



MASTER THESIS

Influence of labelling strategies in the purchase attitude towards meat replacers

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Acknowledgment

This Master Thesis is the final step of my challenging and exciting academic year at the Erasmus School of Economics in Rotterdam. I am about to conclude this chapter of my life and move on towards new experiences, but before I would like to take some time to thank all the people that accompanied me along the way. First of all, I would like to express my immense gratitude to my supervisor Muhammad Asim, for the precious support he gave me: not only he was always available to help and guide me, but he also fostered my motivation. Sincere thanks also go to my family and my friends that were always by my side, supporting and encouraging me.

Abstract

Nowadays human impact on the environment is one of the most relevant issues that concern not only people but also government, institutions and even companies. Fortunately, everyone can contribute to reducing it, and the easiest and less expensive way to do it is changing our eating habits. In particular, a reduction in meat consumption can affect positively global warming and environmental degradation. Previous research has studied the positive relationship between consumers' knowledge about environmental issues and environmentally responsible behavior, which means that an increase in consumers awareness on this regard, leads to an increase in the demand of alternative and sustainable products. Therefore, companies active in the sector and new entrants can capture a bigger share of the market informing people about the attributes of such sustainable products and the impact they have on the environment. In particular, this research analyses if the adoption of specific labelling strategies (consisting of highlighting the sustainability aspect and the fact that the product is a valid alternative to meat in the diet) could increase the willingness of consumers to buy meat substitutes, leading people towards healthier and more sustainable lifestyle. In addition, the influence of the labelling strategies considered has been studied for four diverse consumers' profiles through the moderation effects, since, according to the literature, different consumers' typologies have different reactions to such policies.

A survey was implemented in order to collect primary data that are successively analyzed through a linear regression model. The findings of this research suggest that the application of specific labelling strategies on the front part of the package of meat replacers, in general, positively affect consumers' attitude towards this product category. Moreover, understanding and categorizing people's habits and lifestyle help managers to personalize the communication and information given in order to be more effective and relevant for different types of consumers.

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1. Introduction

Nowadays human impact on the environment is one of the most relevant issues that concern not only people but also government, institutions and even companies. Fortunately, everyone can contribute to reducing it, and the easiest and less expensive way to do it is changing our eating habits. In particular, a reduction in meat consumption can affect positively global warming and environmental degradation (Vidal, 2010). Indeed, more than a quarter of all greenhouse gas (GHG) emissions, that lead to climate change, is due to the food production, and up to 80% of these emissions are associated with livestock farming (Springmann, Godfray, Rayner, & Scarborough, 2016). Besides, unhealthy diets with a high consumption of processed meat and low consumption of vegetables and fruits contribute substantially to premature mortality, increasing the risk of diabetes, cancer and heart disease. Therefore, adopting a vegetarian diet not only could improve people health but also it seems to be an effective solution against dangerous environmental consequences (Springmann et al., 2016). These ethical and environmental concerns are changing consumers' needs and requirements, and consequently, they are leading companies towards the introduction of new alternative products that can substitute meat. Nevertheless, introducing a radical change in our diets is a complicated process: the majority of the population is reluctant towards these new meat replacers since our eating habits are intrinsically embedded in our culture¹.

This paper is aimed to assemble theory from Marketing and Consumers' Behavior in the green consumerism context in order to develop strategies that lead consumers towards a positive attitude regarding the consumption of meat analogues. In particular, this study analyses if the adoption of specific labelling strategies (consisting on the application of informative labels on the front part of the package of a meat replacer) could motivate customers to buy meat substitutes. Therefore, the main research question is the following:

Considering meat substitutes, does the application of specific informative labels on the front part of the product package affect positively the willingness of consumers to buy meat replacers?

A second step in the analysis will test whether these labelling strategies cause different effects for different consumers' segments.

Many studies have been conducted on the implementations of psychological interventions and marketing strategies with the purpose of encouraging healthier and more sustainable eating habits. A

¹ Eat less meat for the environment...and for your health! (2014). Retrieved from <http://iciscenter.org/our-love-of-meat-is-simply-unsustainable/>

classic example in this context is the application of nudges. Also regarding labelling strategies in the food sector, the literature available is considerable. Authors have studied and tested the efficacy of different labelling techniques and the responses and attitudes of consumers towards the information provided. However, most of these analyses are broad and general, and a specific study on the effect of labels on meat replacers consumption has not been developed yet, resulting in a literature gap.

The outcome of this paper could be interesting and useful for companies active in the sector of sustainable food, which are considering launching new sustainable products or want to increase the sales of environmentally friendly solutions already in the market. Moreover, governments, who wish to implement public policy promoting green consumption and sustainable lifestyle, could benefit as well.

Four main sections compose the structure of this paper. The first one introduces and examines the existing literature on the topic, from which the hypotheses will be formulated. The second one explains the research method adopted. In the third one the results will be presented, and in the last one, the conclusions are discussed.

2. Theory Background

This section illustrates and discusses the conceptual framework of my research and the literature background. In the first part, I define the concepts of “sustainable food”, “sustainable food production system” and “meat replacer”, which are some of the keywords of my thesis. After this, I focus on the variables of my model, describing the previous literature, which led to the definition of the hypotheses.

2.1 Conceptual Framework

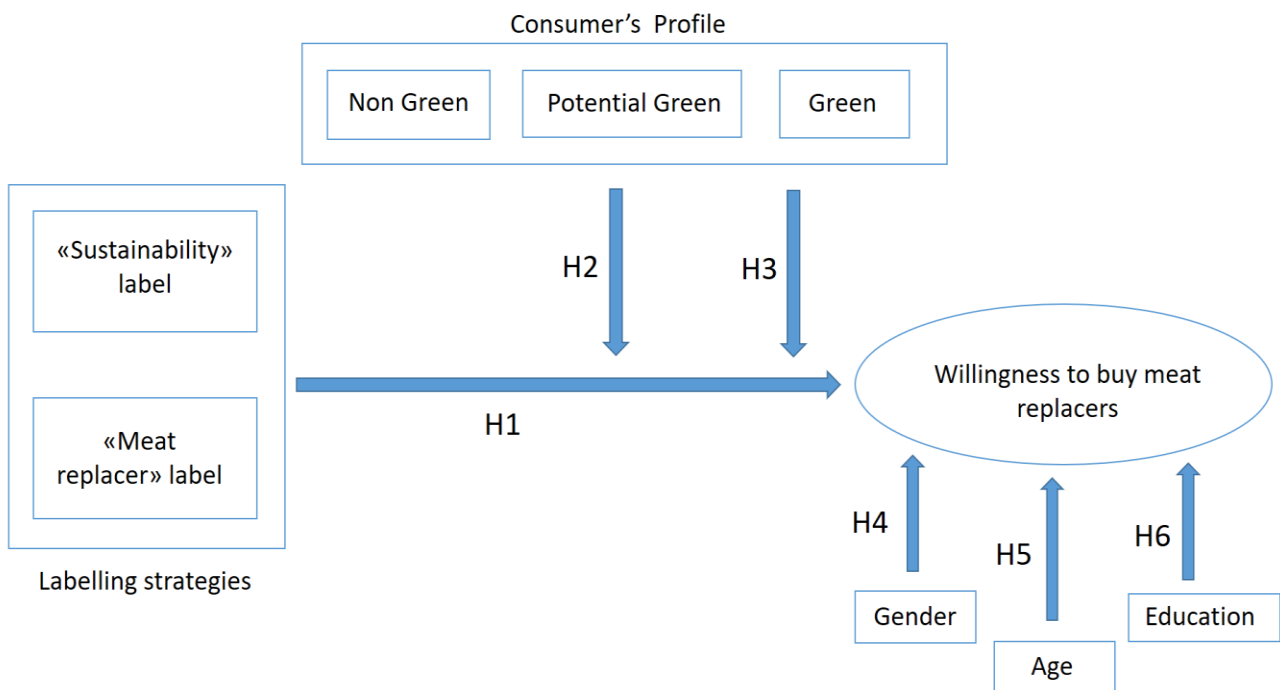


Figure 1: Conceptual model

The conceptual framework explains the relationships among the variables in my model. The implementation of a specific labelling strategy (independent variable), which, in this case, consists on the application of informative labels on the product packaging, is supposed to increase the willingness of consumers to buy meat substitutes, which is the dependent variable (H1). The three different profiles of consumers are moderators because they moderate the effects of the relationship expressed by H1 (H2 and H3). The demographic characteristics of consumers (namely gender, age, education) affect the dependent variable (H4, H5, H6 and H7), therefore they are included in the model as control variables.

2.2 Sustainable Food and Meat Substitutes

In order to understand the purpose of this paper completely, it is important to define precisely the meaning of the concepts of “sustainable food production system”, “sustainable food” and “meat substitutes”. According to Brklacich, Bryant and Smit (1991), a sustainable food production system is focused on the reduction of the impact of human activity on the environment and designed for economic development. It is based on environmental protection but, over the long term, it can provide adequate food supply and sufficient economic and social rewards to all individuals and firms involved in the production system (Brklacich, Bryant, & Smit, 1991). Regarding sustainable food, it is defined as a healthy and safe food that enhance the quality of life of the whole society, being accessible to everyone and satisfying human nutritional needs. It supports local economies and at the same time, it safeguards environmental conditions, using natural resources and energy in the most efficient way and ensuring biodiversity of both plants and animals. Moreover, it aims to avoid the wasting of natural resources and climate change (Salerno, 2011).

A meat substitute, or analogue, is food that resembles meat in terms of structure but it is different in terms of composition (V. Joshi & Kumar, 2015). Indeed, it is similar to meat in the appearance, texture and flavor, but it is made from non-meat ingredients and sometimes it is even without other animal products, for instance, dairy. The most common meat replacers are made with soy and gluten. The principal purpose of this category of product is to substitute meat in the diet, as the name itself suggests. Therefore, not only the sensory properties of the product should be similar to meat, but also the usage, namely the meal context (Elzerman, Hoek, van Boekel, & Luning, 2011). For example, a food product that could be eaten for breakfast or as a side dish cannot be considered a meat substitutes. The target segment includes everyone who is trying to reduce meat consumption, therefore both vegetarians and non-vegetarians. The reasons why customers are seeking to reduce the amount of meat on their diet are various and different. First of all, in religions such as Buddhism, Islam, Hinduism and Judaism there are some specific dietary regulations that devoted people are obliged to follow, and that is why some meat substitutes recipes date back to centuries ago. Other relevant motives are ethics (for instance animal right movement) and health issue. Even though the meat has high values of proteins, minerals and vitamins, it is well known that excessive consumption of meat is likely to affect humans’ health conditions negatively. Indeed, the high amount of cholesterol and saturated fatty acid increase the risk of heart diseases, obesity, diabetes and cancer. Moreover, meat is quite expensive if compared to its substitutes, and the amount of energy and environmental resources spent in the production of meat is much higher. Without forgetting the impact that the consumption of meat has on global warming, due to the greenhouse gas emissions associated with

livestock farming. Considering all these aspects and the previous definition of sustainable food, we can affirm that meat replacers are a category of sustainable food. Although all the aforementioned reasons, meat remains the favorite choice for non-vegetarians consumers since it satisfied both the nutritional requirements and the desire to eat flavorful food. Meat consumption in the developed countries is considerably higher than the necessary amount. Therefore, governments and organizations are interested in the promotion of products that are more environmentally friendly and sustainable, as the meat substitutes. We can say that they are a good compromise for customers: they are more sustainable, they provide the necessary nutritional benefits (they are even healthier than meat) and they could accomplish the satisfaction of meat consumption (since they seem and taste like meat). (V. Joshi & Kumar, 2015).

2.3 How consumers value and perceive meat substitutes

When discussing the concept of meat substitute is important to clearly understand how consumers perceive and value these new sustainable products. The elaboration of brand-new alternatives to meat that can be appealing for both vegetarians and non-vegetarians is a challenge since meat is one of the most appreciated food category. A study regarding the food market in the Netherlands reports that in 2001 meat substitutes became more popular due to issues related to the safety of meat and consequent disease. However, despite this circumstance, market shares of meat substitutes represent only a tiny percentage of the total meat market in the Netherlands (Hoek, Luning, et al., 2011; Hoek, van Boekel, Voordouw, & Luning, 2011). These data reflect the general trend of this product category: the demand is increasing and meat substitutes are becoming more and more known and popular over the years, but their consumption is still relatively low if compared to the consumption of meat (Hoek et al., 2013). They cannot be considered directly competitive to meat in the market yet (Hoek et al., 2013). According to Hoek et al. (2011), different factors contribute to this condition. First of all, these product category has been introduced in the Western market for the first time around the 1960s (Hoek, Luning, et al., 2011), while meat is deeply embedded in the food culture for centuries. The unfamiliarity with this food category acts as a barrier on the choice to try meat substitutes for customers (Hoek, Luning, et al., 2011); indeed food neophobia is a common phenomenon that affects consumption behavior for many consumers. Food neophobia was defined as the *“reluctance to eat and/or avoidance of novel foods, assumed to have adaptive value, serving a protective function in a potentially hostile food environment”* from Pliner and Hobden (Pliner & Hobden, 1992). Another reason why meat replacers are behind meat in terms of customers’ preferences is that they are perceived as less tasty and their sensory characteristics (namely taste, texture, smell and appearance) are less appreciated than meat ones (Hoek, Luning, et al., 2011). On the other hand, meat substitutes

are considered to be more sustainable compared to meat, especially because they are environmentally and animal friendly products. Moreover, consumers recognize meat analogues are healthy alternatives that can provide all the nutritional intakes that also meat provides, and usually health and ethics are the main reasons why these products are chosen (Hoek, Luning, et al., 2011). Nevertheless, the level of general awareness on this regard is quite low among customers. Indeed consumers of the Western Countries (including USA, Australia and Europe) underestimate the sustainability impact that meat replacers have on the environment and they are not always aware that meat replacers are a valid alternative to meat in the diet. According to four research on the topic, only a percentage from 18% to 38% of the participants are conscious of the negative effects that meat production has on the environment and that a vegetarian diet is considerably more sustainable and environmentally friendly compared to a non-vegetarian one. Based on the findings of these studies is evident that customers should be better informed about the consequences of their food choices (Hartmann & Siegrist, 2017).

2.4 What drives consumers to opt for environmentally friendly options

Acknowledging the several reasons behind the decision of purchasing environmentally friendly products is extremely useful for policy-makers and companies that want to promote sustainable development through green consumption. According to Joshi and Rahman (2015), “sustainable development” is *“that form of development which minimizes negative impact on the environment and society”*, while “green consumption” refers to *“environmentally responsible consumption where consumers consider the environmental impact of purchasing, using, and disposing of various products, or using various green services”* (Y. Joshi & Rahman, 2015). The concept of “Green Consumerism” emerged in the 1970s when concerns for environmental issues became more popular among the public (Darnall, Ponting, & Vazquez-Brust, 2012). Since usually, customers are willing to pay a premium price for sustainable services and products, green consumerism is considered a business opportunity. Therefore, many companies are investing in developing new sustainable alternatives and in consequent marketing strategies in order to promote these products and services. Unfortunately, it is not always possible for customers to verify the reliability of information about corporate environmental commitment, and this sometimes leads to skepticism towards green production claims, advertising and informative labels (Darnall et al., 2012). In spite of this distrust issue, previous research on the topic reports that there is a positive relationship between consumers’ knowledge and awareness about environmental issues and environmentally responsible behavior (which includes green consumption and purchase of sustainable products). Knowledge allows customers to make their personal decisions with more awareness and acts as a driver of responsibility (when a person is aware of the effects of his/her actions, usually a sense of responsibility should

follow). Moreover, it stimulates motivation to act, and that is why customers that have greater knowledge about environmental problems are more likely to opt for sustainable solutions (Darnall et al., 2012). However, even if people are conscious and sensible towards environmental concerns, that does not mean they will necessarily buy green. Indeed, this relationship is complex and a favorable attitude towards green products does not always reflect consistent purchase actions. This inconsistency has been studied in several papers, which tried to explain the reasons why this “gap” between values and actions exists. The findings of these studies show that there are personal and situational factors that can affect the strength of the aforementioned relationship. Personal factors relate to the consumer’s life experiences (e.g. emotions, values, habits, personality, etc.), whereas situational factors refer to the external context (e.g. price, products features and availability, brand, etc.) (Y. Joshi & Rahman, 2015). Therefore, even if knowledge about environmental issues and trust in the information sources are two of the main drivers of green consumption, other elements should be kept into consideration when delving into this topic.

2.5 Development of new products in the food industry

In the food industry, the ever-changing demand of food consumers always requires the development of new products, that should be original, innovative and improved compared to the existing ones. In order to implement that, every firm needs a product development program. Unfortunately, these processes are risky and expensive and the chances of introducing a successful new product to market are quite low. Indeed Rudder, Ainsworth and Holgate (2001) found out in their researches that approximately 90% of these newly launched products fail within one year. Many publications cover this topic and several authors developed theories about the food product development process. One of the most important stages of this process is the marketing strategies development, which involves the target market, the planned product positioning and the sales and market share (Rudder, Ainsworth, & Holgate, 2001). Regarding sustainable food and “green” products, evidence suggests that even if environmental consciousness is evident, sustainable conscious decision-making is not. This means that a gap exists between customers’ attitude and action. It could be that consumers propensity towards the sustainable product is only a fad, or that the problem lay in the product (when it does not reflect consumers’ expectations) and in marketing strategies (if they are not effective). According to Wong, Turner and Stoneman (1996), the three main factors that influence the most customers’ adoption of that kind of product are:

- Customers' taste and their preferences for environmentally-friendly goods;
- Government policies and regulations that impact both consumer and supplier behavior;
- Supply-side issues that include marketing strategies.

Concerning marketing mix policies, the majority of companies affirm that product performance and quality play a key role in influencing customer adoption. Using low prices to trigger the initial demand for these new sustainable products does not seem to be an effective strategy: indeed, the costs of development and launch plus the investment in R&D are usually quite high. Instead, advertising and labelling are fundamental to achieving awareness, stimulating interest and informing and educating consumers (Wong, Turner, & Stoneman, 1996).

2.6 Labelling Strategies

The independent variable in my model represents three different labelling strategies, consisting in applying specific labels in the front part of the packaging of a meat substitute. One of them, called "Sustainability label", informs customers that the product is sustainable. The second one, called "Meat replacer label", highlights the fact that the product is a valid alternative to meat in the diet (meaning that it has the same nutritional intakes of meat). The third one consists in the combination of the previous two (application of both labels in the product packaging). They are dummy variables (0 = labels, 1 = no labels). Labelling literally means "*the act of attaching or tagging labels*"² and it is any kind of visual or written piece of information that can be found on the product packaging. It is a way to communicate to customers the value of the product, its features and other relevant information (Bhasin, 2017). Labeling, as branding and packaging, is considered a marketing strategy. Actually, labeling is part of the packaging, since labels are usually found in the product package³. It is a crucial tool for customers because it allows them to identify the product quickly and to differentiate it from the others. In the food industry, labels usually communicate information regarding not only quality and attributes of the product, but also regarding the production process and other relevant matters, such as sustainability and nutrition (Weinrich & Spiller, 2016). Therefore, labels critically help customers in their decision-making process, allowing them to find more easily what they are looking for (Davies & Wright, 1994). Generally, labels are classified in three main types: "*brand label*" (simple application of the brand on the product or packaging), "*descriptive or*

² Note on Meaning, Types, Functions and Importance of Labelling. (n.d.). Retrieved from <https://www.kullabs.com/classes/subjects/units/lessons/notes/note-detail/6820>

³ Meaning And Objectives Of Labeling. (n.d.). Retrieved from <https://marketinglord.blogspot.com/2012/06/meaning-and-objectives-of-labeling.html>

informative label” (information about the product like composition, production process, usage and other attributes), “*grade label*” (it describes the product quality with a number, letter or word) (Peter & Donnelly, 1991).

2.7 Labels categories applied in the food industry

The demand of customers for more sustainable and healthier products in the food market is growing over the years and, for this reason, the application of labels on the packaging of such products is becoming more important and it is catching the attention of businesses and authorities. Labelling is considered a solution to the information asymmetry between producers and consumers, and it allows communicating the presence of specific desired attributes in the product (e.g. quality, safety, nutrition, sustainability, etc.) (Mccluskey & Loureiro, 2003). The several labels more commonly utilized belong to different categories that are discussed below:

- **Nutrition Labels:** according to Council Directive 90/496/EEC of 24 September 1990, this labels category give information regarding the energy value, protein, vitamins, minerals, carbohydrate, fat, fiber and sodium (90/496/EEC, 1990; Przyrembel, 2004). Nutrition labels, increasing and improving the amount of information available, are supposed to foster business to enhance the nutritional attributes of the products and, at the same time, to lead consumers towards healthier food choices. The final purpose is to improve the general level of public health (Guthrie, Fox, Cleveland, & Welsh, 1995).



Figure 2: Example of Nutrition Label

- **Eco-Labels:** this labels category identify products that have a low environmental-impact. Their production process and usage are considered more sustainable compared to other similar products.



Figure 3: Example of Eco-Labels

- **Genetically Modified Food Labels:** this labels category identifies products that do not contain GM ingredients.



Figure 4: Example of Genetically-Modified Food Labels

- **State Agricultural-Product Labels and Protected Geographical Indication (PGI) Labels:** this labels category identifies products that are produced locally or that have a specific regional origin. The aim of these labels is to promote and protect from competition traditional food that has a strong cultural association with the region from where it comes from. Usually, this kind of products is associated with high quality and safety.



Figure 5: Example of State Agricultural-Product Labels and Protected Geographical Indication (PGI) Labels

- **BSE-tested Beef Labels:** BSE means Bovine Spongiform Encephalopathy, for the public “mad cow disease”. This labels category identifies safe beef-based products that cannot transmit the BSE to humans.
- **Fair Trade/Fair Labor Practices Labels:** this labels category identifies socially responsible and conscious production processes and safe working conditions (Mccluskey & Loureiro, 2003).



Figure 6: Example of Fair Trade Labels

However, labels must meet specific legal obligations required by governments and authorities, especially in the food sector (Mack, 2018). In the European Union, food labelling has started to be regulated with Council Directive 79/112/EEC (mainly related to advertising and publicity), becoming more elaborate and complex with Council Directive 2000/13/EC and its amendment 2003/89/EC. At the same time, nutritional labels and other information regarding nutrition are ruled by Council Directive 90/496/EEC. The three principal objectives of food labelling highlighted in the regulations are:

- 1) To inform the customers properly about the origin, production process, ingredients of the product.
- 2) To protect the customers, helping them to make the appropriate choices for a healthy diet.

3) To achieve fairness in trade.

They are clearly defined in the introduction section of the Council Directive 2000/13/EC: “*the prime consideration for any rules on the labelling of foodstuffs should be the need to inform and protect the consumer*”. “[...] *detailed labelling, in particular giving the exact nature and characterization of the product which enables the consumer to make his choice in full knowledge of the facts, is the most appropriate since it creates fewest obstacles to free trade*” (2000/13/EC, 2000; Przyrembel, 2004). In the European Union regulation system, food labels are divided into two branches: mandatory and voluntary labels. Compulsory labels, in the case of prepacked food, must include the name of the product, the list of ingredients (specifying the ingredients that are more likely to cause allergies and intolerances), the amount of specific ingredients under special conditions, the expiration date, the net quantity, details of the producer, origins, conservation and usage instructions. Nutrition labels are nonobligatory only in case of absence of nutritional claim in the label or in the advertising of the product (Przyrembel, 2004).

Before implementing the analysis, I have been to several well-known supermarkets in The Netherlands (Albert Heijn, Lidl, Dirk, Coop) in order to collect information about meat replacers available in those supermarkets. In particular, I was interested in the packaging of the products and in the labels applied on it. I have collected pictures of 39 different products belonging to the category of meat substitutes. The most common labels present in all the products are the “Nutrition Labels”, with information about ingredients, nutritional values, calories, while I have found only one “Eco-label” in only one product (see the picture below).



Figure 7: Example of Eco-label on a meat replacer

Other common labels and marks that I have found are: “Genetically-Modified Food Labels”, “Milk-free Labels”, “Gluten-free Labels”, “Palm-oil free Labels” and other similar ones but not relevant for this study. See Appendix F for the Excel file with all the information about the labels of the 39 products considered.

2.8 Hypotheses Formulation

The first labelling strategy considered in my study (called “Sustainability label” in the conceptual framework) belongs to the category of Eco-Labels. The function of eco-labelling is to encourage a more sustainable and environmentally friendly production and consumption, providing customers with clearer and more complete information about the environmental impact of certain products/services and driving companies, governments and other organization to improve the environmental standards (Galarraga Gallastegui, 2002). As previously discussed, the primary factor affecting customers’ likelihood to buy green products is their knowledge and awareness about environmental issues and sustainable alternatives, and that is why eco-labelling is becoming more and more important over the years (Galarraga Gallastegui, 2002). Nevertheless, knowledge and awareness sometimes are not enough to drive people to opt for environmentally friendly options, indeed an “attitude-behavior gap” exists, as mentioned before. People do not always act completely rationally and there are other factors that affect customers’ decision-making process such as psychological and contextual elements and social acceptance and norms (Lindahl & Stikvoort, 2015).

Eco-labels not only inform and remind consumers about the effects of their food choices, but they also act as a nudge. According to Thaler and Sustein, nudges influence people decision-making behavior in an expected way, without changing their attitudes and without prohibiting any options (Lindahl & Stikvoort, 2015; Thaler & Sunstein, 2008). When customers make a purchase decision, they consider not only satisfying their needs, but also establishing a social status and respecting specific social norms (Douglas & Isherwood, 1979), and an eco-friendly behavior represents an attractive self-image.

According to the previously explained literature on eco-labels and consumers’ attitudes toward sustainable products, the following hypothesis was formulated:

H1a: *“The application on the front part of the packaging of a meat replacer of an informative label informing consumers that the product is a sustainable choice, positively affects the willingness of consumers to buy meat replacers.”*

As previously discussed, the majority of the population is not completely aware of the sustainable impact of meat substitutes and about their function in the diet. The second labelling strategy (called “meat replacer label” in the conceptual model) highlights the fact that the product is a valid alternative to meat in the diet (meaning that it has the same nutritional intakes of meat). A common nutritional label stating the amount of proteins and other nutrient information about the products usually provides this kind of information, but sometimes a proper understanding of nutritional labels can be difficult, especially for people with inadequate health literacy and numeracy skills (Easton, Entwistle, & Williams, 2010; Rothman et al., 2006). Moreover, information too detailed might overload the consumer and, considering the limited cognitive capacity and time to process the information given, it is highly important to utilize an easily comprehensible labelling system (Weinrich & Spiller, 2016). For this reason, I have decided to apply a very simple label that can communicate in a straightforward way what common nutritional labels communicate with more technical statements and numbers.

According to the previously explained literature, the following hypothesis was developed:

H1b: *“The application on the front part of the packaging of a meat replacer of an informative label informing consumers that the product is a valid alternative to meat in the diet, positively affects the willingness of consumers to buy meat replacers.”*

Considering that the two different labels (“Sustainability label” and “Meat replacer label”) are supposed to provide information that customers might not be aware of, and that usually is the type of information that can drive the purchase choice of meat substitutes, applying the two previously mentioned labels combined should be more effective than applying them separately. Therefore, the following hypothesis was formulated:

H1c: *“The application on the front part of the packaging of a meat replacer of the two informative labels combined, positively affects the willingness of consumers to buy meat replacers.”*

2.9 Moderation Effects: consumer’s profile

Sustainable food consumption is essential in achieving sustainable development. As previously discussed, the existence of a gap between consumers’ attitude and behavior related to the choice to follow a sustainable food lifestyle suggests that the decision making process is affected by more complex factors than only socio-demographic indicators and individual needs and wants (Verain et al., 2012). Indeed, customers’ social responsibility, as well as personal interests and values, seem to influence the choice to opt for environmentally friendly alternatives (Honkanen P., Verplanken B., 2006). The concept of Food Related Lifestyle (FRL), firstly introduced by Grunert and Brunsø in the

1990s, can be useful when studying this relationship since it defines customers' segments based on the food lifestyle and individual values and it relates customers' profiles to the preference for a specific category of products (Grunert, Brunso, & Bisp, 1993; Verain et al., 2012). Moreover, it is well known that the efficacy of a marketing strategy also depends on the target segment and that for different segments different marketing strategies should be applied.

The variable "Consumer's profile" is the moderator variable in my model. In statistics, we have a moderation effect when the relation between dependent and independent variables depends on a third variable, which is the moderator. The moderator causes an interaction effect that influences the strength and sometimes direction of the previously mentioned relationship.

The consumers' categorization proposed in this research has been done analyzing the previous literature on the subject and is aimed to understand for which consumers' typology the abovementioned labelling strategies could be more effective.

Non-green segment: This customer's category does not usually eat organic and vegetarian products, and if they do it, it happens mainly because they are driven by their taste and appetite. The positive contribution to the world is only a casual circumstance since they do not have significant concerns towards the environment, fair trade and animal (Nie & Zepeda, 2011; Verain et al., 2012). Not even towards health (Jang, Kim, & Bonn, 2011), nutrition and freshness, attributes they do not look for in food. Instead, convenience is considered quite relevant, also because of the less value they give to food-related activities in general (Jang et al., 2011). Moreover, informative labels are not important for them (Boer M., McCarthy M., 2004; Nie & Zepeda, 2011), and when they do groceries, the critical factor that affects their choices is the taste because eating tasty food makes them feel pleasure (Padel & Foster, 2005).

Potential green segment: The "potential green" customers are occasional buyers of organic and vegetarian products, but they do it mainly because of health reasons (Verain et al., 2012). Indeed, even if they are aware of sustainability issues and they truly care about the natural environment as well as the animal welfare (Padel & Foster, 2005), their priority is to seek a healthy diet and a balanced lifestyle (Jang et al., 2011). Therefore they consider important the product information about nutritional values (Jang et al., 2011) but sometimes they are skeptical towards sustainability marks (Verain et al., 2012). They are extremely rational and responsible in their choices when they do groceries because they use food to achieve their personal life goals (Hoek, Luning, Stafleu, & De Graaf, 2004). Safety of food and high quality are essential while convenience is put in the background (Nie & Zepeda, 2011).

Green segment: Customers that fit in this category usually follow a vegetarian or vegan diet. They are motivated by both individual and collective values. Indeed, they are generally altruistic and interested in promoting the welfare of other living beings, while from the individual perspective, they are focused on keeping a self-direction that can lead them to physical and mental health (Verain et al., 2012). Usually, they look for local and seasonal products, not only to support local producers but especially because they feel connected to nature (Schösler, de Boer, & Boersema, 2013). Also, organic and sustainable food are among their favorite choices considering their strong concerns about environmental issues and animals well-being (Hoek et al., 2004). Therefore, labels (regarding both nutritional value and sustainable certification) are extremely important for these customers: when they do groceries, they check and compare product information (Jang et al., 2011). Important food attributes are naturalness and freshness, especially because “Environmentally friendly customers” love cooking healthy meals (Nie & Zepeda, 2011).

The previously mentioned literature suggests that “Non-green” consumers, in general, are not interested in labels and information about the products. This can be explained by the fact that they are self-centered and they consider food a way to achieve their personal pleasure, putting in second place others’ welfare. Indeed, they are not concerned about the environment and they are looking for tasty products instead of healthy ones. Therefore, we expect that informative labels about sustainability and nutrition do not have a high influence on their decision-making process. The “Potential Green” consumers are interested in labels and marks even though sometimes they might not trust them completely. They try to follow a healthy lifestyle, hence, information about nutritional aspects are particularly important for them, more than the information about sustainability. The “Green” consumers usually, consider society wellbeing extremely important and their purchase behavior is affected consequently. In order to make the best choice according to their values, they always look for informative labels, especially regarding the sustainability aspect.

According to the previous literature on consumers’ typology and to the consumers’ classification proposed, the following hypotheses were formulated:

H2: *“The positive effect of the application of the previously mentioned informative labels (“Sustainability label”, “Meat replacer label” and both labels together) on the willingness of consumers to buy meat replacers, is generally greater for customers that belong to the “Potential green” segment than for customers that belong to the “Non-green” segment.” In particular, the “Meat replacer” label has a strong effect on “Potential Green” consumers.*

H3: *“The positive effect of the application of the previously mentioned informative labels (“Sustainability label”, “Meat replacer label” and both labels together) on the willingness of*

consumers to buy meat replacers, is greater for customers that belong to the “Green” segment than for customers that belong to the “Potential green” segment.” In particular, the “Sustainability” label has a strong effect on “Green” consumers.

However, there is another consumer typology that we should take into consideration in this study, namely the “**hybrid consumer**”. According to H. Ehrnrooth and C. Gronroos, this customer profile does not belong to any of the previously defined customers' clusters. Indeed, it is characterized by a combination of different features of the other segments. The behavior of this category usually is inconsistent and not predictable, leading to relevant implications in terms of marketing strategies. Since this is a new phenomenon in Behavioral Economics, there is still a degree of uncertainty on the topic and the literature available is scarce (Ehrnrooth & Gronroos, 2013).

2.10 Effect of Gender, Education and Age

In my conceptual model, consumers' gender, age and education are included as control variables since they strongly affect the meat consumption, the attitude towards green products and, therefore, also the consumption of meat substitutes. In almost all the research on the topic, these socio-demographic factors are considered relevant in understanding and defining patterns regarding food choices and preferences (Verain et al., 2012).

As many studies demonstrate, males generally are more likely to consume meat (especially red meat) compared to females. The association of meat, considered a virile and powerful food, with masculine identity, explains this general pattern (Adams, 1990; Bourdieu, 1984; Sumpter, K., 2015). Moreover, women seem to be more oriented towards green food alternatives than men, because, according to statistics, females usually care more about their healthiness and physical appearance (Kranjac, Vapa-Tankosic, & Knezevic, 2017; Prättälä et al., 2007). Considering also that males are in general less concerned with the environmental issues (Verain et al., 2012), the fourth hypothesis of my research will be the following:

H4: *“The willingness to buy meat replacers is generally greater for females than for males.”*

Age and education level are others relevant determinants in the food choices, and they are positively related to each other. According to the findings of a research conducted by the University of Florida in 2000, there is a clear interconnection between meat consumption and elements such as age and educational level. As people are growing older, usually they become more concerned about health

issues, and for this reason, they tend to reduce the amount of meat consumed⁴. In addition, also consumers' education plays a significant role in eating behavior. Indeed, a higher educational level usually entails a more profound knowledge and awareness about environmental conditions and consequently a positive attitude towards green consumerism (Kranjac et al., 2017; Verain et al., 2012). Based on the previous literature on socio-demographic factors that influence meat consumption and environmentally friendly food choices, the fifth and sixth hypothesis of my study will be the followings:

H5: *“The willingness to buy meat replacers is generally greater for elderly consumers than for young consumers.”*

H4: *“The willingness to buy meat replacers is generally greater for consumers who have a higher educational level.”*

⁴ Who Eats Beef? Consumption Depends On Age, Education, UF Study Shows. (2000). Retrieved from <https://www.sciencedaily.com/releases/2000/09/000914104820.htm>

3. Methodology

This section illustrates the research method applied in this study in order to test the hypotheses previously stated. After a description of the survey structure and implementation, the presentation of models and variables utilized will follow.

3.1 Research method

The objective of this thesis is to test if the adoption of specific labelling strategies can positively affect the willingness of consumers to buy meat substitutes. In order to achieve this objective, I have decided to follow a quantitative approach, through which it is possible to quantify attitudes and behavior, generalizing and summarizing the outcomes obtained from a considerable sample population. Quantitative research allows expressing and explaining patterns, relationships and connections analyzing measurable data with statistical tools. Since this method is based on statistics, and accordingly mathematics, it is considered extremely rational and reliable from a scientific point of view (Carr, L., 1994). Therefore, this approach is useful and often used for validating hypotheses and theories, which will be either supported or rejected (McLeod, 2017). For all these reasons, a quantitative design seems to be the most suitable for the implementation of my research. Furthermore, most of the previous studies on green consumption and consumers' attitudes towards sustainable food used questionnaires or other quantitative research methods (Mccluskey & Loureiro, 2003; Wansink, 2003; Weinrich & Spiller, 2016).

3.2 Survey, Data Collection and Sample

In order to collect primary data, necessary to test the hypotheses of the research, I have created four different online surveys, in the form of a questionnaire, with *Qualtrics*, a tool commonly utilized in this type of study. The structure of the four surveys is the same and it is made up of four sections. The only difference between the four surveys is in the stimuli shown in the first sections.

The first part is aimed to measure the relationship between the dependent variable (namely the willingness of consumers to buy meat replacers) and the independent variables (namely the three different labelling strategies previously mentioned). In order to do that, four pictures of the front part of the packaging of four different meat substitutes are shown as stimuli to the respondent, who has to rate his/her willingness to buy for each product on a 7-point Likert scale ranging from “*I would never buy it*” (1) to “*I would definitely buy it*” (7). A different labelling strategy was applied in every

picture. The products selected are four in total, and for each one, the basic picture (front part of the packaging as it is, without applying any labels) has been edited three times:

- 1) I have added the “Sustainability label”.
- 2) I have added the “Meat replacer label”.
- 3) I have added both labels.

Therefore, at the end for each product, there are four different pictures, for a total of sixteen. Appendix A shows all the pictures that were presented to the respondents with the type of product and the labels added. I have decided to create four different surveys (each one with four pictures) instead of only one with all the sixteen photos in order to keep the surveys short and simple. This way, respondents are more likely to complete the questionnaires (Vannette, 2015) and the reliability of their responses is higher because they can focus better.

To make the research as realistic as possible, I have chosen existing products that are representative of the category of the meat analogues. In order to reduce the influence of the other product attributes on the willingness to buy, I have selected the same type of meat substitute, namely a vegetarian burger, from four quite famous brands (*The Vegetarian Butcher*, *Vivera*, *Garden Gourmet* and *Quorn*) that can be usually found in the most common supermarkets. The pictures come from Internet and they have been edited with *Photoshop*. Labels in the front of the package are the first ones to be noticed by consumers and they affect the purchase behavior. These labels should provide a summary of specific product attributes and stimulate consumers’ interest, but they are effective only if the information given is short and easily understandable (Wansink, 2003). Indeed, customers like to have clear and simple information in the front panel of the product package (Weinrich & Spiller, 2016). Moreover, the labels I have applied are quite evident and consistent among each other, I tried to use the same font and I put them in the same position when possible. The development of this part of the surveys was conceived following the approach used by Weinrich & Spiller (2016) and by Wansink (2003). Both these studies on food labelling are finalized to measure consumers’ reactions and choices after the exposure to specific stimuli (different labels or information in the product package) (Wansink, 2003; Weinrich & Spiller, 2016).

The second section serves as manipulation check to make sure that the modifications applied in the pictures were effective. It is asked to participants whether they have noticed the labels in the product packages or not. In case they have not noticed the labels, their responses will not be considered in the analysis.

The third part is intended to determine the profiles of consumers, and it is composed by 15 items, whose answers are measured on a 7-point Likert scale ranging from “*completely disagree*” (1) to “*completely agree*” (7). Based on their replies, consumers will be categorized in the four different segments presented in section 2.9. Appendix B shows the questions asked in this section.

Finally, the fourth section focuses on standard demographics information about the participants. Appendix B shows the questions asked in this section.

The surveys were distributed through four different URL links and I have collected in total 133 observations. 25 participants have not noticed both the labels in the product packages shown, therefore the final sample is composed of 108 respondents.

3.3 Data Analysis

To test the hypotheses, I analyzed the data with a Linear Regression model, since the dependent variable is interval and the independent are ordinal. With this analysis, I can predict the effect of the independent variables on the dependent one (which is the Willingness to buy meat replacers). The Linear Regression was run with the statistical software SPSS.

In order to identify the most important effects of the variables and to check the efficacy of the analysis, I have decided to examine and compare different models. The proposed models are the following:

1. $WTB = \beta_0 + \beta_1 \text{labelB} + \beta_2 \text{labelC} + \beta_3 \text{labelD} + \beta_4 \text{product2} + \beta_5 \text{product3} + \beta_6 \text{product4} + \varepsilon$
2. $WTB = \beta_0 + \beta_1 \text{labelB} + \beta_2 \text{labelC} + \beta_3 \text{labelD} + \beta_4 \text{potential_green} + \beta_5 \text{green} + \beta_6 \text{hybrid} + \beta_7 \text{labelB*potential_green} + \beta_8 \text{labelB*green} + \beta_9 \text{labelB*hybrid} + \beta_{10} \text{labelC*potential_green} + \beta_{11} \text{labelC*green} + \beta_{12} \text{labelC*hybrid} + \beta_{13} \text{labelD*potential_green} + \beta_{14} \text{labelD*green} + \beta_{15} \text{labelD*hybrid} + \varepsilon$
3. $WTB = \beta_0 + \beta_1 \text{labelB} + \beta_2 \text{labelC} + \beta_3 \text{labelD} + \beta_4 \text{female} + \beta_5 \text{age2} + \beta_6 \text{age3} + \beta_7 \text{age4} + \beta_8 \text{bachelor} + \beta_9 \text{master} + \varepsilon$

$$4. \text{ WTB} = \beta_0 + \beta_1 \text{ labelB} + \beta_2 \text{ labelC} + \beta_3 \text{ labelD} + \beta_4 \text{ potential_green} + \beta_5 \text{ green} + \beta_6 \text{ hybrid} \\ + \beta_7 \text{ labelB*potential_green} + \beta_8 \text{ labelB*green} + \beta_9 \text{ labelB*hybrid} + \beta_{10} \\ \text{ labelC*potential_green} + \beta_{11} \text{ labelC*green} + \beta_{12} \text{ labelC*hybrid} + \beta_{13} \\ \text{ labelD*potential_green} + \beta_{14} \text{ labelD*green} + \beta_{15} \text{ labelD*hybrid} + \beta_{16} \text{ female} + \beta_{17} \text{ age2} + \\ \beta_{18} \text{ age3} + \beta_{19} \text{ age4} + \beta_{20} \text{ bachelor} + \beta_{21} \text{ master} + \varepsilon$$

Where:

- *WTB* (Willingness of consumers to buy meat replacers) is the dependent variable. It is an interval variable and it can have a value from 1 to 7.
- *labelB* is an independent variable and it indicates whether the “Sustainability label” is present or not. It is a dummy variable (0 = “Sustainability label” is not present, 1 = “Sustainability label” is present).
- *labelC* is an independent variable and it indicates whether the “Meat replacer label” is present or not. It is a dummy variable (0 = “Meat replacer label” is not present, 1 = “Meat replacer label” is present).
- *labelD* is an independent variable and it indicates when both the “Sustainability label” and the “Meat replacer label” are present or not. It is a dummy variable (0 = “Sustainability label” and “Meat replacer label” are not present, 1 = “Sustainability label” and “Meat replacer label” are present).
- *product2* is an independent variable and it indicates when the product considered is the second one. It is a dummy variable (0 = the product shown is not product 2, 1 = the product shown is product 2).
- *product3* is an independent variable and it indicates when the product considered is the third one. It is a dummy variable (0 = the product shown is not product 3, 1 = the product shown is product 3).
- *product4* is an independent variable and it indicates when the product considered is the fourth one. It is a dummy variable (0 = the product shown is not product 4, 1 = the product shown is product 4).
- *potential_green* is an independent variable and it indicates whether the respondent is classified as a “Potential Green” consumer. It is a dummy variable (0 = the respondent is not a “Potential Green” consumer, 1 = the respondent is a “Potential Green” consumer).

- *green* is an independent variable and it indicates whether the respondent is classified as a “Green” consumer. It is a dummy variable (0 = the respondent is not a “Green” consumer, 1 = the respondent is a “Green” consumer).
- *hybrid* is an independent variable and it indicates whether the respondent is classified as a “Hybrid” consumer. It is a dummy variable (0 = the respondent is not a “Hybrid” consumer, 1 = the respondent is a “Hybrid” consumer).
- *labelB*potential_green*, *labelB*green*, *labelB*hybrid*, *labelC*potential_green*, *labelC*green*, *labelC*hybrid*, *labelD*potential_green*, *labelD*green*, *labelD*hybrid* are the interaction terms between the consumers’ profiles and the labelling strategies applied. They represent the moderators. They are dummy variables.
- *female* is a control variable and it indicates the gender of the respondent. It is a dummy variable (0 = the respondent is not female, 1 = the respondent is female).
- *age2* is a control variable and it indicates the age of the respondent. It is a dummy variable (0 = the respondent’s age is not between 26 and 35 years old, 1 = the respondent’s age is between 26 and 35 years old).
- *age3* is a control variable and it indicates the age of the respondent. It is a dummy variable (0 = the respondent’s age is not between 36 and 45 years old, 1 = the respondent’s age is between 36 and 45 years old).
- *age4* is a control variable and it indicates the age of the respondent. It is a dummy variable (0 = the respondent’s age is lower than 46 years old, 1 = the respondent’s age is 46 years old or higher).
- *bachelor* is a control variable and it indicates the educational level of the respondent. It is a dummy variable (0 = the highest level of education of the respondent is not a bachelor’s degree, 1 = the highest level of education of the respondent is a bachelor’s degree).
- *master* is a control variable and it indicates the educational level of the respondent. It is a dummy variable (0 = the level of education of the respondent is lower than a master’s degree, 1 = the level of education of the respondent is a master’s degree or a PhD degree).

The variables *product2*, *product3*, *product4* are inserted in the model in order to take into consideration the effect that the attributes of the four different products have on the Willingness to buy. The variable *product1* is excluded from the models because it serves as the reference category and to avoid multicollinearity. Other variables that are not included for the same reasons are: *labelA* (which indicates the case when no labels are present in the package of the product), *non_green* (it indicates when the respondent is classified as a “Non Green” consumer), *male*, *age1* (it indicates

when the age of the respondent is 25 years old or lower), *highschool* (it indicates when the highest level of education of the respondent is the High School diploma).

After analyzing the models the first time, I have noticed that the coefficients of the variables *product2*, *product3* and *product4* are always not significant at a 5% significance level, which means that they do not have a significant effect on the dependent variable, compared to the effect of the basic category (*product1*). For this reason, I have decided to include them only in the first model and not in all the others.

Moreover, the option “*none of them*” regarding the educational level of respondents (which means that the educational level of the respondent is lower than High School diploma) was not considered in the analysis since no one of the respondents belongs to this category.

3.4 Linear Regression Assumptions

Before starting the analysis, I have checked the assumptions of the Linear Regression model for all the above-mentioned models. The assumption of Normality is always confirmed (Appendix C shows the Normality graph), while in some models Heteroskedasticity is present (Appendix D shows the scatterplot, Breusch-Pagan test and Koenker test for each model). Therefore, in order to correct Heteroskedasticity, I have used robust standard errors in my analysis. I have checked for multicollinearity using the VIF values and only in the model 4 multicollinearity is present.

3.5 Consumer Profiles Analysis

In order to categorize consumers in the four previously defined segments according to their answers in the third section of the surveys, I have implemented a Cluster Analysis, which is typically used for this purpose. Indeed, this statistical technique classifies the observations collected into uniform clusters maximizing the homogeneity within the groups and at the same time maximizing the heterogeneity between the groups (Mazzocchi, 2008). I have chosen to apply the *non-hierarchical (K-means)* method since I have a fixed number of clusters (4) that I have defined based on the literature. Moreover, it is faster and more reliable compared to the *hierarchical method* (Mazzocchi, 2008).

Before running the cluster analysis, a reliability test was implemented to assess and validate the consistency and reliability within the 15 items in the third section of the surveys that participants had to rate from 1 to 7 in order to be classified in a specific consumer segment. This analysis assesses the

Cronbach's alpha, which is a coefficient of validity and consistency. As reported in Table 1, the Cronbach's alpha is equal to 0.871 (N = 108), which indicates a high level of reliability and internal consistency in the scale.

Reliability Statistics	
Cronbach's Alpha	N of Items
.871	15

Table 1: Output of reliability test

After the reliability test, I checked if multicollinearity is present among the 15 items, and, from the correlation table showed in Appendix E, we can see that there is no multicollinearity since all the values are lower than 0.9.

According to the output of the *k-means* cluster analysis, each of the 4 clusters has a specific value from 1 to 7 for each of the 15 items that the respondents had to rate from 1 to 7. These values are shown in the table below:

	CLUSTERS			
	1	2	3	4
ITEM 1	4	1	3	7
ITEM 2	6	3	6	2
ITEM 3	4	7	6	1
ITEM 4	5	1	5	2
ITEM 5	4	7	6	1
ITEM 6	2	1	2	7
ITEM 7	6	3	6	2
ITEM 8	5	1	6	7
ITEM 9	2	7	5	1
ITEM 10	5	1	6	7
ITEM 11	4	7	6	2
ITEM 12	6	3	6	3
ITEM 13	5	2	6	2
ITEM 14	4	7	6	2
ITEM 15	3	1	5	7

Table 2: Final cluster centers

In order to match each cluster with its corresponding consumer segment previously defined, I have created a table where, for 3 segments, I have assigned a specific value from 1 to 7 for each of the 15 items that the respondents had to rate from 1 to 7. I have not assigned any value to the Hybrid consumer category because, according to the literature, hybrid consumers are inconsistent and is not possible to predict their behavior. The values have been assigned based on the segments definitions, which are based on the literature, and they are reported in the following table:

CUSTOMERS' SEGMENTS			
	Non Green	Potential Green	Green
ITEM 1	7	4	1
ITEM 2	3	6	4
ITEM 3	1	4	7
ITEM 4	2	6	1
ITEM 5	1	4	7
ITEM 6	7	2	1
ITEM 7	3	6	4
ITEM 8	7	5	1
ITEM 9	1	2	7
ITEM 10	7	5	1
ITEM 11	3	4	7
ITEM 12	4	7	3
ITEM 13	2	6	4
ITEM 14	2	4	7
ITEM 15	7	3	1

Table 3: Items values for consumer segments

Comparing the two tables above, it is possible to match clusters with segments. In particular, cluster 1 corresponds approximately to the “Potential Green” segment, cluster 2 to the “Green” segment and cluster 4 to the “Non Green” segment. Values of cluster 3 are quite inconsistent and they do not follow any pattern according to the literature, therefore cluster 3 is associated with the “Hybrid” segment. After dividing the respondents into 4 different categories, the cluster analysis output displays the number of cases for each cluster (see Table 4 below).

**Number of Cases in
each Cluster**

Cluster	1	42.000
	2	11.000
	3	38.000
	4	17.000
Valid		108.000
Missing		.000

Table 4: Number of cases in each cluster

4. Results

This section presents the descriptive statistics of the sample and the results and findings of the regression models.

4.1 Descriptive Statistics

In total, I have collected 108 valid observations, of which 62 respondents are women and 46 men. This means that the sample gives an approximately balanced representation for both genders. The age range goes from 17 to 65 years old and in order to analyze the better analyze the data, I have created 4 age groups: Age 1 (from 17 to 25 years old), Age 2 (from 26 to 35 years old), Age 3 (from 36 to 45 years old) and Age 4 (from 46 to 65 years old). The majority of the participants belongs to the group Age 1 (48 respondents), 28 people belong to the group Age 2, 9 people to the group Age 3 and the remaining 23 to the group Age 4. Regarding the geographical provenience, 33 respondents come from Italy, 19 from The Netherlands and 18 from Greece. The rest of the participants comes from other 12 different countries (Canada, China, France, Germany, Hungary, India, Perù, Romania, Russia, Slovakia, Taiwan, and Turkey). 31 respondents have obtained the High School diploma, while 29 the Bachelor's degree and 48 the Master's degree and/or the PhD degree.

DEMOGRAPHICS	FREQUENCY	PERCENT
Gender		
Female	62	57,4%
Male	46	42,6%
Age		
17-25	48	44,4%
26-35	28	25,9%
36-45	9	8,3%
45-65	23	21,3%
Highest level of education		
High School Diploma	31	28,7%
Bachelor's Degree	29	26,9%
Master's / PhD Degree	48	44,4%
Consumer Profile		
Non Green	17	15,7%
Potential Green	42	38,9%
Green	11	10,2%
Hybrid	38	35,2%

Table 5: Descriptive Statistics of the sample

4.2 Consumer Typology Analysis

According to the answers in the third section of the surveys analyzed with the cluster analysis, 17 participants were classified as “Non Green” consumers, 42 as “Potential Green”, 11 as “Green” and 38 as “Hybrid”. The highest percentage of respondents falls into the intermediate category, which has moderate habits and beliefs compared to the “Non Green” and “Green” segments, which are extreme. Furthermore, 35,2% of the respondents were identified as “Hybrid” consumers. These results show that either the majority of the sample has a midway position towards green consumption or it has an inconsistent behavior that cannot be categorized. In total, 18 of the participants are vegetarian or vegan and they belong to the “Green” or “Potential Green” segments.

4.3 Linear Regression Outcome

The first model analyzed was kept basic and small in order to capture and identify the effect of the different labelling strategies on the willingness of consumers to buy meat replacers. Table 6 below displays the output of the Regression Model 1. The value of R Square (0.053) is quite low, which can be explained considering that the sample is composed only by 108 respondents. Moreover, this result emphasizes the importance to consider the effect of other predictors on the dependent variable. Nevertheless, the primary focus of this research is to study the relationship between labelling strategies and willingness to buy meat replacers and not to analyze all the other predictors involved. The statistical significance of the model (0.001) confirms the validity and relevance of this regression analysis.

MODEL 1		
R = 0.230		
R Square = 0.053		
Adjusted R Square = 0.040		
Model Significance = 0.001		
	B	Sig.
Constant	3.110	0.000
Sustainability Label	0.510	0.037
Meat replacer Label	0.479	0.036
Both Labels	1.106	0.000
Product 2	0.172	0.477
Product 3	0.364	0.123
Product 4	0.012	0.960

Table 6: Output Model 1

The coefficients of the variables *label B*, *label C* and *label D* are statistically significant at a 5% significance level, which means that the effect of these three labelling strategies on the willingness of consumers to buy meat replacers is significant compared to the effect of the reference category (*label A*). The reference category identifies the case when no labels are applied in the front part of the product package. All the coefficients of the three “labels-variables” are positive, showing that the application of these labels affects positively the willingness to buy meat replacers. In particular, the application of both the “Sustainability label” and the “Meat replacer label” has a greater effect on the dependent variable. These findings support the first hypothesis of this study in all its three faces (H1a, H1b, H1c). The variables *product 2*, *product 3* and *product 4* are supposed to capture and explain the effect that product attributes could have on the willingness to buy. The coefficients of these “product-variables” are not statistically significantly different from 0, meaning that the effect they have on the dependent variable is not relevant for our analysis. For this reason, these variables are not considered in the other models.

The second model was extended with the consumer profiles and the moderation effects (see Table 7). The value of R Square (0.291) is considerably increased and this means that the new variables added have a very high incremental margin in explaining the dependent variable. This regression model is highly significant as well as the previous one. Regarding the “label-variables”, their coefficients are still statistically significant and they show consistency with the findings of model 1 (these results are confirmed in model 3 and 4 as well). The variables *Potential Green*, *Green* and *Hybrid*, which represent the consumer profile, are statistically significant in the model. The values of their coefficients advise that “Potential Green” consumer are more willing to buy meat replacers than “Non Green” ones (reference category) and that “Green” consumers are more willing to buy meat replacers than “Potential Green” ones, showing coherence with the theory. I have decided to not consider in my analysis the coefficients of the variable *Hybrid* and not even of the moderation effects that include this variable since, according to the literature, the behavior of this consumer segment is inconsistent and it cannot be predicted or explained.

MODEL 2

R = 0.539

R Square = 0.291

Adjusted R Square = 0.265

Model Significance = 0.000

	B	Sig.
Constant	1.176	0.000
Sustainability Label	1.176	0.000
Meat replacer Label	1.235	0.000
Both Labels	2.176	0.000
Potential Green	2.204	0.000
Green	2.914	0.000
Hybrid	2.587	0.000
Sust. Label*Potential Green	-0.748	0.097
Sust. Label*Green	0.642	0.076
Sust. Label*Hybrid	-1.150	0.023
Meat rep. Label*Potential Green	-0.807	0.043
Meat rep. Label *Green	0.219	0.523
Meat rep. Label *Hybrid	-1.314	0.004
Both Labels*Potential Green	-1.200	0.013
Both Labels*Green	0.733	0.054
Both Labels *Hybrid	-1.966	0.000

Table 7: Output Model 2

The moderation effects *Sust. Label *Green*, *Meat rep. Label*Green* and *Both Labels*Green* are not statistically significant, meaning that the effect of the application of the labels on the willingness to buy is not significantly different between Green consumers and Non Green consumers. Instead, the interaction effects *Meat rep. Label*Potential Green* and *Both Label*Potential Green* are statistically significant, meaning that the effect of the application of the labels on the willingness to buy is significantly different between Potential Green consumers and Non Green consumers. The coefficients of these two terms are negative, therefore the positive effects of *Meat replacer Label* and *Both Labels* on the willingness to buy meat replacers is lower for Potential Green consumers than for Non Green consumers. This can be explained because, according to the theory, Potential Green consumers are sometimes skeptical towards labels (they might not trust labels) on the product packaging while Non Green consumers are simply not much interested. However, Hypothesis 2 and Hypothesis 3 of this study are not satisfied.

The third model includes the “label-variables” and the demographic characteristics of the respondents, which are inserted in the model as control variables. The R Square (0.259) is slightly lower than the one of model 2 but still considerably higher than in model 1 (see Table 8).

MODEL 3

R = 0.509

R Square = 0.259

Adjusted R Square = 0.243

Model Significance = 0.000

	B	Sig.
Constant	1.740	0.000
Sustainability Label	0.546	0.013
Meat replacer Label	0.481	0.020
Both Labels	1.093	0.000
Female	0.863	0.000
Age 2	0.162	0.455
Age 3	0.628	0.016
Age 4	1.094	0.000
Bachelor	0.754	0.002
Master	1.071	0.000

Table 8: Output Model 3

The variable *Female*, which indicates the gender of the respondent, is statistically significant with a positive coefficient. This outcome supports Hypothesis 4, saying that generally, the willingness to buy meat replacers is greater for females than for males. Of the three age-groups, only the variable *Age 2* is not statistically significant, and the coefficients of *Age 3* and *Age 4* confirm Hypothesis 5 (the willingness to buy meat replacers is generally higher for elderly people than for young people). Finally, the coefficients of *Bachelor* and *Master* are significant and positive. Moreover, the coefficient of the variable *Master* is higher than the one of the variable *Bachelor* indicating that to a higher educational level corresponds a greater willingness to buy meat replacers. Also, the Hypothesis number 6 is supported with these findings.

Considering the demographic characteristics of the respondents and matching them with the consumer profile of each respondent I have found some interesting correlations. The participants categorized as “Non-green” consumers are all males, mainly young (age between 17 and 35 years old) and for 15 of them out of 17, the highest level of education is the High School Diploma. While the respondents classified as “Green” consumers are usually females (10 out of 11), with age between 36 and 65 and with a higher educational level (they have all at least a Bachelor’s Degree). These insights could be extremely valuable for marketing managers that want to develop optimal labelling strategies, allowing to profile consumers not only by their eating habits and lifestyle but also by their demographic characteristics. Marketing strategies could be developed and personalized in order to be more effective for a specific consumer segment, which will be targeted based on its observable

demographic characteristics. However, it would be wiser to generalize this conclusion considering a bigger sample size and therefore more consumers for each segment.

The fourth model includes all the variables examined in the previous models, which explains why the R Square (0.328) in this model is the highest one (see Table 9). The regression model is statistically significant, but multicollinearity is present, as already mentioned in the Methodology section. However, the outcome of this analysis reflects and supports the previous findings. The only difference is that the coefficients of the variables *Age 3*, *Bachelor* and *Master* are not significant anymore. This is probably caused by the fact that multicollinearity is present in the model.

MODEL 4

R = 0.573		
R Square = 0.328		
Adjusted R Square = 0.294		
Model Significance = 0.000		
	B	Sig.
Constant	0.842	0.000
Sustainability Label	1.176	0.000
Meat replacer Label	1.235	0.000
Both Labels	2.176	0.000
Potential Green	1.632	0.000
Green	1.670	0.000
Hybrid	1.970	0.000
Sust. Label*Potential Green	-0.748	0.097
Sust. Label*Green	0.642	0.103
Sust. Label*Hybrid	-1.150	0.028
Meat rep. Label*Potential Green	-0.807	0.044
Meat rep. Label *Green	0.219	0.553
Meat rep. Label *Hybrid	-1.314	0.006
Both Labels*Potential Green	-1.200	0.014
Both Labels *Green	0.733	0.078
Both Labels *Hybrid	-1.966	0.000
Female	0.650	0.002
Age 2	0.264	0.234
Age 3	0.487	0.084
Age 4	0.574	0.024
Bachelor	0.332	0.231
Master	0.468	0.085

Table 9: Output Model 4

4.4 Overview

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
<i>Constant</i>	3.110*	1.176*	1.740*	0.842*
<i>No Label</i>	-	-	-	-
<i>Sustainability Label</i>	0.510*	1.176*	0.546*	1.176*
<i>Meat replacer Label</i>	0.479*	1.235*	0.481*	1.235*
<i>Both Labels</i>	1.106*	2.176*	1.093*	2.176*
PRODUCT FIXED EFFECT	Yes	No	No	No
<i>Product 1</i>	-			
<i>Product 2</i>	0.172			
<i>Product 3</i>	0.364			
<i>Product 4</i>	0.012			
<i>Non Green</i>		-		-
<i>Potential Green</i>		2.204*		1.632*
<i>Green</i>		2.914*		1.670*
<i>Hybrid</i>		2.587*		1.970*
<i>Sust. Label*Potential Green</i>		-0.748		-0.748
<i>Sust. Label*Green</i>		0.642		0.642
<i>Sust. Label*Hybrid</i>		-1.150*		-1.150*
<i>Meat rep. Label*Potential Green</i>		-0.807*		-0.807*
<i>Meat rep. Label *Green</i>		0.219		0.219
<i>Meat rep. Label *Hybrid</i>		-1.314*		-1.314*
<i>Both Labels*Potential Green</i>		-1.200*		-1.200*
<i>Both Labels *Green</i>		0.733		0.733
<i>Both Labels *Hybrid</i>		-1.966*		-1.966*
<i>Male</i>			-	-
<i>Female</i>			0.863*	0.650*
<i>Age 1</i>			-	-
<i>Age 2</i>			0.162	0.264
<i>Age 3</i>			0.628*	0.487
<i>Age 4</i>			1.094*	0.574*
<i>High School</i>			-	-
<i>Bachelor</i>			0.754*	0.332
<i>Master</i>			1.071*	0.468
R Square	0.053	0.291	0.259	0.328
Dependent variable: <i>Willingness to buy meat replacers</i>				
* P-value ≤ 0.05				
- Left out as reference category				

Table 10: Output of all the models

In general, the results of the four models analyzed are consistent with each other. The outcomes of table X show that the effect of the three labelling strategies is robust across the models. The coefficients of these variables are always positive and significant, which means that the application

of these three informative labels on the product package increases the willingness of consumers to buy that product, supporting broadly the theory. Indeed, according to the literature, knowledge allows customers to make their personal decisions with more awareness and acts as a driver of responsibility (when a person is aware of the effects of his/her actions, usually a sense of responsibility should follow). Moreover, it stimulates motivation to act, and that is why customers that have greater knowledge about environmental problems are more likely to opt for sustainable solutions (Darnall et al., 2012). The variable that represents the application of both “Sustainability label” and “Meat replacer label” has always the highest coefficient, which means that, in general, it is the most effective among our labelling strategies, endorsing hypothesis 1b and showing that in this case providing more information in the packaging enhance the desired effect. These findings are interesting for marketing managers when assessing whether to implement labelling strategies with less essential information or with more combined information.

The analysis of the moderation terms, as previously explained, do not satisfy the hypothesis formulated according to the theory. Indeed, the coefficients of the interaction terms show that the effect of the application of all the three labelling strategies is not different between Green and Non Green consumers. It is different only between Potential Green and Non Green consumers in the case of the “Meat Replacer Label” and when the two labels are applied together. Nevertheless, this effect is the opposite as the one expected according to the theory, probably because of the skepticism of Potential Green consumers toward labels in general. This distrust should be considered when developing labelling strategies and more guarantee should be provided in order to avoid skepticism toward informative labels.

After controlling for demographics, the results are still consistent among the models and the hypothesis 4, 5 and 6 are satisfied.

5. Discussion and Conclusion

The main purpose of this research is to give a contribution to the current theory regarding green consumption analyzing the effect of the application of different labels on the product package of meat replacers on the willingness of consumers to buy this product category. Four surveys were conducted in order to collect primary data and 108 observations have been obtained. The development of the surveys was conceived following the approach used by Weinrich & Spiller (2016) and by Wansink (2003). Both these studies on food labelling are finalized to measure consumers' reactions and choices after the exposure to specific stimuli (different labels or information in the product package) (Wansink, 2003; Weinrich & Spiller, 2016). The findings of the study confirm that labelling strategies are an effective tool in influencing consumers' behavior, supporting hypotheses 1a, 1b and 1c.

The analysis of the moderators is consistent with the assumptions based on the literature regarding the consumers' profiles. Indeed, the Potential Green consumers are in general more willing to buy meat substitutes than Non Green consumers, who are not really concerned about environmental issues fair trade and animal welfare (Nie & Zepeda, 2011; Verain et al., 2012). At the same time, Green consumers, who are strongly committed towards green consumerism (Hoek et al., 2004; Verain et al., 2012) have a greater willingness to buy meat analogues than Potential Green consumers. However, according to the outcome of the analysis, the labelling strategies applied in this study do not have a different effect on the consumption choices of Non Green and Green consumers. Furthermore, the results show that the positive influence of the three labelling strategies (application of "Sustainability label", "Meat replacer label" and both together) is lower for Potential Green consumers than for Non Green consumers, which can be explained considering Potential Green people sometimes do not trust informative labels on the product packaging (Verain et al., 2012). Therefore, the hypotheses 2 and 3 of the research are not supported by the findings.

Control variables have been inserted in the model because they have a strong influence on meat consumption and therefore on the willingness to buy meat substitutes. Our outcome suggests that females, in general, are more willing to buy meat replacers than males, as well as elderly people are, compared to young people. The effect of the educational level is also important and consistent with the theory, which states that a higher level of education implies a greater willingness to buy meat analogues. Hence, hypothesis 4, 5 and 6 are satisfied and confirmed.

6. Limitations and Future Research

The aim of the research is to test whether the adoption of specific labelling strategies can truly affect customers' attitude towards the consumption of meat substitutes. However, the findings refer to a restricted sample (108 observations) which might not be considered sufficient to draw general conclusions. Moreover, the 30,56% of the respondents are Italian, the 17,59% are Dutch and the 16,67% are Greek, which means that the sample is not representative for all the nationalities and results might be affected by cultural and regional aspects that influence the behavior of participants.

In general, the Rs Square of the models are not very high, which suggests that other predictors should be introduced in the determination of the dependent variables.

The analysis of the interaction effects has shown that the corresponding hypotheses are not satisfied, which might be explained by the fact that people when filling the surveys did not pay as much attention to the product labels as they would have done in the reality.

These limitations should be considered when developing possible future research on the topic. It is important to have a significant sample size, in order to have a reliable outcome and a well-founded conclusion. Regarding the nationality factor, it would be interesting to include in the study the effect of culture and regional eating habits and beliefs in green consumption.

Furthermore, including some mediation effects would add remarkable findings to this research. For example, studying the reasons why labels influence consumers' purchase behavior and how this happens. Considering people's attitude towards informative labels, like trust in the information provided, and other psychological factors related could give more meaningful insights on this regard.

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8. Appendix

Appendix A: Pictures utilized as stimuli in the survey

Product 1:

THE VEGETARIAN BUTCHER™

mc² BURGER
vegetarian soy-based burger, high in protein

Without artificial E-numbers erving suggestion

"These days, fake flesh looks - and tastes - just like the real thing. Is this the end of meat?"

THE INDEPENDENT

160 grams • 2 pieces
Vegetarian

THE VEGETARIAN BUTCHER™

mc² BURGER
vegetarian soy-based burger, high in protein

SUSTAINABLE NUTRITION

Without artificial E-numbers erving suggestion

"These days, fake flesh looks - and tastes - just like the real thing. Is this the end of meat?"

THE INDEPENDENT

160 grams • 2 pieces
Vegetarian

THE VEGETARIAN BUTCHER™

mc² BURGER
vegetarian soy-based burger, high in protein

The perfect substitute of meat in your diet

Without artificial E-numbers erving suggestion

"These days, fake flesh looks - and tastes - just like the real thing. Is this the end of meat?"

THE INDEPENDENT

160 grams • 2 pieces
Vegetarian

THE VEGETARIAN BUTCHER™

mc² BURGER
vegetarian soy-based burger, high in protein

The perfect substitute of meat in your diet

Without artificial E-numbers erving suggestion

"These days, fake flesh looks - and tastes - just like the real thing. Is this the end of meat?"

THE INDEPENDENT

160 grams • 2 pieces
Vegetarian

SUSTAINABLE NUTRITION

Product 2:



Product 3:





Product 4:



Vegan

QuornTM
PROUDLY MEAT FREE

2 VEGAN BURGERS
Deliciously Versatile

✓ **HIGH IN PROTEIN** ✓ **SOURCE OF FIBRE**
✓ **LOW IN SATURATED FAT**

The perfect substitute of meat in your diet

Per Cooked Burger 80g

Energy	702kJ 168kcal
Fat	9.3g 13%
Saturates	3.9g 20%
Sugars	1.1g 1%
Salt	1.1g 18%

of an adult's reference intake (8400kJ/2000kcal)

Per 100g
Energy 878kJ
210kcal

160g e

Vegan

Sustainable Nutrition

QuornTM
PROUDLY MEAT FREE

2 VEGAN BURGERS
Deliciously Versatile

✓ **HIGH IN PROTEIN** ✓ **SOURCE OF FIBRE**
✓ **LOW IN SATURATED FAT**

The perfect substitute of meat in your diet

Per Cooked Burger 80g

Energy	702kJ 168kcal
Fat	9.3g 13%
Saturates	3.9g 20%
Sugars	1.1g 1%
Salt	1.1g 18%

of an adult's reference intake (8400kJ/2000kcal)

Per 100g
Energy 878kJ
210kcal

160g e

Appendix B: Survey questions

WILLINGNESS TO BUY MEAT SUBSTITUTES

Please rate from 1 (I would never buy it) to 7 (I would definitely buy it) how much are you willing to buy each product showed in the pictures.

*Before making a decision, please read carefully the information given in the package.

MANIPULATION CHECK

Which labels have you noticed in the package of the products showed in the pictures?

- “Sustainable nutrition”
- “The perfect substitutes of meat in your diet”
- Both

CONSUMER'S PROFILES

Please rate from 1 (completely disagree) to 7 (completely agree) how much you agree with the following sentences:

*Please select a different rating for each sentence.

1. CONVENIENCE FOOD (a food that you can buy already prepared or pre-cooked, which requires minimum or no further preparation):

(Boer M., McCarthy M., 2004; Brunsø K., Grunert K. G., 1996; Jang et al., 2011; Verain et al., 2012)

A. I believe convenience food helps me to save time and money.

B. I believe convenience food is not healthy.

C. I would rather not buy convenience food because I enjoy cooking and eating natural and fresh food.

2. LABELS AND PRODUCT INFORMATION:

(Boer M., McCarthy M., 2004; Brunsø K., Grunert K. G., 1996; Jang et al., 2011; Verain et al., 2012)

A. I am not really interested in labels and product information.

B. Sometimes, I am skeptical towards labels and product information.

C. I am very interested in labels and product information.

3. FUNCTION OF FOOD:

(Jang et al., 2011; Schösler et al., 2013; Verain et al., 2012)

A. I consider food a way to satisfy my appetite.

B. I consider food a way to achieve personal health and well-being.

C. I consider food a way to express and reinforce my connection with nature.

4. FOOD ATTRIBUTES:

(Hoek, van Boekel, et al., 2011; Verain et al., 2012)

A. For me it is important to eat tasty food.

B. For me it is important to eat high quality food.

C. For me it is important to eat food that is sustainable for the environment.

5. SUSTAINABLE PRODUCTS:

(Jang et al., 2011; Verain et al., 2012)

A. When I buy sustainable products, I do it because I like the flavors.

B. When I buy sustainable products, I do it because it is a responsible choice.

C. When I buy sustainable products, I do it because it can benefit others welfare.

DEMOGRAPHICS INFORMATION

Are you vegetarian or vegan?

- Yes
- No

Please indicate your gender:

- Male
- Female

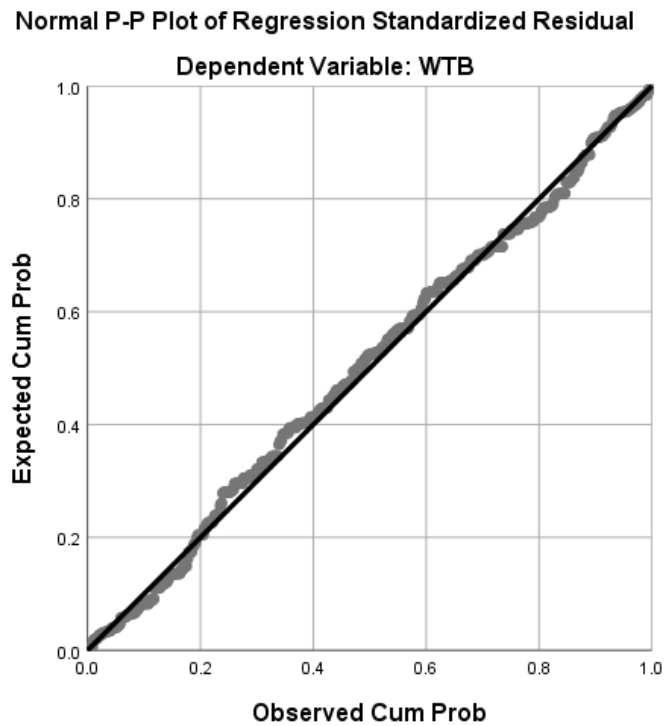
Please indicate your age:

Please indicate your nationality:

Please indicate the maximum level of education you have reached:

- High School
- Bachelor's Degree
- Master's Degree
- PhD
- None of them

Appendix C: Normality graph



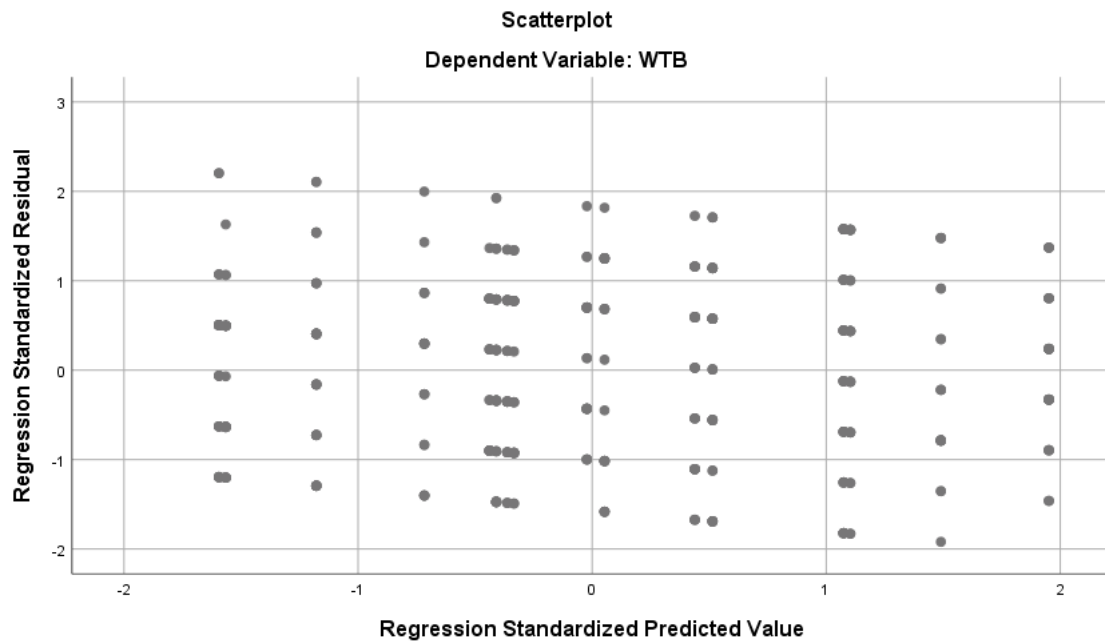
Appendix D: Scatterplots, Breusch-Pagan tests and Koenker tests for Heteroskedasticity

Model 1:

```
----- Breusch-Pagan and Koenker test statistics and sig-values -----  
                LM      Sig  
BP              2.852   .827  
Koenker         5.671   .461
```

Null hypothesis: heteroskedasticity not present (homoskedasticity).

If sig-value less than 0.05, reject the null hypothesis.



Model 2:

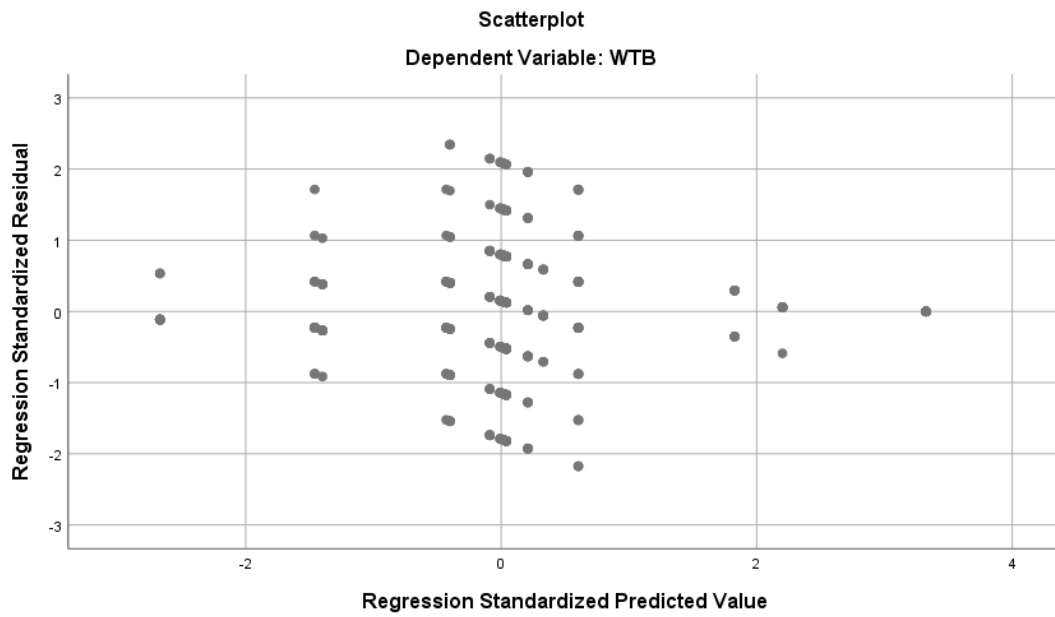
```

----- Breusch-Pagan and Koenker test statistics and sig-values -----
              LM          Sig
BP             56.436     .000
Koenker       66.534     .000

```

Null hypothesis: heteroskedasticity not present (homoskedasticity).

If sig-value less than 0.05, reject the null hypothesis.



Model 3:

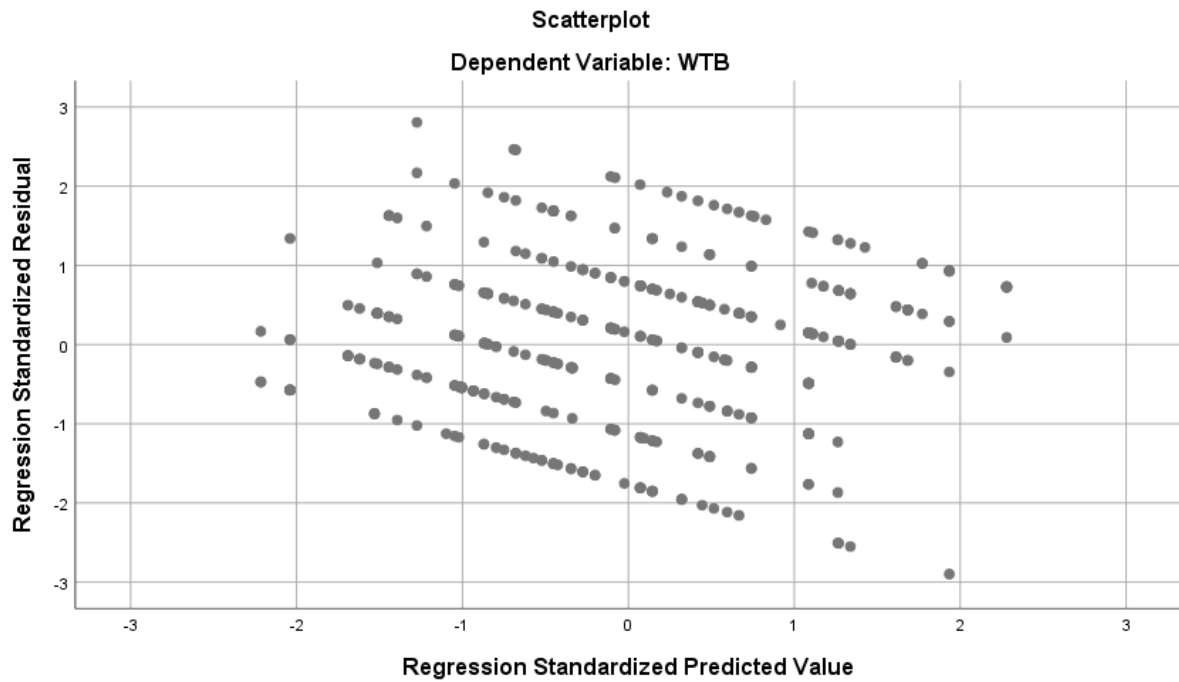
```

----- Breusch-Pagan and Koenker test statistics and sig-values -----
              LM          Sig
BP            19.973      .018
Koenker       21.740      .010

```

Null hypothesis: heteroskedasticity not present (homoskedasticity).

If sig-value less than 0.05, reject the null hypothesis.



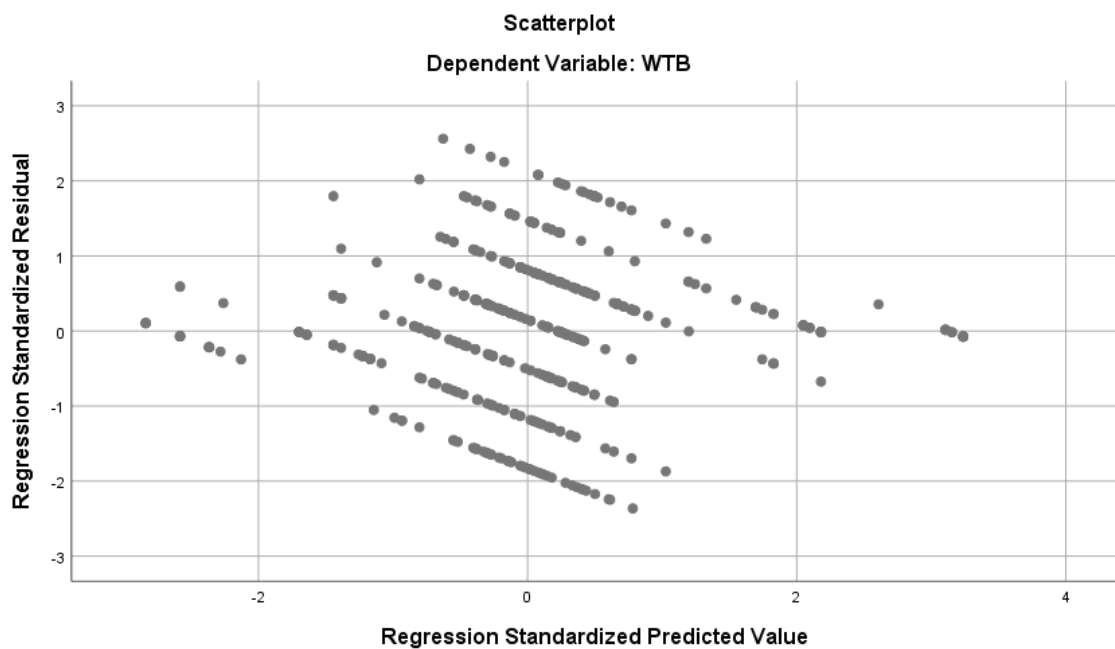
Model 4:

----- Breusch-Pagan and Koenker test statistics and sig-values -----

	LM	Sig
BP	67.204	.000
Koenker	72.569	.000

Null hypothesis: heteroskedasticity not present (homoskedasticity).

If sig-value less than 0.05, reject the null hypothesis.



Appendix E: Correlations table Cluster Analysis

		Correlations														
		ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	ITEM10	ITEM11	ITEM12	ITEM13	ITEM14	ITEM15
ITEM1	Pearson Correlation	1	-.452**	-.501**	-.284**	-.425**	.649**	-.363**	.605**	-.425**	.596**	-.494**	-.307**	-.412**	-.437**	.462**
	Sig. (2-tailed)		.000	.000	.003	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM2	Pearson Correlation	-.452**	1	.241*	.618**	.251**	-.480**	.743**	-.111	.065	-.066	.241*	.748**	.708**	.150	-.207*
	Sig. (2-tailed)	.000		.012	.000	.009	.000	.000	.252	.506	.499	.012	.000	.000	.122	.032
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM3	Pearson Correlation	-.501**	.241*	1	-.031	.750**	-.566**	.320**	-.220*	.689**	-.146	.701**	.240*	.268**	.680**	-.217*
	Sig. (2-tailed)	.000	.012		.747	.000	.000	.001	.022	.000	.131	.000	.012	.005	.000	.024
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM4	Pearson Correlation	-.284**	.618**	-.031	1	.045	-.329**	.656**	-.029	-.136	-.040	.028	.649**	.619**	-.045	-.200*
	Sig. (2-tailed)	.003	.000	.747		.645	.001	.000	.762	.160	.680	.777	.000	.000	.645	.038
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM5	Pearson Correlation	-.425**	.251**	.750**	.045	1	-.719**	.307**	-.240*	.611**	-.180	.778**	.230*	.284**	.619**	-.220*
	Sig. (2-tailed)	.000	.009	.000	.645		.000	.001	.012	.000	.062	.000	.017	.003	.000	.022
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM6	Pearson Correlation	.649**	-.480**	-.566**	-.329**	-.719**	1	-.530**	.546**	-.391**	.517**	-.608**	-.501**	-.538**	-.460**	.533**
	Sig. (2-tailed)	.000	.000	.000	.001	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM7	Pearson Correlation	-.363**	.743**	.320**	.656**	.307**	-.530**	1	-.003	.109	.039	.316**	.819**	.822**	.206*	-.177
	Sig. (2-tailed)	.000	.000	.001	.000	.001	.000		.978	.261	.690	.001	.000	.000	.032	.066
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM8	Pearson Correlation	.605**	-.111	-.220*	-.029	-.240*	.546**	-.003	1	-.249**	.847**	-.366**	-.028	-.140	-.320**	.725**
	Sig. (2-tailed)	.000	.252	.022	.762	.012	.000	.978		.009	.000	.000	.773	.149	.001	.000
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM9	Pearson Correlation	-.425**	.065	.689**	-.136	.611**	-.391**	.109	-.249**	1	-.218*	.764**	.021	.173	.776**	-.173
	Sig. (2-tailed)	.000	.506	.000	.160	.000	.000	.261	.009		.024	.000	.830	.074	.000	.073
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM10	Pearson Correlation	.596**	-.066	-.146	-.040	-.180	.517**	.039	.847**	-.218*	1	-.213*	.039	-.057	-.223*	.755**
	Sig. (2-tailed)	.000	.499	.131	.680	.062	.000	.690	.000	.024		.027	.690	.557	.020	.000
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM11	Pearson Correlation	-.494**	.241*	.701**	.028	.778**	-.608**	.316**	-.366**	.764**	-.213*	1	.256**	.435**	.793**	-.241*
	Sig. (2-tailed)	.000	.012	.000	.777	.000	.000	.001	.000	.000	.027		.007	.000	.000	.012
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM12	Pearson Correlation	-.307**	.748**	.240*	.649**	.230*	-.501**	.819**	-.028	.021	.039	.256**	1	.835**	.162	-.054
	Sig. (2-tailed)	.001	.000	.012	.000	.017	.000	.000	.773	.830	.690	.007		.000	.094	.578
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM13	Pearson Correlation	-.412**	.708**	.268**	.619**	.284**	-.538**	.822**	-.140	.173	-.057	.435**	.835**	1	.347**	-.144
	Sig. (2-tailed)	.000	.000	.005	.000	.003	.000	.000	.149	.074	.557	.000	.000		.000	.136
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM14	Pearson Correlation	-.437**	.150	.680**	-.045	.619**	-.460**	.206*	-.320**	.776**	-.223*	.793**	.162	.347**	1	-.172
	Sig. (2-tailed)	.000	.122	.000	.645	.000	.000	.032	.001	.000	.020	.000	.094	.000		.074
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
ITEM15	Pearson Correlation	.462**	-.207*	-.217*	-.200*	-.220*	.533**	-.177	.725**	-.173	.755**	-.241*	-.054	-.144	-.172	1
	Sig. (2-tailed)	.000	.032	.024	.038	.022	.000	.066	.000	.073	.000	.012	.578	.136	.074	
	N	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Appendix F: Common labels meat replacers

PRODUCT N.	SUPER MARKET	BRAND	NUTRITION LABELS	ECO LABELS	GENETICALLY-MODIFIED FOOD LABELS	MILK-FREE LABELS	GLUTEN-FREE LABELS	PALM OIL FREE LABELS	PENAUT FREE LABELS	E-NUMBERS FREE LABELS	Further info about ingredients/nutritional values
1	Albert Heijn	Albert Heijn	X			X					X
2	Albert Heijn	Albert Heijn	X								
3	Albert Heijn	Albert Heijn	X			X					X
4	Albert Heijn	Albert Heijn	X			X					X
5	Albert Heijn	Albert Heijn	X			X				X	X
6	Albert Heijn	De Vegetarische Slager	X		X					X	
7	Albert Heijn	De Vegetarische Slager	X		X					X	
8	Albert Heijn	De Vegetarische Slager	X		X					X	
9	Albert Heijn	De Vegetarische Slager	X		X					X	

12	Albert Heijn	Garden Gourm et	X								
13	Albert Heijn	Garden Gourm et	X								
14	Albert Heijn	Garden Gourm et	X								X
15	Albert Heijn	Garden Gourm et	X								
16	Lidl	My Best Veggie	X								X
17	Lidl	My Best Veggie	X								X
18	Lidl	My Best Veggie	X								X
19	Lidl	My Best Veggie	X								X
20	Albert Heijn	Olijcke	X								
21	Albert Heijn; Dirk	Quorn	X	X			X				
22	Albert Heijn; Dirk	Quorn	X				X				X

23	Albert Heijn; Dirk	Quorn	X								X
24	Albert Heijn; Dirk	Quorn	X								X
25	Albert Heijn; Dirk	Valess	X				X				
26	Albert Heijn	Vegafit	X			X		X			X
27	Albert Heijn	Vegafit	X			X		X			X
28	Albert Heijn	Vegafit	X			X		X			X
29	Albert Heijn	Vegafit	X			X					X
30	Lidl	Vegetarische BBQ	X								X
31	Lidl	Vegetarische BBQ	X								X
32	Lidl	Vegetarische BBQ	X						X		X
33	Albert Heijn; Dirk; Coop	Vivera	X		X						X

34	Albert Heijn; Dirk; Coop	Vivera	X		X						X
35	Albert Heijn; Dirk; Coop	Vivera	X		X					X	X
36	Albert Heijn; Dirk; Coop	Vivera	X		X					X	X
37	Albert Heijn; Dirk; Coop	Vivera	X		X						X
38	Albert Heijn; Dirk; Coop	Vivera	X		X					X	X
39	Albert Heijn; Dirk; Coop	Vivera	X		X						X