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From Intentions to Actions: A Study on Green Purchasing Intentions in Greece, Using the Theory of Planned Behaviour

Author: Vivian Christakou
Student number: 597289
Thesis supervisor: Dr. Bojan Georgievski
Second reader: Dr.Arie Barendregt
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ABSTRACT

This thesis aims to investigate green purchasing intentions and behaviors in Greece. The analysis is divided into two parts: a theoretical application of the Theory of Planned Behaviour to understand consumer intentions and a practical example of consumer behavior regarding organic cosmetics using conjoint analysis to derive consumer choice profiles. The results indicate that attitudes towards green products and subjective norms are statistically significant and positively related to green purchasing intentions, while perceived behavioral control is insignificant. In terms of consumer behavior, packaging, and price are identified as the most important attributes of green products, where consumers consider. These findings provide valuable insights into Greek green thinking and can serve as a foundation for governments and private companies to promote a sustainable lifestyle.

Keywords: *Green purchasing intentions, Attitude towards green products, Subjective Norms, Perceived Behavioral Control, Theory of Planned Behavior*.

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CHAPTER 1 Introduction

1.1 Introduction

Nowadays, the necessity for environmental sustainability is becoming more important, from tackling climate change to consumer behavior and purchasing intentions toward green products. The European Union has set ambitious sustainability goals that can only be fulfilled through the combined efforts of governments, businesses, and consumers in a country. This study focuses on the latter—consumers—and examines their green purchasing intentions and behaviors. Specifically, the research will be conducted in Greece, and data will be collected on Greek consumers of various ages. The green purchasing intentions of consumers will be analyzed using the Theory of Planned Behaviour (from now on TPB). Lastly, this thesis will also present a practical example concerning the green purchasing behavior of organic cosmetics.

1.2 Relevance and Research Significance

This study discusses the drivers of green purchasing intentions (from now on GPI) and the specific attributes Greek consumers consider when purchasing green products. By exploring these two areas, the research seeks to develop effective marketing strategies that address the significant gaps in environmental practices within Greece, targeting consumers of various ages. The importance of predicting green purchasing intentions is shown by existing literature utilizing the TPB, which offers mixed findings on what influences GPI. For instance, studies in India have shown the positive impact of attitudes, subjective norms, and perceived behavioral control on GPI (Sreen, Purbey, & Sadarangani, 2018; Yadav & Pathak, 2017; Paul et. al, 2015) variables that will be discussed in this study too. However, such research is limited in the Greek context, highlighting a unique opportunity for this study to apply the TPB model, clarify the factors influencing green purchase intentions in Greece, and explore how to effectively target Greek consumers. The underlying purpose is to identify marketing and governmental techniques that can increase consumer sensitivity toward environmental issues and promote green purchasing behaviors in Greece.

1.3 Problem statement

This research identifies a notable issue: “the green intention-behavior gap” where there is an inconsistency between the declared intentions of consumers to purchase green products and their actual purchasing actions. Since there is little research done in Greece, this thesis aims to provide a theoretical and practical application to address this inconsistency. By applying the TPB in the Greek cultural setting, this study aims to measure the effects of the attitude towards green products, subjective norms, and perceived behavioral control, three key predictors of TPB, on GPI. Exploring whether the theoretical predictors correspond with actual consumer behavior will be addressed using a practical application of an organic cosmetic good namely a hair shampoo. Thus, the research question of this paper is formulated as follows:

Research Question: **How do the factors of attitude towards green products, subjective norms, and perceived behavioral control influence green purchasing intentions in Greece, and what are the most important attributes of organic cosmetics that Greek consumers consider?**

To address this research, the following sub-questions will be answered in the literature review:

1. What does the literature say about green purchasing intentions?
2. How does the Theory of Planned Behaviour can be used to explain green purchasing intentions?
3. How do attitudes towards green products, subjective norms, and, perceived behavioral control relate to green purchasing intention according to the literature?
4. What factors are the most influential on the purchasing decision when considering organic cosmetics?

1.4 Research Design

The research will be divided into two main parts. The first part expands on the theoretical construct of TPB, by distributing a survey to Greek consumers. Descriptive statistics and multivariate regressions will be used to assess the impact of key predictors, on GPI which are essential components of TPB. The second part will involve a consumer choice analysis to identify the key attributes of green products that Greek consumers value most and to understand consumer preferences in practical settings. Thus, this framework will provide comprehensive insights into the theoretical and practical implications of green purchasing intentions and behaviors.

1.5 Research Expectations

This study could provide insights into the topic of GPI. To begin with, all three variables are expected to have a positive relationship with GPI. In the second part, it is expected that the attributes such as price and convenience of store availability might be ranked the highest since high prices and inconvenience can act as significant barriers to green purchasing behavior (Joshi & Rahman, 2015). Overall, this research could provide insights into the green mentality of Greek consumers. If the results are significant, they could offer valuable perspectives for the government and companies on implementing different strategies to attract more Greek consumers to a more sustainable way of living

1.6 Structure

This thesis will have the following structure:

Chapter 1 Introduction

Presents the key topics and formulates the research question. It also discusses the relevance of the study, research design, and expectations.

Chapter 2: Literature Review

Defines and explains essential terms, including the TPB, green purchasing intentions, attitude towards green products, subjective norms, and perceived behavioral control. It also discusses the key attributes relevant to the conjoint analysis of green purchasing behavior.

Chapter 3: Research Methodology

Presents the data collection methods and analysis techniques utilized in the study.

Chapter 4: Results

Discusses key findings and whether the hypothesis was statistically significant.

Chapter 5: Discussion, Future Research Recommendations, Conclusion

Addresses limitations encountered during the study offers recommendations for future research and policies to enhance consumer behavior and provides a conclusion.

CHAPTER 2 Literature Review

Part 1

2.1 Green Purchasing Intention (GPI)

The concept of green studies has started to grow since 2015, experiencing a slight decrease in 2017 and a significant increase after 2019 (Wijekoon & Sabri, 2021). This trend can potentially be attributed to the global shift towards green and sustainable practices following the Paris Agreement in 2015. Notably, research on green studies, especially concerning green purchase intention (GPI), has been conducted worldwide, with prominent studies coming from Asia, including countries such as China, India, and Malaysia. In contrast, less research has been conducted in the Western world, with almost none in Greece. Generally, theories discussing GPI are typically country-specific, and few studies have explored cross-country research on the topic (Wijekoon & Sabri, 2021). This scarcity is due to the challenges of comparing countries that may have differing factors influencing GPI (Lee & Green, 1991).

To better understand the concept of GPI, it seems necessary to define green products, sustainable consumption, and purchase intention. Initially, "green products" are widely recognized as those that aim to improve or enhance the environment throughout their lifecycle by conserving resources and minimizing pollution, waste, and toxins (Bhardwaj et al., 2020). According to the UNEP (n.d.), sustainable consumption refers to using products and services that meet essential needs and enhance the quality of life while minimizing the consumption of natural resources and the generation of waste and pollutants, thus protecting the needs of future generations. Lastly, purchase intention is defined as a specific measurement or ratio that indicates the likelihood of a consumer's purchase (Universal Marketing Dictionary, n.d.). All in all, green purchasing refers to the purchase of environmentally friendly products that do not harm the environment and it is usually measured as purchase intention or behavior (Chan, 2001). Thus, GPI can be defined as "the extent to which consumers are willing/ready to purchase green products" (Paul et al, 2015; Sreen et. al, 2018;).

Over the years, various models have been developed to predict GPI. The most frequently used and common model is an attitude-based model named the Theory of Planned Behavior, followed by the Theory of Reasoned Action (Wijekoon & Sabri, 2021). Thus, in this thesis, the TPB will be discussed and tested in the context of Greek consumers.

2.2 Theory of Planned Behavior and GPI

The TPB was an extension of the Theory of Reasoned Action (from now on TRA). The TRA was developed by Fishbein and Ajzen (1975), who assumed that intentions are the most important predictor of measuring behavior. The TRA aims to analyze non-routine decisions that require critical thinking specifically the system 2 of human decision-making (Oppermann, 1995). However, the TRA failed to

consider the resources that influence human behavior such as income, product unavailability, and many more; thus, the TPB was introduced (Park, 2003). The TPB "allows the examination of the influence of personal determinants and social surroundings as well as non-volitional determinants on intention" (Han et al., 2010). In simple terms, it adds the extra construct of Perceived Behavioral Control (from now on PBC), alongside Attitude (ATT) and Subjective Norms (SN), to predict intentions, and in this case, GPI.

The TPB has been used to explain and model multiple environmental issues and relationships that show a positive association between its three constructs. More specifically, it has been applied to model organic food and beverages (Paula & Rana, 2012; Tan & Lau, 2011), recycling (Chan, 1998), and electric appliances (ElHaffar, Durif, & Dubé, 2020), among others. The TPB that models GPI has been validated by multiple studies such as Chen & Tung (2014), Zhou et al. (2013), Barber et al. (2010), and many more. Numerous studies utilizing the TPB incorporate different moderators, mediators, and additional variables to explain and model behavior toward GPI. Therefore, multiple variations and extensions can be considered. For instance, the paper by Paul et al. (2015) discusses an extension of the TPB model by incorporating "environmental consciousness," while others, such as Sreen, Purby, and Sadarangani (2018), add cultural dimensions to the model, such as collectivism, long-term orientation, and man-nature, which are also utilized in this research. Additionally, Ramablak and Yadav et al. (2017) explore the model's application to the intention to use green products and expand on the willingness to pay a premium and the perceived value of the intention to use green products. Thus, there are various ways to measure GPI, leaving great room for exploration.

2.2.1 Attitude towards green products (ATT)

The first construct of TPB discussed is Attitude towards green products (from now on ATT). Attitude is defined as the psychological path that determines the favor or disfavor of an individual towards a specific object or practice (Eagly and Chainken, 2007). Specifically, attitude showcases the psychological emotion rooted in a consumer's purchasing behaviors, meaning that if the consumer holds a positive attitude towards a particular behavior, in this case for green products, there is a higher chance that people will purchase it (Ajzen, 1991). Thus, understanding the key drivers of attitude, and consumer behavior can be altered. Since early on, ATT has been seen as the key predictor for GPI and has been extensively used in research (Kotchen and Reiling, 2000). The majority of the studies suggest that there is a positive relationship between ATT and GPI in multiple areas of study. Specifically, research about organic food and beverages shows a positive relationship in papers such as (Arce Salazar, Oerlemans, & van Stroe-Biezen, 2012; Dean et al., 2012; Zhou et al., 2013). Moreover, research on green hotels also shows a high predictability of attitude on purchase intention (Wu and Teng, 2011).

2.2.2. Attitude towards Green Products and Green Purchasing Intention

For the predictability of ATT on GPI, multiple papers investigated in various countries show significant results. In the papers, ATT has been measured in multiple ways for example as a component of the TPB, as a mediator to explain environmental consciousness and knowledge as well as a moderator. In almost all the papers that were investigated, there was a significant relationship between the two variables. Specifically, the papers of (Yadav & Pathak, 2016; Kim, Njite, & Hancer, 2013; Indriani, Rahayu, & Hadiwidjojo, 2019; Paul et al., 2015; Delistavrou and Tilikidou, 2022; Ellen et al., 1991; Schuitema & De Groot, 2015;) show a significant positive relationship between ATT and GPI.

Thus, the first hypothesis formulated is:

H1: Attitude towards green products has a positive effect on green purchase intention for Greek consumers.

2.2.3 Subjective Norms (SN)

Subjective Norms (from now on SN) are considered to be one of the main determinants that drive purchasing intention (Ajzen, 1991; Kaiser and Gutscher, 2003). "Subjective Norms" refers to the individual's perception of what others think they should do or think, whereas "subjective" represents an individual's thoughts, and "norm" signifies the understood expectations of others (East, 1997). Thus, "Subjective Norms" is defined as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991). This implies that people who are close and important to the individual will likely influence their decision-making.

2.2.4 Subjective Norms and Green Purchasing Intention

Drawing from the TPB subjective norms is an important factor that determines intentions. Therefore, in this research, SN will aim to explain whether it influences GPI. Multiple studies, in environmental economics, and marketing study this relationship. Specifically, Studies by Ham et al. (2015), Paul et al. (2015), Yadav & Pathak (2016), Delistavrou & Tilikidou (2022), Kim & Chung (2011), Geetika et al. (2017), and Sreen et al. (2018) conclude that there is a direct and positive relationship between SN and GPI, where SN is mostly presented as an exploratory variable. Thus, it is possible to suspect that similar findings will be derived from the research on Greek consumers.

Thus, the following hypothesis can be formulated as follows.

H2: Subjective Norms have a positive effect on green purchase intention for Greek consumers.

2.2.5 Perceived Behavioural Control (PBC)

Perceived Behavioral Control (from now on PBC) is an additional determinant of intent that expanded the TRA. Specifically, PBC indicates that the likelihood of successful behavioral performance will vary due to the perceived controllability of performing a behavior (Armitage et al., 1999). In simpler terms, it refers to the perceived ease or difficulty of performing a specific behavior (Ajzen, 1991). PBC is divided

into internal and external factors. Internal PBC reflects an individual's perception of possessing control over personal resources such as confidence, skills, and the ability to perform the intended behavior (Armitage et al., 1999). External PBC, on the other hand, relates to externally controllable behaviors; this occurs when the individual is relatively free of external influences that act as barriers to the behavior, such as time and money (Kidwell & Jewell, 2003).

2.2.6 Perceived behavioral control and Green Purchasing Intention

Research has shown numerous studies indicate a positive relationship between PBC and GPI. This suggests that internal factors such as a lack of environmental consciousness, low availability in stores, and difficulty in finding products, along with time and money, may contribute to the reluctance to purchase green products (Barbarosa & Pastore, 2015; Tanner & Kast, 2003). Therefore, a higher PBC over these barriers can increase consumers' intent to purchase green products, this claim is supported by many research studies including Han et al. (2010), Sreen et al. (2018), Paul et al. (2015), Delistavrou & Tilikidou (2022), Geetika et al. (2017), and Zhou et al. (2013). Similar conclusions can be drawn for Greek consumers, especially regarding external PBC, as money and product availability may be the greatest contributors to green purchasing intention (GPI), factors that will be explained in the practical application of this thesis. The paper of Delistavrou and Tilikidou (2022) showed that PBC was the highest predictor of green purchase intention in Greece and similar positive relationships can be expected in this study too.

Thus, the following hypothesis has been formulated:

H3: Perceived Behavioural Control has a positive effect on green purchase intention for Greek consumers.

Part 2 – Practical Application

2.3 Green Purchasing Behavior

Numerous studies throughout the years have aimed to describe behaviors towards green products, especially for organic cosmetics. Green Purchasing Behavior (from now on GPB) is typically evaluated in terms of intentions and willingness to buy green products. Thus, for the practical application of this thesis, GPB will be discussed in the context of willingness to buy since the intentions will be covered in the TPB analysis (Marvi et al., 2020). According to Joshi and Rahman (2015), the dominant motives that influence buying behavior are divided into individual or situational categories. Specifically, there are four main categories: psychological, social, socio-demographic, and product attributes. For simplicity and clarity, this practical application of TPB will focus specifically on the latter.

2.4 Organic Cosmetics

Consumers are increasingly environmentally sensitive regarding sustainable production practices and animal welfare standards. This sensitivity is directly reflected in the purchasing behavior of organic cosmetics, where consumers are willing to pay extra if no animal cruelty is involved and if the production

is environmentally friendly (Tsakiridou, 2010). This is also supported by Saleem and Recker (2014), who found that concern for animal well-being has a positive effect on consumers' attitudes towards organic cosmetics. Furthermore, the study by Davis, Bundrage, and Soyoung (2012) concluded that individuals who practice a sustainable lifestyle and care about their health and beauty are more likely to purchase organic products.

2.5 Product Attributes

Research has well established that product attributes and consumers' knowledge about these attributes strongly affect purchasing behavior (Enneking et al., 2006). The perception of high quality has a direct positive effect on ecological purchasing, especially for organic cosmetics (Joshi & Rahman, 2015). For this thesis, four specific product attributes will be considered namely price, (eco)-labeling, product availability, and packaging composition, with three different experimental levels for each which will be mentioned further on. By analyzing consumer choices for organic hair shampoo, the willingness to purchase will be derived, and the most important attributes will be discussed.

2.5.1 Price and Willingness to Pay

Price is often one of the key attributes that affect purchasing behavior (Collins, 2014). Generally, green preferences are measured as willingness to pay a premium (Joshi & Rahman, 2015; Gonzalez-Rodriguez, 2020). These products are usually more expensive since they include environmental protection attributes that are costlier for companies to produce (Yeon, Chen, et al., 2021). Thus, research on WTP a premium price for green products has attracted significant attention as it helps understand how consumers' attitudes towards green products translate into monetary value (Shi and Jiang, 2023; Knapp et al., 2020; Fizaine et al., 2018). High prices are the most common barrier to purchasing green products, which increases the inconsistency between environmental attitudes and behavior. This is often seen in higher-priced green products such as electric cars (Lai et al., 2015). However, for organic products, price sensitivity may be lower since the price difference between a conventional product and an organic one is not substantial. For this study, three price levels will be presented (4€, 7€, 10€) to derive the WTP for a green product, specifically for a hair shampoo, to see whether consumers are very price-sensitive about organic cosmetics.

2.5.2 (Eco)Labelling

Eco-labeling has functioned as a strategic method of communicating about green products, as organizations have realized the positive influence it has (Papadopoulos et al., 2022). Research has shown that when consumers find the labeling trustworthy and show confidence in the product, they are more reliant on it and more likely to purchase it (Gorton et al., 2021; Taufique et al., 2019; Kwak, Yoon, & Kim, 2020). Conversely, when consumers believe that the information provided on the product is not trustworthy, the probability of them exhibiting pro-environmental behavior is reduced (Lange & Dewitte, 2019; Jans, 2020). Thus, by adding eco-labeling; including the options of cruelty-free, vegan, and the

conventional type as an attribute in the model, it aims to measure whether eco-labeling is a parameter that consumers consider when purchasing organic cosmetics and whether it affects their utility attached.
Specifically, the experimental levels for the labeling attribute are cruelty-free, which suggests that the product is not tested on any animals. Vegan labeling, on the other hand, indicates that none of the ingredients in the hair shampoo are animal-derived. Lastly, conventional labeling includes typical chemicals found in hair shampoos, such as parabens, sulfates, and many more (peta.org, n.d.).

2.5.3. Product availability

Product availability in this context refers to where the product can be purchased. This thesis examines consumers' convenience in purchasing cosmetic goods. Three key options are discussed, each differing in their service capabilities (Bucklin et al., 1996). Firstly, the supermarket, a retail store where individuals typically do their groceries and visit most often throughout the week, can be considered the most convenient option for consumers. Secondly, there is the option of purchasing organic cosmetics online. According to EUROSTAT and ELSTAT, in 2022, 69% of the Greek population were online shoppers, with the average digital purchase amounting to 780 euros in 2023 (Department of Commerce, n.d.). Research indicates that supermarkets (retail stores) offer great opportunities for instant gratification and personalized salesperson attention, while online shopping offers accessibility and extensive product information (Grewal et al., 2004). Lastly, the option of the pharmacy is proposed. Thus, it is interesting to see whether there is a significant difference between the choices that showcase a greater preference of one over the other retail purchasing locations.

2.5.4 Packaging Appearance

According to Adelina and Morgan (2007), product packaging is one of the most important factors influencing marketing communication between brands and consumers, playing a crucial role in consumer purchasing decisions. In this practical example, three types of packaging will be discussed: firstly, a biodegradable bag; secondly, a refill pouch; and lastly, a plastic bottle. Refill pouches offer a great opportunity for businesses to reduce plastic waste, fostering a mindset of circularity among consumers. As mentioned, consumers value organic products and thus have set expectations for sustainable packaging (Amberg et al., 2019) thus, it can be expected that the sustainable packaging of biodegradable and refill pouches will be preferred over the plastic bottle.

Through the literature review discussed in part 2 about organic cosmetics the following hypotheses can be formulated.

H4: Greek consumers will be willing to pay more for an organic shampoo compared to a conventional one

H5: Greek consumers will prefer to purchase the hair shampoo at a supermarket rather than an online store due to convenience

H6: Greek consumers will be willing to pay more for biodegradable packaging than plastic ones.

All in all, this thesis will explore these six hypotheses that aim to address the abovementioned research question. For **part 1** of this thesis, the TPB model will be discussed, and the hypothesis will be presented through the following illustration.

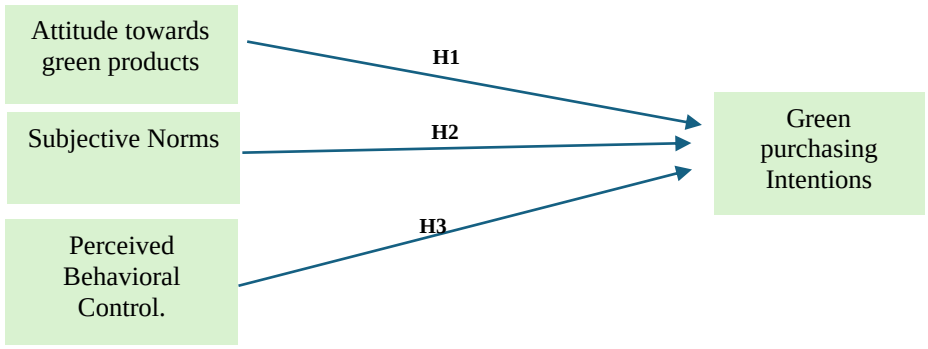

Figure 1: Theory of Planned Behavior model to derive the impact of Attitude towards green products, Subjective norms, and Perceived Behavioural control on green purchasing intention.

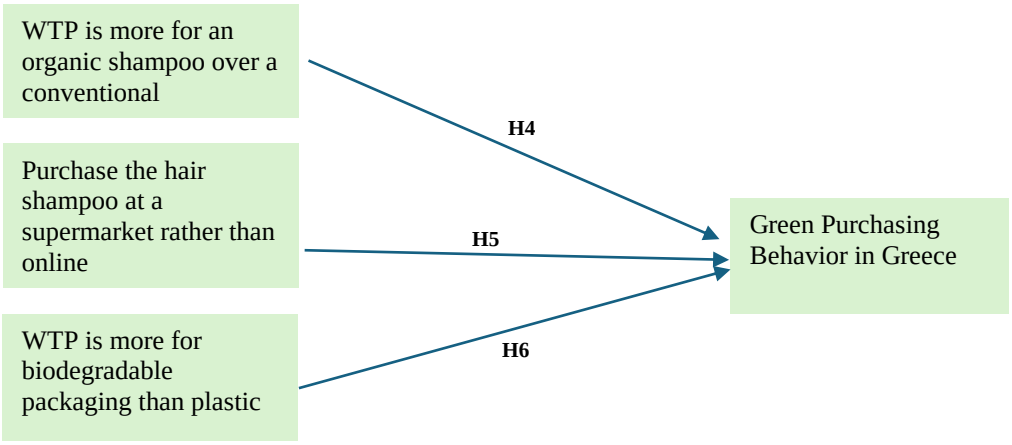

Figure 2: Practical application discussed, to derive the actual Green Purchasing Behavior in Greece relative to green products, namely a hair shampoo.

***Table** Attributes and respective experimental levels to generate the consumer's utility profile.*

Shampoo labelling	Packaging type	Price level	Product availability
Conventional Shampoo	**Refill pouch** packaging	4€/100ml	Available in **supermarkets**
Cruelty - Free Shampoo	**Plastic** packaging	7€/100ml	Available in **online stores**
Vegan Shampoo	**Biodegradable** packaging	10€/100ml	Available in **drug stores**

CHAPTER 3 Methodology

3.1 Quantitative research

In the scientific field, two prominent types of research are presented: qualitative and quantitative. Qualitative research is typically used to explore and understand why relationships occur, whereas quantitative research examines numerical data to derive statistical inferences that validate or reject the hypotheses formulated (American University, 2020). In this study, quantitative analysis will be performed, since most of the research papers do that.

Even though the underlying reasons influencing green purchasing intentions can be uncovered through qualitative analysis, most papers on this topic in the fields of economics, marketing, and sustainability rarely use this method. The TPB is best executed through quantitative analysis. The statistical results derived from this study will not only provide evidence of the effects of the variables (ATT, SN, PBC) on GPI but will also offer statistical inferences for Greek consumers. Furthermore, quantitative research helps reduce researcher bias, which is common among inexperienced researchers who may overly direct interviews, influencing the questions and responses from their perspective. By analyzing the numerical data that was collected, personal opinions do not influence the research, and objective conclusions can be drawn.

3.2 Data Collection Survey

Since very little prior research has been done on the topic of GPI for Greece, there is no specific database available to collect the information required to apply the TPB. Thus, in this research, a survey was formulated and distributed to Greek consumers of ages greater than eighteen to derive insights regarding their purchasing intentions and behaviors.

The survey was created using the online platform named Qualtrics, a user-friendly program for both the respondent and the researchers, that allows for downloading data into specific statistical software. The survey software presented the questions in the same order to all participants, and the survey was designed to take less than 10 minutes to ensure full completion and no missing values. The online survey was distributed on **April 22, 2024,** and the total sample was collected **by May 12, 2024**. A sample of the survey can be found in Appendix A. Additionally, before the distribution of the survey, the questions and structure were approved by a research expert, and a pilot survey was distributed to four colleagues to ensure no apparent mistakes were present. This precaution was necessary as the survey had to be translated into Greek, making it easier for respondents to answer in their mother tongue. The translation of the questions was done by a native Greek speaker and was double-checked with DeepL, an official translation tool to ensure consistency in the conceptualization of the questions.

3.3 Research Participants and Survey Distribution

Since the thesis aims to conclude the intentions and behavior of Greek consumers, the survey was distributed only to Greek nationals; therefore, participants must possess Greek nationality. Secondly, participants had to be over the age of 18 for ethical reasons. Since the survey was set up online, it was conveniently shared with participants, allowing them to complete it on their own time. Eventually, a sample of 218 Greek participants was collected. However, although the survey was not too lengthy, 45 had a completion percentage below 40%; therefore, these participants were excluded from the sample as they were considered missing values. In total, after correcting for the missing values a sample of 173 respondents was analyzed.

Lastly, the sample collection was through convenience and snowball sampling, two methods characterized as non-probability sampling methods. Therefore, the sample was distributed through various group chats on WhatsApp, Instagram stories, and direct messages of close friends who were asked to distribute it further. This method was chosen because no other way would have been feasible to reach an adequate number of respondents to achieve significant results. Such a method certainly poses a limitation in this thesis which will be further discussed in Chapter 5.

3.4 Control Variables

Before proceeding with the particulars of the survey, it is important to define the control variables that will be used in the analysis. Specifically, five control variables related to the topic of GPI are added to the model. The first control variable is Collectivism (Coll), which is the degree to which citizens integrate into groups by sharing resources (Hofstede, 2011). Studies have found a positive relationship between collectivism and environmental practices, as collectivist values may support practices favouring environmental sustainability (Nguyen et al., 2017). The second control variable is Long-Term Orientation (LTO), which refers to the prioritization of future rewards over immediate benefits (Hofstede, 2011). This variable is relevant because individuals who prioritize future rewards may have an intention to purchase green products, as this will bring them positive benefits in the future (Leontiou et al., 2010). The third variable is Man-Nature Orientation (MNO), which refers to the individual's ability to live in harmony with nature (Kluckhohn & Strodtbeck, 1961). This relationship is relevant as it may affect environmentally friendly behaviors and practices. The fourth variable is Eco-Literacy, which refers to the extent to which consumers understand environmental issues and eco-friendly products. This is relevant to the research since eco-literacy plays an important role in the consumer purchasing decision process. Lastly, Environmental Concern (LEC) refers to a consumer's attitude towards the environment. This variable is a predictor of behavior in purchasing and having the intent to purchase green products.

3.5 Survey

The survey was distributed through convenience and snowball sampling on April 22, 2024, as mentioned which aimed to address both parts of the research. Therefore, it consisted of questions regarding the TPB and practical applications. Specifically, the survey was divided into three sections. The first part of the survey was asking for demographic information, including age, gender, income, and educational level. Participants were given multiple-choice questions with various ranges to self-select. This type of question provides high speed for the respondent and medium information for the researcher as they are easy to register and reliable since they all contain the same information.

In the second part of the survey, which addresses purchasing intentions, several validated survey questions and scales were selected. The paper by Sreen et al. (2018) utilized validated scales for their survey that were derived from other papers. Thus, this research utilized the same resources for the questions of each variable, where each question was measured using a 5-point Likert scale (1-strongly disagree, 2- disagree, 3- neither agree or disagree, 4- agree , 5-strongly agree). The English version of the questions presented to participants can be found in Appendix A.

To begin with, each variable of the model presented above, including "Attitude towards green products" (McCarty et al, 1994), "Subjective Norms", "Perceived Behavioural Control" and "Green purchasing intention" (Armintage et al, 1999), as well as the control variables mentioned, were measured by a variety of questions in the survey. This was done firstly to check for the internal validity of the variables, secondly to have a "backup variable," and thirdly to utilize a multi-item scale. In this way, if the answers to the questions are correlated enough, then the variables can be combined using Cronbach's alpha and the principle component analysis.

In the third part of the survey, respondents had to select one of the two options presented from eight choice sets. The exact profiles presented to the participants can be found in Appendix A. **Table 2** provides an overview of the specific attributes and levels discussed. Participants were presented with two hair shampoo options and were asked to select one of the two, repeated eight times. This made the process easy for the participants to evaluate.

3.6 Data Analysis

To analyze the first part of green purchasing intentions, various steps need to be considered. To begin with, through SPSS Cronbach's alpha will be calculated for each set of questions to measure the internal consistency. This will provide evidence as to whether the questions can be combined and calculate the combined score. The Cronbach's alpha calculation for all will be done for ATT, SN, and PBC, as well as for all the control variables.

Secondly, factor analysis (principle component analysis) will be performed on a subset of sections to reduce the data into smaller factors which can explain the correlations between variables. Factor analysis comes complementary to Cronbach's alpha since the former will specifically show which sub-questions of each variable are the most greatly correlated compared to the latter which shows that combination is possible. In this way, the composite score of each variable will be more accurately calculated.

Thirdly, a multiple regression analysis will be performed using SPSS to derive the best model to present the relationship of ATT, SN, and PBC on GPI. Specifically, the relationship of each variable will be derived, but also its impact on GPI. Control variables will be added to see whether they improve the variance of the model. Specifically, the R-squared will be examined to determine whether the data fits well with the model. The highest R-squared will showcase the right model that explains the best intention to purchase green products. Using this method, hypotheses H1, H2, and H3 will be answered using statistical inferences.

Therefore, the regressions that will be analyzed are:

$$GPI=\beta o+\beta 1(ATT)+\beta 2(SN)+\beta 3(PBC)$$

$$Ln(GPI)=ln(\beta o)+ln(\beta 1(ATT))+ln(\beta 2(SN))+ln(\beta 3(PBC))$$

For the second part of the analysis, the practical application to indicate green purchasing behavior will be analyzed. As mentioned, respondents had to choose between two hair shampoo options from 8 different sets. These pairs of profiles were derived by implementing an orthogonal design to reduce the number of profiles presented. From 84 different combinations, they were reduced to 16 through this fractional design. This design was successfully implemented using the statistical software JMP. The four levels of attributes and their respective experimental levels were inputted into the program, and JMP generated these 8 sets of profiles. Therefore, the data collected from these responses will be inserted into JMP. Through this choice-based conjoint analysis and by performing the consumer's choice model in the statistical software, the relative utility of each attribute to the consumer, the willingness to pay for a specific type of hair shampoo will be derived as well as the relative importance of each experimental level for their attribute. These calculations and analyses will be sufficient to reject or accept hypotheses H4, H5, and H6.

CHAPTER 4 Results & Discussion

4.1 Descriptive Statistics

Through the distribution of the survey, a total sample size of **173 participants** was collected from Greek consumers of various ages. Specifically, respondents could choose between 7 age- bands, however, to make the analysis more realistic the age choices were separated into three bands (18-33), (34-49), and (50-100). The following tables summarize the statistics of the sample:

Table 1: *Age groups in the collected sample of Greek consumers*

Range of age	18-33 years old	34-49 years old	50-100 years old
Percentage of age range represented in the sample	48,4%	23,6%	25,5%

Thus, most of the respondents were between 18-33 years old. Additional demographic variables are presented in the following tables.

Table 2: *Educational background of Greek consumers*

Educational background	
High-school diploma	38%
Bachelor's Degree	34%
Master's Degree	27%
PhD	1%

Table 3: *Gender preference*

Gender	
Females	80%
Males	20%

According to Table 3, most of the sample were female which is something that could not have been anticipated nor controlled since the collection of the sample was non-probability based. Such gender differences cause a limitation in this research

Table 4: *Yearly income*

Yearly Income	
<10,000	52%
10k-30k	22%
30k- 50k	16%
50- >70k	11%

Moreover, surprisingly enough 50.2% of participants have an income of <10,000. This can be explained since most of the sample is below 33 years old, which causes a lower wage.

4.2 Part 1: Green Purchasing Intention

4.2.1 Cronbach's alpha

In this analysis, Cronbach's alpha is a particularly important first step. This metric assesses the internal validity and reliability of the results, measuring how closely related a set of items are as a group, and showing the extent to which all questions measure the same variable. It is common in research to measure one variable with multiple questions to ensure internal consistency and accurate measurement. Usually, Cronbach's alpha ranges from -1 to 1, where a negative outcome indicates that one of the questions needs to be reversed, and 0 means that the questions cannot be combined as they are not relevant to each other. The higher the alpha, the better the internal reliability of the variable. Acceptable values of Cronbach's alpha range between 0.7 and 0.9 (Tavakol and Dennick, 2011).

Additionally, before performing this reliability analysis, it is important to distinguish whether any of the questions asked have a reversed meaning. This was specifically observed for the PBC variable since questions (Q9_2, Q9_3) seem to have a reverse connotation. To overcome this problem two new variables were created which were calculated as follows:

$$Q9\_2R = 6 - Q9\_2,$$

$$Q9\_3R = 6 - Q9\_3$$

This was done to make sure that all the questions measure the same and there is no negative average covariance among the items. The table below presents Cronbach's alpha results drawn from the reliability analysis in SPSS.

Table 5: *Cronbach's alpha measurement for all variables in the model.*

Variable name	Cronbach's alpha (α)
ATT(Q7_1, 2,3,4)	0,755*
SN (Q8_1,2,3)	0,779*
PBC (Q9_3R, 4)	0,401
GPI (Q10_1,2,3)	0,732*
Coll(Q11_1-6)	0,670
LTO (Q12_1-5)	0,659
MNO (Q13_1,2,3)	0,552
EC (Q14_1,2,3,4)	0,833*
LEC(Q15_1,2,3)	0,519

According to Table 5, it can be inferred that ATT, SN, GPI, and EC can successfully be combined to generate the combined score for the variables since Cronbach's α is >0.7. However, the problem lies in the remaining variables since they do not fit the criteria and potentially sub-questions may need to be combined in multiple components. This is possible by performing the principal component analysis, which can separate into factors the variables

4.2.2 Principle Component Analysis

The Principal Component Analysis (PCA) is a multivariate technique that aims to extract important information from the data and represent it as a set of new orthogonal variables called principal components. In simpler terms, PCA aims to identify the underlying relationships that explain patterns of correlation between the sub-questions. It also aims to reduce the dimensionality to a smaller number of latent factors and make the data more interpretable by grouping related variables (Mishra et al., 2017).
To derive the number of factors for each variable, four criteria need to be fulfilled:

1. Kaiser-Meyer-Olkin (KMO) > 0.5, measuring the sample's adequacy.
2. Eigenvalue > 1.
3. Adds > 5% variance explained.
4. Cumulative variance explained > 60%.

The number of factors for each variable was determined by ensuring these criteria were met and by observing the rotated component matrix whenever more than one factor seemed to be present.

Table 6: *Principal component analysis on all variables measured to derive the number of factors per variable and the composition of the derived factors.*

Variable	Number of factors	Composition of factors
ATT	1	(Q7_1,2,3,4)
SN	1	(Q8_1,2,3)
PBC	1	(Q9_1,2,3,4)
GPI	1	(Q10_1,2,3)
Coll	2	(Q11_1,4,5) & (Q11_2,3,6)
LTO	2	(Q12_2,3,5) & (Q12_1,4)
MNO	1	(Q13_1,2,3)
EC	1	(Q14_1,2,3,4)
LEC	1	(Q15_1,2,3)

Table 6 depicts the composition of the factors and, in some way, validates Cronbach's alpha calculations. The variables accepted from the Cronbach's alpha results are also validated in the PCA. This is because all the sub-questions representing one variable can be grouped under one factor, which supports the internal validity discussed earlier in Cronbach's alpha analysis, this is relevant for the variables (ATT, SN, GPI, EC). Additionally, for COLL and LTO, the factor analysis suggested that there should be two factors and thus, two different "combined scores" for those variables, as this approach provides more targeted information on each component.

Thus, after deriving the Cronbach's alpha of the variables and the PCA, the combined score is calculated. The combined score is the mean of the answers provided in each sub-question which can be combined as presented in the factor analysis. For example:

ATT= (Q7_1+ Q7_2+ Q7_3+ Q7_4) /4, in a similar logic SN, GPI, MNO, EC, and LEC were calculated.
PCB= (Q9_1+ Q9_2R + Q9_3R+Q9_4)/4
COLL_1= (Q11_1+ Q11_4+ Q11_5)/3
COLL_2= (Q11_2+ Q11_3+ Q11_6)/3, likewise, LTO was calculated.

4.2.3 Regression Analysis

Since all the questions were composed of variables, the final step of part 1 is to perform various regression analyses to understand the relationship of ATT, SN, and PBC on GPI as well as which type of regression model fits best the dataset that holds the highest R-squared.

Table 7: *Linear regression modelling on green purchasing intention for Greek consumers.*

	Model 1	Model 2	Model 3	Model 4
ATT	0.301***	0.262***	0.224**	0.187**
	(0.089)	(0.089)	(0.089)	(0.094)
SN	0.298***	0.282***	0.158**	0.154**
	(0.070)	(0.069)	(0.076)	(0.077)
PBC	0.100	0.033	0.096	0.107
	(0.093)	(0.096)	(0.095)	(0.099)
EL		0.168***	0.113	0.113
		(0.067)	(0.068)	(0.071)
Coll_1			-0.103	-0.106
			(0.098)	(0.099)
Coll_2			0.220***	0.226***
			(0.082)	(0.085)
LTO_1			-0.068	-0.071
			(0.084)	(0.085)
LTO_2			0.080	0.081
			(0.067)	(0.068)
MNO			0.161**	0.174**
			(0.073)	(0.074)
LEC			0.022	0.025
			(0.063)	(0.064)
Age				0.032
				(0.068)
Education				0.094
				(0.064)
Gender				-0.107
				(0.108)
Income				-0.031
				(0.032)
Constant	1.051**	0.931***	0.499	0.445
	(0.331)	(0.329)	(0.500)	(0.623)
R-squared	0.337	0.363	0.420	0.434
Prob>F	<0.001	<0.001	<0.001	<0.001

*Notes: ***p<0.01, **p<0.05, *p<0.1*

Table 7 presents four linear regression models with the variables discussed previously. Model 1 includes the three key variables of the model, while the rest of the models aim to show the difference in R-squared when additional control variables are added. Various insightful results can be derived from that table.

To begin with, in all four models, ATT and SN depict a positive relationship with GPI. These results agree with the literature review previously presented. Thus, with at least 95% confidence, it can be concluded that there is a positive relationship between ATT and SN on GPI. Therefore, there is not enough statistical evidence to reject H1 and H2.

Specifically, the positive relationship of ATT and SN on GPI for Model 1 can be interpreted as follows:

- *For every one-unit increase in the attitude towards green products, the green purchasing intention is expected to increase by 0.301 units, keeping other variables constant.*
- *For every one-unit increase in subjective norms, the green purchasing intention is expected to increase by 0.298 units, keeping other variables constant.*

Moreover, in models 2, 3, and 4, the control variables (EC, Coll, MNO) were also statistically significant. In these different models, even though EC is significant in model 2 when analyzed with ATT, SN, and PBC, it is not significant in models 3 and 4 when more control variables are added. Specifically, this can be attributed to the multicollinearity between the variables once more variables are added to the model, but there is also the possibility of an interaction effect between eco-literacy and another variable added in models 3 and 4. Furthermore, the significance of MNO indicates that there is a positive relationship with green purchasing intention, showing the importance of harmony with nature, which can influence consumer behavior.

In addition, the variable of PBC was not statistically significant in any of the four models. These results contradict the hypothesis (H3) formulated in the literature review. Therefore, there is enough statistical evidence to reject H3, which suggests a positive relationship between the two variables. This lack of statistically significant results can be attributed to multiple reasons, with the most prominent one being the economic instability occurring in Greece, which may cause Greek consumers to feel little control over their purchases.

In addition, the R-squared is an important metric because it reflects the proportion of variance in the GPI that is explained by the independent variables in the regression model. The higher the value of the R-squared, the better the model fits the data. This is evident in the models above, where the R-squared increases with the addition of variables, reaching a maximum of 0.434 in this analysis. If additional variables that affect GPI are added to the model, the R-squared can potentially be higher. Suggestive variables will be presented in Chapter 5.

Even though Table 7 provides insightful results about the predictability of the model and its fit, it does not directly measure the impact of each independent variable on GPI. Therefore, a log-log model is performed by transforming each variable using the natural logarithm (ln). Table 8 depicts the log-log regression of two different models. Model 1 includes only the variables that are directly relevant to the TPB (ATT, SN, PBC), while Model 2 includes all the additional control variables. The difference between the two models will be discussed below.

Table 8: *Log-log model regression on ln (Green purchasing intentions) for Greek consumers.*

	Model 1	Model 2
Ln(ATT)	0.297***	0.221**
	(0.096)	(0.095)
Ln(SN)	0.314***	0.204***
	(0.064)	(0.071)
Ln(PBC)	0.050	0.034
	(0.092)	(0.094)
Ln(EL)		0.118**
		(0.059)
Ln(Coll_1)		-0.111
		(0.122)
Ln(Coll_2)		0.188**
		(0.084)
Ln(LTO_1)		-0.079
		(0.093)
Ln(LTO_2)		0.082
		(0.065)
Ln(MNO)		0.139*
		(0.077)
Ln(LEC)		-0.010
		(0.047)
Constant	0.418***	0.288
	(0.119)	(0.211)
R-squared	0.331	0.410
Prob>F	<0.001	<0.001

*Notes: ***p<0.01, **p<0.05, *p<0.1*

According to Table 8, Model 1, shows that ATT has a lower impact on GPI compared to SN. This conclusion can be drawn from the coefficients (β) of each variable: 0.297 < 0.314. On the other hand, in Model 2, the opposite can be inferred, even though by a very small difference: ATT has a higher positive impact on GPI since 0.221 > 0.204. Therefore, there are inconclusive results regarding which of the two variables has the highest impact on GPI since it entirely depends on the type of model used.

For this particular type of model (log-log), the interpretation of ATT and SN for Model 1 is as follows:

- *A 1% increase in ATT results in a 0.297% change in GPI.*
- *A 1% increase in SN results in a 0.314% change in GPI.*

All in all, from the two types of regression models, it can be inferred that: Firstly, ATT and SN positively influence GPI, and the addition of control variables improves the model fit, as evidenced by the rising R-squared.

4.3 Part 2: Practical application of organic cosmetic

4.3.1 Choice Profiling

Part 2 of the analysis aims to present the practical application of a green product to discuss the actual buying behavior of a consumer in terms of price, packaging preference, accessibility, and product

category. Conjoint analysis is a great method to measure these effects. Specifically, by utilizing the statistical capabilities of the software JMP, a consumer choice analysis will be discussed below.

To begin with, the choice model of the respondents is derived. The choice model uses each attribute as a categorical variable where only two of the three experimental levels have a derived estimate; the βs take the format of n-1. The third component is used as a reference point, and its estimated value is equal to zero. Each of the βs presented in the following table signifies the weight each experimental level has and how it affects the consumer's utility.

Table 9: *Parameter estimates of consumer's utility profile for hair shampoo*

	Consumer preference utility
Price 10	-0.292**
	(0.076)
Price 7	0.028
	(0.046)
Label- Cruelty free	0.211**
	(0.048)
Label - Vegan	0,146**
	(0.056)
Packaging- Refill pouch	-0.050
	(0.052)
Packaging- Biodegratable	0,454**
	(0.050)
Accessibility- Drug Store	0.080
	(0.047)
Accessibility- Online Stores	-0.147**
	(0.061)

*Notes: ***p<0.01, **p<0.05, *p<0.1*

Table 9 shows the consumer's utility profile. The experimental levels of Price (4), Plastic bottle, and Supermarket are the reference categories which take the value 0 and are the ones where the estimates a compared. In addition, the variables including Price 7, refill pouch, and drug store are not statistically significant experimental levels therefore cannot be interpreted. Specifically, the interpretation of each variable is the following:

Price 10: β1= -0.292 shows that an increase in price from 4€ to 10€ decreases the utility by 0.292 units.
Cruelty Free: β3= 0.211, which shows that going from a standard product to a cruelty-free product the consumer's utility increases by 0.211.

Vegan: β4= 0.146; showing that going from a standard product to a vegan product the consumer's utility increases by 0.146.

Biodegradable packaging: β6= 0.454; showing that moving from a plastic bottle to a biodegradable bottle consumer's utility increases by 0.454.

Online stores: β8= -0.147; shows that the accessibility of online stores compared to the supermarket decreases consumers' utility by 0.147.

The interpretations of experimental levels in the model are necessary to draw important conclusions. Specifically, the interpretation of "online stores" shows that consumers' utility is decreased when purchasing from an online store compared to a supermarket. Therefore, Greek consumers prefer to purchase hair shampoo in a supermarket compared to an online store. Therefore, H5 can be accepted.

Following the analysis, it is important to determine whether each attribute is significant to the model. This can be seen through the likelihood ratio test, which compares a model before and after the addition of an attribute. For example, for Price, the test evaluates whether there is a significant difference in the model's fit when the attribute of Price is included versus when it is excluded in the model. If this difference is statistically significant, the p-value will also be significant. If a value is not significant, then there is no difference in the model fit, indicating that the attribute does not contribute to explaining the data. The likelihood ratio of the consumer's choice model is depicted in Table 10 where attributes are ranked from the highest to the lowest significance.

4.3.2 Likelihood ratio test

Table 10: *Likelihood ratio test of Consumer choice model for Greek consumers on hair shampoo*

Attribute	L-R ChiSquare	DF	Prob>ChiSq
Packaging	105.110	2	<0,0001***
Label	46.706	2	<0.0001***
Price	15.471	2	0.0004***
Accessibility	9.410	2	0.0090***

*Notes: ***p<0.01, **p<0.05, *p<0.1*

Table 10 shows that all the attributes in this choice model are significant at a 1% significance level. This means that all of them help explain the choice model of consumers and cosmetic companies should certainly consider these attributes when making business decisions about their products.

Moreover, it is possible to derive the optimal hair shampoo combination that maximizes the consumer's utility. Using optimization, the maximal desirability is presented in the table below:

4.3.3 Maximal Consumer Desirability

Table 11: *Maximal consumer's desirability*

Price level	Label	Packaging	Accessibility
4	Cruelty- free	Biodegratable	Drug store

The above Table 11 is important in terms of interpretation. This table gives the ideal combination for a hair shampoo that consumers will most likely purchase. Greek consumers would have maximal utility if the hair shampoo costs 4 euros, is labeled as cruelty-free, has biodegradable packaging, and is available in drug stores.

Specifically, 4 euros is the lowest price presented to the respondents, and it is common for the lowest price to maximize utility since higher utility is directly linked to a lower price. Additionally, research has found that cruelty-free products are generally preferred by consumers. For instance, Grappe, Lombart, Louis, and Durif (2021) found that consumer preferences for products that are not tested on animals are stronger compared to conventional cosmetic products. Furthermore, consumers may prefer a biodegradable product over a plastic and refill pouch for two reasons. Firstly, the biodegradable bottle is environmentally friendly, which appeals to environmentally aware respondents. Secondly, it is more practical compared to the refill pouch since it does not require pouring into a container, a practice Greek consumers are not accustomed to. Lastly, the preference for drug stores may be attributed to the perception of higher quality compared to hair shampoos found in supermarkets. Drug stores are considered a significant part of Greek culture, with consumers perceiving them as more reliable than regular supermarkets.

4.3.4 The Effect of Age on the consumer's choice model

Furthermore, the control variable Age is added to the model and the interaction effect is studied. The likelihood ratio test results based on the interaction of attributes and age are presented below

Table 12: *Likelihood ratio test, for the interaction of attributes with age.*

Attribute*Age	L-R ChiSquare	DF	Prob>ChiSq
Packaging* Age	15.975	2	<0,0031***
Label* Age	8.710	2	<0.0688*
Price* Age	6.460	2	0.1673
Accessibility* Age	4.206	2	0.3789

*Notes: ***p<0.01, **p<0.05, *p<0.1*

From Table 12, it can be inferred that only the Packaging and Label of the product are significant at the 1% and 10% significance levels, respectively. Price and Accessibility do not significantly contribute to explaining consumer preferences and different age levels and therefore, they should not be considered

when deriving the maximal utility profile. The maximal desirability for the three age groups is presented in Table 13.

Table 13: *Maximal desirability of attribute levels for different age categories.*

Age group	Price	Label	Packaging	Accessibility
Group 1(18-33)	4	Cruelty free	Biodegratable	Supermarkets
Group 2 (34-49)	4	Cruelty free	Biodegratable	Drug store
Group 3 (50-100)	7	Vegan	Biodegratable	Drug store

Even though price and accessibility are not statistically significant, it is interesting to see the different choice profiles that maximize the utility of consumers in different age groups. Therefore, the conclusion that can be drawn from Table 13 is that older individuals prefer vegan hair products, while middle-aged and younger groups prefer cruelty-free products. Biodegradable packaging is consistent among all age groups and maximizes consumer utility.

4.3.5 Attribute importance

Furthermore, understanding the importance of each attribute is a necessary part of the analysis. Knowing the significance of all the attributes provides a better understanding of consumer preferences, enabling companies to better meet the needs and wants of their customers. Additionally, the importance of attributes can help companies prioritize features during product development. Thirdly, this knowledge allows companies to differentiate their products from competitors and gain a sales advantage based on consumer preferences. The importance of attributes for hair shampoo can be found below.

Table 14: *Importance of attributes presented in percentages.*

Attribute	β(Max)	β(Min).	Range	Importance
Price	0.0280	-0.292	0.320	28.66%
Label	0.211	0.146	0.065	5.84%
Packaging	0.454	-0.050	0.504	45.13%
Accessibility	0.081	-0.147	0.228	20.37%

According to Table 14, consumers consider packaging the most important attribute with 45.13% importance. Specifically, as presented in Table 11, biodegradable bottles maximize utility. Price is the next most important attribute, followed by accessibility. Lastly the type of product (vegan or cruelty-free) is of little importance to consumers. Therefore, companies should focus more on price and packaging rather than on whether the product is vegan or cruelty-free.

4.3.6 Willingness to Pay

The final part of the analysis is the willingness to pay for such a product. According to the utility profiler in JMP, the price is linearly distributed therefore the willingness to pay will be calculated using the linear pricing model.

Price range 10€-4€	6€
Value difference	0.292
Euros per utility point	20.54€/utility

1. Switching from a plastic bottle to a biodegradable bottle:
0.454*20.54€=9.33€: Consumers are willing to pay an additional 9.33€ for a biodegradable bottle compared to a plastic one due to its highest utility.

2. Switching from conventional label hair shampoo to a cruelty-free type:
0.211*20.54€= 4.33€: Consumers are willing to pay an additional 4.33€ for a cruelty free shampoo compared to the standard

3. Switching from online stores to a drug store:
0.288*20.54€= 5.92€: Consumers are willing to pay an additional 5.92€ for a shampoo located in a drug store compared to one that can be found online.

All in all, through the willingness to pay analysis it can be concluded that H4 and H6 can be verified since for H4 it was indeed shown that Greek consumers are willing to pay more (4.33€) for a cruelty-free shampoo (which falls under the category of an organic good) compared to a conventional. H6 is validated since consumers prefer way more biodegradable packaging compared to the rest and are willing to pay an extra 9.33€ over a plastic one.

CHAPTER 5 Conclusion

5.1 Discussion

For the final chapter of this thesis, it is important to evaluate and discuss the aforementioned research and results based on the pre-determined hypotheses and research topic. The following table will act as a guide to the discussion, presenting the hypotheses and the results.

Hypothesis	**Accept/ (Not)Reject**
H1: Attitude towards green products has a positive effect on green purchase intention for Greek consumers.	Not reject
H2: Subjective Norms have a positive effect on green purchase intention for Greek consumers.	Not reject
H3: Perceived Behavioural Control has a positive effect on green purchase intention for Greek consumers.	Reject
H4: Greek consumer will be willing to pay more for an organic shampoo compared to a conventional one	Accept
H5: Greek consumer will prefer to purchase the hair shampoo at a supermarket rather than an online store due to convenience	Accept
H6: Greek consumers will be willing to pay more for a biodegradable packaging over a plastic one.	Accept

Hypotheses 1 to 6 aim to shed light on the research question of this thesis. The research question is formulated: “How do the factors of attitude towards green products, subjective norms, and perceived behavioral control influence green purchasing intentions in Greece, and what are the most important attributes of organic cosmetics that Greek consumers consider?” This question will be discussed through the hypotheses.

Particularly, through H1 and H2, it can be concluded that there is indeed a positive and significant relationship between ATT and SN on GPI. Specifically, in the context of Greek consumers, this is evident since there is a strong Greek emphasis on social responsibility and community. Greek culture values collective actions and environmental protection, which is a variable that was significant in the regression model presented in Table 7. Therefore, based on the collected sample, it can be concluded that Greek consumers are generally positively predisposed towards green products and intent to purchase them. Regarding SN, Greek society places high importance on social norms, particularly from family and friends. Thus, when close surroundings engage in green purchasing, individuals are naturally predisposed to do the same.

In addition, to maintain such behaviors long term, various marketing practices and governmental policies need to be established. Specifically, government regulations can encourage positive ATT by implementing subsidies and tax reductions for green products. Moreover, public campaigns discussing the benefits of such products can strengthen consumer attitudes and enhance their purchasing behavior. Additionally, SN can be reinforced by the government recognizing and rewarding businesses and individuals that engage in sustainable practices. In this way, environmentally friendly practices can be normalized and embedded in Greek culture long term.

Regarding H3, from the regressions performed in Tables 7 and 8, it was shown that PBC is not statistically significant, hence this hypothesis is rejected. Potential reasons for this were discussed in Chapter 4. However, in this Chapter, it is important to highlight that PBC may not be significant in the Greek context due to multiple economic crises and high economic instability, which may affect consumers' sense of control over their purchasing decisions.

Similar results were found in the research conducted by Ali et al. (2019), in which they investigated consumers' intention to purchase energy-saving household products in Pakistan. The variable of PBC was found to be non-significant, and the authors attributed this insignificant result to the economic instability and uncertainty in the country. Therefore, similar conclusions can be drawn in this research, as Greece has been encountering an economic crisis for almost a decade, ranging from 2010 to 2018. This ongoing economic instability can cause consumers to feel less in control over their purchasing decisions, resulting in a lower impact of PBC on GPI.

However, there are multiple ways to enhance PBC among Greek consumers. Similar measures to those used for ATT and SN can be implemented. For example, subsidies and tax reductions can provide a higher sense of individual control, thereby influencing GPI. Marketing campaigns that educate consumers on the long-term benefits of green products, clearly providing information on the long-term cost reductions and environmental benefits, can also enhance consumer control over their purchases.

All in all, part 1 of this research shows the effect of enhancing the behavior of consumers for green products. Therefore, H1, H2, and H3 successfully answer the first part of the research question, providing interesting insights into the Greek green market.

Furthermore, in the second part of the analysis, targeting H4-H6. Specifically, from the consumer's choice analysis, many intriguing findings were derived, which will be particularly effective for organic cosmetic companies aiming to target a larger segment in the Greek market.
All the attributes included in the choice model were statistically significant, as presented through the likelihood ratio test in Table 10. This indicates that companies looking to enter this sector should consider all the attributes mentioned. However, the importance of the attributes is not equal among them. According to Table 14, the most important attribute for Greek consumers is the packaging, specifically biodegradable packaging. Such results are due to the nature of biodegradable packaging, showcasing one of the most visible attributes of green practices. Overall, there is a growing trend towards sustainability and eco-friendly products; such packaging is preferred as it demonstrates the brand's commitment to sustainability and is more attractive to environmentally conscious consumers. Moreover, another potential explanation is that biodegradable packaging can be perceived as a safer and healthier option compared to

plastic. Consumers who are concerned about health risks may consider this packaging better for them and thus display a higher preference and utility towards it.
In addition, price is the second most important attribute. Usually, in conjoint analyses, price is the one with the highest importance. However, in this particular case, it was the second highest since the price range was not significantly different. Private companies should focus on the price they display, as it seems to drive consumer decisions. Specifically, according to Table 11, the maximal utility is composed of a price of 4 euros. This can be challenging for cosmetic companies, as organic products are usually associated with a higher price. However, if it is kept at a low range that is competitive with conventional products, consumers will be interested in purchasing it.

Lastly, the reason, the hair shampoo was chosen and no branded names were included in the conjoint analysis was to determine whether consumers would be willing to purchase an eco-friendly product not because of its price nor its brand, but because of the product itself. In the end, this was proven correct. Consumers are indeed willing to pay more for an eco-friendly product compared to a conventional one, which is not driven by marketing influences but by individual preference.

To summarize, drawing on the above-mentioned conclusions on green purchasing intention, the intention-behavior gap in the Greek consumer market can be bridged through the efforts of both governmental regulations and private company initiatives. From a governmental perspective, educational campaigns, subsidies, and tax reductions can help raise awareness of green products and positively impact the intention to purchase them. While, from a private business perspective, ensuring price affordability and wide distribution channels where consumers can access these products can encourage actual purchasing behavior.

5.2 Research limitations

The research on the topic of green purchasing intentions and behaviors offers some great insights into the Greek market; however, it also poses several limitations that should be considered, and future research is necessary. To begin with, the sample was collected using convenience and snowball sampling, which is not a random sample. Additionally, the sample size is not large enough to be representative of the entire Greek population, as it was quite small due to limited time and lack of resources for data collection. Furthermore, the descriptive statistics showed that 80% of the respondents were women, indicating a non-diverse demographic sample, which may have influenced the results.
The study also relies on self-reported data, which can be subject to biases such as social desirability bias. Even though participants were informed about anonymity, respondents may still have provided answers they found socially acceptable rather than their true beliefs and preferences. Moreover, the second part of the analysis may have been influenced by the first part. Respondents were asked to choose between two hair shampoo options after completing an extensive questionnaire about their environmental behavior.

This may have predisposed participants to display a preference for organic cosmetics over conventional ones.

Additionally, the regressions in Tables 7 and 8 showed that the R-squared values were quite low. This can be attributed to the limited set of variables, without accounting for marketing influences and additional variables that could improve the model. Lastly, a significant limitation of the model is its external validity. The findings display limited external validity since the sample collected was specific to Greece. Generalizations beyond the Greek context may not apply to other areas due to different cultural and economic contexts. Lastly, another limitation could be response fatigue, which may have led to more rushed responses towards the end of the survey, this can especially affect the reliability and accuracy of the results.

5.3 Future recommendations

Considering the literature discussion and the results of this thesis, the following recommendations are suggested for future researchers. To begin with, as mentioned in Chapter 2, there is little to no research on green purchasing intentions in Greece. Therefore, it is a great opportunity to conduct more research on this topic, particularly in Greece, as well as to perform cross-country research comparing Greece, a collectivistic country, with an individualistic country to see whether there are any systematic differences. In addition, as previously discussed, the model fit is quite poor, potentially due to the lack of control variables. Adding more variables to the model can improve the fit and increase the R-squared value. According to the empirical review by Wijekoon & Sabri (2021), variables such as environmental consciousness, environmental responsibility, ethical obligation, green advertisement, and many more can potentially help explain the topic much better.

In this particular thesis, a regression analysis was used; however, most research papers utilize Structural Equation Modeling (SEM) for analysis. Therefore, if this research is to be replicated, SEM might be a better fit and could better explain green purchasing intentions. Using SEM, the factors that affect ATT, SN, and PBC can be discussed, as well as the extent to which these factors influence GPI and each component of TPB. This will provide a more holistic viewpoint and potentially increase the R-squared.

Additionally, other researchers could examine how government regulations and private company actions may affect the three components of the TPB. Moreover, conjoint analysis can be performed on numerous other types of green products, such as electric vehicles or green hotels. These studies can discuss different attributes and consider particular brands and higher price ranges to see whether consumers would still be willing to pay for green products. Thus, the effect of brand value on consumers' purchasing of green products can also be measured.

5.4 Conclusion

Overall, the research provides great insights into green purchasing intentions and behaviors. The Theory of Planned Behavior is indeed an effective model for predicting intentions, and the practical example of consumer behavior regarding hair shampoo was illustrated and validated the TPB. Therefore, presenting efforts to bridge the intention-behavior gap. Government officials and private companies should invest in such research if they want to stay relevant nowadays, as sustainable consumption and the circular economy are sure to be among the key trends of the century. Finally, Greek consumers value environmental practices and are willing to incorporate them into their daily lives. However, further stimulation is necessary to maintain such behavior in the long run.

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APPENDIX A

Q3 How old are you?

- ○ 18-25 (1)
- ○ 26-33 (2)
- ○ 34-41 (3)
- ○ 42-49 (4)
- ○ 50-57 (5)
- ○ 58- 65 (6)
- ○ >66 (7)

Q4 What is your current educational background

- ○ High School (1)
- ○ Bachelor's (2)
- ○ Master's (MSc) (3)
- ○ PhD (4)

Q5 Whats your gender

- ○ Woman (1)
- ○ Man (2)

Q6 Which of the following is your yearly income

- ○ <10,000(1)
- ○ 10,000-20,000 (2)
- ○ 20,000-30,000 (3)
- ○ 30,000-40,000 (4)
- ○ 40,000-50,000 (5)

○ 60,000-70,000 (6)

○ >70,000 (7)

Attitude towards green products (McCarty and Shrum, 1994**)**

Q7 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree(2)	Neither agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Environmental protection is important to me when making product purchases (1)	○	○	○	○	○
I believe that green products help to reduce pollution (water, air, etc.) (2)	○	○	○	○	○
I believe that green products help to save nature and its resources(3)	○	○	○	○	○
Given a choice, i will prefer a green product over a conventional product(4)	○	○	○	○	○

Subjective norms (Armitage and Conner, 1999)

Q8 Please respond to the best of your knowledge

	Strongly Disagree(1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)
People who are important to me thinks that I should buy green products(1)	○	○	○	○	○
My interaction with people influences me to buy green products (2)	○	○	○	○	○
My acquaintances would approve of my decision to buy green products (3)	○	○	○	○	○

Perceived Behavioural Control (Armitage and Conner, 1999)

Q9 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree(2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)
It is entirely my decision to buy green products(1)	○	○	○	○	○
I cannot pay more to buy green products® (2)	○	○	○	○	○
I require a lot of time to search for green products® (3)	○	○	○	○	○
I am confident about credibility of green product labels (ex: energy efficient rating such as 5-star energy efficient) (4)	○	○	○	○	○

Green purchase intention (Armitage and Conner, 1999)

Q10 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree (5)
I intend to buy green products (1)	○	○	○	○	○
I plan to purchase green products(2)	○	○	○	○	○
I will purchase green products in my next purchase (3)	○	○	○	○	○

Collectivism (Sharma, 2010)

Q11 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree(5)
The well-being of my group members is important for me (1)	○	○	○	○	○
Individuals should only pursue their goals after considering the welfare of the group(2)	○	○	○	○	○

I work hard for the goals of a group, even if it does not result in personal recognition (3)	○	○	○	○	○
Family members should stick together, even if they do not agree(4)	○	○	○	○	○
I enjoy sharing items and spending time with my group members (5)	○	○	○	○	○
People who are important to me want me to buy green products(6)	○	○	○	○	○

Long term orientation(Yoo et. Al, 2011)

Q12 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree(5)
I tend to use my money carefully in present so that I can save it for future (1)	○	○	○	○	○
Failure does not stop me from trying again and again(2)	○	○	○	○	○
I work hard for success in future(3)	○	○	○	○	○
I would like to be secure in the future and hence I prefer long term planning(4)	○	○	○	○	○
I don’t mind giving up today's fun for success in the future(5)	○	○	○	○	○

Man-nature orientation (Chan, 2001)

Q13 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree(5)
Human beings are only part of nature (1)	○	○	○	○	○
It is important for me to understand the ways of nature and	○	○	○	○	○

act accordingly(2)					
I should maintain harmony with nature(3)	○	○	○	○	○

Eco-literacy

Q14 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree(5)
I have good knowledge about environmental issues. (1)	○	○	○	○	○
I know a great deal about environmental matters. (2)	○	○	○	○	○
I know a lot of about environmentally friendly products sold in the marketplace. (3)	○	○	○	○	○
I am comfortable reading environmental safety information on product labels without any assistance.(4)	○	○	○	○	○

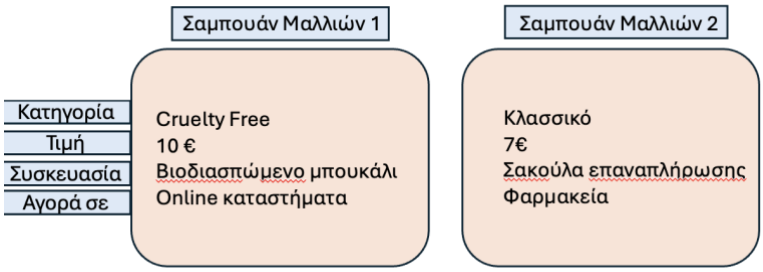
Environmental Concern

Q15 Please respond to the best of your knowledge

	Strongly Disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly Agree(5)
Environmental problems are affecting my life personally. (1)	○	○	○	○	○
I take an active part in an environmental organization.(2)	○	○	○	○	○
I try towards improving the enviroment in my daily life (3)	○	○	○	○	○

Part 2: Conjoint analysis

Choice set 1

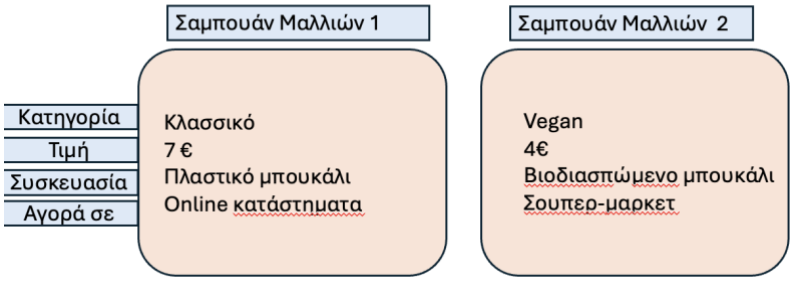


Translation:
Shampoo 1: Cruelty-free, 10, Biodegradable bottle, Online stores
Shampoo 2: Conventional, 7, Refill pouch, Drug stores

Q18 Choose one of the two shampoo's

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 2

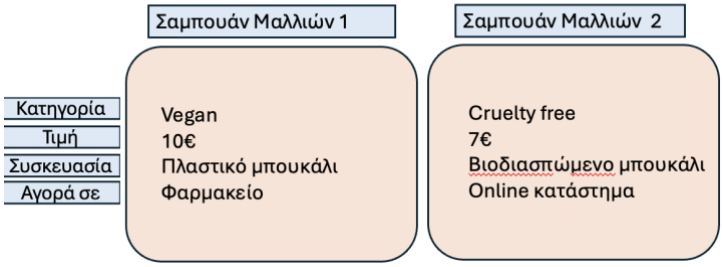


Translation:
Shampoo 1: Conventional, 7, plastic bottle, online stores
Shampoo 2: Vegan, 4, biodegradable, supermarket

Choose one of the two shampoo's

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 3

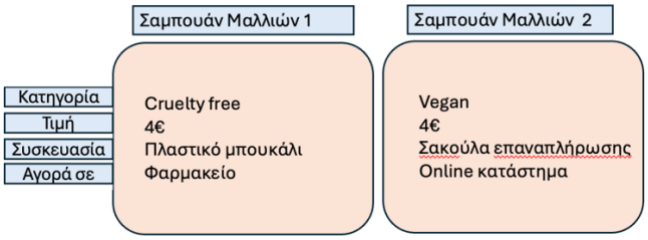


Translation:
Shampoo 1: Vegan, 10, plastic bottle, drug store
Shampoo 2: Cruelty-free, 7, Biodegradable, online stores

Choose one of the two shampoo's

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 4



Translation:
Shampoo 1: Cruelty-free, 4, plastic bottle, drug store
Shampoo 2: Vegan, 4, Refill pouch, Online stores

Choose one of the two shampoos'

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

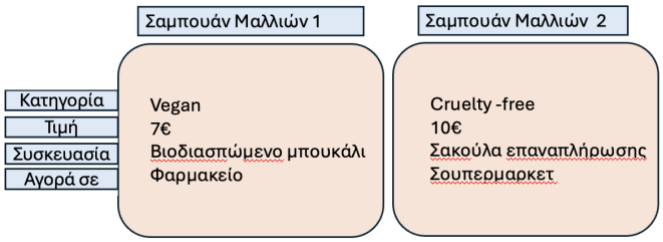
Choice set 5

Translation:
Shampoo 1: Conventional, 7, biodegradable, supermarket
Shampoo 2: Cruelty-free, 4, refill pouch, drug store

Choose one of the two shampoo’s

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 6

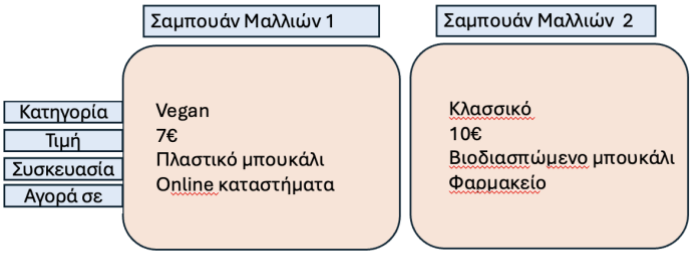


Translation:
Shampoo 1: Vegan, 7, Biodegradable bottle, drug store
Shampoo 2: Cruelty-free, 10, refill pouch, supermarket

Choose one of the two shampoo’s

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 7

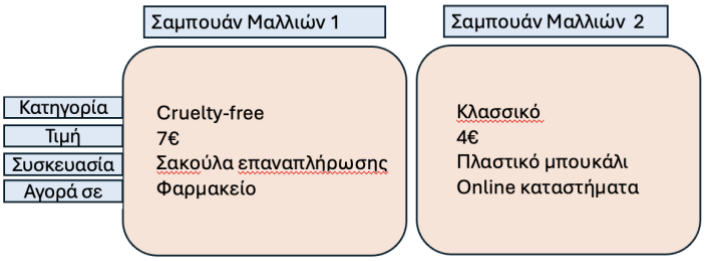


Translation:
Shampoo 1: Vegan, 7, plastic bottle, online
Shampoo 2: Conventional, 10, biodegradable bottle, drug store

Choose one of the two shampoo’s

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

Choice set 8



Translation:
Shampoo 1: Cruelty-free, 7, refill pouch, drug store,
Shampoo 2: Conventional, 4, plastic bottle, online stores

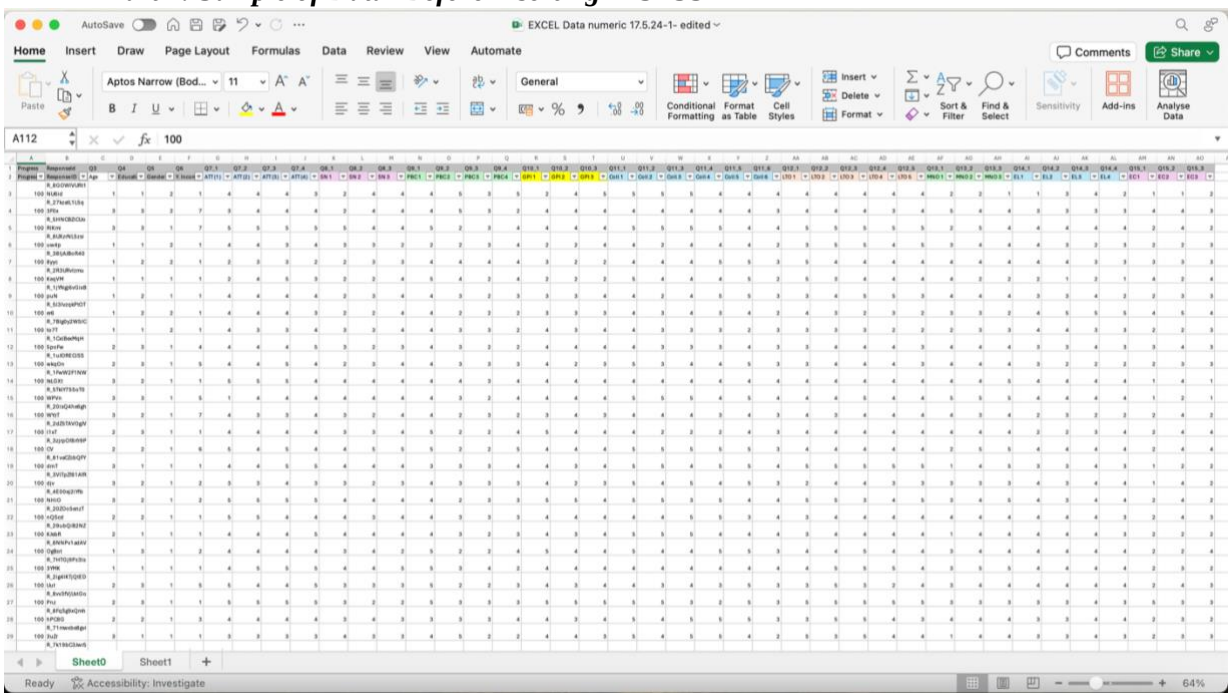
Choose one of the two shampoo's

- ○ Shampoo 1 (1)
- ○ Shampoo 2 (2)

APPENDIX B

Adjusted Raw Data from missing values keeping the important variables for each part of the analysis.

Part 1: Sample of Data- Before inserting in SPSS



Part 1 Sample of Data SPSS and combined scores and reversed questions

Attitude	Subjective_Norms	Q9_2_reversed	Q9_3_reversed	PBC	GPI	Coll_1_4_5	Coll_2_6_3	LTO_2_3_5	LTO_1_4	MNO	EL	LEC
.	.	.	.	.	.	.	.	.	.	.	.	.
3.75	3.33	1.00	3.00	3.25	3.67	4.33	4.67	4.00	4.00	1.67	2.50	1.33
3.75	3.33	1.00	3.00	2.50	4.00	4.00	3.67	4.00	3.50	4.33	3.00	3.67
5.00	4.33	4.00	3.00	4.00	4.00	4.67	4.67	5.00	5.00	3.67	4.00	2.67
3.75	2.67	4.00	3.00	3.25	2.67	4.00	2.67	5.00	3.50	3.67	3.00	2.33
2.50	2.67	2.00	2.00	3.00	2.33	4.67	3.67	4.00	4.50	4.00	3.50	3.00
3.50	2.67	2.00	4.00	3.75	2.00	4.67	3.33	3.67	4.50	2.67	1.50	3.33
4.00	3.00	3.00	4.00	3.50	3.33	4.67	3.00	4.00	4.00	4.00	3.00	2.67
3.75	2.67	4.00	4.00	3.50	3.00	3.67	3.00	2.33	3.50	2.67	4.75	4.33
3.50	3.33	3.00	3.00	3.00	3.67	3.00	3.00	2.67	2.50	2.67	3.50	2.33
4.25	2.67	3.00	4.00	3.25	4.00	3.67	3.00	3.67	3.50	4.00	3.25	3.33
4.25	3.00	3.00	3.00	3.25	3.00	4.67	3.33	3.67	3.50	4.00	2.25	2.67
4.75	4.00	2.00	3.00	3.25	4.00	4.00	4.00	4.00	4.00	4.33	4.00	2.00
3.25	4.00	3.00	4.00	3.75	4.00	4.67	4.67	4.33	4.00	5.00	4.00	1.33
3.50	3.00	4.00	3.00	3.25	3.33	3.67	3.67	3.67	4.00	3.67	2.25	2.67
4.00	3.33	4.00	4.00	4.25	4.33	3.33	2.33	4.00	4.00	4.00	2.75	3.33
4.50	4.67	4.00	4.00	4.50	4.00	5.00	4.33	4.00	4.00	4.00	4.00	3.33
4.50	4.00	3.00	3.00	3.25	3.67	5.00	4.33	5.00	5.00	3.33	3.25	1.67
3.25	2.67	3.00	3.00	3.25	3.00	4.67	4.00	3.67	2.50	3.00	3.75	2.33
5.00	4.00	4.00	3.00	3.50	4.67	4.67	4.00	4.33	4.50	4.00	3.75	2.67
4.50	3.67	3.00	3.00	3.25	4.00	4.00	4.33	4.00	3.50	4.00	3.75	3.00
4.25	4.00	3.00	4.00	3.50	3.67	4.33	4.67	4.00	3.50	3.00	3.75	2.00
4.00	3.00	4.00	4.00	4.25	4.33	5.00	3.67	4.33	4.00	3.67	4.00	2.67
4.75	4.33	3.00	2.00	3.00	4.00	4.00	4.00	4.67	4.50	4.33	4.00	2.33

LEC	Ln_GPI	Ln_ATT	Ln_SN	Ln_PBC	PBC2	PBC3	lnEL	lnColl_1	lnColl_2	LnLTO_1	LnLTO_2	LnMNO	LnLEC	Inverse_GI
1.33	1.30	1.32	1.20	1.18	2.00	4.00	.92	1.47	1.54	1.39	1.39	.51	.29	
3.67	1.39	1.32	1.20	.92	2.00	2.50	1.10	1.39	1.30	1.39	1.25	1.47	1.30	
2.67	1.39	1.61	1.47	1.39	3.50	3.50	1.39	1.54	1.54	1.61	1.61	1.30	.98	
2.33	.98	1.32	.98	1.18	3.50	3.50	1.10	1.39	.98	1.61	1.25	1.30	.85	
3.00	.85	.92	.98	1.10	2.00	3.00	1.25	1.54	1.30	1.39	1.50	1.39	1.10	
3.33	.69	1.25	.98	1.32	3.00	4.00	.41	1.54	1.20	1.30	1.50	.98	1.20	
2.67	1.20	1.39	1.10	1.25	3.50	3.50	1.10	1.54	1.10	1.39	1.39	1.39	.98	
4.33	1.10	1.32	.98	1.25	4.00	3.00	1.56	1.30	1.10	.85	1.25	.98	1.47	
2.33	1.30	1.25	1.20	1.10	3.00	2.50	1.25	1.10	1.10	.98	.92	.98	.85	
3.33	1.39	1.45	.98	1.18	3.50	3.00	1.18	1.30	1.10	1.30	1.25	1.39	1.20	
2.67	1.10	1.45	1.10	1.18	3.00	3.00	.81	1.54	1.20	1.30	1.25	1.39	.98	
2.00	1.39	1.56	1.39	1.18	2.50	3.50	1.39	1.39	1.39	1.39	1.39	1.47	.69	
1.33	1.39	1.18	1.39	1.32	3.50	4.00	1.39	1.54	1.54	1.47	1.39	1.61	.29	
2.67	1.20	1.25	1.10	1.18	3.50	2.50	.81	1.30	1.30	1.30	1.39	1.30	.98	
3.33	1.47	1.39	1.20	1.45	4.00	4.00	1.01	1.20	.85	1.39	1.39	1.39	1.20	
3.33	1.39	1.50	1.54	1.50	4.00	4.50	1.39	1.61	1.47	1.39	1.39	1.39	1.20	
1.67	1.30	1.50	1.39	1.18	3.00	3.50	1.18	1.61	1.47	1.61	1.61	1.20	.51	
2.33	1.10	1.18	.98	1.18	3.00	3.00	1.32	1.54	1.39	1.30	.92	1.10	.85	
2.67	1.54	1.61	1.39	1.25	3.50	3.00	1.32	1.54	1.39	1.47	1.50	1.39	.98	
3.00	1.39	1.50	1.30	1.18	3.00	3.00	1.32	1.39	1.47	1.39	1.25	1.39	1.10	
2.00	1.30	1.45	1.39	1.25	3.50	3.50	1.32	1.47	1.54	1.39	1.25	1.10	.69	
2.67	1.47	1.39	1.10	1.45	4.00	4.00	1.39	1.61	1.30	1.47	1.39	1.30	.98	
2.33	1.39	1.56	1.47	1.10	2.50	2.00	1.39	1.39	1.39	1.54	1.50	1.47	.85	
3.00	1.30	1.50	1.10	1.39	4.00	3.50	1.39	1.39	1.20	1.39	.92	1.30	1.10	
3.67	1.61	1.61	.85	1.25	3.00	3.00	1.18	1.39	1.30	1.61	1.61	1.10	1.30	

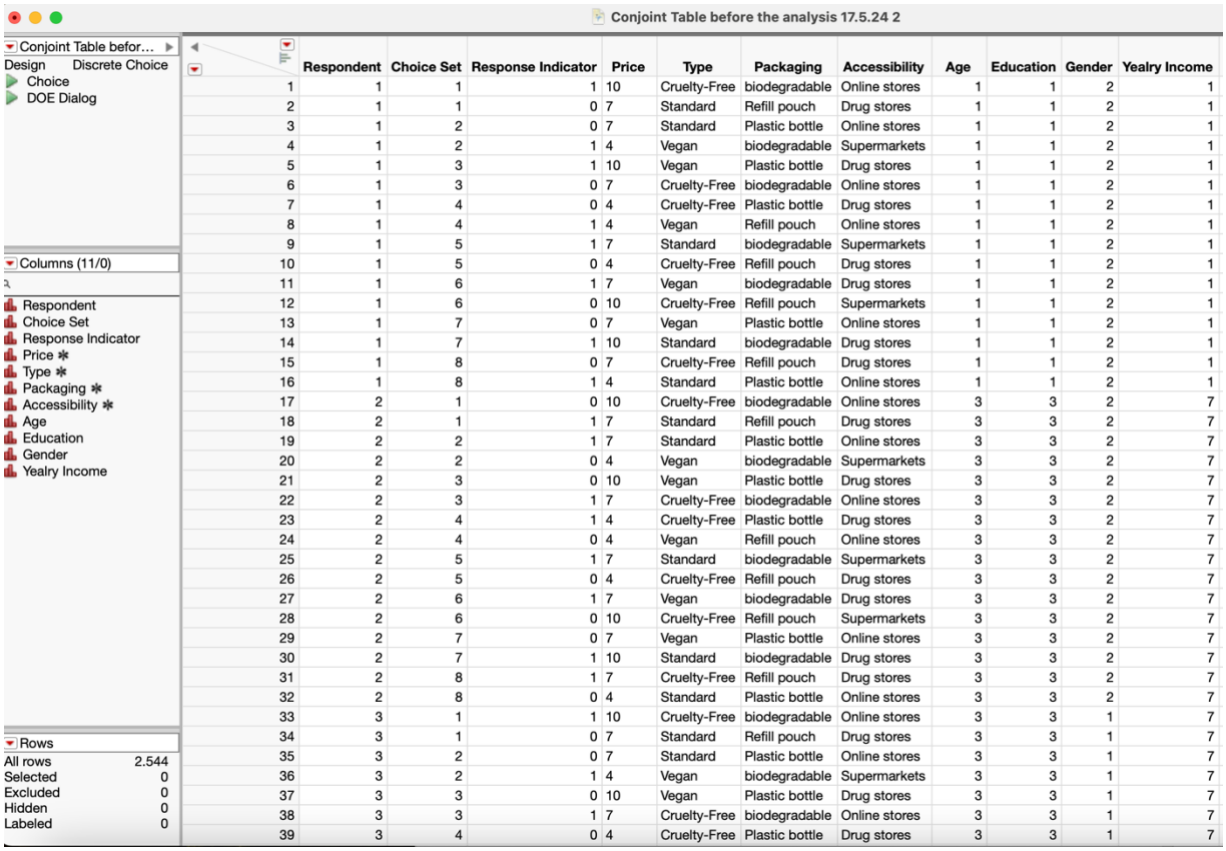
Part 1: Variable overview SPSS:

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Progress	Numeric	8	0		None	None	11	Right	Scale	Input
2	ResponseId	String	17	0		None	None	17	Left	Nominal	Input
3	Age	Numeric	4	0		None	None	11	Right	Ordinal	Input
4	Education	Numeric	10	0		None	None	11	Right	Ordinal	Input
5	Gender	Numeric	6	0		None	None	11	Right	Nominal	Input
6	Income	Numeric	9	0		None	None	11	Right	Ordinal	Input
7	Q7_1	Numeric	7	0		None	None	11	Right	Ordinal	Input
8	Q7_2	Numeric	7	0		None	None	11	Right	Ordinal	Input
9	Q7_3	Numeric	7	0		None	None	11	Right	Ordinal	Input
10	Q7_4	Numeric	7	0		None	None	11	Right	Ordinal	Input
11	Q8_1	Numeric	4	0		None	None	11	Right	Ordinal	Input
12	Q8_2	Numeric	4	0		None	None	11	Right	Ordinal	Input
13	Q8_3	Numeric	4	0		None	None	11	Right	Ordinal	Input
14	Q9_1	Numeric	5	0		None	None	11	Right	Ordinal	Input
15	Q9_2	Numeric	5	0		None	None	11	Right	Ordinal	Input
16	Q9_3	Numeric	5	0		None	None	11	Right	Ordinal	Input
17	Q9_4	Numeric	5	0		None	None	11	Right	Ordinal	Input
18	Q10_1	Numeric	5	0		None	None	11	Right	Ordinal	Input
19	Q10_2	Numeric	5	0		None	None	11	Right	Ordinal	Input
20	Q10_3	Numeric	5	0		None	None	11	Right	Ordinal	Input
21	Q11_1	Numeric	6	0		None	None	11	Right	Ordinal	Input
22	Q11_2	Numeric	6	0		None	None	11	Right	Ordinal	Input
23	Q11_3	Numeric	6	0		None	None	11	Right	Ordinal	Input
24	Q11_4	Numeric	6	0		None	None	11	Right	Ordinal	Input
25	Q11_5	Numeric	6	0		None	None	11	Right	Ordinal	Input
26	Q11_6	Numeric	6	0		None	None	11	Right	Ordinal	Input
27	Q12_1	Numeric	5	0		None	None	11	Right	Ordinal	Input
28	Q12_2	Numeric	5	0		None	None	11	Right	Ordinal	Input
29	Q12_3	Numeric	5	0		None	None	11	Right	Ordinal	Input
30	Q12_4	Numeric	5	0		None	None	11	Right	Ordinal	Input
31	Q12_5	Numeric	5	0		None	None	11	Right	Ordinal	Input
32	Q13_1	Numeric	5	0		None	None	11	Right	Ordinal	Input
33	Q13_2	Numeric	5	0		None	None	11	Right	Ordinal	Input
34	Q13_3	Numeric	5	0		None	None	11	Right	Ordinal	Input
35	Q14_1	Numeric	4	0		None	None	11	Right	Ordinal	Input
36	Q14_2	Numeric	4	0		None	None	11	Right	Ordinal	Input
37	Q14_3	Numeric	4	0		None	None	11	Right	Ordinal	Input
38	Q14_4	Numeric	4	0		None	None	11	Right	Ordinal	Input
39	Q15_1	Numeric	4	0		None	None	11	Right	Ordinal	Input
40	Q15_2	Numeric	4	0		None	None	11	Right	Ordinal	Input
41	Q15_3	Numeric	4	0		None	None	11	Right	Ordinal	Input
42	Attitude	Numeric	8	2		None	None	10	Right	Scale	Input
43	Subjective_...	Numeric	8	2		None	None	18	Right	Scale	Input
44	Q9_2_rever...	Numeric	8	2		None	None	15	Right	Ordinal	Input
45	Q9_3_rever...	Numeric	8	2		None	None	15	Right	Ordinal	Input
46	PBC	Numeric	8	2		None	None	10	Right	Scale	Input
47	GPI	Numeric	8	2		None	None	10	Right	Scale	Input
48	Coll_1_4_5	Numeric	8	2		None	None	12	Right	Scale	Input
49	Coll_2_6_3	Numeric	8	2		None	None	12	Right	Scale	Input
50	LTO_2_3_5	Numeric	8	2		None	None	11	Right	Scale	Input
51	LTO_1_4	Numeric	8	2		None	None	10	Right	Scale	Input
52	MNO	Numeric	8	2		None	None	10	Right	Scale	Input
53	EL	Numeric	8	2		None	None	10	Right	Scale	Input
54	LEC	Numeric	8	2		None	None	10	Right	Scale	Input
55	Ln_GPI	Numeric	8	2		None	None	10	Right	Scale	Input
56	Ln_ATT	Numeric	8	2		None	None	10	Right	Scale	Input
57	Ln_SN	Numeric	8	2		None	None	10	Right	Scale	Input
58	Ln_PBC	Numeric	8	2		None	None	10	Right	Scale	Input
59	PBC2	Numeric	8	2		None	None	10	Right	Scale	Input
60	PBC3	Numeric	8	2		None	None	10	Right	Scale	Input
61	lnEL	Numeric	8	2		None	None	10	Right	Scale	Input
62	lnColl_1	Numeric	8	2		None	None	10	Right	Scale	Input
63	lnColl_2	Numeric	8	2		None	None	10	Right	Scale	Input
64	LnLTO_1	Numeric	8	2		None	None	10	Right	Scale	Input
65	LnLTO_2	Numeric	8	2		None	None	10	Right	Scale	Input
66	LnMNO	Numeric	8	2		None	None	10	Right	Scale	Input
67	LnLEC	Numeric	8	2		None	None	10	Right	Scale	Input
68	Inverse_GPI	Numeric	8	2		None	None	13	Right	Scale	Input
69	Inverse_ATT	Numeric	8	2		None	None	13	Right	Scale	Input
70	Inverse_SN	Numeric	8	2		None	None	12	Right	Scale	Input
71	Inverse_PBC	Numeric	8	2		None	None	13	Right	Scale	Input

Part 2: Consumer-choice Data adjusted after missing values

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Progress	Response ID	Choice 1	Choice 2	Choice 3	Choice 4	Choice 5	Choice 6	Choice 7	Choice 8	Age	Gender	Income
2	100	R_8GOWlVURt1NU6id	1	2	1	2	1	1	2	2	1	2	1
3	100	R_27kzatL1L5q3F0x	2	1	2	1	1	1	2	1	5	2	7
4	100	R_5HNCBZiCLloRIKmi	1	2	2	2	1	1	2	1	5	1	7
5	100	R_8UXzrNL5zsiuw4p	2	2	1	1	2	2	2	1	1	2	1
6	100	R_38IjAJBoR408yyc	1	1	2	1	2	2	2	1	1	2	1
7	100	R_2R3URvlzmuKeqVM	2	2	2	1	2	1	1	2	1	1	1
8	100	R_1jYNgj6vGixBpuN	1	2	1	1	1	1	1	2	1	1	1
9	100	R_5l3lvzqkPtOTer6	2	1	2	1	2	1	1	2	1	2	1
10	100	R_7Blg0y2W5lCto7T	1	2	2	2	1	1	2	1	1	2	1
11	100	R_1CxlBexMqH5poFw	1	2	1	2	2	1	1	1	3	1	4
12	100	R_1uJORECiSSwkqOn	1	1	1	1	1	1	2	1	4	1	5
13	100	R_1FwW2F1NWtkLGXt	1	2	2	2	2	1	2	1	6	1	1
14	100	R_5TkIY755oT0WPVn	1	2	2	2	2	1	2	1	5	1	5
15	100	R_20isQ4he6ghWYzT	2	2	1	1	1	2	2	2	5	1	7
16	100	R_2dZ5TAVOgjVl1xT	1	2	2	2	2	2	1	1	3	1	1
17	100	R_3zjrpOf8rfr9PCV	1	2	2	2	2	1	1	1	3	1	6
171	100	R_4PzeeIgVegzKhPY	1	2	2	2	1	1	2	1	1	1	1
172	100	R_8C1N5pwFQaTxX3r	1	2	2	1	2	1	2	1	1	1	1
173	100	R_24HdcqrT5PPgFbz	1	2	2	1	2	2	2	1	1	1	3
174	100	R_5fK89u6iTJ5MhlH	1	2	2	2	2	1	2	1	1	1	2
175													
176													
177													
178													
179		1	109	26	42	88	68	117	73	121			
180		2	64	147	131	85	105	56	100	52			
181		TOTAL	173	173	173	173	173	173	173	173			

Part 2: Sample of the Dataset as presented in JMP



	Respondent	Choice Set	Response Indicator	Price	Type	Packaging	Accessibility	Age	Education	Gender	Yealry Income
1	1	1	1	10	Cruelty-Free	biodegradable	Online stores	1	1	2	1
2	1	1	0	7	Standard	Refill pouch	Drug stores	1	1	2	1
3	1	2	0	7	Standard	Plastic bottle	Online stores	1	1	2	1
4	1	2	1	4	Vegan	biodegradable	Supermarkets	1	1	2	1
5	1	3	1	10	Vegan	Plastic bottle	Drug stores	1	1	2	1
6	1	3	0	7	Cruelty-Free	biodegradable	Online stores	1	1	2	1
7	1	4	0	4	Cruelty-Free	Plastic bottle	Drug stores	1	1	2	1
8	1	4	1	4	Vegan	Refill pouch	Online stores	1	1	2	1
9	1	5	1	7	Standard	biodegradable	Supermarkets	1	1	2	1
10	1	5	0	4	Cruelty-Free	Refill pouch	Drug stores	1	1	2	1
11	1	6	1	7	Vegan	biodegradable	Drug stores	1	1	2	1
12	1	6	0	10	Cruelty-Free	Refill pouch	Supermarkets	1	1	2	1
13	1	7	0	7	Vegan	Plastic bottle	Online stores	1	1	2	1
14	1	7	1	10	Standard	biodegradable	Drug stores	1	1	2	1
15	1	8	0	7	Cruelty-Free	Refill pouch	Drug stores	1	1	2	1
16	1	8	1	4	Standard	Plastic bottle	Online stores	1	1	2	1
17	2	1	0	10	Cruelty-Free	biodegradable	Online stores	3	3	2	7
18	2	1	1	7	Standard	Refill pouch	Drug stores	3	3	2	7
19	2	2	1	7	Standard	Plastic bottle	Online stores	3	3	2	7
20	2	2	0	4	Vegan	biodegradable	Supermarkets	3	3	2	7
21	2	3	0	10	Vegan	Plastic bottle	Drug stores	3	3	2	7
22	2	3	1	7	Cruelty-Free	biodegradable	Online stores	3	3	2	7
23	2	4	1	4	Cruelty-Free	Plastic bottle	Drug stores	3	3	2	7
24	2	4	0	4	Vegan	Refill pouch	Online stores	3	3	2	7
25	2	5	1	7	Standard	biodegradable	Supermarkets	3	3	2	7
26	2	5	0	4	Cruelty-Free	Refill pouch	Drug stores	3	3	2	7
27	2	6	1	7	Vegan	biodegradable	Drug stores	3	3	2	7
28	2	6	0	10	Cruelty-Free	Refill pouch	Supermarkets	3	3	2	7
29	2	7	0	7	Vegan	Plastic bottle	Online stores	3	3	2	7
30	2	7	1	10	Standard	biodegradable	Drug stores	3	3	2	7
31	2	8	1	7	Cruelty-Free	Refill pouch	Drug stores	3	3	2	7
32	2	8	0	4	Standard	Plastic bottle	Online stores	3	3	2	7
33	3	1	1	10	Cruelty-Free	biodegradable	Online stores	3	3	1	7
34	3	1	0	7	Standard	Refill pouch	Drug stores	3	3	1	7
35	3	2	0	7	Standard	Plastic bottle	Online stores	3	3	1	7
36	3	2	1	4	Vegan	biodegradable	Supermarkets	3	3	1	7
37	3	3	0	10	Vegan	Plastic bottle	Drug stores	3	3	1	7
38	3	3	1	7	Cruelty-Free	biodegradable	Online stores	3	3	1	7
39	3	4	0	4	Cruelty-Free	Plastic bottle	Drug stores	3	3	1	7

APPENDIX C

Quantitative Analysis

Part 1

Cronbach's Alpha

Attitude towards green product (ATT)

Reliability Statistics

Cronbach's Alpha	N of Items
.755	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q7_1	12.04	3.511	.484	.745
Q7_2	11.79	3.518	.641	.649
Q7_3	11.72	3.765	.623	.665
Q7_4	11.84	3.874	.488	.731

Subjective Norms (SN)

Reliability Statistics

Cronbach's Alpha	N of Items
.779	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q8_1	7.24	2.422	.633	.684
Q8_2	7.12	2.542	.656	.655
Q8_3	6.72	2.903	.563	.756

Perceived Behavioural control (PBC)

Reliability Statistics

Cronbach's Alpha	N of Items
.399	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q9_1	9.2609	3.557	.189	.363
Q9_4	10.3043	3.038	.218	.332
Q9_2_reversed	10.2609	2.944	.176	.387
Q9_3_reversed	10.4410	2.873	.301	.239

Reliability Statistics

Cronbach's Alpha	N of Items
.401	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q9_4	2.9814	.806	.251	.
Q9_3_reversed	3.1180	.855	.251	.

Green purchasing Intentions (GPI)

Reliability Statistics

Cronbach's Alpha	N of Items
.732	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q10_1	6.96	2.299	.472	.740
Q10_2	7.47	1.801	.636	.543
Q10_3	7.29	2.108	.568	.632

Collectivism (Coll)

Reliability Statistics

Cronbach's Alpha	N of Items
.670	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q11_1	19.53	7.150	.429	.629
Q11_2	20.46	5.287	.493	.596
Q11_3	20.14	6.348	.436	.616
Q11_4	19.91	6.448	.385	.634
Q11_5	19.70	7.236	.365	.643
Q11_6	20.84	6.469	.351	.647

Long term Orientation (LTO)

Reliability Statistics

Cronbach's Alpha	N of Items
.659	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q12_1	16.30	4.401	.373	.626
Q12_2	15.98	4.849	.331	.641
Q12_3	15.83	4.520	.497	.576
Q12_4	16.07	4.169	.494	.567
Q12_5	16.39	4.065	.395	.621

Man-Nature Orientation (MNO)

Reliability Statistics

Cronbach's Alpha	N of Items
.552	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q13_1	8.07	1.627	.281	.673
Q13_2	7.65	1.980	.510	.257
Q13_3	7.49	2.314	.368	.462

Eco-literacy (EC)

Reliability Statistics

Cronbach's Alpha	N of Items
.833	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q14_1	9.67	5.235	.667	.788
Q14_2	9.78	4.959	.773	.742
Q14_3	9.86	5.506	.580	.824
Q14_4	9.94	4.678	.651	.800

Environmental Concern

Reliability Statistics

Cronbach's Alpha	N of Items
.519	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q15_1	6.11	2.183	.348	.393
Q15_2	5.22	2.671	.228	.578
Q15_3	5.60	2.217	.436	.250

Factor analysis

Attitude towards green products (ATT)

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.697
Bartlett's Test of Sphericity	Approx. Chi-Square	187.707
	df	6
	Sig.	<.001

Communalities

	Initial	Extraction
Q7_1	1.000	.471
Q7_2	1.000	.716
Q7_3	1.000	.691
Q7_4	1.000	.474

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	2.353	58.818	58.818	2.353	58.818	58.818
2	.769	19.217	78.036			
3	.596	14.906	92.942			
4	.282	7.058	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q7_1	.687
Q7_2	.846
Q7_3	.831
Q7_4	.689

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Subjective Norms

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.691
Bartlett's Test of Sphericity	Approx. Chi-Square	133.942
	df	3
	Sig.	<.001

Communalities

	Initial	Extraction
Q8_1	1.000	.712
Q8_2	1.000	.736
Q8_3	1.000	.634

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	2.082	69.387	69.387	2.082	69.387	69.387
2	.529	17.634	87.022			
3	.389	12.978	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q8_1	.844
Q8_2	.858
Q8_3	.796

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

PBC

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.536
Bartlett's Test of Sphericity	Approx. Chi-Square	24.028
	df	6
	Sig.	<.001

Communalities

	Initial	Extraction
Q9_1	1.000	.272
Q9_2	1.000	.267
Q9_3	1.000	.502
Q9_4	1.000	.403

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	1.444	36.107	36.107	1.444	36.107	36.107
2	.972	24.311	60.418			
3	.915	22.877	83.294			
4	.668	16.706	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q9_1	-.521
Q9_2	.517
Q9_3	.709
Q9_4	-.635

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

GPI

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.648
Bartlett's Test of Sphericity	Approx. Chi-Square	108.842
	df	3
	Sig.	<.001

Communalities

	Initial	Extraction
Q10_1	1.000	.544
Q10_2	1.000	.743
Q10_3	1.000	.670

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	1.956	65.210	65.210	1.956	65.210	65.210
2	.646	21.539	86.749			
3	.398	13.251	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q10_1	.737
Q10_2	.862
Q10_3	.819

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Collectivism (Coll)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.672
Bartlett's Test of Sphericity	Approx. Chi-Square	147.596
	df	15
	Sig.	<.001

Communalities

	Initial	Extraction
Q11_1	1.000	.528
Q11_2	1.000	.647
Q11_3	1.000	.420
Q11_4	1.000	.381
Q11_5	1.000	.763
Q11_6	1.000	.654

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %	Rotation Sums of Squared Loadings Total	% of Variance	Cumulative %
1	2.330	38.836	38.836	2.330	38.836	38.836	1.772	29.541	29.541
2	1.063	17.719	56.555	1.063	17.719	56.555	1.621	27.014	56.555
3	.853	14.216	70.771						
4	.723	12.055	82.826						
5	.613	10.223	93.049						
6	.417	6.951	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1	2
Q11_1	.661	-.303
Q11_2	.693	.409
Q11_3	.639	.107
Q11_4	.597	-.155
Q11_5	.614	-.621
Q11_6	.521	.619

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix[a]

	Component 1	2
Q11_1	.695	.212
Q11_2	.247	.765
Q11_3	.407	.505
Q11_4	.550	.280
Q11_5	.871	-.058
Q11_6	-.021	.808

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

Long term orientation (LTO)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.570
Bartlett's Test of Sphericity	Approx. Chi-Square	151.806
	df	10
	Sig.	<.001

Communalities

	Initial	Extraction
Q12_1	1.000	.758
Q12_2	1.000	.720
Q12_3	1.000	.729
Q12_4	1.000	.694
Q12_5	1.000	.390

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.161	43.218	43.218	2.161	43.218	43.218	1.651	33.015	33.015
2	1.130	22.604	65.822	1.130	22.604	65.822	1.640	32.807	65.822
3	.760	15.193	81.015						
4	.615	12.298	93.313						
5	.334	6.687	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1	Component 2
Q12_1	.587	.643
Q12_2	.582	-.617
Q12_3	.745	-.417
Q12_4	.730	.402
Q12_5	.624	-.002

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix[a]

	Component 1	Component 2
Q12_1	-.035	.870
Q12_2	.848	-.029
Q12_3	.823	.228
Q12_4	.236	.799
Q12_5	.445	.438

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

Man-Nature Orientation (MNO)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.550
Bartlett's Test of Sphericity	Approx. Chi-Square	64.485
	df	3
	Sig.	<.001

Communalities

	Initial	Extraction
Q13_1	1.000	.346
Q13_2	1.000	.733
Q13_3	1.000	.603

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.682	56.069	56.069	1.682	56.069	56.069
2	.856	28.531	84.599			
3	.462	15.401	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q13_1	.588
Q13_2	.856
Q13_3	.777

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Eco-Literacy (EC)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.733
Bartlett's Test of Sphericity	Approx. Chi-Square	279.698
	df	6
	Sig.	<.001

Communalities

	Initial	Extraction
Q14_1	1.000	.688
Q14_2	1.000	.800
Q14_3	1.000	.559
Q14_4	1.000	.648

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.694	67.357	67.357	2.694	67.357	67.357
2	.631	15.771	83.128			
3	.455	11.379	94.507			
4	.220	5.493	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q14_1	.829
Q14_2	.894
Q14_3	.747
Q14_4	.805

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Environmental Concern (LEC)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.557
Bartlett's Test of Sphericity	Approx. Chi-Square	39.066
	df	3
	Sig.	<.001

Communalities

	Initial	Extraction
Q15_1	1.000	.569
Q15_2	1.000	.315
Q15_3	1.000	.663

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %
1	1.548	51.589	51.589	1.548	51.589	51.589
2	.876	29.215	80.804			
3	.576	19.196	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component 1
Q15_1	.755
Q15_2	.562
Q15_3	.814

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Regression Analysis (Table 7)

Model 1

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PBC, Subjective_Norms, Attitude[b]	.	Enter

a. Dependent Variable: GPI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.581[a]	.337	.325	.55512	.337	26.631	3	157	<.001

a. Predictors: (Constant), PBC, Subjective_Norms, Attitude

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.619	3	8.206	26.631	<.001[b]
	Residual	48.380	157	.308		
	Total	72.999	160			

a. Dependent Variable: GPI

b. Predictors: (Constant), PBC, Subjective_Norms, Attitude

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	95.0% Confidence Interval for B Upper Bound	Correlations Zero-order	Correlations Partial	Correlations Part	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	1.051	.331		3.172	.002	.397	1.706					
	Attitude	.301	.089	.273	3.371	<.001	.125	.477	.493	.260	.219	.641	1.559
	Subjective_Norms	.298	.070	.339	4.279	<.001	.160	.435	.519	.323	.278	.674	1.484
	PBC	.100	.093	.079	1.069	.287	-.085	.285	.336	.085	.069	.768	1.303

a. Dependent Variable: GPI

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Attitude	Subjective_Norms	PBC
1	1	3.950	1.000	.00	.00	.00	.00
	2	.026	12.391	.13	.00	.81	.09
	3	.013	17.323	.22	.25	.02	.87
	4	.011	19.294	.66	.74	.16	.04

a. Dependent Variable: GPI

Model 2

Model	Variables Entered	Variables Removed	Method
1	EL, Subjective_Norms, PBC, Attitude[b]	.	Enter

a. Dependent Variable: GPI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.603[a]	.363	.347	.54590	.363	22.240	4	156	<.001

a. Predictors: (Constant), EL, Subjective_Norms, PBC, Attitude

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.510	4	6.628	22.240	<.001[b]
	Residual	46.489	156	.298		
	Total	72.999	160			

a. Dependent Variable: GPI

b. Predictors: (Constant), EL, Subjective_Norms, PBC, Attitude

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.931	.329		2.825	.005	.280	1.581
	Attitude	.262	.089	.238	2.945	.004	.086	.438
	Subjective_Norms	.282	.069	.321	4.105	<.001	.146	.418
	PBC	.033	.096	.027	.350	.727	-.155	.222
	EL	.168	.067	.182	2.519	.013	.036	.300

a. Dependent Variable: GPI

Model 3

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	MNO, LEC, LTO_1_4, PBC, Coll_1_4_5, LTO_2_3_5, Subjective_Norms, EL, Attitude, Coll_2_6_3[b]	.	Enter

a. Dependent Variable: GPI

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.649[a]	.421	.382	.53102	.421	10.888	10	150	<.001

a. Predictors: (Constant), MNO, LEC, LTO_1_4, PBC, Coll_1_4_5, LTO_2_3_5, Subjective_Norms, EL, Attitude, Coll_2_6_3

b. Dependent Variable: GPI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.702	10	3.070	10.888	<.001[b]
	Residual	42.298	150	.282		
	Total	72.999	160			

a. Dependent Variable: GPI

b. Predictors: (Constant), MNO, LEC, LTO_1_4, PBC, Coll_1_4_5, LTO_2_3_5, Subjective_Norms, EL, Attitude, Coll_2_6_3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.406	.568		.716	.475		
	Attitude	.224	.089	.204	2.535	.012	.597	1.674
	Subjective_Norms	.158	.076	.180	2.073	.040	.513	1.948
	PBC	.096	.095	.077	1.011	.314	.674	1.483
	EL	.113	.069	.123	1.654	.100	.700	1.429
	LEC	.022	.063	.022	.348	.729	.923	1.084
	LTO_2_3_5	-.068	.084	-.057	-.808	.421	.788	1.269
	LTO_1_4	.081	.067	.083	1.212	.227	.834	1.199
	Coll_1_4_5	-.104	.099	-.076	-1.057	.292	.749	1.335
	Coll_2_6_3	.222	.083	.222	2.689	.008	.566	1.767
	MNO	.161	.073	.152	2.216	.028	.824	1.213

a. Dependent Variable: GPI

Model 4

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Income, Attitude, LTO_2_3_5, LEC, Gender, Coll_1_4_5, LTO_1_4, MNO, EL, Coll_2_6_3, PBC, Education, Age, Subjective_Norms[b]	.	Enter

a. Dependent Variable: GPI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.658[a]	.434	.379	.53220

a. Predictors: (Constant), Income, Attitude, LTO_2_3_5, LEC, Gender, Coll_1_4_5, LTO_1_4, MNO, EL, Coll_2_6_3, PBC, Education, Age, Subjective_Norms

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.647	14	2.261	7.981	<.001[b]
	Residual	41.352	146	.283		
	Total	72.999	160			

a. Dependent Variable: GPI

b. Predictors: (Constant), Income, Attitude, LTO_2_3_5, LEC, Gender, Coll_1_4_5, LTO_1_4, MNO, EL, Coll_2_6_3, PBC, Education, Age, Subjective_Norms

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.445	.623		.714	.476
	Attitude	.187	.094	.170	1.992	.048
	Subjective_Norms	.154	.077	.176	2.017	.046
	PBC	.107	.099	.085	1.086	.279
	Coll_1_4_5	-.106	.099	-.077	-1.072	.285
	Coll_2_6_3	.226	.085	.226	2.662	.009
	LTO_2_3_5	-.071	.085	-.060	-.840	.402
	LTO_1_4	.081	.068	.083	1.205	.230
	MNO	.174	.074	.164	2.343	.020
	EL	.113	.071	.122	1.598	.112
	LEC	.025	.064	.025	.387	.700
	Age	.032	.068	.040	.470	.639
	Education	.094	.064	.116	1.480	.141
	Gender	-.107	.108	-.067	-.993	.322
	Income	-.031	.032	-.090	-.959	.339

a. Dependent Variable: GPI

Regression Table 8

Model 1

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Ln_PBC, Ln_SN, Ln_ATT[b]	.	Enter

a. Dependent Variable: Ln_GPI

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.576[a]	.331	.319	.16300	.331	25.929	3	157	<.001	1.936

a. Predictors: (Constant), Ln_PBC, Ln_SN, Ln_ATT

b. Dependent Variable: Ln_GPI

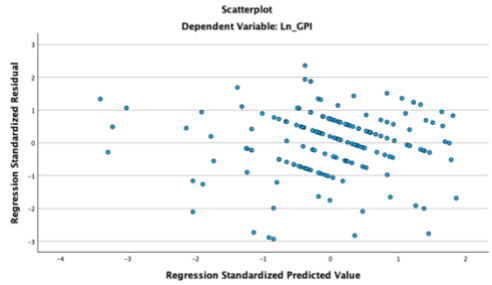
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.067	3	.689	25.929	<.001[b]
	Residual	4.172	157	.027		
	Total	6.238	160			

a. Dependent Variable: Ln_GPI

b. Predictors: (Constant), Ln_PBC, Ln_SN, Ln_ATT

Charts



Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	.418	.119		3.500	<.001		
	Ln_ATT	.297	.096	.248	3.086	.002	.661	1.514
	Ln_SN	.314	.064	.385	4.929	<.001	.699	1.431
	Ln_PBC	.050	.092	.041	.542	.589	.754	1.327

a. Dependent Variable: Ln_GPI

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Ln_ATT	Ln_SN	Ln_PBC
1	1	3.963	1.000	.00	.00	.00	.00
	2	.021	13.635	.10	.01	.88	.05
	3	.009	20.471	.24	.14	.00	.94
	4	.007	24.549	.66	.85	.12	.00

a. Dependent Variable: Ln_GPI

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.8806	1.4794	1.2682	.11366	161
Residual	-.47889	.38448	.00000	.16147	161
Std. Predicted Value	-3.410	1.857	.000	1.000	161
Std. Residual	-2.938	2.359	.000	.991	161

a. Dependent Variable: Ln_GPI

Model 2

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	LnLEC, LnMNO, LnLTO_2, Ln_PBC, lnColl_1, LnLTO_1, lnColl_2, lnEL, Ln_ATT, Ln_SN[b]	.	Enter

a. Dependent Variable: Ln_GPI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.641[a]	.410	.371	.15658

a. Predictors: (Constant), LnLEC, LnMNO, LnLTO_2, Ln_PBC, lnColl_1, LnLTO_1, lnColl_2, lnEL, Ln_ATT, Ln_SN

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.561	10	.256	10.445	<.001[b]
	Residual	3.678	150	.025		
	Total	6.238	160			

a. Dependent Variable: Ln_GPI

b. Predictors: (Constant), LnLEC, LnMNO, LnLTO_2, Ln_PBC, lnColl_1, LnLTO_1, lnColl_2, lnEL, Ln_ATT, Ln_SN

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.288	.211		1.361	.176
	Ln_ATT	.221	.095	.184	2.317	.022
	Ln_SN	.204	.071	.250	2.877	.005
	Ln_PBC	.034	.094	.028	.359	.720
	lnEL	.118	.059	.149	2.014	.046
	lnColl_1	-.111	.122	-.066	-.911	.364
	lnColl_2	.188	.084	.185	2.238	.027
	LnLTO_1	-.079	.093	-.060	-.847	.398
	LnLTO_2	.082	.065	.087	1.260	.210
	LnMNO	.139	.077	.124	1.812	.072
	LnLEC	-.010	.047	-.014	-.211	.833

a. Dependent Variable: Ln_GPI

Part 2: Consumer's Utility Profile JMP

Effect Summary

Source	Logworth	PValue
Packaging	22,824	0,00000
Type	10,142	0,00000
Price	3,359	0,00044
Accessibility	2,043	0,00905

Remove | Add Profile Effect | Add Subject Effect | FDR

Parameter Estimates

Term	Estimate	Std Error	Lower 95%	Upper 95%
Price[10]	-0,292096202	0,0756026219	-0,440871	-0,145187
Price[7]	0,027947163	0,0460664525	-0,061936	0,1181942
Type[Cruelty-Free]	0,210966601	0,0479951970	0,1174957	0,3051477
Type[Vegan]	0,145763453	0,0561752773	0,0357921	0,2554922
Packaging[Refill pouch]	-0,049601540	0,0517866788	-0,15098	0,0515033
Packaging[biodegradable]	0,454362699	0,0487285826	0,3599598	0,5504852
Accessibility[Drug stores]	0,080860956	0,0467323934	-0,010082	0,1726402
Accessibility[Online stores]	-0,146575157	0,0612030039	-0,268008	-0,028428

AICc	1578,4457
BIC	1619,5121
-2*LogLikelihood	1562,3316
-2*Firth LogLikelihood	1514,6117

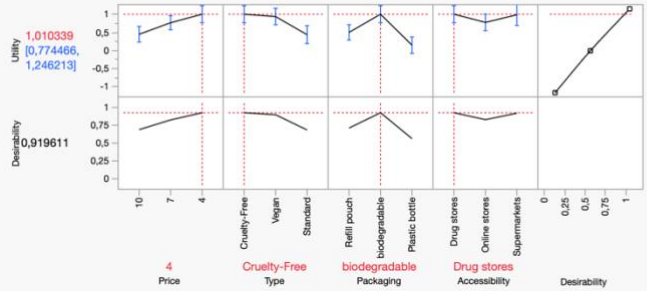
Converged in Gradient

Firth Bias-Adjusted Estimates

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Price	15,471	2	0,0004*
Type	46,706	2	<,0001*
Packaging	105,110	2	<,0001*
Accessibility	9,410	2	0,0090*

Utility Profiler



Effect Marginals

Marginal Probability	Marginal Utility	Price
0,2426	-0,29210	10
0,3342	0,02795	7
0,4232	0,26415	4

Marginal Probability	Marginal Utility	Type
0,3994	0,21097	Cruelty-Free
0,3742	0,14576	Vegan
0,2264	-0,35673	Standard

Marginal Probability	Marginal Utility	Packaging
0,2979	-0,04960	Refill pouch
0,4932	0,45436	biodegradable
0,2089	-0,40476	Plastic bottle

Marginal Probability	Marginal Utility	Accessibility
0,3595	0,08086	Drug stores
0,2864	-0,14658	Online stores
0,3541	0,06571	Supermarkets

Consumer's Profile with the interaction term of Age

Effect Summary

Source	Logworth	PValue
Packaging	23,992	0,00000
Type	9,259	0,00000
Price	2,756	0,00175
Age*Packaging	2,515	0,00305
Accessibility	2,126	0,00748
Age*Type	1,163	0,06877
Age*Price	0,776	0,16732
Age*Accessibility	0,422	0,37887

Remove Add Profile Effect Add Subject Effect FDR

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Price	12,693	2	0,0018*
Type	42,640	2	<,0001*
Packaging	110,489	2	<,0001*
Accessibility	9,791	2	0,0075*
Age*Price	6,460	4	0,1673
Age*Type	8,710	4	0,0688
Age*Packaging	15,975	4	0,0031*
Age*Accessibility	4,206	4	0,3789

Parameter Estimates

Term	Estimate	Std Error	Lower 95%	Upper 95%
Price[10]	-0,268608071	0,0805062419	-0,426057	-0,113522
Price[7]	0,057949324	0,0503289934	-0,038997	0,1564459
Type[Cruelty-Free]	0,185446173	0,0520668710	0,0847038	0,2867768
Type[Vegan]	0,184189927	0,0603130898	0,0671345	0,3012758
Packaging[Refill pouch]	-0,001089425	0,0561832294	-0,109887	0,1081692
Packaging[biodegradable]	0,467280478	0,0518980431	0,3678034	0,5691998
Accessibility[Drug stores]	0,109039961	0,0505305428	0,0117754	0,2078774
Accessibility[Online stores]	-0,134712336	0,0654670422	-0,263984	-0,009441
Age[1]*Price[10]	-0,076910979	0,1021625680	-0,275395	0,1217815
Age[1]*Price[7]	-0,094830787	0,0626525691	-0,217114	0,0263983
Age[1]*Type[Cruelty-Free]	0,135503004	0,0656085271	0,0083234	0,2632978
Age[1]*Type[Vegan]	-0,165050954	0,0760782963	-0,313179	-0,017456
Age[1]*Packaging[Refill pouch]	-0,206901283	0,0708848760	-0,345244	-0,069758
Age[1]*Packaging[biodegradable]	-0,058995588	0,0655254261	-0,186537	0,0681375
Age[1]*Accessibility[Drug stores]	-0,106517678	0,0631705848	-0,229617	0,0158567
Age[1]*Accessibility[Online stores]	-0,050432184	0,0828660459	-0,211705	0,1108387
Age[2]*Price[10]	-0,126638521	0,1227965747	-0,368278	0,1085945
Age[2]*Price[7]	0,009667069	0,0754872158	-0,136502	0,1564723
Age[2]*Type[Cruelty-Free]	0,004506191	0,0782011915	-0,146445	0,1569299
Age[2]*Type[Vegan]	-0,009214788	0,0919659977	-0,188212	0,1689742
Age[2]*Packaging[Refill pouch]	0,036754128	0,0837752110	-0,125711	0,1992424
Age[2]*Packaging[biodegradable]	0,043072391	0,0789984455	-0,108093	0,1984585
Age[2]*Accessibility[Drug stores]	0,001795042	0,0762501790	-0,145181	0,1506648
Age[2]*Accessibility[Online stores]	-0,011002779	0,0999943474	-0,210562	0,1792593

AICc	1579,0958
BIC	1701,6742
-2*LogLikelihood	1530,1327
-2*Firth LogLikelihood	1397,8467

Converged in Gradient
Firth Bias-Adjusted Estimates

Maximal Desirability at every Age Level 1 (18-33), 2(34-49), 3(50-100)