers willing to purchase grocery items packaged in environmentally friendly materials.

Keywords: environmentally friendly grocery packaging; consumer behavior; socio-demographics; sustainable consumption; packaging waste



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1. Introduction

Throughout the world, hundreds of millions of consumers purchase items from grocery stores to sustain their households. Many of the products are wrapped in single-use packaging which is thrown away shortly after purchase [1]. The average American household will use over 500,000 tons of plastic grocery packaging within a year [2]. The high level of grocery plastic waste has motivated many food brands and grocers to provide innovative, new, environmentally friendly packaging alternatives. Packaged food brands in the United States, such as Boxed Water is Better, Celestial Tea, and No Evil Foods, are leading the change by providing consumers with environmentally friendly packaging alternatives within the food industry [3]. Despite the less destructive environmental impact of environmentally friendly packaging, it is only a partial solution to address society's overall packaging waste issues. Limiting the purchase of single-use plastic packaging or avoiding the purchase of plastic packaging whenever possible are the most environmentally friendly options [4]. Grocery stores are now offering consumers bulk bins to combat waste. This option provides consumers with a more environmentally friendly option such that instead of using single-use plastic bags to carry their grocery items, consumers are able

to use their own reusable vegetable or fruit bags to hold their food contents. Zero-waste consumption is the optimal solution to combating food packaging waste; however, this format is not widely accessible nor accepted in most geographic areas. For example, the zero-waste concept has resonated much better with consumers in Europe and Canada than in the United States, where awareness is growing and could accelerate an increase of zero-waste stores [5]. High rates of waste generation, pollution, and climate-related catastrophes resulted in a growing number of consumers becoming more concerned about the environment. For example, multiple cross-cultural studies show that in the midst of the COVID-19 pandemic, individual consumers across the world felt obliged to “do good” and “behave more sustainably and responsibly” to preserve our natural environment [6–8]. In response, global brands are developing environmentally friendly packaging alternatives to help reduce waste pollution and greenhouse gas emissions. Kellogg’s, a leader in the food manufacturing industry, has pledged to transition to 100% environmentally sustainable packaging by 2025 [9]. Coca-Cola, another major producer within the consumer packaged goods industry, aims to use 50% recycled packaging by the year 2030 while also seeking to produce label-less bottles to reduce plastic from their products [10]. The importance and popularity of sustainable packaging initiatives suggests more information is needed to better understand the impact on consumers’ shopping and purchase behaviors. This study applied Ajzen’s (1991) Theory of Planned Behavior to investigate the relationship between various socio-demographic variables (age, income, gender, education, marital status) to a consumer’s purchase intentions and actual purchasing behaviors regarding environmentally friendly grocery packaging (EFGP) [11]. The research also investigated consumers’ attitudes towards EFGP, subjective norms, perceived behavioral control towards purchasing EFGP, and environmental concerns on their purchase intentions and actual purchasing behaviors.

1.1. Socio-Demographic Analysis

Research investigating environmentally friendly behaviors and socio-demographic variables has been used to better understand the process of targeting and segmenting consumer groups. Targeting various consumer groups with environmentally friendly messaging might, in turn, change particular consumer behaviors. One study, only sampling younger consumers, found that these consumers have high-environmental consciousness, attitudes, and purchase intentions towards retailers who offer environmentally friendly shopping bags [12]. Another study examined environmental consciousness in consumers by utilizing socio-demographic variables, concluding that more research is needed to comprehend the connection between socio-demographic and environmental consciousness [13]. Understanding how consumers within the various socio-demographic groups approach environmentally friendly packaging is still developing, making it essential to understand so that companies can better meet the needs of those specific groups. Figure 1 provides a visual depiction of the relationship between the constructs.

The Theory of Planned Behavior was created to understand the predictive variables that lead consumer intention or behavior. The constructs within TPB are attitudes towards the specific behavior, subjective norms, perceived behavioral control, intention towards the behavior, and the behavior [11]. From these constructs, the Theory of Planned Behavior posits that attitudes, subjective norms, and perceived behavioral control all influence intention. This theory assumes that the constructs mentioned above can assist in predicting behavior. Previous studies examining environmentally friendly packaging extended the TBA model to capture more consumer behavioral insights. Prakash and Pathak (2015) included the willingness to pay and environmental concern to understand how consumers view environmentally friendly packaging [14]. Auliandri et al. (2018) extended the TPB model by including environmental concern as a construct to understand how it interacts and influences consumer attitudes [15]. This research study aimed to further the knowledge of consumer behavior towards EFGP by applying the TPB to investigate the relationship between purchasing intention and purchasing behavior toward environmentally friendly

grocery packaging. Few studies have not investigated the connection between consumer intent and actual behavior. Furthermore, no study has investigated this link in the context of environmentally friendly grocery packaging. To the researchers' knowledge, this is the first study to examine socio-demographic variables' impacts as moderators between consumers' intentions and purchasing behaviors towards environmentally friendly grocery packaging. The inclusion of socio-demographic variables is intended to provide insights into which demographic groupings have the most impactful moderating effect on the relationship between purchase intention and actual behavior. Findings provided an in-depth analysis of the ever-evolving behaviors of different demographic groups and how each group interacts with environmentally friendly grocery packaging. Insights into the role that various socio-demographic groups play in the consumption of EFGP are relevant in delivering a sharper understanding of which groups are more likely to purchase grocery items with environmentally friendly packaging.

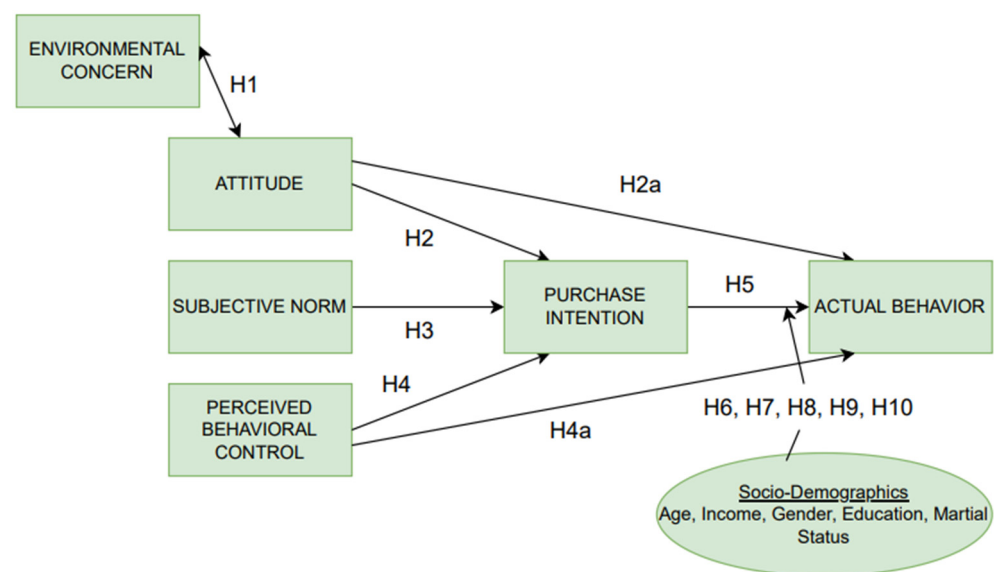


Figure 1. Conceptual framework of socio-demographic variables' relationships with purchase intention and purchasing behavior of environmentally friendly grocery packaging.

1.2. Consumer Behavior concerning Environmentally Friendly Grocery Packaging

Most consumers care more about the quality and safety provided by food packaging rather than environmental friendliness [16]. This sentiment conveys the understanding that consumers consider different packaging elements when making their purchasing decisions. Lindh et al. (2016) found that consumers often consider the food packaging material before purchasing [17]. Another study's findings suggest that consumers are willing to pay more for grocery products packaged in a returnable milk glass [18]. Cavaliere et al. (2020) claimed that consumers are more likely to avoid plastic packaged products if they are concerned about the environment and are somewhat knowledgeable about the negative impacts of plastic materials and packaging [19]. However, they are unwilling to pay a premium price for reusable packaging alternatives [20]. The unwillingness to pay a premium for environmentally friendly packaging brings into question which specific predictors lead consumers to purchase EFGP. This knowledge can further provide the basis for influencing consumers to choose grocery items packaged in environmentally friendly materials.

The concept of zero-waste consumption (the action of reducing packaging or not using packaging entirely) has become more prevalent as more consumers embrace environmentally friendly lifestyles. Many grocery stores have adopted this model, in which packaging is limited, and customers purchase their items from bulk bins or without packaging [21]. In a study investigating grocery stores whose sustainability model is packaging-free, findings pointed to consumers who are categorized as socially responsible and sensitive to

food waste as the most likely to purchase groceries without packaging [22]. However, plastic-free grocers have to address many barriers that consumers might face to make this a feasible option. These barriers include the environmental impact of glass containers, long commutes to shopping at the stores, and cleaning protocols for a closed-loop packaging strategy, which is the practice of recycling packaging back into the production loop to be resold and reused, extending the life of the materials [23]. The most significant barrier for packaging-free grocery stores is that many foods often perish more quickly without an airtight seal [24]. Consumer perceptions of food packaging have been observed as being tightly interwoven with their perception of food quality [25].

1.3. Consumer Attitude–Behavior Gap

Previous researchers have sought to better understand the steps that bring consumers to perform various environmentally friendly behaviors. Specifically, research has focused on which factors might cause a consumer to have high intentions to engage in environmentally friendly behavior but which may also prevent them from not following through in performing these actions [1]. This has become known as the attitude–behavior gap concerning environmentally friendly behaviors. One study investigated this gap further, finding that many consumers have high intent to purchase sustainable packaging but that they failed to follow through with the behavior [26]. Another study observed the unwillingness of consumers to pay more for environmentally friendly packaging, which might drive the gap between their intention and behavior [27]. Researchers within the sustainability field have been trying to better understand the factors that lead to the behavior gap for environmentally friendly products. Steenis et al. (2017) argued that consumers might need more knowledge about environmentally friendly packaging before changing their behavior [28]. Despite the large percentage of consumers considering environmentally friendly packaging when buying products, there is still much work to inform customers about the benefits of environmentally friendly packaging solutions [29]. Zhou et al. (2014) concluded that companies and governments need to do more to educate their citizens about the importance of environmentally friendly behavior with the hopes that their behaviors will change [30]. Knowledge of the seven pillars of sustainable packaging can provide companies with a foundation for waste reduction and an increase in grocery packaging longevity [11,21]. The seven Rs of sustainable packaging are defined as rethink, refuse, reuse, reduce, repurpose, recycle, and rot [11,21]. Each of the 7 Rs of sustainable packaging can offer companies an improved framework to position their environmentally friendly packaging strategies, and they are critical tools in the effort to decrease single-use grocery packaging.

1.4. Research Hypotheses

Environmental Concern. The role that an individual's environmental concern plays is critical in understanding their environmentally friendly behaviors. An individual's environmental concern is their values or attitudes toward environmental issues or causes in the world around them [31–34]. Environmental concern provided a more comprehensive understanding of how consumers' relationships with the environment affect their attitudes towards environmentally friendly grocery packaging. Based on the information presented, we hypothesized:

H1. *Environmental concerns have a positive influence on consumer attitudes towards environmentally friendly grocery packaging.*

Attitudes toward Environmentally Friendly Grocery Packaging. Attitude is one of the primary influences on an individual's intention and behavior, as plotted in the TPB framework. Ajzen (1991) claimed that the likelihood of an individual performing a behavior is affected by how favorable or unfavorable the individual's attitude toward that specific behavior is [14]. Studies found a positive influence between attitudes and intention. Smith et al. (2008) explored the connection between attitudes and behavior, finding a significant relationship between attitudes and intention [35]. This finding also suggested a positive

influence between attitudes and actual self-reported behaviors. Based on the information presented, we hypothesized:

H2. *A consumer's attitude toward environmentally friendly grocery packaging has a positive influence towards purchase intention.*

H2a. *A consumer's attitude toward environmentally friendly grocery packaging has a positive influence towards actual purchases made.*

Subjective Norms. Subjective norms are the perceived expectations for those close to an individual who can influence their behaviors [14]. This construct is understood as peer influence, which often directly correlates to an individual's behavior. Within the context of this research, we predicted subjective norms to influence a consumer's purchasing intention to environmentally friendly behaviors. The past literature suggests a strong correlation between the two constructs in environmentally friendly consumption [15,16]. Subjective norms provide a basis of how peers or external individuals influence and alter an individual's intentions to perform a specific behavior. Based on the information presented, we hypothesized:

H3. *Subjective norms positively influence a consumer's purchase intention toward EFGP.*

Perceived Behavioral Control. Understanding the perceived level of difficulty or ability an individual might need to perform a specific behavior can assist in determining if they will, as a result, perform the behavior. Ajzen (1991) included this construct in the TPB as a factor of the will or motivation that an individual might perform the behavior [14]. This construct is an essential aspect of TPB, as attitudes, and subjective norms might heavily influence one's intention; however, perceived behavioral control can be considered the last step before a behavior is performed. The literature found a link between perceived behavioral control and purchase intention, which correlated to self-reported environmentally friendly behaviors [36]. Based on the information presented, we hypothesized:

H4. *Perceived Behavioral Control has a positive influence on a consumer's purchase intention toward groceries packaged in environmentally friendly grocery packaging.*

H4a. *Perceived Behavioral Control has a positive influence on a consumer's actual purchase of groceries packaged in environmentally friendly grocery packaging.*

Purchase Intention to Environmentally Friendly Grocery Packaging. Purchase intention is the consumer's goal of purchasing a specific product or service. It is often a gauge of how strongly the consumer is willing to perform their purchasing behaviors. Within the TPB framework, an individual's intention is a crucial motivational factor influencing the behavior [14]. Many studies investigated only the predictive factors that led to intention; however, this study furthered the understanding by investigating the influence of intention on self-reported actual purchase behaviors. The previous literature found a positive correlation between both constructs meaning that consumers that have a positive attitude towards environmentally friendly grocery packaging are more likely to purchase those in reality [36]. This finding provided a direct correlation between purchasing intention and actual purchasing behavior. Based on the information presented, we hypothesized:

H5. *Purchase intention towards EFGP positively influences actual purchases of grocery items packaged in environmentally friendly grocery packaging.*

Socio-Demographics. Socio-demographic variables were utilized as moderators to examine the relationship between purchase intention and behavior. This study analyzed how the strength of each socio-demographic variable influenced the relationship between purchase intention and behavior towards EFGP. The socio-demographic variables studied included: age, income, gender, education, and marital status.

Age. Many studies explored how people of different ages have different intentions to engage in 'environmentally friendly behaviors. For example, one study compared the intentions to engage in environmentally friendly behaviors between older and younger

consumers [12]. Most of the literature observed heightened pro-environmental behaviors for older individuals, suggesting that the older the individual, the higher the likelihood of them performing environmentally friendly behaviors.

H6. *The influence of intention on behavior is stronger for older consumers compared to younger consumers.*

Income. There are studies that investigate how income figures into consumer decisions to buy environmentally friendly packaged grocery items. Typically, environmentally friendly products are sold at a premium price, causing researchers to posit that most consumers have the intention to pay more for those products [6,27]. Research pointed to higher incomes playing a significant role in environmentally friendly behaviors, translating into purchasing behaviors. Based on the information presented, we hypothesized:

H7. *The influence of intention on behavior is stronger for consumers with a higher income compared to consumers with a lower income.*

Gender. Numerous studies uncovered a gender gap between men's and women's environmental sustainability intentions and behaviors, and there is evidence that many factors contribute to this gap [13,27]. Overall, women are found to place more value on environmental sustainability, which supported the following hypothesis:

H8. *The influence of intention on behavior is stronger for women compared to men.*

Education. Zhao et al. (2014) observed a correlation between education level and environmentally friendly behaviors [30]. Those who obtained a higher level of education are more likely to perform environmentally friendly behaviors, are more likely to be concerned about the environment, and are more knowledgeable about environmental issues [37,38]. These studies suggested the understanding that higher education levels can lead to a higher probability of performing environmentally friendly behaviors, which can contribute to the purchasing of EFGP. Insight into education's role in environmentally friendly behavior permitted us to claim the following hypothesis:

H9. *The influence of intention on behavior is stronger for those with higher educational attainment compared to those with lower educational attainment.*

Marital Status. Marital status often plays a crucial role in purchasing behaviors as most decisions are made jointly if the couple is married [39]. The literature uncovered that married individuals are more likely to shop for environmentally friendly products [40]. Marital status was investigated to provide a clearer understanding of its influence on the actual purchasing behaviors of EFGP. Based on the information presented, we hypothesized:

H10. *The influence of intention on behavior is stronger for married consumers than for those who are not married.*

2. Materials and Methods

This study employed a quantitative methodology to collect consumer data and investigated the purchasing behaviors of consumers toward grocery items packaged in environmentally friendly packaging. The survey examined attitudes toward EFGP, environmental concern, subjective norms, perceived behavioral control, purchase intention, and consumer self-reported purchasing behaviors toward EFGP. The dependent variables in the conceptual framework were purchase intention and purchasing behavior. When taking the survey, respondents were asked to report their recent purchasing behavior to understand consumers' actual behavior when purchasing food items in environmentally friendly packaging. Rausch and Kopplin (2020) collected data from respondents on their self-reported purchasing behaviors, further understanding their actual behaviors when purchasing sustainably [41]. The independent variables in this study were environmental concerns, attitudes, subjective norms, perceived behavioral control, and socio-demographic variables. The relationships between the independent and dependent

variables led to a better understanding of the purchasing behaviors of consumers toward environmentally-friendly-packaged grocery items. The study also investigated if and how socio-demographics affect purchasing behaviors.

2.1. Approach

The measures included in the conceptual framework were gathered from the previous literature studying the same constructs. This study integrated scales from Auliandri et al. (2018) to investigate the measures of attitude, environmental concern, subjective norms, perceived behavioral control, and purchase intention in the measure analysis [15]. Each of the previously mentioned measures were ordinal values, as the survey measured their level of agreement with the measurement using the Likert 5-point scale. The two endpoints of the scale were “strongly disagree” and “strongly agree,” with the option for “neutral” as a midpoint. The items from the constructs were adopted from Auliandri et al. (2018) and included 276 respondents [15]. The survey consisted of 24 items, of which 21 items were adopted and modified to fit within the context of this study. The adopted constructs were attitudes toward green packaging, subjective norms, perceived behavioral control, and purchase intention. The actual purchase variable was adopted from Rausch and Kopplin (2020), who investigated their past purchasing behaviors [41]. This measure had an alpha value of 0.854 and had four items on the survey. This measure was nominal, using “Yes” or “No.” The choice to include actual purchases as a nominal scale was made with the understanding that the individual had or had not performed that specific behavior. The sociodemographic variables were measured using nominal, interval, and ratio scales. The items from Auliandri et al.’s (2018) and Rausch and Kopplin’s (2020) studies were modified to fit the specific context of environmentally friendly grocery packaging [15,41]. Auliandri et al.’s (2018) and Rausch and Kopplin’s (2020) scales and items were valid and reliable [15,41]. Data analysis was performed using SPSS version 25. The data was cleaned after the survey was completed, and any incomplete responses under 3 min were removed.

2.2. Packaging Types

Consumer knowledge of packaging types is limited, as many consumers are unable to distinguish packaging types and their disposal methods. There are three packaging levels that include primary, secondary, and tertiary, each of which serves a specific purpose in the supply chain to produce or provide value to the customer [42]. To limit the bias within responses due to most consumers not having extensive knowledge of different packaging types, we applied a broad understanding of the types of packaging that consumers might purchase. This study did not differentiate the packaging levels and assumed the understanding that respondents would answer based on their knowledge of the packaging in any of the three levels. Table 1 provides the different packaging types and their meanings [42].

Table 1. Levels of packaging.

Levels of Packaging	Description
Primary Packaging	<ul style="list-style-type: none"> • Touches the product • Protects the product • Used to inform or attract the customer • Referred to as “Retail Packaging”
Secondary Packaging	<ul style="list-style-type: none"> • Used to ship the product in its primary packaging • Protect the products and provides branding during shipping
Tertiary Packaging	<ul style="list-style-type: none"> • Used in warehouses to ship the secondary packaging • Protect the shipment while in transit • Not typically seen by customers

2.3. Data Collection

This study examined purchasing behaviors toward environmentally friendly grocery packaging among consumers. Thus, consumers who have recently made in-store grocery purchases were sampled. The sampling frame was United States consumers over 18 years old who purchase groceries. Since the demographic variables are pertinent to the research, no additional parameters were placed in the sample. The IRB approval was obtained prior to distributing the survey. To secure high participation authors distributed the Qualtrics survey across personal, institutional, and professional social media platforms. Data were collected over four weeks in Spring 2022. The final sample included 487 survey participants ($N = 487$). All participants confirmed that they exhibited some forms of environmentally friendly behaviors in the recent past which made them eligible for inclusion in this study. All participants gave electronic informed consent for participation.

3. Results

Sampling parameters from this survey required that all respondents reside within the United States. The majority of respondents resided within major urban areas, including the Dallas–Fort Worth metroplex, the New York tri-state area, Los Angeles, Seattle, and Denver (see Appendix A, Figure A1). The majority of respondents were males, representing 57% of the sample, with females comprising 43% of the sample (Figure 2). Respondents 18–34 years of age made up 61% of the sample; 54% of the sample had a bachelor's degree, with 86% earning \$79,000 or under a year. A total of 67% of respondents in the sample reported being married, while the single/never married respondents comprised 30% of the sample.

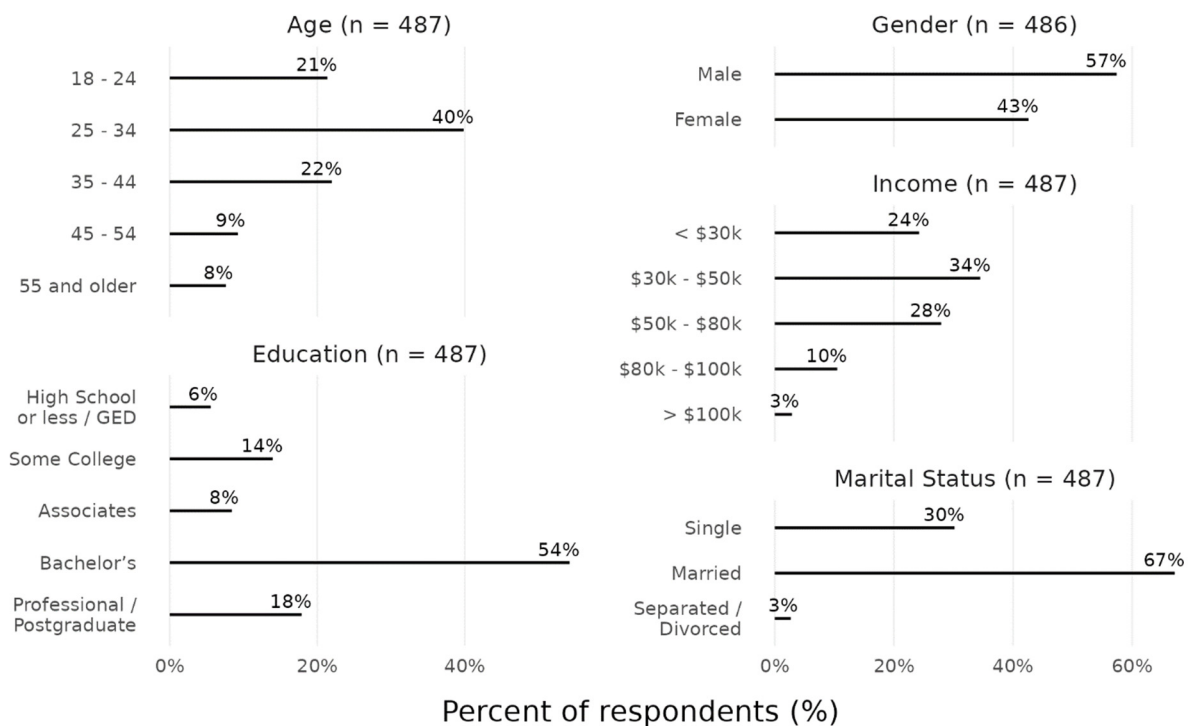


Figure 2. Demographics of Respondents.

Respondents indicated their specific environmentally friendly behaviors and types of packaging of recent purchases. Figure 3 reflects their responses and shows that, for example, 68% of the respondents recycled parts of their grocery packaging in the past.

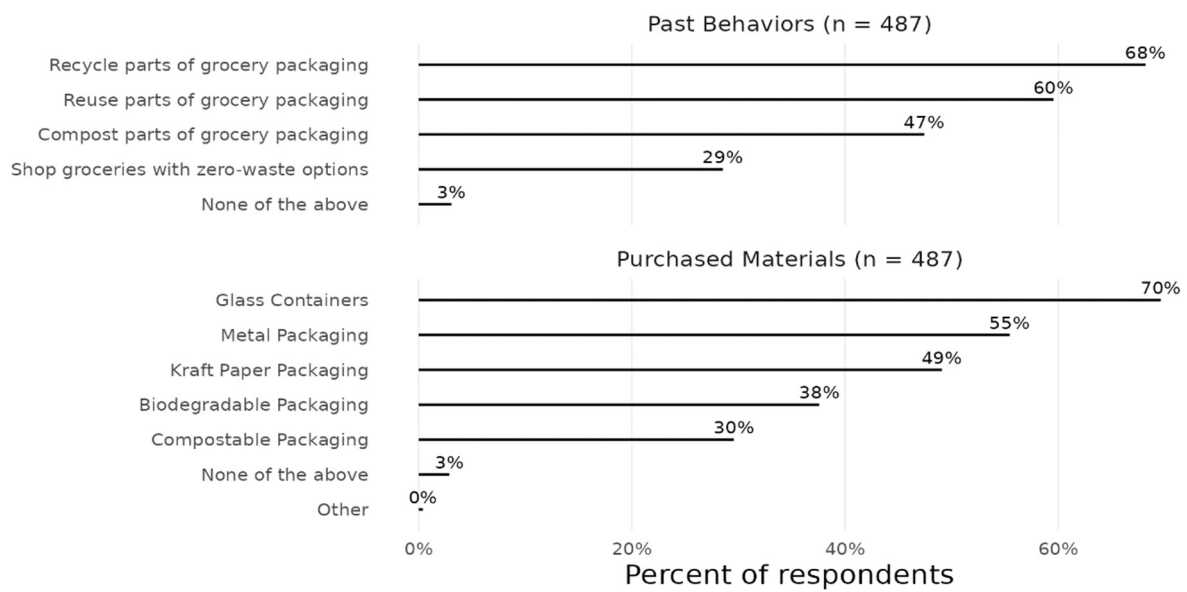


Figure 3. Past purchasing behaviors toward environmentally friendly grocery packaging.

Considering this study sample, our findings suggest that in the midst of the pandemic consumers in the United States recycled at a higher rate than previously measured. Whether this behavioral change was an anomaly or an indication of sustained behavior warrants future investigation. Furthermore, as shown in Figure 3, consumers also opted to reuse their grocery packaging. Reuse is one of the seven Rs of sustainable packaging. Adhering to this principle, brands may alter their packaging for consumers to use more than once [21]. For example, some consumers reuse a cloth produce bag when going to the grocery store. Findings also suggest a more-than-expected number of respondents claiming to have composted parts of their grocery packaging. Such results are surprising as the acceptance of composting is not as prevalent as other environmentally friendly behaviors [8]. This increase might be explained by consumers who are increasingly composting their organically comprised packaging instead of throwing the packaging away to end its lifecycle in a landfill.

Findings regarding the zero-waste packaging option were also higher than expected, with 29% of respondents reporting shopping for groceries at locations that offer zero-waste options. Zero-waste, the process of the elimination of single-use packaging, is the most environmentally friendly consumption behavior compared to the other options as it provides a closed loop system in which non-circular packaging is eliminated. For example, consumers who incorporate zero-waste behaviors might exhibit the following behaviors: shopping at zero-waste stores while bringing their reusable grocery bags to be refilled or shopping at the local farmer's market with their reusable bags. For those who might not have a zero-waste store or a farmer's market within their proximity, chain grocery stores such as WinCo Foods, Whole Foods, and Natural Grocers offer reusable bulk bins. As observed in Figure 3, 70% of the respondents reported that they had purchased packaging composed of glass. Glass packaging is one of the most accessible environmentally friendly grocery packaging types, as many items in the grocery store are packaged in glass containers. Surprisingly, 38% of respondents reported that they have purchased biodegradable packaging, while 30% reported that they have purchased compostable packaging. Biodegradable and compostable packaging both are highly environmentally friendly as they both break down in the natural environment in a short period. These types of packaging are not as widely available; however, many consumers are expecting brands to introduce more packaging to appeal to their environmentally friendly lifestyles [43]. Both the investigation into past purchasing behaviors and purchased packaging types indicate that our respondents were in fact purchasing environmentally friendly grocery packaging and were performing environmentally friendly behaviors.

3.1. Construct Relationship Analysis

Investigation into the construct relationships called for a bivariate correlation between attitude toward EFGP and environmental concern. Table 2 portrays the bivariate correlation between the constructs. The relationship between the two variables was significant (0.662 **). Hypothesis 1 was supported through this analysis. Such findings confirm that environmental concern positively influences attitudes toward pro-environmental behavior. This relationship indicates that consumers with deep environmental concerns will likely have strong positive attitudes towards EFGP. Next, a bivariate correlation was conducted to investigate the relationship between attitude, subjective norms, and perceived behavioral control to purchase intention. All three constructs had a significant relationship with purchase intention toward EFGP (Table 2).

Table 2. Bi-Variate Correlation of Constructs.

Variable		1	2	3	4	5	Mean	SD
1. Environmental Concern	Pearson Correlation						4.0098	0.68814
	Sig. (2-tailed)							
2. Attitude	Pearson Correlation	0.662 **					4.1191	0.61267
	Sig. (2-tailed)	0.000						
3. Subjective Norm	Pearson Correlation	0.756 **	0.616 **				3.9309	0.6847
	Sig. (2-tailed)	0.000	0.000					
4. Perceived Behavioral Control	Pearson Correlation	0.572 **	0.573 **	0.632 **			3.9425	0.65127
	Sig. (2-tailed)	0.000	0.000	0.000				
5. Purchase Intention	Pearson Correlation	0.729 **	0.593 **	0.737 **	0.593 **		4.021	0.6622
	Sig. (2-tailed)	0.000	0.000	0.000	0.000			
6. Actual Behavior	Pearson Correlation	0.664 **	0.469 **	0.713 **	0.568 **	0.705 **	3.8604	0.76612
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000		

Note: ** signify statistical significance at the 0.05 confidence level.

These findings supported Hypotheses 2, 3, and 4, meaning that consumers with strong attitudes towards environmentally friendly packaging alternatives are likely to have increased intention to purchase them. Furthermore, this also suggests that consumers with increased motivation and stronger community influence are more likely to have high intentions to buy EFGP. Next, the analysis showed that attitudes and perceived behavioral control had a moderate relationship to purchase intention. At the same time, subjective norms had the most substantial connection to purchase intention. Findings further suggest that three constructs play a key role in determining the purchasing intention to EFGP; however, there is variance within each construct's strength. For example, attitudes toward EFGP and perceived behavioral control have weaker relationships to purchase intention, while subjective norms have the most substantial relationship and influence in determining a consumer's purchase intention towards EFGP. Next, a bivariate correlation was conducted to investigate the relationships that attitude, perceived behavior control, and purchase intention have with actual behavior. All constructs included in the bivariate correlation analysis significantly correlate to actual purchase behavior. H2a, H4a, and H5 were supported through this analysis (Table 2). Purchase intention had the most substantial relationship to actual behavior, which is understood as consumers who have strong intentions and are more likely to purchase products in EFGP. The relationship toward actual behaviors portrayed a moderately strong relationship to attitudes and perceived behavioral control, suggesting that consumers with increased attitudes and perceived behavioral control to purchase EFGP are likely to also follow through in their behaviors. Findings from this analysis further the understanding of the relationships the constructs have to the actual purchasing behavior of EFGP.

In regression analysis, we observed that attitude, subjective norms, and perceived behavioral control were predictors of purchase intention toward EFGP and had the predictive power as measured by adjusted R-squared of 58.5% (Figure 4). These findings extend knowledge produced by previous studies on the relationships between attitude, subjective

norms, and perceived behavioral control and purchase intention [16,36], providing the predictive power of the constructs and leading to purchase intention toward EFGP.

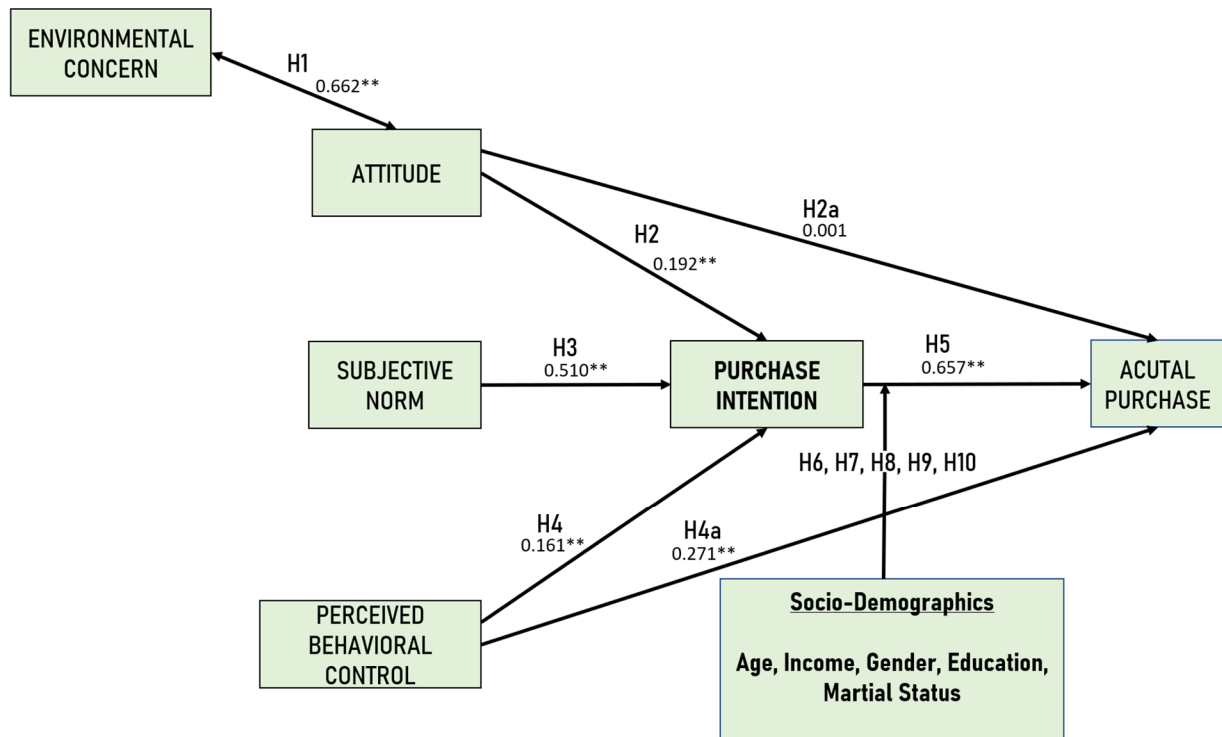


Figure 4. Regression relationship between variables. ** signify statistical significance at the 0.05 confidence level.

The predictive value of the constructs is vital to understanding how powerful each variable is at determining the outcome or the purchase intention towards EFGP. This analysis found that subjective norms were the strongest predictor of purchase intention towards EFGP, with attitude and perceived behavioral control having weaker predictive capabilities. Such findings suggest that the influence of a consumer's community plays a substantial role in predicting their intentions to purchase EFGP. In contrast, perceived behavioral control and consumers' attitudes are less vital in predicting purchase intention (Figure 4). The relationship between attitude, subjective norms, and perceived behavioral control to purchase intention was observed as significant providing an understanding that the variables can assist in predicting a consumer's intention to purchase environmentally friendly grocery packaging. Next, a regression analysis was conducted to find the strongest predictor of actual behavior to analyze the relationship further. This equation had a predictive power of 52.8% in explaining actual behavior to EFGP. The predictive power of this equation is high, meaning perceived behavior control and purchase intention can predict the likelihood of a consumer purchasing EFGP with more than 50% accuracy. The relationship toward actual behavior exhibited a significant relationship for both purchase intention and perceived behavioral control. Both values explain how the combination of increased motivation (PBC) and high intention plays a role in the actual behavior of purchasing EFGP. Figure 4 shows the significance of the relationship between purchasing intention and perceived behavioral control to actual behavior.

3.2. Socio-Demographic Moderating Influences

Age, income, gender, education, and marital status were the socio-demographic variables included in this analysis. A moderating analysis was conducted to examine the interactions between purchase intention and behavior of EFGP. This interaction was investigated to understand the socio-demographic variables' strength in moderating the

relationship between purchase intention and actual behavior. The variables for marital status and gender were recoded into binary variables to improve the statistical analysis of the variables. This analysis discovered that the moderating influence between purchase intention and behavior of single individuals was found to be significant; however, Hypothesis 10 was not supported (Table 2).

Results showed that the moderating influence between purchase intention and behavior of single individuals was significant, meaning that if a person is not married, they are more likely to act upon their intentions in purchasing EFGP; however, Hypothesis 10 was not supported (Table 3). Age (H6), income (H7), gender (H8), and education (H9) did not have a moderating influence between purchase intention and behavior; thus, these hypotheses were not supported (Table 3). Findings from the moderating analysis might suggest that consumers are more concerned and sensitive to external factors (e.g., quality and price of packaging) when shopping for groceries. This analysis might indicate that income, age, gender, and education do not make consumers more likely to act upon their intention to purchase EFGP. However, external factors might have more significant roles in consumer consumption behaviors toward EFGP than expected.

Table 3. Moderating analysis with robust standard errors between actual behavior and purchase intention.

Parameter	B	Robust Std. Error	T	Sig.
Intercept	−1.852	0.861	−2.153	0.032
Subjective Norms	0.304	0.067	4.500	0.000
Attitude	0.029	0.072	0.399	0.690
Perceived Behavioral Control	0.163	0.058	2.823	0.005
Purchase Intention	0.848	0.201	4.214	0.000
Married	1.466	0.568	2.582	0.010
Male	0.408	0.372	1.099	0.272
Income	−0.016	0.217	−0.074	0.941
Age	0.158	0.236	0.669	0.504
Education	0.127	0.204	0.621	0.535
Married Interaction	−0.292	0.136	−2.137	0.033 **
Male Interaction	−0.091	0.088	−1.032	0.303
Income Interaction	0.012	0.051	0.245	0.807
Age Interaction	−0.049	0.058	−0.848	0.396
Education Interaction	−0.024	0.047	−0.502	0.615

Note: ** signify statistical significance at the 0.01, 0.05, and 0.10 confidence level, correspondingly.

Generally, most unmarried individuals are younger, which led us to contend that age also had a role in the relationship between purchase intention and behavior. Consumers within the age range of 18–24 are considered to be in the Gen Z generational cohort. Generation Z is often viewed as highly concerned about environmental conservation and preserving the world for future generations [1]. Their consumption behaviors are generally directed toward products that have environmentally friendly characteristics. Additionally, the majority of Gen Z has been found to voice their concerns about environmental issues and to consciously attempt to minimize waste [44,45]. With many of the unmarried respondents residing within this age group, it can be inferred that generational values also play a role in their consumption behaviors. To the researcher's knowledge, marriage's moderating influence on purchase intention and behavior is novel, with previous studies not having examined the relationship between purchasing behavior and socio-demographics in the context of environmentally friendly grocery packaging. In the advancement of this analysis, we observed the demographic characteristics of single individuals consisted of primarily male consumers, with a more significant percentage of respondents between the ages of 18 and 24, with an income of USD 0–29 K, and with some college education. These findings suggest that consumers with these socio-demographic characteristics are more likely to care about the environment and are willing to purchase EFGP.

4. Discussion

This study's findings confirmed that the most powerful predictors of purchasing intention towards EFGP were subjective norms and the consumer's attitude towards EFGP. The predictive capabilities of subjective norms and attitudes toward EFGP form the understanding that the social environment around the consumer and their attitudes play a critical role in their consumption of EFGP. This can be attributed to a significant population of consumers noticing higher expectations or feeling higher pressure from their community to purchase environmentally friendly packaging. In analyzing the most substantial predictor of actual purchasing behavior, purchase intention proved to have the strongest predictive capabilities. This implies that consumers with stronger intentions to purchase environmentally friendly grocery packaging were highly likely to perform that behavior. Another objective of this study was to examine socio-demographics' role in moderating the relationship between purchase intention and purchasing behaviors. Age, income, gender, education, and marital status were analyzed to determine whether and how they influence purchase intention and behaviors. This study found that unmarried shoppers have higher purchase intentions in purchasing environmentally friendly grocery packaging. The primary factor that might urge unmarried consumers to engage in environmentally friendly behaviors might be the increased freedom to purchase items that hold high value in their minds. Unmarried shoppers can leverage environmentally friendly items into their budget when grocery shopping. Furthermore, most unmarried respondents fall within the Gen Z generational cohort, who have been observed to have strong values for environmental preservation and preferences to purchase products with environmentally friendly qualities [45]. Results also further imply that there are still a considerable number of barriers that prevent consumers' consumption of environmentally friendly packaged products, regardless of whether the consumer has a higher income or a greater awareness of the negative effects as the result of plastic packaging. Thus, it can be argued that awareness of the benefits that environmentally friendly packaging provides is still evolving among consumers in the United States.

This study's findings also suggest that some consumers actively exhibit various forms of sustainable behaviors. For example, investigated consumers are recycling, reusing, and even composting their grocery packaging. There are many reasons why this might occur, but perhaps one of the primary reasons can be attributed to municipal waste management laws in specific geographic areas. Cities in the United States such as New York, San Diego, and Seattle have mandates requiring the recycling of plastics, cans, cardboard, and glass [46]. Since many local governments are enforcing stricter policies to support environmentally friendly behaviors among citizens, there are likely to be more respondents performing these behaviors. Furthermore, in analyzing the packaging materials grocery consumers purchase, we found that consumers also purchase compostable and biodegradable packaging. Although these packaging materials are not as accessible, it can be implied that consumers are discovering brands and products that provide either compostable or biodegradable environmentally friendly packaging. Hence, we can argue that if brands are making environmentally friendly grocery packaging more accessible, consumers might increase environmentally friendly packaging consumption.

4.1. Theoretical Implications

Past research found that there is an attitude-behavior gap in consumer consumption of environmentally friendly products [27], meaning that consumers might have positive attitudes toward purchasing environmentally friendly products. However, for a variety of reasons, consumers do not necessarily purchase them. However, in this study, we showcased that purchasing intention and perceived behavioral control can predict a consumer's behavior to purchase EFGP with high accuracy. This means that if consumers have strong positive intentions and motivation (perceived behavior control) to buy environmentally friendly grocery packaging, they will more likely buy products with environmentally friendly packaging. Investigating this relationship further using TPB is needed to help

us gain a better understanding of the attitude–behavior gap, which still prevents some consumers from transforming their intention into actual purchasing behaviors.

4.2. Managerial Implications

This research gives managers a clearer understanding that targeting consumers with increased concern for the environment and heightened attitudes towards environmentally friendly grocery packaging can improve the consumer purchasing intention of EFGP. This strategy can be employed by developing strategies targeting consumer concern for the environment, for example. Similarly, adverse effects of plastic consumption, specifically for grocery products, can be shared with consumers to increase their positive perspective towards EFGP consumption. Managers can also prime consumers to purchase EFGP by speaking to their intention and motivation (perceived behavior control) to assist in the shift of consumer preferences to environmentally friendly grocery packaging. Furthermore, expanding the offering of food products wrapped in environmentally friendly packaging and increasing the amount of education on the subject can lead customers to purchase EFGP. These methods make consumers realize that this is the best option for the environment, ensuring that the packaging will not end its lifecycle in the landfill. As for addressing consumers who have concerns over the quality of the food products contained by EFGP, marketers can promote the quality factors by portraying a side-by-side comparison of environmentally friendly grocery packaging to conventional packaging. Environmentally friendly packaging does not decrease in quality but provides a more sustainable alternative for food packaging, as there are no studies that have proved there to be food quality concerns caused by EFGP.

4.3. Limitations

The survey was distributed in the midst of the COVID-19 pandemic, when many grocery stores initiated or expanded delivery or buy online, pick up in store services. This study included only participants that reported making in-store grocery purchases. Consequently, we sampled only consumers that confirmed they made a recent in-store grocery purchase, while the online grocery shoppers were outside of this study's scope. The survey also asked consumers to recall their past behaviors. The recollection of past behaviors might incur recall bias in the responses to the survey. This bias caused the reaction to be unable to capture the full extent of their purchasing behavior fully [47]. Furthermore, desirability bias often occurs in sustainability research when survey participants report desired rather than actual behavior. This means that respondents might skew their intention and behaviors to be the most favorable response, and because of this, many of the answers are heightened compared to their actual behaviors. Lastly, this research was conducted assuming that consumers are unaware of the differences in environmentally friendly packaging solutions. Some consumers might be aware that specific environmentally friendly packaging exists; however, they cannot truly distinguish the differences when faced with particular items. The lack of consumer knowledge on environmentally friendly packaging calls for a broader survey approach to not exclude answers from less knowledgeable consumers. It should be noted that the survey was distributed only through personal, institutional, and professional social media platforms which could affect the results of the study. Hence, subsequent studies targeting a larger and more representative US consumer population are needed to validate and/or expand our findings.

4.4. Future Studies

This study utilized a broader definition of EFGP; however, narrowing the survey items to investigate how consumers interact with particular packaging types could illuminate consumers' actual relationships with EFGP. For example, a separate study is needed to distinguish how consumers interpret packaging terms such as "made from recycled materials" and "recyclable", and the criteria used to make purchase decisions when packaging options are available without additional charge. Another area that can be further investigated is the

role of subjective norms on actual purchasing behavior (e.g., this can include how consumer view and perceive the attitude of their friends, family, and colleagues towards eco-friendly packaging alternatives). Further socio-demographic analysis might be conducted to identify how specific consumer groups purchase EFGP. For example, it would be worth knowing whether and how preferences for eco-friendly packaging alternatives differ across grocery shoppers around the world, across cultures, and even between rural and urban areas in various geographical locations. Similarly, it is timely to assess how preference for eco-friendly packaging alternatives is evolving, especially in post-pandemic consumption.

5. Conclusions

These study's findings provide new insights into the consumption of environmentally friendly packaged grocery products. Both purchase intention and perceived behavioral control related strongly to the actual consumer behavior of purchasing environmentally friendly grocery packaging. Thus, purchase intention and perceived behavioral control could be used to further analyze the barriers to environmentally friendly consumption. In fact, our research confirms that managers can prime consumers to purchase EFGP by stimulating their preferences for environmentally friendly grocery packaging. In this regard, our research builds upon previous European-based studies which recognized that consumers have a preference for environmentally friendly packaging options only when they are able to easily recognize their environmental attributes [47,48]. However, most grocery marketers rarely communicate the environmental attributes and benefits of packaging solutions compared to what is possible [48]. This might represent a serious barrier to a wider environmentally friendly packaging consumption, particularly among consumers who are less familiar with environmentally friendly packaging alternatives. Furthermore, expanding the offering of food products wrapped in environmentally friendly packaging and increasing the amount of education on the subject can lead customers to purchase more environmentally friendly packaged groceries. Among investigated US consumers, unmarried Gen Z grocery shoppers have exhibited a higher preference for environmentally friendly packaged grocery goods, perhaps as they were more familiar with environmentally friendly packaging options. It is critical to promote the benefits that environmentally friendly packaging provides to planet Earth as well as to society at large to make EFGP widely understood. Likewise, it is critical to make EFGP widely accessible for all socio-demographic groups across America, including those that live in urban, suburban, and rural areas.

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Appendix A

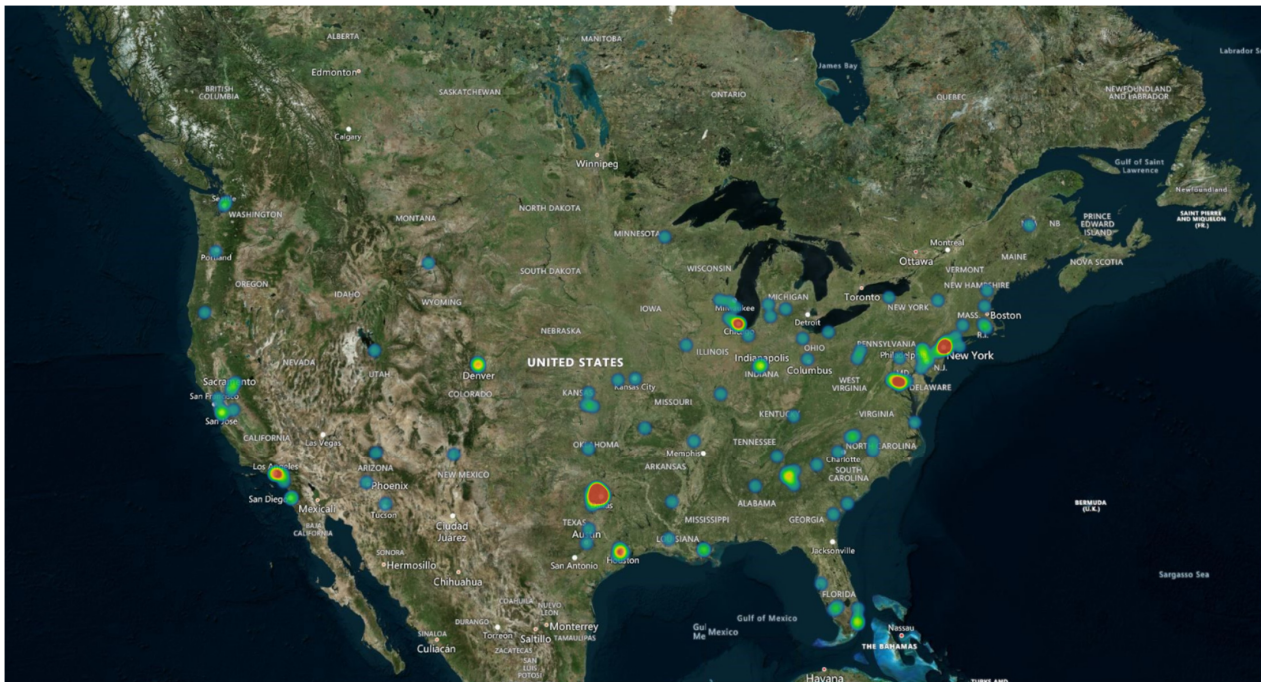


Figure A1. Distribution of the sample according to geographical location.

References

1. Oliver, M.; Vrabič-Brodnjak, U.; Jestratijevic, I. Consumers' socio-demographics influence between purchase intention and actual behavior of environmentally friendly grocery packaging. In Proceedings of the 11th International Symposium on Graphic Engineering and Design, Novi Sad, Serbia, 3–5 November 2022. [CrossRef]
2. Douek, D. Impact of Plastic Packaging in Supermarkets in the U.K. Beeco. Available online: <https://www.beeco.green/blog/plastic-packaging-supermarket/> (accessed on 30 April 2021).
3. Fagundes, C. 16 Companies Rethinking Packaging. Food Tank. Available online: <https://foodtank.com/news/2019/06/16-companies-rethinking-packaging/> (accessed on 2 May 2023).
4. Green Education Foundation. Tips to Use Less Plastic. Available online: <http://www.greeneducationfoundation.org/nationalgreenweeksub/waste-reduction-tips/tips-to-use-less-plastic.html> (accessed on 2 May 2023).
5. Brinkley, R. Zero-Waste Stores Pop up in the U.S., Targeting Shoppers Tired of All the Waste. CNBC. Available online: <https://www.cnbc.com/2018/10/19/zero-waste-markets-want-to-shake-up-grocery-shelves-and-your-shopping.html> (accessed on 20 October 2018).
6. Walker, T.R.; McGuinty, E.; Charlebois, S.; Music, J. Single-use plastic packaging in the Canadian food industry: Consumer behavior and perceptions. *Humanit. Soc. Sci. Commun.* **2021**, *8*, 80. [CrossRef]
7. United States Census Bureau. America Recycles Day: 15 November 2021. Available online: <https://www.census.gov/newsroom/stories/america-recycles-day.html#:~:text=The%20recycling%20rate%20has%20increased,and%20%2437.8%20billion%20in%20wages> (accessed on 21 November 2021).
8. The United States Environmental Protection Agency. National Overview: Facts and Figures on Materials, Wastes, and Recycling. Available online: <https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting> (accessed on 3 April 2020).
9. Kellogg's. Kellogg: 100% Sustainable Packaging by 2025. Available online: https://www.kelloggs.com/en_US/sustainability/sustainable-packaging.html (accessed on 2 May 2023).
10. Gelski, J. Coca-Cola Makes Packaging A Sustainable Priority. Food Business News. Available online: <https://www.foodbusinessnews.net/articles/20761-coca-cola-makes-packaging-a-sustainable-priority> (accessed on 23 February 2022).
11. Jestratijevic, I.; Maystorovich, I.; Vrabič-Brodnjak, U. The 7 Rs sustainable packaging framework: Systematic review of sustainable packaging solutions in the apparel and footwear industry. *Sustain. Prod. Consum.* **2022**, *30*, 331–340. [CrossRef]
12. Smith, M.; Cho, E.; Smith, K.R. The effects of young consumers' perceptions of environment-friendly shopping bags and environmental consciousness on attitudes and purchase intentions. *Res. J. Costume Cult.* **2016**, *24*, 687–696. [CrossRef]
13. Diamantopoulos, A.; Schlegelmilch, B.B.; Sinkovics, R.R.; Bohlen, G.M. Can socio demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *J. Bus. Res.* **2003**, *56*, 465–480. [CrossRef]
14. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]

15. Prakash, G.; Pathak, P. Intention to buy eco-friendly packaged products among young consumers of India: A study on a developing nation. *J. Clean. Prod.* **2017**, *141*, 385–393. [CrossRef]
16. Auliandri, T.A.; Thoyib, A.; Rohman, F.; Rofiq, A. Does green packaging matter as a business strategy? Exploring young consumers' consumption in an emerging market. *Probl. Perspect. Manag.* **2018**, *16*, 376–384. [CrossRef]
17. Otto, S.; Strenger, M.; Maier-Nöth, A.; Schmid, M. Food packaging and sustainability—Consumer perception vs. correlated scientific facts: A review. *J. Clean. Prod.* **2021**, *298*, 126733. [CrossRef]
18. Lindh, H.; Olsson, A.; Williams, H. Consumer Perceptions of Food Packaging: Contributing to or Counteracting Environmentally Sustainable Development? *Packag. Technol. Sci.* **2016**, *29*, 3–23. [CrossRef]
19. Neill, C.L.; Williams, R.B. Consumer preference for alternative milk packaging: The case of an inferred environmental attribute. *J. Agric. Appl. Econ.* **2016**, *48*, 241–256. [CrossRef]
20. Cavaliere, A.; Pigliafreddo, S.; De Marchi, E.; Banterle, A. Do Consumers Really Want to Reduce Plastic Usage? Exploring the Determinants of Plastic Avoidance in Food-Related Consumption Decisions. *Sustainability* **2020**, *12*, 9627. [CrossRef]
21. Jestratićević, I.; Vrabčić-Brodnjak, U. Sustainable and Innovative Packaging Solutions in the Fashion Industry: Global Report. *Sustainability* **2022**, *14*, 13476. [CrossRef]
22. Louis, D.; Lombart, C.; Durif, F. Packaging-free products: A lever of proximity and loyalty between consumers and grocery stores. *J. Retail. Consum. Serv.* **2021**, *60*, 102499. [CrossRef]
23. Scharpenberg, C.; Schmehl, M.; Glimbovski, M.; Geldermann, J. Analyzing the packaging strategy of packaging-free supermarkets. *J. Clean. Prod.* **2021**, *292*, 126048. [CrossRef]
24. Beitzten-Heineke, E.F.; Balta-Ozkan, N.; Reefke, H. The prospects of zero-packaging grocery stores to improve the social and environmental impacts of the food supply chain. *J. Clean. Prod.* **2017**, *140*, 1528–1541. [CrossRef]
25. Ferrara, C.; Zigarelli, V.; De Feo, G. Attitudes of a sample of consumers towards more sustainable wine packaging alternatives. *J. Clean. Prod.* **2020**, *271*, 122581. [CrossRef]
26. Park, H.J.; Lin, L.M. Exploring attitude–behavior gap in sustainable consumption: Comparison of recycled and upcycled fashion products. *J. Bus. Res.* **2020**, *117*, 623–628. [CrossRef]
27. Orzan, G.; Cruceru, A.F.; Bălăceanu, C.T.; Chivu, R.-G. Consumers' Behavior Concerning Sustainable Packaging: An Exploratory Study on Romanian Consumers. *Sustainability* **2018**, *10*, 1787. [CrossRef]
28. Steenis, N.D.; van Herpen, E.; van der Lans, I.A.; Ligthart, T.N.; van Trijp, H.C. Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations. *J. Clean. Prod.* **2017**, *162*, 286–298. [CrossRef]
29. Manning, L. Consumer Demand for Sustainable Packaging Holds Despite Pandemic. Food Dive. Available online: <https://www.fooddive.com/news/consumer-demand-for-sustainable-packaging-holds-despite-pandemic/599013/> (accessed on 27 April 2021).
30. Zhao, H.-H.; Gao, Q.; Wu, Y.-P.; Wang, Y.; Zhu, X.-D. What affects green consumer behavior in China? A case study from Qingdao. *J. Clean. Prod.* **2014**, *63*, 143–151. [CrossRef]
31. Bamberg, S. How does environmental concern influence specific environmentally relation behavior? A new answer to an old question. *J. Environ. Psychol.* **2003**, *23*, 21–32. [CrossRef]
32. Uddin, S.F.; Khan, M.N. Young Consumer's Green Purchasing Behavior: Opportunities for Green Marketing. *J. Glob. Mark.* **2018**, *31*, 270–281. [CrossRef]
33. Smith, J.R.; Terry, D.J.; Manstead, A.S.; Louis, W.R.; Kotterman, D.; Wolfs, J. The Attitude–Behavior Relationship in Consumer Conduct: The Role of Norms, Past Behavior, and Self-Identity. *J. Soc. Psychol.* **2008**, *148*, 311–333. [CrossRef] [PubMed]
34. Jaiswal, D.; Kant, R. Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *J. Retail. Consum. Serv.* **2018**, *41*, 60–69. [CrossRef]
35. Ko, S.B.; Jin, B. Predictors of purchase intention toward green apparel products: A cross-cultural investigation in the USA and China. *J. Fash. Mark. Manag. Int. J.* **2017**, *21*, 70–87. [CrossRef]
36. Aitken, R.; Watkins, L.; Williams, J.; Kean, A. The positive role of labelling on consumers' perceived behavioural control and intention to purchase organic food. *J. Clean. Prod.* **2020**, *255*, 120334. [CrossRef]
37. Tilikidou, I. The effects of knowledge and attitudes upon Greeks' pro-environmental purchasing behaviour. *Corp. Soc. Responsib. Environ. Manag.* **2007**, *14*, 121–134. [CrossRef]
38. Fisher, C.; Bashyal, S.; Bachman, B. Demographic impacts on environmentally friendly purchase behaviors. *J. Target. Meas. Anal. Mark.* **2012**, *20*, 172–184. [CrossRef]
39. Editors of Consumer Reports. Shop smart: The Ups and Downs of Couples Shopping Together. Pittsburgh Post-Gazette. Available online: <https://www.post-gazette.com/business/businessnews/2008/11/30/Shop-Smart-The-ups-and-downs-of-couples-shopping-together> (accessed on 30 November 2008).
40. Robinson, R.; Smith, C. Psychosocial and Demographic Variables Associated with Consumer Intention to Purchase Sustainably Produced Foods as Defined by the Midwest Food Alliance. *J. Nutr. Educ. Behav.* **2002**, *34*, 316–325. [CrossRef]
41. Rausch, T.M.; Kopplin, C.S. Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. *J. Clean. Prod.* **2021**, *278*, 123882. [CrossRef]
42. Benjamin. The 3 Levels of Packaging. Available online: <https://www.thepackagingcompany.us/knowledge-sharing/3-levels-of-packaging/> (accessed on 20 January 2018).

43. Feber, D.; Granskog, A.; Lingvist, O.; Nordigarden, D. Sustainability in Packaging: Inside the Minds of U.S. Consumers. McKinsey & Company. Available online: <https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/sustainability-in-packaging-inside-the-minds-of-us-consumers> (accessed on 21 October 2020).
44. Wang, W.; Mo, T.; Wang, Y. Better self and better us: Exploring the individual and collective motivations for China's Generation Z consumers to reduce plastic pollution. *Resour. Conserv. Recycl.* **2022**, *179*, 106111. [[CrossRef](#)]
45. Corey, S. Do Gen Z and Millennials Care about Their Environmental Impact? Savanta. Available online: <https://savanta.com/view/do-gen-z-and-millennials-care-about-their-environmental-impact/> (accessed on 12 March 2021).
46. Leiber, C. Hundreds of US Cities Are Killing or Scaling Back Their Recycling Programs. Vox. Available online: <https://www.vox.com/the-goods/2019/3/18/18271470/us-cities-stop-recycling-china-ban-on-recycles> (accessed on 18 March 2019).
47. Dörnyei, K.R.; Bauer, A.-S.; Krauter, V.; Herbes, C. (Not) Communicating the Environmental Friendliness of Food Packaging to Consumers—An Attribute- and Cue-Based Concept and Its Application. *Foods* **2022**, *11*, 1371. [[CrossRef](#)] [[PubMed](#)]
48. Raphael, K. Recall Bias: A Proposal for Assessment and Control. *Leuk. Res.* **1987**, *16*, 167–170. [[CrossRef](#)] [[PubMed](#)]

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