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**Local food: What is the effect of different labelling methods of food on consumers' willingness to pay? The moderating roles of sustainable mindset and consumer expertise.**

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## ABSTRACT

For centuries, the consumption of local food had been the norm, but, as a result of the globalisation, consumers changed considerably the way they buy and eat food. However, some negative aspects of the global food supply chain systems, such as the pollution of the environment, the transmission of food related illnesses and the economic degradation of small agricultural communities, have made many consumers to alter their preferences towards more sustainable ones. In response to this, the demand for local, organic and both local organic food products has been increased recently. Even though there is a general growing demand for these food's qualitative attributes, consumer behaviour is quite complex to be understood, since it is affected by various factors, such as social norms and consumers' previous knowledge about food. At the same time, being a credence good, food makes it hard for consumers to differentiate it based on its qualitative characteristics. For this reason, food labels play a crucial role in food marketing, as they provide consumers with valuable information about food. Considering all the above, the goal of this study is to investigate the effect of no label, local, organic and both local and organic food labels on consumers' willingness to pay (WTP). The roles of consumer expertise and consumers' mindset towards sustainability are also examined in this relationship. An online between-subjects survey experiment was conducted among 257 Greek and Dutch consumers, who were asked to state their WTP for two food products. The effect of the four different conditions on their WTP was evaluated with linear regression models and differences among the various groups of consumers were examined. Based on the results, the "local organic product" label receives the highest WTP and is followed by the "organic product" label in almost all the examined consumer groups. Sustainable mindset moderates the effect of the labelling ways, such that the WTP of consumers with a high level of sustainable mindset is affected by the "organic product" label, while that of consumers with a low level of sustainable mindset is affected by the "local organic product" label. Regarding the effect of consumer expertise, a general trend is revealed that the price premiums for the "organic" and "local organic" attributes rise, as the level of consumer expertise increases, although the results are not statistically significant in all analyses. This study provides professionals in the food industry, food marketers and policy makers with useful insights on consumers' WTP for food products with different qualitative attributes.

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# 1. Introduction

## 1.1. Background Information and Problem Statement

Since the beginning of the human history the consumption of locally produced food had been the norm. This situation changed mainly during the previous century due to agricultural industrialization which created complexity in the food supply chain systems and increased the distance between producers and consumers of the food (Reich, Beck, & Price, 2018). Even though the global food supply chains present advantages, such as economies of scale that increase production's efficiency and reduce food prices, they have provoked some unpleasant and probably unplanned results, including the harm of the environment, the generation of food related illnesses, as well as the production of food of lower quality and the economic degradation of small agricultural communities (Reich, Beck, & Price, 2018). Increased consumer awareness of the aforementioned problems has led many individuals to change their choices towards more sustainable ones. This change in consumer preferences can explain the growing trend for locally or domestically produced food over foreign items (Feldmann & Hamm, 2015; Zhang, Grunert, & Zhou, 2020; Schmidt, Rucker, & Tian, 2020). Sales of local food in the United States was 11.7 billion dollars in 2014 and the estimated amount for the year 2019 was around 20 billion dollars (Martinez, 2021; Fernqvist & Ekelund, 2014; Reich, Beck, & Price, 2018).

In response to this considerably growing trend in consumers' preferences towards local food and its relevance to policy makers and businesses, researchers have conducted numerous studies on the attitudes of consumers and their purchase behaviour towards local food (Feldmann & Hamm, 2015). Studies have characterised this "preference for local foods" as a rising consumer ideology named "locavorism" (Reich, Beck, & Price, 2018; Zhang, Grunert, & Zhou, 2020). However, this term is not fully defined yet (Zhang, Grunert, & Zhou, 2020) and, similarly, the word "local" does not have a clear and official meaning (Feldmann & Hamm, 2015), resulting in a situation where different consumer segments perceive it differently. Reich, Beck and Price (2018) tried to define the word "locavorism" as "a system of beliefs" with three main dimensions. The first one is "lionization" and refers to the belief that local food has better quality and taste compared to conventional one, the second is "opposition" to the long-distanced food supply chains, as they

generate distrust and the third dimension is “communalization”, which has to do with consumers’ willingness to support their own or local communities.

Additionally, part of local food’s growing appeal is associated with its sustainable attributes, such as the short distance between food producers and consumers (Alsetoohy, Ayoun, & Abou-Kamar, 2021). Nevertheless, studies have shown that local food production is not always aligned with sustainable practices and that proximity alone is not necessarily an effective way to measure food sustainability (Alsetoohy, Ayoun, & Abou-Kamar, 2021; Pretty, Ball, Lang, & Morison, 2015). In relation to sustainability’s concept in the food sector, organic food plays a crucial role. It refers to an alternative way of food production that is rooted in the 1960’s, as a result of consumer demand for healthy and environmentally friendly food (Golan, Kuchler, Mitchell, & Greene, 2001; Reich, Beck, & Price, 2018). In many studies local and organic food is being examined simultaneously (Alsetoohy, Ayoun, & Abou-Kamar, 2021; Jensen, et al., 2019; Loureiro & Hine, 2002), since consumers’ motivations behind their purchasing behaviour are fairly similar. Despite the overlap between the two terms, they are not the same.

Moreover, since food is credence good, consumers base their choices in external cues that accompany food products. Here, the role of labels should be mentioned, as they play a vital role in consumer purchasing behaviour (Fernqvist & Ekelund, 2014; McCluskey & Loureiro, 2003). They are valuable tools for consumers as they reduce the information asymmetry by providing them with nutritional, environmental and related to social responsibility and product’s origin information (Kontopoulou, et al., 2021; Weinrich & Spiller, 2016). However, the big variety of labels, as well as the different consumers’ attitudes make the labelling effects complex. Individuals’ purchasing behaviour is being affected by a number of factors, such as their personal attitudes, the existing social norms, their product knowledge and their involvement with the product. Consequently, the segmentation of consumers is necessary, so that we can reach to valid and meaningful results.

## 1.2. Research Questions

Considering the wide and big variety of food labelling, as well as the multidimensional and complex nature of consumer behaviour more research is needed on this topic. Our work will

address consumers' willingness to pay (WTP) for food products under four different conditions. More specifically, we will examine the effect of no label, local, organic and both local and organic food labels on consumers' WTP. Consumer expertise and consumers' mindset towards sustainability will also be taken into account as moderating variables.

Our main research question and the sub-questions are the following:

Main research question:

What is the effect of different labelling methods of food products on consumers' WTP?

Sub-question 1:

Does the existence of sustainable mindset influence the effect of different labelling methods on consumers' WTP for food products?

Sub-question 2:

Does expertise influence the effect of different labelling methods on consumers' WTP for food products?

### 1.3. Academic Relevance

Our main research question, as well as the sub-questions are relevant because there is a general growing demand for local food products. Even though research has been conducted to define the term "local" with different labelling strategies and evaluate consumers' perceptions on this term (Meyerding, Trajer, & Lehberger, 2019), there is a gap in the literature on consumers' WTP for local and both local and organic food products when consumers are considered experts on food and when they have a sustainable mindset.

In addition, the COVID-19 pandemic boosted even more consumers' preferences either for local, either for organic, either for sustainable food, which is the combination of the previous two categories, local and organic food. More specifically, big disruptions and shortages in the global food supply chains revealed their fragility and pushed people to look for local food, while health-related reasons made consumers to increase their preference for organic food. Therefore, food



insecurity can partially explain these changes, but the role of consumers' different characteristics cannot be ignored. This is supported by the fact that people's food preferences followed different patterns across countries, although the pandemic was global (Filimonau, Beer, & Ermolaev, 2021; Güney & Sangün, 2021; Qi, Yu, & Ploeger, 2020).

To the best of our knowledge, this is the first study that addresses the effects of both consumer expertise and sustainable mindset towards consumers' WTP for food with different attributes. Moreover, this study expands the academic literature by providing insights on consumers' preferences towards food after almost 2.5 years since the advent of the pandemic. Have global food systems regained consumer trust or the favourable trend towards local and sustainable food is here to stay?

#### 1.4. Managerial Relevance

Marketers of food products will benefit from reading our work, as they will be able to adjust their

*Figure 1: Lidl's advertisement in Athens International Airport, Greece*



advertising messages and campaigns to effectively attract consumer attention. They will, also, gain insights on their pricing strategies and which consumer segments are suitable for targeting purposes. In the highly competitive food market, companies should be fast at responding to the changing consumer landscape (Shemkus, 2015). For example, in response to this growing trend, Walmart in the USA is being positioned as “the largest purchaser of locally sourced and sold produce in America” (Reich, Beck, & Price, 2018). Similarly, as it can be seen in figure 1, the Lidl supermarket advertises the local sourcing of its products at the “Athens international airport” in Greece. This is in line with the research conducted by Alsetoohy, Ayoun and Abou-Kamar (2021) that local food affects positively tourists’ perceptions and contributes to destination branding.

### 1.5. Policy Making Relevance

Furthermore, policy makers will gain insights from our research regarding the regulation and standardization of labelling on food products. Governments are engaged in food labelling regulations for social reasons. More specifically, labels on food can affect positively human safety and health, reduce environmental dangers, mitigate adversities in the international trade and support local agricultural and food manufacturing companies (Golan, Kuchler, Mitchell, & Greene, 2001). On the other hand, they can confuse or even mislead consumers (Temple & Fraser, 2014).

### 1.6. Thesis Structure

This study consists of five sections. The first section presents the background information that is necessary for the study and the relevant research questions. In the second section, the existing literature that is relevant to the research questions, as well as the conceptual framework of this study are provided. The methodology, including the data collection method and the variables of this study are presented in the third section, followed by the fourth section where the results are shown. In the last section, the findings of this study are summarized, the theoretical and practical implications are discussed and the limitations of this study together with future research recommendations are covered.

## 2. Literature Review and Conceptual Model

### 2.1. Local food

An important issue is the non-existence of a clear explanation of the word “local”. The definitions of this term found in the literature are various and range from measuring the distance that the food travelled, political and geographical boundaries (Feldmann & Hamm, 2015; Meyerding, Trajer, & Lehberger, 2019; Zhang, Grunert, & Zhou, 2020) and specialty criteria “to more holistic approaches” related to people’s personal connections within or with the area of food’s production (Feldmann & Hamm, 2015; Zhang, Grunert, & Zhou, 2020). As researchers say, local food cannot be stated in a unique way, because its definition is different according to consumers’ “spatial and social context” (Zhang, Grunert, & Zhou, 2020). For the purposes of this study local food is defined as the food that is produced and sold in the same country. This definition is in line with most consumers’ views on local food according to Meyerding, Trajer and Lehberger (2019).

Despite the absence of a unique and clear meaning for “local food”, consumers’ preferences towards local food products have increased considerably lately. For instance, 78% of German consumers have a preference towards food that is labelled as local compared to that coming from elsewhere (Meyerding, Trajer, & Lehberger, 2019). A second study reveals that consumers in Colorado are willing to pay a higher premium for potatoes with the “Colorado grown” attribute compared to GMO-free and organic potatoes (Loureiro & Hine, 2002). A third study shows that American consumers are quite concerned about labelling and that they are willing to pay “an average of 38% to 58% more” for meat products that are labelled as “U.S. Certified” (Loureiro & Umberger, 2003).

This already growing trend skyrocketed during the COVID-19 pandemic, as people changed their habits in the way they eat, shop and interact with food (Alsetoohy, Ayoun, & Abou-Kamar, 2021; Filimonau, Beer, & Ermolaev, 2021; Güney & Sangün, 2021; Schmidt, Rocker, & Tian, 2020; Skalkos, et al., 2021). This change is also obvious in Google search trends (Schmidt, Rocker, & Tian, 2020).

## 2.2. Why do consumers buy local food?

Food safety, transparency of the supply chains and qualitative attributes, such as freshness, healthiness and taste are some of the reasons for which consumers buy local food. They, also, prefer it because they want to support the local farmers and the regional economy, as well as due to its perceived environmental friendliness (Feldmann & Hamm, 2015; Meyerding, Trajer, & Lehberger, 2019; Zhang, Grunert, & Zhou, 2020). Moreover, as a consequence of the pandemic food traceability has gained greater importance than before due to consumers' health risk and food safety concerns. Under these circumstances the positive aspects of the short food supply chains and local production have been emphasized (Alsetoohy, Ayoun, & Abou-Kamar, 2021; Skalkos, Kosma, Chasioti, Bintsis, & Karantonis, 2021). However, price and convenience, advantages related to conventional food are important influencers of people's buying behaviour.

Since consumers have heterogeneous preferences and purchase behaviours towards food (Hobbs, 2020), researchers have tried to define the context and the motives behind local food's purchases with the Alphabet Theory framework (Feldmann & Hamm, 2015). According to this theory, both consumers' attitudes and their buying behaviour regarding local food are highly affected by the provision of knowledge and factors related to the context around local food (Feldmann & Hamm, 2015; Meyerding, Trajer, & Lehberger, 2019; Zhang, Grunert, & Zhou, 2020). In relation to this, Meyerding, Trajer and Lehberger (2019) find that the generic term "local" in terms of labelling is the best one when it comes to the reduction of the "information asymmetry" that exists among consumers' perception around the concept of the locally produced food. Information asymmetry happens when the parties who make a transaction are not equally informed. Specifically in the food sector, it happens when the market does not supply the necessary information, so that consumers are able to make consumption choices that are in line with their individual preferences (Golan, Kuchler, Mitchell, & Greene, 2001).

It is also worth mentioning that demographic characteristics may define patterns of local food buyers to some extent. For example, richer and older consumers who live in rural areas show a higher tendency to buy local food, compared to urban consumers (Feldmann & Hamm, 2015). On the other hand, Sadílek (2019) reveals that the segmentation of consumers in Czechia based on their attitudes towards food quality labels is more valid compared to the socio-demographic ones.

In line with this, Zhang, Grunert and Zhou (2020) find that people's beliefs are importantly and positively connected with "attitudes towards and intentions to buy local foods".

### 2.3. Organic food

According to Britannica, organic food "is grown without the use of synthetic chemicals, such as human-made pesticides and fertilizers, and does not contain genetically modified organisms (GMOs)" (Duram, Leslie A., 2019). Around the 1960's, the demand for foods without chemicals increased by "Baby Boomers", a new, environmentally conscious generation. The reasons behind this trend had to do with the negative aspects of pesticides' use in relation to individual's personal safety, the environment and the safety of farmworkers (Golan, Kuchler, Mitchell, & Greene, 2001).

Consequently, a conscious purchasing behaviour is highly important for the consumption of organic food (Golob, Koklic, Podnar, & Zabkar, 2018). For some consumers, though, the advantages of organic food products for human health are more important than their environmental benefits (Krystallis & Chryssohoidis, 2005). Furthermore, some researchers find that organic food is perceived tastier by consumers (Marckhgott & Kamleitner, 2019; Lee, Shimizu, Kniffin & Wansink, 2013), while in other studies product healthiness is mostly connected with low taste presumptions (Mai, Symmank, & Seeberg-Elverfeldt, 2016; Raghunathan, Naylor, & Hoyer, 2006). Considering the role of demographic characteristics on the preference for organic food, it is found that highly educated consumers have stronger preferences and buying intentions towards organic products compared to other consumer segments (Monier-Dilhan, 2018).

Moreover, the organic food market is characterized by price premiums. For fresh fruits and vegetables, the average price premiums are between 40% to 175% (Golan, Kuchler, Mitchell, & Greene, 2001). In relation to different sustainability attributes, Zander and Feucht (2018) examine European consumers' WTP and they find that the highest percentage (+14.8%) is for organic production in the fish market. Ankamah-Yeboah, Nielsen and Nielsen (2016) identify a price premium of 20% for organic salmon compared to conventionally produced one among Danish consumers by considering their various preferences.

On the other hand, price, product availability and green scepticism negatively affect the consumption of organic food (Bollani, Bonadonna, & Peira, 2019). The latter barrier refers to consumers' distrust on the information presented on food by producers mainly in relation to environmental products' attributes (Golob, Koklic, Podnar, & Zabkar, 2018). Since food is a credence good, in most cases the value of its qualitative attributes cannot be recognized visually and, thus, consumers cannot easily differentiate, for example, organic from conventional food. Therefore, the role of labels and other advertising tools is crucial for revealing consumers' preferences (Golan, Kuchler, Mitchell, & Greene, 2001).

#### 2.4. Local organic food (Sustainable food)

As it is mentioned above, consumer interest in locally grown food has considerably increased in recent years due to individuals' increased awareness of the products they eat. Local food is often associated with health-related benefits, as well as sustainable consumption and production methods (Alsetoohy, Ayoun, & Abou-Kamar, 2021). Nevertheless, local food production is not always accompanied by sustainable practices. Studies have found that locally grown food does not necessarily achieve higher sustainable standards in terms of chemicals, energy and water usage in farming activities compared to non-local food (Alsetoohy, Ayoun, & Abou-Kamar, 2021; Roy, Hall, & Ballantine, 2017). An alternative solution is the "sustainable local food" (Alsetoohy, Ayoun, & Abou-Kamar, 2021) or local organic food which combines the advantages of local and organic food and, consequently, is compliant with the sustainability principles. Since the term "sustainable" is multidimensional, the "local organic" term will be used in this thesis, so that the respective qualitative attributes of the food are obvious to the participants of the experiment.

Consumers who have positive attitudes towards local and sustainable food and buy it are influenced by ethical, environmental and related to social responsibility motives (Ben Hassen, El Bilali, & Allahyari, 2020; Butu, et al., 2020; Hobbs, 2020). In addition, Guptill and Wilkins (2002) find that consumers who purchase sustainable local food consider it nutritious and a way to support local communities and promote equality. The "feel-good imagery" is also a driver of their purchasing behaviour and, therefore, these researchers propose that the "localness" attribute of food is similar to the "organic" one. As a result, the consumption of sustainable food is significantly affected by consumers' personal perceptions and social norms (Vermeir and Verbeke,

2006, 2008). In terms of consumers' socio-demographic characteristics, Guptill and Wilkins (2002) notice that customers of the examined local food groceries are highly educated, considerably knowledgeable and engaged in their food selection, highlighting the role of consumer expertise in the food purchase process. Also, considering the role of labels, Grunert, Hieke and Wills (2014) reveal that consumers consider sustainable labels on food according to their understanding and perceptions towards sustainability and that socio-demographics variations exist across countries.

This heterogeneity among consumers, the sustainable food products' higher prices compared to those of conventionally produced foods, their limited distribution, as well as the lack of consumer knowledge about these products and their benefits can possibly explain why the so-called sustainable food is not widely successful in the market (Bollani, Bonadonna, & Peira, 2019; Wong, Turner, & Stoneman, 1996). These findings are in line with the disagreement between the real adoption of "green" products by consumers and the stated preference for environmentally friendly products (Wong, Turner, & Stoneman, 1996).

Consequently, more research is needed to reveal consumers' WTP for local, organic and sustainable food products separately, since they are not exactly the same, even though a high correlation is noticeable in most consumers' perceptions. At the same time, the segmentation of consumers according to their characteristics is necessary, so that valid results can be extracted for the purpose of this study.

## 2.5. Labels

According to the Food and Agriculture Organization of the United Nations (2022), "a food label, the information presented on food product, is one of the most important and direct means of communicating information to the consumer. The internationally accepted definition of a food label is any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of food or food product. This information, which includes items such as ingredients, quality and nutritional value, can accompany the food or be displayed near the food to promote its sale."

Several studies also show that a food label informs consumers about the technical attributes of the food, the circumstances under which it was created and processed (Golan, Kuchler, Mitchell, & Greene, 2001), as well as the benefits of the food for their health (Mathios & Ippolito, 1998). It constitutes an effective way to inform consumers about the value of a product, its characteristics and other relevant for them information (Bhasin, 2017; Golan, Kuchler, Mitchell, & Greene, 2001). For example, a label can be particularly helpful to show the nutritional information of the food (Kontopoulou, et al., 2021; Weinrich & Spiller, 2016), as well as the sustainable characteristics of it (Weinrich & Spiller, 2016), since they are becoming more and more important for many consumers (Fernqvist & Ekelund, 2014).

In response to this, the marketing of food products with unobservable quality characteristics is increasing and, consequently, the labelling in the food industry as both a marketing tool and a way to sufficiently inform consumers is gaining importance constantly (McCluskey & Loureiro, 2003). Similarly, labelling is part of the marketing strategy as it plays a crucial role in branding and packaging. Especially when consumers have to choose among a big variety of food products with similar characteristics, labels assist them with differentiating products during their decision-making process (Davies & Wright, 1994).

However, the labelling decision is characterized by complexity for the following two reasons; even the simplest food products have many various characteristics that can be included in a label and consumers' preferences are quite different making their targeting with a uniform label impossible (Golan, Kuchler, Mitchell, & Greene, 2001). Moreover, labels' ability to affect consumers' preferences is based on the accuracy and the understandability of the information they give, the consumer's knowledge and belief about the presented information and, in general, the validity of the certifying organization (Binninger, 2017; Thøgersen, 2000).

The effectiveness of the informational role of labels has been addressed by several studies. For instance, Pérez y Pérez, Gracia and Barreiro-Hurlé (2020) studied the effect of multiple labelling on consumer preferences of olive oil and they find that, although consumers give positive value to both the protected designation of origin (PDO) and the organic label, the assigned to the PDO label value is two times that of the organic label. What is also worth mentioning is that most consumers



who participated in this study perceive these two different ways of labelling as substitutes, resulting in a situation where the two labels compete each other. Consumer expertise may explain why the majority of consumers understand the two labels as substitutes, while a small group of them view the two labels as complements. Another study (Monier-Dilhan, 2018) reveals that consumers' WTP for a quality label becomes smaller when it is accompanied by a second one on the same food product.

Regarding the different types of food labelling, some commonly used label categories in the food industry are eco-labels, genetically modified (GM) food labels, U.S. state agricultural-product labels and European Protected Geographical Indication (PGI) labels (McCluskey & Loureiro, 2003), as well as nutrition labels (Przyrembel, 2004). The eco-labels and the U.S. state agricultural-product labels are relevant for this study, as the effect of local and organic labelling is examined.

More specifically, the labelling of the food's origin contributes to global trade more than 50 billion dollars and offers rural regions economic, social, as well as environmental benefits (Food and Agriculture Organization of the United Nations, 2018). McCluskey and Loureiro (2003) also find that local and regional origin labelling is receiving increased popularity due to consumers' interest in food products of high quality and status. Consumers' WTP is higher for locally grown and PGI labelled products compared to that for foods without these attributes, when consumers perceive that the former products are of higher quality (Adelaja, Brumfield, & Lininger, 1990; Loureiro & McCluskey, 2000; McCluskey & Loureiro, 2003).

## 2.6. Sustainable Mindset

The Cambridge Dictionary defines sustainability in relation to the environment as “the quality of causing little or no damage to the environment and therefore able to continue for a long time” (Cambridge University Press, 2022), while United Nations' definition for the same term is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 2022). Having four dimensions, which are the environmental, social, economic and governance one, sustainability is complex as a subject to be defined in a unique way (Peano, Merlino, Sottile, Borra, & Massaglia, 2019; Agrillo, Milano, Roveglia, & Scaffidi, 2015). However, it is indisputably intertwined with food production and consumption.

In relation to this, public awareness regarding the ways that consumers' lifestyles, decisions and choices affect sustainable development has been raised during the last ten years, since individuals are adopting more sustainable consuming habits and some of the reasons are ethical, environmental health-connected and cultural (Hanss & Böhm, 2012; Peano, Merlino, Sottile, Borra, & Massaglia, 2019). More precisely, consumers with sustainable attitudes are concerned about the protection of natural resources, the fair treatment of workers, as well as the safety and healthiness of food (Hanss & Böhm, 2012; Peano, Merlino, Sottile, Borra and Massaglia, 2019). In relation to this, Rimanoczy and Klingenberg (2021) define sustainability mindset as "a way of thinking and being that predisposes individuals to act for the good of planet and people".

Concerning the role of consumers' sustainable mindset in local food's purchases, the "care for the environment" attitude is one of the main reasons that consumers buy it, because they perceive it environmentally friendly (Brown, Dury, & Holdsworth, 2009; Burchardi, Schroeder, & Thiele, 2005; Feldmann & Hamm, 2015; Yue & Tong, 2009). Furthermore, considering the role of consumer expertise and sustainability, Herédia-Colaço, Coelho do Vale and Villas-Boas (2019) notice that consumers who are experts on ethical certifications show a higher WTP for brands with fair trade-certified products compared to novices, as the former consider these products more valuable. They also find cultural variations in different countries in relation to consumer expertise towards environmental and social labelling methods. Similarly, Zander and Feucht (2018) reveal that respondents have positive perceptions toward seafood sustainability across countries, but their WTP is different. Nevertheless, previous research has not yet examined the effect of the different labels on food on consumers' WTP when they have a sustainable mindset and when they do not.

## 2.7. Consumer Expertise

Consumer expertise is defined as consumers' ability to evaluate product and services based on their previous knowledge and is responsible for the different consumer attitudes (Bukhari, Ul Haq, Ishfaq, & Ali, 2022). Specifically, expert consumers show many differences compared to novices during their decision-making process (Alba & Hutchinson, 1987), in their cognitive and reasoning ability, as well as in their memory and analysis of product information (Yuan, Wang, & Yu, 2020; Park, Mothersbaugh, & Feick, 1994). As a result, buyers with higher consumer expertise follow a

decision making of higher quality (Bukhari, Hu, Ding, & Yang, 2021; Maheswaran, Sternthal, & Gürhan, 1996; Ul Haq, Ishfaq, & Ali, 2022; Yuan, Wang, & Yu, 2020).

In relation to this, product familiarity is closely associated with consumer expertise. For instance, consumers who are familiar with dietary issues can define more specific food categories, such as high-fibre foods, in contrast with novices who may even only define the basic level of food categories, including fruits and vegetables (Alba & Hutchinson, 1987). In addition, expert consumers are more confident with their decisions and behaviour and, consequently, they are being less affected by the external information that they receive (Cheung, Xiao, & Liu, 2012; Simpson, Siguaw, & Cadogan, 2008). Consequently, the influence of labels on expert consumers may be weaker than that on novices. On the other hand, other research is found that, influenced by their product knowledge, experts base their evaluations about the product characteristics and quality on intrinsic cues, which in our case may be the “local” and “organic” attributes, while novices use mostly extrinsic cues, such as the price, when they buy (Teng & Lo, 2021). Although the complexity and the multidimensional nature of consumer expertise make hard to predict the way it affects buyer’s behavior, for the purposes of this study, we accept that high familiarity with the product results in high consumer expertise, as it happens in most cases (Alba & Hutchinson, 1987).

Considering the effect of consumer expertise on local food’s consumption, in a recent study, Toukabri (2021) finds a positive relationship. Nevertheless, there is a gap in the literature how consumer expertise affects the WTP not only for local food but also for food that is both local and organic, therefore sustainable. Based on the above-mentioned literature expert consumers are expected to recognize the difference among the different qualitative food characteristics.

## 2.8. Hypotheses and Conceptual Model

According to the numerous studies mentioned above, labels play a crucial role in consumers’ purchasing behaviour, since they provide them with valuable information about food (Golan, Kuchler, Mitchell, & Greene, 2001). In addition, several researchers show that many consumers have strong preferences towards local food compared to its foreign counterpart (Meyerding, Trajer, & Lehberger, 2019; Loureiro & Umberger, 2003), while other studies reveal consumers’ preferences towards the “local” and “organic” food attributes, as well as the interaction of these

two (Loureiro & Hine, 2002; Claret, et al., 2012; McClenachan, Dissanayake, & Chen, 2016; Risius, Janssen, & Hamm, 2017). These studies find that the “local” attribute ranks first in consumers’ preferences, whereas a recent study notice an increase in demand for organic food in Turkey, due to food safety concerns (Güney & Sangün, 2021). They also find that consumers were unwilling to purchase unlabelled, unpackaged and non-standardized food products due to safety and health-related concerns and it is expected that consumers will continue to be more conscious about the reliability and the safety of their food in the coming years.

On the other hand, almost 2.5 years after the beginning of the pandemic, the global food supply chain system’s operations have been greatly restored and the existence of vaccines against the COVID-19 virus has contributed in reducing some consumers’ concerns about food safety (Faour-Klingbeil, et al., 2022). Therefore, more research is needed to examine how consumers’ preferences have changed in relation to their WTP for labelled versus unlabelled food, as well as towards the diferent ways of food labelling. Namely, the effect of the “local”, “organic” and the combination of the two, “local organic” attributes on WTP should be investigated. Based on the above-mentioned theory and the gap in the literature, the following hypothesis is tested.

*H1: The existence of labels on food products will affect positively consumers’ WTP. Specifically, consumers will be willing to pay higher for labelled food products compared to non-labelled food products. Furthermore, they will show the highest WTP for the food labels with the following order: “local organic product”, “local product” and “organic product” label.*

The regression model for the H1 per product is the following:

$$\widehat{WTP}_i = \beta_0 + \beta_1 LocLabel_i + \beta_2 OrgLabel_i + \beta_3 LocOrgLabel_i + \beta_4 SustMind_i + \beta_5 ConsExpert_i + \varepsilon_i \quad (1)$$

where  $WTP_i$  is the willingness to pay of consumer  $i$ ,  $LocLabel_i$  is the “local product” label,  $OrgLabel_i$  is the “organic product” label and  $LocOrgLabel_i$  is the “local organic product” label. The three types of labels constitute the three out of the four conditions of the independent categorical variable and their reference category is the “No Label” condition.  $SustMind_i$  and

$ConsExpert_i$  are the moderators that measure the sustainable mindset and expertise of consumer  $i$  based on a Likert scale from 1 to 7.

Consumers' perceptions towards sustainability should also be considered when the consumers' purchasing behaviour towards food is studied. In relation to sustainability's concept in the food sector, organic food plays a crucial role and the conscious purchasing behaviour is an important factor for its consumption (Golob, Koklic, Podnar, & Zabkar, 2018). Tanner and Wölfing Kast (2003) notice that green products' purchases are positively influenced by consumers' positive perceptions towards sustainability and Vermeir and Verbeke (2006, 2008) highlight that consumption of sustainable food is affected by consumers' personal perceptions and social norms. In line with this research, Zander and Feucht (2018) find that European consumers' positive perceptions toward seafood sustainability affect positively their WTP for various sustainable attributes on seafood. However, they notice differences across countries in relation to consumers' WTP for various sustainable attributes. Consequently, further research should address the effect of different food labels on WTP for food regarding consumers with high and those with low sustainable mindset. The following hypothesis is tested.

*H2: Sustainable mindset moderates the effect of labels on WTP, such that consumers with high sustainable mindset will have a higher WTP for the food with the "organic product" label compared to that with the "local product" label, as opposed to consumers with low sustainable mindset, who will have a higher WTP for the "local product" label compared to the "organic product" one.*

The regression model for the H2 per product is the following:

$$\widehat{WTP}_i = \beta_0 + \beta_1 NoLabel_i + \beta_2 OrgLabel_i + \beta_3 LocOrgLabel_i + \beta_4 SustMind_i + \beta_5 ConsExpert_i + \beta_6 NoLabel_i * SustMind_i + \beta_7 OrgLabel_i * SustMind_i + \beta_8 LocOrgLabel_i * SustMind_i + \varepsilon_i \quad (2)$$

For the H2 the reference category of the independent variable is the "local product" condition.

Considering the interaction effect of multiple food attributes on consumer preferences, previous research finds a significantly positive relationship between the “local” label and those related to the production process, such as the organic farming (Onozaka and McFadden, 2011). Moreover, consumers’ motivations when they buy local food are closely related to environmental concerns (Brown, Dury, & Holdsworth, 2009; Burchardi, Schroeder, & Thiele, 2005; Yue & Tong, 2009). Similarly, the “localness” attribute of the food is perceived similar to the “organic” one (Guptill & Wilkins, 2002). In addition, Pérez y Pérez, Gracia and Barreiro-Hurlé (2020) highlight that most consumers who participated in their study perceive the “PDO” and “organic” labels in olive oil as substitutes, resulting in a situation where the two labels compete each other. The fact that a small percentage of the previous study’s participants perceive these two different ways of labelling as complements may be explained by consumer expertise (Pérez y Pérez, Gracia and Barreiro-Hurlé, 2020).

In line with this, it is found that expertise differentiates the decision-making process of consumers, such that a highly expert consumer follows a decision making of higher quality (Bukhari, Ul Haq, Ishfaq, & Ali, 2022; Hu, Ding, & Yang, 2021; Maheswaran, Sternthal, & Gürhan, 1996; Yuan, Wang, & Yu, 2020). Moreover, influenced by their product knowledge, experts base their evaluations about the product characteristics and quality on intrinsic cues, while novices use mostly extrinsic cues, such as the price, when they buy (Teng & Lo, 2021). These findings may explain the reason why expert consumers pay attention to the value’s attribute of the products and, consequently, are less price sensitive compared to non-experts (Herédia-Colaço, Coelho do Vale, & Villas-Boas, 2019; Kilani, Abbes, & Aouadi, 2020). In our case, the “local” and “organic” attributes, which are considered qualitative food characteristics, are expected to receive a higher WTP by experts, who are able to recognize their added value. Although public awareness regarding the ways that consumers’ choices affect sustainable development has been raised recently (Hanss & Böhm, 2012; Peano, Merlino, Sottile, Borra, & Massaglia, 2019), unfortunately, there is a gap in the literature regarding the way that expertise affects consumer’s willingness to pay for food products that are labelled as local and organic and, thus, are sustainable. Drawing from these theories, the following hypothesis is tested.

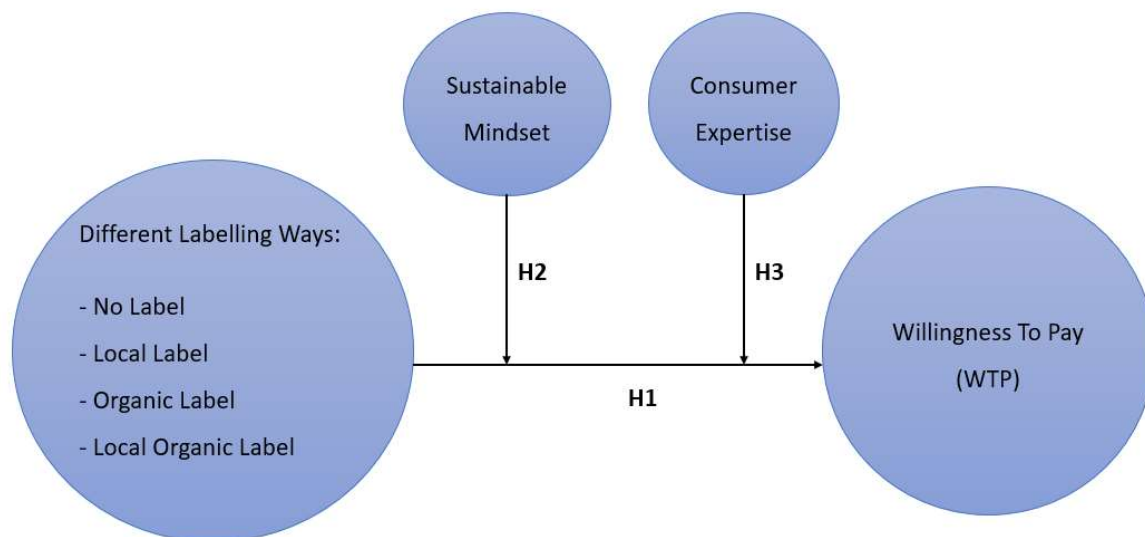
*H3: Consumer expertise moderates the effect of labels on WTP, such that expert consumers will have the highest WTP for food that is labelled as “local and organic product”, while non-expert consumers will have the highest WTP for food with the “local product” label.*

The regression model for the H3 per product is the following:

$$\widehat{WTP}_i = \beta_0 + \beta_1 NoLabel_i + \beta_2 OrgLabel_i + \beta_3 LocOrgLabel_i + \beta_4 SustMind_i + \beta_5 ConsExpert_i + \beta_6 NoLabel_i * ConsExpert_i + \beta_7 OrgLabel_i * ConsExpert_i + \beta_8 LocOrgLabel_i * ConsExpert_i + \varepsilon_i \quad (3)$$

For the H3 the reference category of the independent variable is the “local product” condition.

*Figure 2: Conceptual Model*



### 3. Data and Methodology

In this chapter, the methodology and data are presented. The purpose of this research is to determine the effect of a food product’s label on the consumers’ WTP. Quantitative research was conducted to assess this effect. Specifically, primary data were gathered through an online survey experiment with a between-subject’s design. More details are presented below.

### 3.1. Experiment Design

The experiment was conducted through an online survey, which served as a data collection instrument. In total, four surveys were presented to participants and each one corresponded to one of the four manipulations of the between-subject experiment. According to the experiment's group that each respondent was assigned to, they were shown only one version of the online experiment survey through random assignment. The only difference among the four survey's versions was the existence of label and the type of label on the two food products. More specifically, in the control group participants were presented with tomatoes and apples with no label, in the first treatment group they saw the two food products with the "local product" label, in the second one with the "organic product" label and in the third one with the "local organic product" label, as it can be seen in Figure 3. It is important to note that the term "local" does not have a unique meaning. Thus, its interpretation was given to participants of the first and third treatment group to make sure that all participants have the same perceptions of the term and, therefore, valid results will be extracted from their answers.

Figure 3: Overview of the "local organic product" condition

Figure 3 displays two screenshots of a survey interface, illustrating the "local organic product" condition. The left screenshot shows a question: "What is the maximum price you would pay for 1 kg of the tomatoes below?" accompanied by an image of tomatoes and a "LOCAL ORGANIC PRODUCT" label. Below the image, a note states: "Note: 'Local' means that this product was grown in the country where you currently live in. For example, if you live in the Netherlands, it means that it was grown in the Netherlands." A slider is provided to indicate the price in euros (€), ranging from 0 to 10. The right screenshot shows a similar question for apples: "What is the maximum price you would pay for 1 kg of the apples below?" with an image of apples and a "LOCAL ORGANIC PRODUCT" label. The same note and slider are present.

The rest of the survey was identical for the whole sample. More precisely, in the first part an introductory text was shown to participants to inform them about the purpose of the survey and the required time to complete it. After showing a message related to the confidentiality and anonymity of participants' data, we obtained their consent before they start the survey. Those who



were provided access to the survey by not selecting the “Never” option on the purchasing frequency’s question, were asked to imagine the place where they usually go to buy groceries. In this way, they were brought closer to a real purchase situation (Zander & Feucht, 2018). In the next question, they were presented with tomatoes’ picture and were asked to state the maximum price they would pay between zero and ten euros. Then, the same question was made for apples. After stating their WTP for both products, respondents were asked if the product demonstrated to them had a label and if so, which one was it. This question served as an attention check to ensure that the manipulations were noticed by the participants of the experiment. The ones whose responses were incorrect were excluded from the dataset. In the following two sections of the survey, the sustainable mindset and consumer expertise of participants were measured on a seven-point Likert scale (“Strongly Disagree” to “Strongly Agree”), respectively. In the last part of the survey, participants were asked some questions regarding their demographic characteristics. All questions had the “multiple choice” format. The survey can be found in the Appendix I.

### 3.2. Data Collection

The survey of the online experiment was conducted via the *Qualtrics* software, which is known for its simplicity and effectiveness. The data collection lasted nine days and the link of the survey was distributed through e-mail and various social media platforms, such as LinkedIn, WhatsApp, Instagram and Facebook. With four conditions and under the assumption that 50 subjects per condition is the minimum requirement for forming an adequate sample, 200 participants were needed for this study (Van Crombrugge, 2021). Due to the need of a high number of respondents the survey’s questionnaire was available in two languages, English and Greek, to increase the range of the target population.

### 3.3. Measurements

In this section the dependent, independent and control variables are being presented.

#### 3.1.1. Dependent Variable

*Willingness to pay (WTP)*

In this study participants stated their WTP for each food product presented in the survey. More precisely, each participant was asked to report a price with one decimal place between 1 euro and 10 euros for one kilogram (kg) of a food product. The two food products used in this research are fresh tomatoes and apples. Directly asking participants to define the specific price they would pay for products after being exposed to them is a common approach used in marketing research (Miller, Hofstetter, Krohmer, & Zhang, 2011).

### 3.1.2. Independent Variables

#### *Different labelling ways*

In the survey, we included both labelled and nonlabelled food products. The three labels presented to consumers are “local product”, “organic product” and “local organic product”. Thus, we conclude with a categorical variable of four levels.

#### *Moderators*

Moreover, sustainable mindset and consumer expertise are used as moderators. The participants' sustainable mindset is measured with a six-item scale based on the “Revised NEP Scale” (Dunlap, Van Liere, Mertig, & Jones, 2000), while participants' consumer expertise is measured with a six-item scale, which is based on the work of Zou et al. (2011) and Yuan et al. (2020). Respondents' answers are measured on a seven-point Likert type scale with 1 standing for “Strongly Disagree” and 7 for “Strongly Agree”. The simplicity and powerfulness of Likert scale render it as one of the most popular ways for the measurement of attitudes, opinions and behaviours (Mazzocchi, 2008). In addition, Mazzocchi (2008) finds that reliability increases when the number of scales' points is high. Therefore, each participant is asked to respond to six questions of a seven-point Likert scale for each moderator. Even though the chosen questions measuring the moderators are widely used in scales of previous studies, we tested their reliability to ensure that our results are valid. The reliability analysis is presented in detail below.

We calculated the Cronbach's alpha to measure the internal consistency of our six variables per moderator, since it is the most commonly used way of measurement of scale reliability (Peterson, 1994). Any negatively scored Likert scales were reversed for normalization purposes before their inclusion in our data reduction process. As it can be seen in Appendix II, the values of Cronbach's

alpha analyses for sustainable mindset and consumer expertise are 0.67 and 0.82, respectively. No Cronbach's alpha below the critical value of 0.6 (Hair, Black, Babin, Anderson, & Tatham, 2006) was found and, therefore, we conclude that the respective moderators' internal consistency is acceptable.

### *Control Variables*

Several studies find that education and income affect the purchasing behaviour of different types of food, such as organic, local or genetically modified food (Boccaletti & Moro, 2000; Feldmann & Hamm, 2015; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007; Guptill & Wilkins, 2002; McCluskey & Loureiro, 2003; Monier-Dilhan, 2018). Thus, the first control variable of our model is the total yearly gross income of participants' household, while the second is participants' education level.

In addition, the frequency with which participants purchase groceries was used as a "filter question" to identify respondents qualified to participate in the survey (Mazzocchi, 2008). More precisely, people that never go for groceries were excluded from our sample. Furthermore, participants were asked about their gender, age, country of residency, as well as their average weekly spending on groceries. Demographics are considerably important for the sampling process as they are useful for testing how representative the sample of the study is (Mazzocchi, 2008). In addition, the demographic questions were asked in the final part of the survey, since anonymity had already been ensured in the beginning of the survey and trust between the researcher and the participant is likely that it had already been built during the filling process of the survey (Scekic, 2022).

### **3.4. Product Selection**

Fresh tomatoes and apples were selected as the two food products on which consumers' WTP is measured in this study. The selection was made based on various reasons. Tomato is the most popular vegetable both worldwide and in Europe (Fresh Plaza, 2018; Omondi, Sharon, 2018) and its European production volume was 16,351 tons in 2020 (Miserius, Madlen, 2021). At the same time, Morocco is the largest non-EU country that exports tomatoes in Europe (Meyerding, Trajer, & Lehberger, 2019) and globally the three bigger producers of tomatoes are China, India, and the

United States (Omondi, Sharon, 2018). Moreover, the apple is one of the favourites and most produced fruits in the world (Sheth, 2018). It is the fruit with the highest production in Europe (Miserius, Madlen, 2021) and the most loved one after bananas (Bedford, 2022; Fresh Plaza, 2018). Moreover, tomatoes and apples are being produced in most European countries, as well as in most part of the world (Apple Production in Europe, 2019; European Commission, 2021; Epp, 2016; Miserius, Madlen, 2021). Based on these findings, the condition of the locally produced food can be successfully examined on a global scale sample. Additionally, tomatoes and apples are suitable products for the purpose of this study, since they are used in similar studies in the past (Baker, 1999; Blend & Van Ravenswaay, 1999; Meyerding, Trajer, & Lehberger, 2019; Nurse, Onozaka, & McFadden, 2012; Onozaka, Nurse, & McFadden, 2011).

## 4. Results

### 4.1. Sample

Our study population consists of consumers who have active purchasing behaviour and thus, they are aware of the product prices in the market. For the required sample size, we use the rule of thumb of 200 responses. Such a big sample increases the likelihood of survey accuracy based on the assumptions and parameters of our model. In total, 464 subjects started the survey, but 39 did not finish it resulting in a completion rate of 91.6%. The two respondents who never buy groceries were excluded from the sample. In addition, 153 subjects (36.2%) answered wrongly the manipulation check, which resulted in their exclusion from the sample. What is also worth mentioning is the distribution of participants per country of residence. More specifically, 217 and 40 respondents come from Greece and the Netherlands, respectively. The remaining participants live in Africa (1), South America (1) and the rest of Europe (11).

Taken into consideration that the biggest portions of our sample size consist of Greek (80.4 %) and Dutch (14.8 %) consumers, we consider wise to focus our study solely on these subjects to increase the accuracy of our model, since several factors that affect WTP differ between countries. One example is that Greek consumers are quite sensitive to price discounts and promotions, since the 79% of them “chase after” discounts in order to buy (Institute of Research for the Retail Sector,

2022), which affect negatively their WTP (Krishna, 1991). On the contrary, only the 26% - 30% of the Dutch consumers is waiting to make a purchase until a discount is available (Tighe, 2022). Moreover, food products' prices are influenced from environmental factors which may differ between countries (Krishna, Briesch, Lehmann, & Yuan, 2002). Other factors that influence consumers' WTP and may vary by country are food quality and security, as well as the trust in labels and the certification system (Shen, 2012). Therefore, it is necessary to use the country of residence as a control variable in our analysis and, at the same time, to have an adequate number of respondents per country in order to make comparisons.

Therefore, the final sample used in this study consists of 257 Greek and Dutch consumers. The 148 of them (57.6%) are females and 105 (40.9%) males, while the rest of respondents (1.6%) belongs to the "Non-binary/ third gender" or "Prefer not to say" categories. Regarding additional demographic data, half of the sample (52.5%) buy groceries every two or three days per week, 28.4% once per week, 17.1% every day and only 1.9% every two weeks. All demographic information can be found in Appendix III.

## 4.2. Data Preparation

The goal of our study is to shed light on the effect of food labelling on consumers' WTP by also considering consumer expertise and the existence of sustainable mindset on consumers. For the purposes of this study, results are considered statistically significant when the p-value is lower than 5% ( $p < 0.05$ ).

Before running the regressions to test our hypothesis, any outliers identified in our sample were removed from the dataset. As outliers were considered the reported prices of tomatoes and apples above and below the interquartile range (IQR) of each distribution multiplied by 1.5. We removed four and five outliers from the samples relative to WTP for tomatoes and apples, respectively. The distribution of the WTP for the two products after the exclusion of the outliers is illustrated in figures 3 and 4 and their descriptive statistics are presented in tables 1 and 2.

Table 1: Means and standard deviations of WTP by product

	Minimum	Maximum	Mean	Standard Deviation
<b>WTP - Tomato</b>	0.5	4.6	2.43	0.912
<b>WTP - Apple</b>	0.6	5.2	2.41	0.989

Table 2: Means and standard deviations of WTP by product and condition

	Mean		Standard Deviation	
	Tomato	Apple	Tomato	Apple
<b>No Label</b>	2.12	2.21	0.899	1.053
<b>Local Label</b>	2.27	2.19	0.810	0.825
<b>Organic Label</b>	2.59	2.56	0.954	1.000
<b>Local Organic Label</b>	2.89	2.86	0.797	0.953

Figure 4: Histogram of WTP for Tomato

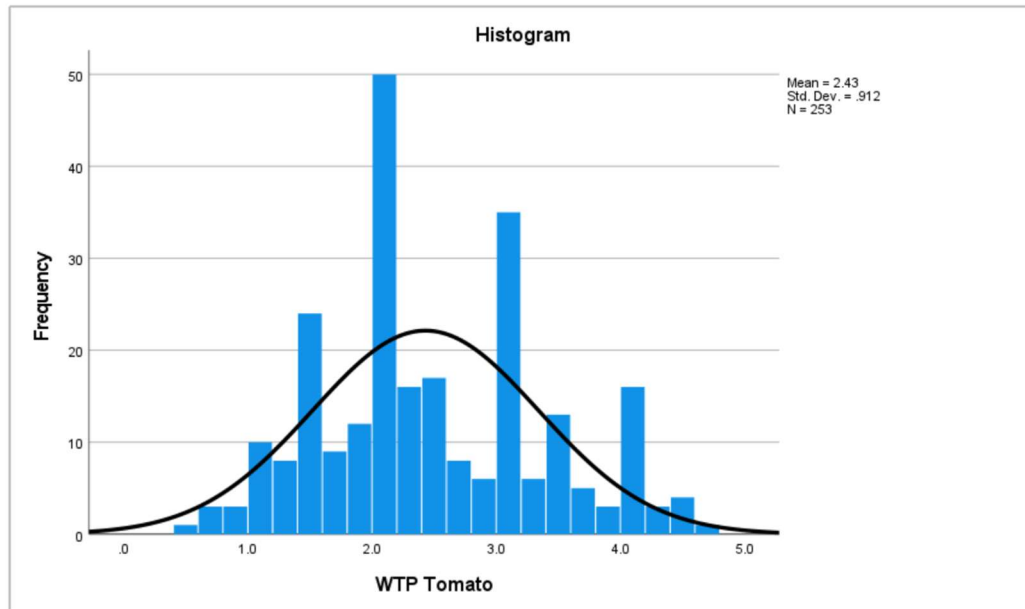
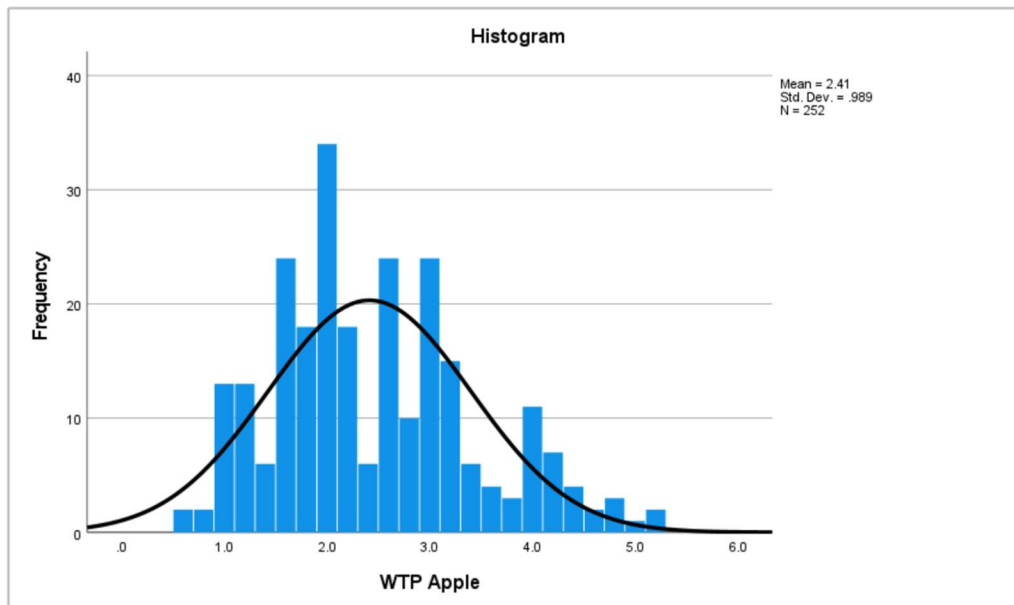


Figure 5: Histogram of WTP for Apple



### *Testing the Assumptions of Linear Regression*

The assumptions of linear regression were tested in advance for each dataset. More specifically, for each regression the chosen independent variables significantly explain the variation of the dependent variable, as the p-values are smaller than 0.001 for both models, and the assumption of linearity is met by default, since the independent variable is categorical. Moreover, the residuals are normally distributed based on the Q-Q plots. The results of the tests for the linear regression assumptions can be found in Appendices IVa and IVb.

## 4.2. Hypothesis 1

*H1: The existence of labels on food products will affect positively consumers' WTP. Specifically, consumers will be willing to pay higher for labelled food products compared to non-labelled food products. Furthermore, they will show the highest WTP for the food labels with the following order: "local organic product", "local product" and "organic product" label.*

The main effect of our research is tested with the first hypothesis. More precisely, we run two linear regressions to investigate if the existence of labels on food has a significant positive effect on the WTP of consumers. The respondents' WTP for tomatoes and apples is the dependent variable of our model, the four different labelling methods are the levels of the independent variable and the country of participants' residence serves as a control variable. As it is mentioned above, the factors that affect consumers' WTP differ per country and, at the same time, the number of valid responses play a crucial role in the extraction of valid conclusions for the purposes of this study. Thus, the analysis is based on Greek and Dutch consumers. Nevertheless, we tested the main effect (H1) also on the whole sample to ensure that crucial data are not left out from our analysis by excluding respondents who reside in other countries. As it can be seen in Appendix Va, no significant changes are found and, consequently, the participants who live in third countries can be safely excluded from our analysis without affecting the results. In this way, our conclusions will be relevant for the Greek and Dutch market, since the number of experiment's participants from these two countries is sufficient. At the same time, the effect of the country is not found to be significant and, for this reason, the country of respondents' residency is not being considered in the rest of the data analysis (Appendix Vb).

Regarding the WTP for tomatoes, the "local organic product" label receives the highest price, followed by the "organic product" and the "local product" labels, in contrast to our first hypothesis that the "local" attribute would note a higher WTP compared to the "organic" one. Our results indicate that Greek and Dutch consumers are willing to pay on average 0.47 and 0.77 euros more for one kg of tomatoes with the organic and local organic label, respectively, compared to one kg of tomatoes with no label (Table 3). The results are statistically significant only for these two labels in a 95% confidence interval. In addition, the proportion of variance in  $\hat{y}$  that can be explained by the independent variable is equal to 0.095 ( $R^2 = 9.5\%$ ) and the model is overall statistically significant ( $F = 8.7$ ,  $p\text{-value} < 0.001$ ), which shows that the means of the four levels of the independent variable are significantly different from each other. Details can be found in Appendix VIa.



Table 3: Results of the regression (1) for tomato

<b>Model 1</b>	<b>Unstandardized Coefficients B</b>	<b>Unstandardized Coefficients Std. Error</b>	<b>Standardized Coefficients B</b>	<b>t</b>	<b>Sig.</b>
<b>Constant</b>	2.121	0.107	-	19.890	<0.001
<b>Local L</b>	0.148	0.149	0.073	0.996	0.320
<b>Organic L.</b>	0.472	0.150	0.231	3.152	0.002
<b>Local Organic L.</b>	0.770	0.167	0.327	4.610	<0.001

Regarding the WTP for apples, the “local organic” attribute receives the highest price followed by the “organic” one compared to the apples with no labels. Consumers are willing to pay premiums of 0.34 and 0.65 euros for one kg of organic and local organic apples, respectively. Surprisingly, the “local product” label has a negative effect on consumers’ WTP compared to the “no-label” condition, although the effect is not statistically significant. The R-squared for this model is equal to 0.068 and, the model is overall statistically significant (F = 6.1, p-value < 0.001) (Appendix VIb).

Table 4: Results of the regression (1) for apple

<b>Model 1</b>	<b>Unstandardized Coefficients B</b>	<b>Unstandardized Coefficients Std. Error</b>	<b>Standardized Coefficients B</b>	<b>t</b>	<b>Sig.</b>
<b>Constant</b>	2.213	0.116	-	18.998	<0.001
<b>Local L</b>	-0.029	0.163	0.013	-0.176	0.860
<b>Organic L.</b>	0.344	0.165	0.155	2.089	0.038
<b>Local Organic L.</b>	0.647	0.185	0.251	3.504	<0.001

Considering the results for both products, the “local organic product” label reveals the highest WTP among the three labels and the no label condition. However, as described above, the rest of the first hypothesis is not confirmed, since the “organic product” label receives a higher premium compared to the “local product “label. Therefore, the H1 is partially supported.

### 4.3. Hypothesis 2

*H2: Sustainable mindset moderates the effect of labels on WTP, such that consumers with high sustainable mindset will have a higher WTP for the food with the “organic product” label compared to that with the “local product” label, as opposed to consumers with low sustainable mindset, who will have a higher WTP for the “local product” label compared to the “organic product” one.*

The aim of the second hypothesis is to explore whether there is a difference on the WTP towards the four different labelling ways among consumers with different levels of sustainable mindset. To examine whether there is an interaction between the four labelling ways and the level of sustainable mindset of consumers, we used model 1 of Process Macro by Hayes (2013). To investigate the clean effect of sustainable mindset on WTP, we controlled for consumer expertise, but its effect is found insignificant in both products' analyses. The sustainability of consumers' mindset is divided in three levels based on the centering of the mean score of their answers on the survey. According to the Process' coding way, the “low” level equals to -0.9164 and is the value of the mean (0) minus one standard deviation (0.9164) (mean – 1SD), the “medium” one equals to 0 and the “high” level equals to 0.9164 and is the mean plus one standard deviation (mean + 1SD).

The results indicate that the consumer with a medium level of sustainable mindset is willing to pay 0.33 and 0.6 euros more for one kg of organic and local organic tomatoes, respectively, compared to one kg of local tomatoes (Table 5). Considering the effect of sustainable mindset on the WTP for the different labelling methods on tomatoes, statistically significant interactions are not found at the 95% confidence level. However, a marginally significant interaction (p-value = 0.054) is found between the level of consumers' sustainable mindset and the “no label” condition and the results of this marginal interaction are presented only to explore possible trends (Table 5). Specifically, consumers with low levels of sustainable mindset are willing to pay 0.45 euros less for one kg of tomatoes with no label tomatoes compared to one kg of local tomatoes (p-value = 0.035). At the same time, it seems that the “organic product” label does not have a significant effect on the WTP of this consumer group (p-value = 0.266) (Table 6). On the other hand, for consumers with high levels of sustainable mindset the results are fairly similar to those of

consumers with medium levels of sustainable mindset, meaning that the moderator does not have a significant effect on those consumers' WTP for the different labelling methods (Tables 8). More details about the analysis can be seen in Appendix VII.

*Table 5: Results of the regression (2) for tomato*

<b>D.V. WTP Tomato</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>Constant</b>	2.2447	0.2653	8.4614	0.0000	1.7222	2.7673
<b>No Label</b>	-0.1679	0.1494	-1.1239	0.2622	-0.4622	0.1264
<b>Organic L.</b>	0.3280	0.1482	2.2133	0.0278	0.0361	0.6200
<b>Loc. Org. L.</b>	0.6012	0.1677	3.5846	0.0004	0.2709	0.9316
<b>Sust. Mind.</b>	-0.0726	0.1008	-0.7205	0.4719	-0.2712	0.1259
<b>No Label * Sust. Mind.</b>	0.3076	0.1589	1.9357	0.0541	-0.0054	0.6206
<b>Organic L. * Sust. Mind.</b>	0.0955	0.1662	0.5749	0.5659	-0.2318	0.4229
<b>Loc. Org. L. * Sust. Mind.</b>	-0.0798	0.1734	-0.4601	0.6459	-0.4214	0.2618
<b>Consumer Expertise</b>	0.0039	0.0521	0.0749	0.9404	-0.0987	0.1065

*Table 6: Results of the regression (2) for tomato - Low Sustainable Mindset*

<b>Moderator value: Sust. Mind.</b>		<b>-0.9164</b>				
<b>D.V. WTP Tomato</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	-0.4498	0.2123	-2.1182	0.0352	-0.8680	-0.0315
<b>Organic L.</b>	0.2405	0.2158	1.1144	0.2662	-0.1846	0.6656
<b>Loc. Org. L.</b>	0.6744	0.2123	3.1759	0.0017	0.2561	1.0926

*Table 7: Results of the regression (2) for tomato - Medium Sustainable Mindset*

<b>Moderator value: Sust. Mind.</b>		<b>0.0000</b>				
<b>D.V. WTP Tomato</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	-0.1679	0.1494	-1.1239	0.2662	-0.4622	0.1264
<b>Organic L.</b>	0.3280	0.1482	2.2133	0.0278	0.0361	0.6200
<b>Loc. Org. L.</b>	0.6012	0.1677	3.5846	0.0004	0.2709	0.9316

Table 8: Results of the regression (2) for tomato - High Sustainable Mindset

<b>Moderator value: Sust. Mind. 0.9164</b>						
<b>D.V. WTP Tomato</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	0.1140	0.2048	0.5565	0.5784	-0.2895	0.5175
<b>Organic L.</b>	0.4156	0.2092	1.9867	0.0481	0.0035	0.8277
<b>Loc. Org. L.</b>	0.5281	0.2484	2.1264	0.0345	0.0389	1.0173

Similarly to the results of tomatoes, the “organic product” and “local organic product” labels on apples affect positively and significantly the WTP of consumers with an average level of sustainable mindset. More precisely, they are willing to pay 0.38 and 0.62 euros more for one kg of organic and local organic apples, respectively, in comparison with one kg of local apples (Table 9). Regarding the effect of the moderator on consumers’ WTP for the different labelling ways on apples, the interaction between the “no label” condition and the levels of consumers’ sustainable mindset is statistically significant (p-value = 0.029). As expected, the “organic product” label has a positive and significant effect on the WTP of consumers with medium and high levels of sustainable mindset. More precisely, the results for respondents with an average level of sustainable mindset are presented above and the respondents with sustainable mindset of high level are willing to pay 0.58 euros more for one kg of organic apples (p-value = 0.012) compared to one kg of their local counterparts (Table 12). Considering the results of respondents with low levels of sustainable mindset, it is surprising that their WTP is positively and significantly affected by the “local organic product” label (p-value = 0.000), compared to the “local product” label. They are willing to pay on average 0.79 euros more for one kg of local organic apples compared to one kg of apples with the “local product” label. It is also worth mentioning that the organic attribute does not have a significant effect on the WTP of consumers with a low level of sustainable mindset, which differentiates them from the other consumer groups (Table 10). Therefore, hypothesis 2 is partially supported. More details about the analysis can be found in Appendix VII.

Table 9: Results of the regression (2) for apple

D.V. WTP Apple	Coefficients	se	t	p	LLCI	ULCI
<b>Constant</b>	1.8683	0.2893	6.4586	0.0000	1.2985	2.4381
<b>No Label</b>	0.0096	0.1621	0.0590	0.9530	-0.3098	0.3289
<b>Organic L.</b>	0.3775	0.1623	2.3260	0.0208	0.0578	0.6972
<b>Loc. Org. L.</b>	0.6239	0.1837	3.3956	0.0008	0.2620	0.9859
<b>Sust. Mind.</b>	-0.0912	0.1098	-0.8305	0.4071	-0.3076	0.1251
<b>No Label * Sust. Mind.</b>	0.3811	0.1732	2.2011	0.0287	0.0400	0.7222
<b>Organic L. * Sust. Mind.</b>	0.2205	0.1822	1.2102	0.2274	0.01384	0.5793
<b>Loc. Org. L. * Sust. Mind.</b>	-0.1854	0.1910	-0.9709	0.3326	-0.5616	0.1908
<b>Consumer Expertise</b>	0.0655	0.0568	1.1542	0.2496	-0.0463	0.1774

Table 10: Results of the regression (2) for apple - Low Sustainable Mindset

<b>Moderator value: Sust. Mind. -0.9131</b>						
D.V. WTP Apple	Coefficients	se	t	p	LLCI	ULCI
<b>No Label</b>	-0.3384	0.2297	-1.4732	0.1420	-0.7910	0.1141
<b>Organic L.</b>	0.1762	0.2365	0.7451	0.4569	-0.2896	0.6419
<b>Loc. Org. L.</b>	0.7932	0.2331	3.4027	0.0008	0.3340	1.2524

Table 11: Results of the regression (2) for apple - Medium Sustainable Mindset

<b>Moderator value: Sust. Mind. 0.0000</b>						
D.V. WTP Apple	Coefficients	se	t	p	LLCI	ULCI
<b>No Label</b>	0.0096	0.1621	0.0590	0.9530	-0.3098	0.3289
<b>Organic L.</b>	0.3775	0.1623	2.3260	0.0208	0.0578	0.6972
<b>Loc. Org. L.</b>	0.6239	0.1837	3.3956	0.0008	0.2620	0.9859

Table 12: Results of the regression (2) for apple - High Sustainable Mindset

<b>Moderator value: Sust. Mind. 0.9131</b>						
D.V. WTP Apple	Coefficients	se	t	p	LLCI	ULCI
<b>No Label</b>	0.3576	0.2231	1.6024	0.1104	-0.0820	0.7971
<b>Organic L.</b>	0.5788	0.2283	2.5355	0.0119	0.1291	1.0285
<b>Loc. Org. L.</b>	0.4547	0.2720	1.6715	0.0959	-0.0811	0.9904

#### 4.4. Hypothesis 3

*H3: Consumer expertise moderates the effect of labels on WTP, such that expert consumers will have the highest WTP for food that is labelled as “local and organic product”, while non-expert consumers will have the highest WTP for food with the “local product” label.*

With the following hypothesis the goal of this study is to examine any differences between the WTP of expert and that of novice consumers for the four different labelling methods. To investigate this, we used model 1 of Process Macro by Hayes (2013). In line with the method used for the second hypothesis we controlled for the variable of the sustainable mindset, to test the clean effect of consumer expertise on WTP. However, its effect is found again insignificant in both products' analyses. Moreover, the consumer expertise is divided in three levels based on the centering of the mean score of respondents' answers on the survey. In accordance with the Process' representation way, the “low” level equals to -1.0757 and is the value of the mean (0) minus one standard deviation (1.0757) (mean – 1SD), the “medium” one equals to 0 and the “high” level equals to 1.0757 and is the mean plus one standard deviation (mean + 1SD).

It is found that consumers with an average level of consumer expertise are willing to pay 0.32 and 0.60 euros more for one kg of organic and local organic tomatoes, respectively, compared to one kg of locally produced tomatoes and the results are statistically significant (Table 13). Even though, consumer expertise is not found to significantly affect the respondents' WTP for the four different labelling methods on tomatoes at the 95% confidence level, some small changes are noticed among the different consumer groups in both products' analyses and these results are discussed only to explore possible trends. More precisely, consumers with low levels of consumer expertise are willing to pay 0.47 euros more for one kg of local organic tomatoes compared to one kg of local ones, although the results are marginally statistically significant (p-value = 0.056) (Table 14). Regarding consumers with high levels of consumer expertise, they are willing to pay 0.73 euros more for one kg of local organic tomatoes compared to one kg of local ones and the results are statistically significant (p-value = 0.000) (Table 16).

Table 13: Results of the regression (3) for tomato

D.V. WTP Tomato	Coefficients	se	t	p	LLCI	ULCI
Constant	2.2748	0.3482	6.5322	0.0000	1.5888	2.9607
No Label	-0.1493	0.1504	-0.9923	0.3220	-0.4456	0.1471
Organic L.	0.3228	0.1496	2.1575	0.0319	0.0281	0.6174
Loc. Org. L.	0.6015	0.1687	3.5651	0.0004	0.2692	0.9339
Consumer Expertise	-0.0377	0.0991	-0.3807	0.7038	-0.2330	0.1576
No Label * Cons. Exp.	0.0074	0.1453	0.0510	0.9593	-0.2787	0.2935
Organic L. * Cons. Exp.	0.0279	0.1435	0.1945	0.8459	-0.2548	0.3107
Loc. Org. L. * Cons. Exp.	0.1236	0.1467	0.8426	0.4003	-0.1653	0.4125
Sustainable Mindset	-0.0011	0.0617	-0.0174	0.9862	-0.1226	0.1205

Table 14: Results of the regression (3) for tomato - Low Consumer Expertise

Moderator value: Cons. Exp.						
-1.0757						
D.V. WTP Tomato	Coefficients	se	t	p	LLCI	ULCI
No Label	-0.1573	0.2138	-0.7355	0.4627	-0.5784	0.2639
Organic L.	.2927	0.2084	1.4044	0.1615	-0.1178	0.7033
Loc. Org. L.	0.4686	0.2441	1.9196	0.0561	-0.0122	0.9495

Table 15: Results of the regression (3) for tomato - Medium Consumer Expertise

Moderator value: Cons. Exp.						
0.0000						
D.V. WTP Tomato	Coefficients	se	t	p	LLCI	ULCI
No Label	-0.1493	0.1504	-0.9923	0.3220	-0.4456	0.1471
Organic L.	0.3228	0.1496	2.1575	0.0319	0.0281	0.6174
Loc. Org. L.	0.6015	0.1687	3.5651	0.0004	0.2692	0.9339

Table 16: Results of the regression (3) for tomato - High Consumer Expertise

Moderator value: Cons. Exp.						
1.0757						
D.V. WTP Tomato	Coefficients	se	t	p	LLCI	ULCI
No Label	-0.1413	0.2200	-0.6424	0.5212	-0.5746	0.2920
Organic L.	0.3528	0.2214	1.5938	0.1123	-0.0832	0.7888
Loc. Org. L.	0.7345	0.2171	3.3834	0.0008	0.3069	1.1621

Similarly to tomatoes, the WTP of consumers with a medium level of consumer expertise is positively and significantly affected by the “organic product” and “local organic product” labels on apples, since they are willing to pay 0.37 and 0.63 euros more for one kg of organic and local organic apples, respectively, compared to their local counterparts and the results are statistically significant (Table 17). Considering the effect of consumer expertise on the WTP for the four labelling ways on apples, again statistically significant interactions are not found at the 95% confidence level. Nevertheless, small differences are revealed among the three consumer groups and they are mentioned so that possible trends are noticed. Specifically, consumers with low levels of consumer expertise are willing to pay almost the same premiums, 0.50 and 0.51 euros, for one kg of organic and local organic apples, respectively, in comparison with one kg of local apples. The results are significant for the organic label (p-value = 0.031) and marginally significant for the local organic one (p-value = 0.057) (Table 18). At the same time, consumers with high levels of consumer expertise are willing to pay a premium of 0.76 euros for locally and organically produced apples compared to local apples (Table 20). Since all interactions are statistically insignificant in both products’ analyses, no valid conclusions can be derived regarding the effect of consumer expertise and, thus, hypothesis 3 is not supported. More details on these analyses can be seen in Appendix VIII.

*Table 17: Results of the regression (3) for apple*

<b>D.V. WTP Apple</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>Constant</b>	2.1548	0.3823	5.6363	0.0000	1.4018	2.9079
<b>No Label</b>	0.0286	0.1640	0.1746	0.8615	-0.2944	0.3517
<b>Organic L.</b>	0.3675	0.1646	2.2325	0.0265	0.0432	0.6917
<b>Loc. Org. L.</b>	0.6341	0.1855	3.4183	0.0007	0.2687	0.9995
<b>Consumer Expertise</b>	0.0795	0.1085	0.7321	0.4648	-0.1343	0.2933
<b>No Label * Cons. Exp.</b>	-0.0840	0.1590	-0.5283	0.5978	-0.3972	0.2292
<b>Organic L. * Cons. Exp.</b>	-0.1216	0.1590	-0.7648	0.4451	-0.4349	0.1916
<b>Loc. Org. L. * Cons. Exp.</b>	0.1164	0.1598	0.7285	0.4670	-0.1984	0.4313
<b>Sustainable Mindset</b>	0.0053	0.0677	0.0784	0.9376	-0.1281	0.1388



Table 18: Results of the regression (3) for apple - Low Consumer Expertise

<b>Moderator value: Cons. Exp.</b>		<b>-1.0724</b>				
<b>D.V. WTP Apple</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	0.1187	0.2349	0.5055	0.6137	-0.3440	0.5814
<b>Organic L.</b>	0.4979	0.2294	2.1701	0.0310	0.0460	0.9498
<b>Loc. Org. L.</b>	0.5092	0.2660	1.9140	0.0568	-0.0148	1.0333

Table 19: Results of the regression (3) for apple - Medium Consumer Expertise

<b>Moderator value: Cons. Exp.</b>		<b>0.0000</b>				
<b>D.V. WTP Apple</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	0.0286	0.1640	0.1746	0.8615	-0.2944	0.3517
<b>Organic L.</b>	0.3675	0.1646	2.2325	0.0265	0.0432	0.6917
<b>Loc. Org. L.</b>	0.6341	0.1855	3.4183	0.0007	0.2687	0.9995

Table 20: Results of the regression (3) for apple - High Consumer Expertise

<b>Moderator value: Cons. Exp.</b>		<b>1.0724</b>				
<b>D.V. WTP Apple</b>	<b>Coefficients</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
<b>No Label</b>	-0.0614	0.2383	-0.2578	0.7968	-0.5308	0.4080
<b>Organic L.</b>	0.2370	0.2444	0.9698	0.3331	-0.2444	0.7184
<b>Loc. Org. L.</b>	0.7590	0.2383	3.1843	0.0016	0.2895	1.2285

#### 4.5. Education and Income as control variables

Several studies find that education and income affect the purchasing behaviour of different types of food, such as organic, local or genetically modified food (Boccaletti & Moro, 2000; Feldmann & Hamm, 2015; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007; Guptill & Wilkins, 2002; McCluskey & Loureiro, 2003; Monier-Dilhan, 2018). For this reason, we included in the regression model the control variables of income and education to test if the coefficients' values of the independent and moderating variables change significantly. As it can be seen in Appendix IX, after including the control variables in the model the changes in coefficients of the independent and moderating variables are rather small. In addition, neither of the control variables has any significant effect on the dependent variable ( $p$  – values > 0.05), which is the WTP per product.

## 4.6. Hypotheses - Overview

In the following table an overview of the tested hypotheses is presented.

Table 21: Overview of the Hypotheses

#	Hypotheses	Status
1	<i>The existence of labels on food products will affect positively consumers' WTP. Specifically, consumers will be willing to pay higher for labelled food products compared to non-labelled food products. Furthermore, they will show the highest willingness to pay for the food labels with the following order: "local organic product", "local product" and "organic product" label.</i>	Partially Supported
2	<i>Sustainable mindset moderates the effect of labels on WTP, such that consumers with high sustainable mindset will have a higher WTP for the food with the "organic product" label compared to that with the "local product" label, as opposed to consumers with low sustainable mindset, who will have a higher WTP for the "local product" label compared to the "organic product" one.</i>	Partially supported
3	<i>Consumer expertise moderates the effect of labels on WTP, such that expert consumers will have the highest WTP for food that is labelled as "local and organic product", while non-expert consumers will have the highest WTP for food with the "local product" label.</i>	Not supported

## 5. General Discussion

In this section, the main research question and the relevant sub-questions of this study are discussed. Moreover, the theoretical and practical implications are presented. This section ends with the limitations of this study, as well as the opportunities for future research.

## 5.1. Summary and conclusions

First, this study aims to answer the following main question: “What is the effect of different labelling methods of food products on consumers’ WTP?”. Secondly the roles of sustainable mindset and consumer expertise and are investigated with the following two sub-questions: “Does the existence of sustainable mindset influence the effect of different labelling methods on consumers’ WTP for food products?” and “Does expertise influence the effect of different labelling methods on consumers’ WTP for food products?”.

The first hypothesis examined the effect of the presence of food labels, as well as the effect of the different types of labels on consumers’ WTP for the selected food products for the whole dataset. Considering participants’ WTP for tomatoes, it is found that the non-labelled product receives the lowest price compared to the labelled one, but the results are significant only for the “local organic” and “organic” attributes. Namely, respondents are on average willing to pay premiums of 0.77 and 0.47 euros for one kg of tomatoes that are labelled as “local organic” and “organic”, respectively, compared to one kg of tomatoes with no label. Similarly, the “local organic product” label on apples receives the highest price premium, with respondents paying 0.65 euros more for this category of apples compared to non labelled apples. Moreover, the “organic product” label receives again the second highest price premium, as participants are willing to pay 0.34 euros more for organic apples compared to non labelled ones. Consequently, the labels “local organic product” and “organic product” have positive and significant effects on the average consumer’s WTP for both examined products.

These findings might be explained by the fact that consumers are aware of the benefits of organic, as well as both local and organic products (Güney, O. I., & Sangün, L., 2021; Feldmann & Hamm, 2015). In addition, the price premium of 0.30 euros that participants give for one kg of local organic tomatoes compared to one kg of their organic counterparts might be justified by consumers’ awareness of the difference between the two product labels and the benefits of sustainable food (Alsetoohy, Ayoun, & Abou-Kamar, 2021). What is also worth mentioning is that respondents’ WTP for local apples is slightly lower than that for non-labelled apples, even though the effect is statistically insignificant. This finding is not in line with the existing literature and, considering the insignificance of results and the small difference in price between the two labels, the results

might be different in a larger sample. An unexpected finding that is worth mentioning is that WTP for the “organic” attribute ranks higher compared to that for the “local” one in all our analyses. Although enough statistical evidence is not found in all results, this finding can possibly be explained by respondents’ awareness of the organic foods’ benefits that are related to health (Krystallis & Chryssohoidis, 2005).

Whether there is difference between the effect of labels on WTP of consumers with different levels of sustainable mindset was also investigated and a statistically significant interaction between the “no label” condition and the level of sustainable mindset is found for apples. In line with the existing literature, it is found that the level of consumers’ sustainable mindset affects their WTP for the different food attributes, in our case, the local and organic. Some differences are found among the three consumer groups in both products’ analyses and it is worth mentioning them so that possible trends can be spotted. Concerning consumers with medium and high levels of sustainable mindset, they are positively and, almost in all cases, significantly affected by the “organic” and “local organic” attributes. The premiums that they are willing to pay range between 0.32 and 0.58 euros for the “organic product” label and between 0.45 and 0.63 for the “local organic product” one. On the other hand, the WTP of consumers with a low level of sustainable mindset is positively affected by the “local” attribute with the results being statistically significant only for tomatoes. Moreover, their WTP is not significantly affected by the organic label in both products’ analyses. At the same time, surprisingly, they are willing to pay premiums of 0.67 euros for local organic tomatoes and 0.79 euros for local organic apples compared to their local counterparts. Although this consumer group appears to have a preference towards the local label compared to the organic one, it is found that when the two attributes are combined, the perceived value of these products increases.

Moreover, the effect of consumer expertise on WTP for different labelling methods was tested, but the results from our analysis are not statistically significant and, therefore, no valid conclusions can be derived. However, some interesting findings are presented below with the aim of exploring possible trends. Specifically, it is revealed that the price premiums for the “organic” and the “local” organic attributes increase, as the level of consumer expertise rises in both products’ analyses, even though the results are not statistically significant in all cases. The group of highly expert

consumers is differentiated, since their WTP is not significantly affected by the organic label on apples. Another interesting finding is that consumers with low levels of expertise are willing to pay almost the same premiums, 0.50 and 0.51 euros more, for organic and local organic apples compared to local ones and the results are significant for the organic label. This trend could be explained by the fact that novice consumers are not able to recognise the additional value of the two different qualitative attributes, the “local” and “organic” (Guptill & Wilkins, 2002; Pérez y Pérez, Gracia, & Barreiro-Hurlé, 2020).

Whether the interaction of our two moderators, namely sustainable mindset and consumer expertise, affects consumers’ WTP for the different labelling methods was investigated on apples, since a significant interaction is found only in this product’s analysis (Appendix X). More precisely, it is found that the WTP for the “local organic product” label compared to the “local product” one of consumers with low level of sustainable mindset increases when the level of their consumer expertise also increases. As it is also mentioned above, this finding is in line with the existing theory that expert consumers know the difference between local and organic food and the complementary value of these two qualitative attributes (Pérez y Pérez, Gracia, & Barreiro-Hurlé, 2020). Another interesting finding is that the effect of the labels on WTP is not found to be significant for consumers with high levels of both sustainable mindset and consumer expertise. This could possibly be explained by the fact that expert consumers trust their previous knowledge and experience more than the labels when they make purchases (Cheung, Xiao, & Liu, 2012; Simpson, Siguaw, & Cadogan, 2008).

In conclusion, the presence of labels and the different types of labels on the examined food products have an important impact on the WTP of the average consumer. Moreover, the level of sustainable mindset does play a crucial role in consumers’ WTP, since the price premiums per type of label reflect the extra benefits of each label.

## 5.2. Theoretical and managerial implications

The contribution of this study in the existing literature on consumer behaviour and food is threefold.

Regarding its academic relevance, this study provides researchers with valuable insights on the effect of different labelling methods on Greek and Dutch consumers' WTP for food products. The possible additional value from the presence of labels on food, as well as the different levels of value that consumers perceive for each food label is reflected in their stated WTP. Even though the effect of various food labels on consumers' preferences has broadly been investigated, this study tries to fulfil the gap in the literature concerning the roles of consumer expertise and sustainable mindset and spot any differences in the WTP of the various consumer groups.

Moreover, the extensive research on local and organic food is enriched with this study, since the WTP of consumers is examined separately for four different conditions on food and, thus, the differences in WTP are noted. The highest WTP for local organic food is highlighted not only for consumers with different levels of sustainable mindset and expertise but also for the average consumer. This is an interesting finding, because it shows an increasing trend for sustainable food, which actually combines the benefits of local and those of organic food. However, previous research has mainly examined these two categories separately.

Considering the impact of the pandemic on consumers' preferences and their WTP for different food characteristics, this study reveals that consumers' preferences towards sustainable food are here to stay. After almost 2.5 years since the onset of the pandemic, the findings of this study show that the local organic food receives the highest WTP by almost all the examined consumer groups. At the same time, the organic characteristic ranks second and is followed by the local one in most cases. This might be explained by increased awareness and health related concerns of consumers.

Regarding the managerial implications of this study, marketing managers and professionals in the food industry gain valuable insights by reading our work. More specifically, they are advised to put emphasis on the marketing of sustainable food, since the quality attributes of "local" and "organic" combined receive the highest WTP by the average consumer. Advertising messages, promotions and campaigns should be adjusted accordingly, so as to inform explicitly consumers about these food characteristics and possibly their benefits. By increasing consumers' awareness about the advantages of sustainable food, the food industry is expected to increase its profits, since consumer demand is anticipated to rise.

In addition, the considerably important informational role of labels on food marketing is highlighted. Specifically, food is a credence good and, thus, most consumers find it hard to differentiate food products based solely on their appearance. For this reason, consumers base their evaluation about food's qualitative characteristics on food labels. This is confirmed in this study, where the same product pictures were shown to all participants with the only difference being the content of the label. Therefore, we can safely conclude that price differences are strongly related to the labels' content for each consumer group. For these reasons, professionals in the food industry are strongly encouraged to use labels and optimize their content to attract consumers' interest, inform them sufficiently and therefore, benefit from the higher price premiums that food labels can generate.

What is also worth mentioning is the importance of consumers' segmentation. Based on the finding of this study, although almost all consumer groups have the highest WTP for the "local organic" attribute and the second highest for the "organic" one, some differences are noted. For instance, the WTP of consumers with high levels of both sustainable mindset and expertise seems not to be affected by the different labelling methods. On the contrary, the WTP of consumers with low levels of sustainable mindset, as well as expertise is significantly affected by the "local organic" product label.

Last but not least, policy makers gain valuable insights from this study. Specifically, in relation to regulation and standardization of food labels, the "local organic" attribute seems to be the most valuable for consumers. Therefore, this general consumer interest for increased information concerning food products should be taken into account and legislation regarding sustainable food should be enhanced and become clearer compared to the present. Moreover, politicians are advised to provide food producers with strong economic incentives, so that the latter adjust their production based on the standards of organic farming and can benefit from the price premiums that consumers are willing to pay.

### 5.3. Limitations and recommendations for future research

Even though this study enriches the existing literature with interesting insights on the effects of labelling methods on consumers' WTP and the roles of consumers' expertise and sustainable mindset, it has some limitations that can be addressed by future studies.

First of all, this study was conducted in the Greek and Dutch market with overrepresentation of the former. Therefore, the special characteristics of the Dutch and especially Greek consumers should be considered before the generalization of the results to other countries and cultures, since previous research reveals differences even across the European countries (Zander and Feucht, 2018). Consequently, future research could carry out this study to other countries with different cultures and behavioural patterns, so that more conclusive results can be withdrawn through the comparison.

Additionally, the inconclusive results we received considering the effect of consumer expertise on WTP for both food products, as well as that of sustainable mindset on tomatoes could be justified by the relatively small size of the sample that was used for this research. At the same time, the underrepresentation of older and less educated respondents might be considered a limitation. By conducting research in a bigger and more diverse sample in Greece and the Netherlands, future researchers could address these issues. Another limitation of this study is the relatively low score of the Cronbach's alpha score of the scale that measured the level of consumers' sustainable mindset. Even though the moderator's scale consisted of questions that had been extensively used in previous studies, our reliability analysis showed that the internal consistency of our scale is close to 70% which is acceptable. However, future research could measure the sustainability of consumers' mindset with different questions to address this issue.

What is also worth mentioning is the hypothetical nature of the experiment that was used for the purposes of this study. Namely, the participants of the survey were asked to state their WTP for apples and tomatoes that they saw on a picture against a white background on the screen of their computers or mobile phones, as it is shown in the "Data and methodology" part. Although in the beginning of the survey they were asked to imagine that they are going for groceries' shopping as usual, the hypothetical buying environment might have affected the results of this research. To



overcome this barrier, future research could be conducted in a real environment where food purchases take place, such as a supermarket or a small groceries' store.

At the same time, the experiment was built based on the between-subjects design, since it is considered the most appropriate method to elicit candid responses by the participants, because it reduces the response bias. However, this setting is dissimilar to the real purchasing environment, where consumers can compare different products based on their labels and attributes. Therefore, future research could validate this study's insights in a real buying environment. Moreover, this research was conducted on two products, fresh tomatoes and apples. Although the results can be generalized for vegetables and fruits to a great extent, they are not necessarily valid for other food categories. Consequently, future research may broaden this study to different food products.

Last but not least, almost one out of the three survey's respondents did not notice any label or the correct type of label on the apples' picture they saw and, thus, their answers were excluded from the data analysis. Possible reasons that may justify this finding are the type of label, its graphic elements or its position on the product's picture. Future researchers could address this issue by using eye-tracking methods to investigate which types of labels or which information on the labels attract consumers' attention more effectively.

## 6. References

- Adelaja, A. O., Brumfield, R. G., & Lininger, K. (1990). Product differentiation and state promotion of farm produce: An analysis of the Jersey Fresh tomato. *Journal of Food Distribution Research*, 73-86.
- Agrillo, C., Milano, S., Roveglia, P., & Scaffidi, S. (2015). Slow Food's Contribution to the Debate on the Sustainability of the Food System. No. 716-2016-48667.
- Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of consumer expertise. *Journal of consumer research*, 411-454.
- Alsetoohy, O., Ayoun, B., & Abou-Kamar, M. (2021). COVID-19 Pandemic Is a Wake-Up Call for Sustainable Local Food Supply Chains: Evidence from Green Restaurants in the USA. *Sustainability*, 9234.
- Ankamah-Yeboah, I., Nielsen, M., & Nielsen, R. (2016). Price premium of organic salmon in Danish retail sale. *Ecological Economics*, 54-60.
- Anselmsson, J., Bondesson, N. V., & Johansson, U. (2014). Brand image and customers' willingness to pay a price premium for food brands. *Journal of Product & Brand Management*.
- Apple Production in Europe*. (2019). Retrieved from Time for Apples from Europe: <http://applesfromeurope.eu/for-professionals/apple-production-in-europe>
- Baker, G. A. (1999). Consumer preferences for food safety attributes in fresh apples: Market segments, consumer characteristics, and marketing opportunities. *Journal of Agricultural and Resource Economics*, 80-97.
- Bedford, E. (2022, January 14). *Favorite fruits in selected countries in Europe in 2018*. Retrieved from statista: <https://www.statista.com/statistics/827004/favorite-fruits-in-europe/>
- Ben Hassen, T., El Bilali, H., & Allahyari, M. S. (2020). Impact of COVID-19 on Food Behavior and Consumption in Qatar. *Sustainability*, 6973.
- Bhasin, H. (2017, December 18). *What is Product Labelling & what is the Importance of labelling?* Retrieved from MARKETING91: <https://www.marketing91.com/product-labelling/>
- Binninger, A. S. (2017). Perception of naturalness of food packaging and its role in consumer product evaluation. *Journal of Food Products Marketing*, 251-266.
- Blend, J. R., & Van Ravenswaay, E. O. (1999). Measuring consumer demand for ecolabeled apples. *American Journal of Agricultural Economics*, 1072-1077.
- Boccaletti, S., & Moro, D. (2000). Consumer willingness-to-pay for GM food products in Italy.
- Bollani, L., Bonadonna, A., & Peira, G. (2019). The Millennials' Concept of Sustainability in the Food Sector. *Sustainability*, 2984.
- Brown, E., Dury, S., & Holdsworth, M. (2009). Motivations of consumers that use local, organic fruit and vegetable box schemes in Central England and Southern France. *Appetite*, 183-188.

- Brucks, M. (1985). The effects of product class knowledge on information search behavior. *Journal of consumer research*, 1-16.
- Bukhari, S. A., Ul Haq, J., Ishfaq, M., & Ali, A. (2022). Females Are More Rational! How Consumer Expertise Moderates Attitude toward Advertisements. *Journal of Promotion Management*, 359-378.
- Burchardi, H., Schroeder, C., & Thiele, H. D. (2005). Willingness-To-Pay for Food of the Own Region: Empirical Estimates from Hypothetical and Incentive Compatible Settings. *Agricultural and Applied Economics Association (AAEA)* (p. 32). Rhode Island, USA: AgEcon Search.
- Butu, A., Brumă, I. S., Tanasă, L., Rodino, S., Dinu Vasiliu, C., Doboş, S., & Butu, M. (2020). The Impact of COVID-19 Crisis upon the Consumer Buying Behavior of Fresh Vegetables Directly from Local Producers. Case Study: The Quarantined Area of Suceava County, Romania. *International journal of environmental research and public health*, 5485.
- Cambridge University Press. (2022). *sustainability*. Retrieved from Cambridge Dictionary: <https://dictionary.cambridge.org/dictionary/english/sustainability>
- Cheung, C. M., Xiao, B., & Liu, I. L. (2012, January). The impact of observational learning and electronic word of mouth on consumer purchase decisions: The moderating role of consumer expertise and consumer involvement. *45th Hawaii International Conference on System Sciences* (pp. 3228-3237). IEEE.
- Claret, A., Guerrero, L., Aguirre, E., Rincón, L., Hernández, M. D., Martínez, I., & RodríguezRodríguez, C. (2012). Consumer preferences for sea fish using conjoint analysis: Exploratory study of the importance of country of origin, obtaining method, storage. *Food Quality and Preference*, 259–266.
- Davies, A., Titterington, A. J., & Cochrane, C. (1995). Who buys organic food? A profile of the purchasers of organic food in Northern Ireland. *British Food Journal*.
- Davies, M. A., & Wright, L. T. (1994). The Importance of Labelling Examined in Food Marketing. *European Journal of Marketing*.
- Duhan, D. F., Rinaldo, S. B., Velikova, N., Dodd, T., & Trela, B. (2019). Hospitality situations, consumer expertise, and perceptions of wine attributes: three empirical studies. *International Journal of Wine Business Research*.
- Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. (2000). Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues*, 425–442.
- Duram, Leslie A. (2019, October 9). *organic food*. Retrieved from Britannica: <https://www.britannica.com/topic/organic-food>
- Epp, M. (2016, September 12). *Tomato production varies in European countries*. Retrieved from Vegetable Growers News: <https://vegetablegrowersnews.com/article/tomato-production-varies-european-countries/>
- European Commission. (2021). *The tomato market in the EU: Vol. 1: Production and area statistics*. European Commission - DG Agri G2.

- Faour-Klingbeil, D., Osaili, T. M., Al-Nabulsi, A. A., Asma'O, T., Jemni, M., & Todd, E. C. (2022). How has public perception of food safety and health risks changed a year after the pandemic and vaccines roll out? *Food Control*, 109073.
- Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *ELSEVIER*, 152-164.
- Fernqvist, F., & Ekelund, L. (2014). Credence and the effect on consumer liking of food—A review. *Food Quality and Preference*, 340-353.
- Filimonau, V., Beer, S., & Ermolaev, V. A. (2021). The COVID-19 pandemic and food consumption at home and away: An exploratory study of English households. *Socio-Economic Planning Sciences*, 101125.
- Food and Agriculture Organization of the United Nations. (2018, April 26). *Origin labelling of food a boost for local economies and sustainable development*. Retrieved from Food and Agriculture Organization of the United Nations: <https://www.fao.org/news/story/en/item/1118741/icode/>
- Food and Agriculture Organization of the United Nations. (2022). *Food Labelling*. Retrieved from Food and Agriculture Organization of the United Nations: <https://www.fao.org/food-labelling/en/>
- Fresh Plaza. (2018, March 23). *2018 Fruit and Vegetable trends: Europe: Tomatoes most popular vegetable - bananas most-loved fruit*. Retrieved from Fresh Plaza: <https://www.freshplaza.com/article/2191565/europe-tomatoes-most-popular-vegetable-bananas-most-loved-fruit/>
- Golan, E., Kuchler, F., Mitchell, L., & Greene, C. (2001). Economics of Food Labeling. *Journal of consumer policy*, 117-184.
- Golob, U., Koklic, M., Podnar, K., & Zabkar, V. (2018). The role of environmentally conscious purchase behaviour and green scepticism in organic food consumption. *British Food Journal*.
- Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. *Food policy*, 177-189.
- Güney, O. I., & Sangün, L. (2021). How COVID-19 affects individuals' food consumption behaviour: a consumer survey on attitudes and habits in Turkey. *British Food Journal*.
- Guptill, A., & Wilkins, J. L. (2002). Buying into the food system: Trends in food retailing in the US and implications for local foods. *Agriculture and Human Values*, 39-51.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis 6th Edition. *Pearson Prentice Hall. New Jersey. humans: Critique and reformulation. Journal of Abnormal Psychology*, 49-74.
- Hamzaoui-Essoussi, L., & Zahaf, M. (2012). Canadian organic food consumers' profile and their willingness to pay premium prices. *Journal of international food & agribusiness marketing*, 1-21.
- Hanss, D., & Böhm, G. (2012). Sustainability seen from the perspective of consumers. *International Journal of Consumer Studies*, 678-687.
- Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis*. Guilford Press.

- Herédia-Colaço, V., Coelho do Vale, R., & Villas-Boas, S. B. (2019). Does Fair Trade Breed Contempt? A Cross-Country Examination on the Moderating Role of Brand Familiarity and Consumer Expertise on Product Evaluation. *Journal of business ethics*, 737-758.
- Hobbs, J. E. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 171-176.
- Hu, L., Ding, J., & Yang, X. (2021). Blockchain or Not? Optimal Decisions for Food Retailers Considering Consumer Expertise. *Journal of Systems Science and Information*, 321-334.
- Hughner, R. S., McDonagh, P., Prothero, A., Shultz, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour: An International Research Review*, 94-110.
- Institute of Research for the Retail Sector. (2022, May 9). *IELKA*. Retrieved from The continuous financial crisis affects the buying habits of (Greek) consumers: <http://www.ielka.gr/?p=3023>
- Jensen, J. D., Christensen, T., Denver, S., Ditlevsen, K., Lassen, J., & Teuber, R. (2019). Heterogeneity in consumers' perceptions and demand for local (organic) food products. *Food Quality and Preference*, 255-265.
- Kilani, F. A., Abbes, I., & Aouadi, M. (2020). The Relative Importance of Labelling a Craft Product: A Conjoint Analysis. *International Journal of Arts Management*, 78-93.
- Kontopoulou, L., Karpetas, G., Fradelos, E., Papathanasiou, I. V., Malli, F., Papagiannis, D., & Gourgoulianis, K. I. (2021). Online consumer survey comparing different front-of-pack labels in Greece. *Nutrients*.
- Krishna, A. (1991). Effect of dealing patterns on consumer perceptions of deal frequency and willingness to pay. *Journal of Marketing Research*, 441-451.
- Krishna, A. (2016). A clearer spotlight on spotlight: Understanding, conducting and reporting. *Journal of Consumer Psychology*, 315-324.
- Krishna, A., Briesch, R., Lehmann, D. R., & Yuan, H. (2002). A meta-analysis of the impact of price presentation on perceived savings. *Journal of Retailing*, 101-118.
- Krystallis, A., & Chryssohoidis, G. (2005). Consumers' willingness to pay for organic food: Factors that affect it and variation per organic product type. *British food journal*.
- Krystallis, A., Chryssohoidis, G., & Scholderer, J. (2007). Consumer-perceived quality in 'traditional' food chains: The case of the Greek meat supply chain. *ELSEVIER*, 54-68.
- Lee, W. C., Shimizu, M., Kniffin, K. M., & Wansink, B. (2013). You taste what you see: Do organic labels bias taste perceptions? *Food Quality and Preference*, 33-39.
- Loureiro, M. L., & Hine, S. (2002). Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local (Colorado Grown), Organic, and GMO-Free Products. *Journal of Agricultural & Applied Economics*, 477-487.
- Loureiro, M. L., & McCluskey, J. J. (2000). Consumer preferences and willingness to pay for food labeling: A discussion of empirical studies. *Journal of Food Distribution Research*, 95-102.

- Loureiro, M. L., & Umberger, W. J. (2003). Estimating Consumer for Willingness to Pay for Country-of-Origin Labeling. *Journal of Agricultural & Resource Economics*, 287-301.
- Maheswaran, D., Sternthal, B., & Gürhan, Z. (1996). Acquisition and Impact of Consumer Expertise. *Journal of Consumer Psychology*, 115-133.
- Mai, R., Symmank, C., & Seeberg-Elverfeldt, B. (2016). Light and pale colors in food packaging: When does this package cue signal superior healthiness or inferior tastiness? *Journal of Retailing*, 426-444.
- Malhotra, N., & Birks, D. F. (2003). An applied approach. *European Edition*.
- Marckhgott, E., & Kamleitner, B. (2019). Matte matters: when matte packaging increases perceptions of food naturalness. *Marketing Letters*, 167-178.
- Martinez, S. (2021, October 7). *Local Food Sales Continue to Grow Through a Variety of Marketing Channels*. Retrieved from Perishable News.com: <https://www.perishablenews.com/retailfoodservice/local-food-sales-continue-to-grow-through-a-variety-of-marketing-channels/>
- Mathios, A. D., & Ippolito, P. M. (1998). Food companies spread nutrition information through advertising and labels. *Food Review/National Food Review*, 38-43.
- Mazzocchi, M. (2008). *Statistics for Marketing and Consumer Research*. London: SAGE Publications Ltd.
- McClenachan, L., Dissanayake, S. T., & Chen, X. (2016). Fair trade fish: consumer support for broader seafood sustainability. *Fish and fisheries*, 825-838.
- McCluskey, J. J., & Loureiro, M. L. (2003). Consumer preferences and willingness to pay for food labeling: A discussion of empirical studies. *Journal of Food Distribution Research*, 95-102.
- Meyerding, S. G., Trajer, N., & Lehberger, M. (2019). What is local food? The case of consumer preferences for local food labeling of tomatoes in Germany. *Journal of Cleaner Production*, 30-43.
- Miller, K. M., Hofstetter, R., Krohmer, H., & Zhang, Z. J. (2011). How should consumers' willingness to pay be measured? An empirical comparison of state-of-the-art approaches. *Journal of marketing research*, 172-184.
- Minarelli, F., Galioto, F., Raggi, M., & Viaggi, D. (n.d.). Asymmetric information along the food supply chain: a review of the literature.
- Miserius, Madlen;. (2021). European Statistics Handbook – FRUIT LOGISTICA 2021. Berlin, Germany.
- Monier-Dilhan, S. (2018). Food labels: consumer's information or consumer's confusion. *OCL*, D202.
- Nurse, R. G., Onozaka, Y., & McFadden, D. T. (2012). Consumer Motivations and Buying Behavior: The Case of the Local Food System Movement. *Journal of Food Products Marketing*, 385-396.
- Omondi, Sharon;. (2018, June 2018). *The Most Popular Vegetables In The World*. Retrieved from WorldAtlas: <https://www.worldatlas.com/articles/the-most-popular-vegetables-in-the-world.html>

- Onozaka, Y., & McFadden, D. T. (2011). Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim. *American Journal of Agricultural Economics*, 693-706.
- Onozaka, Y., Nurse, G., & McFadden, D. T. (2011). Defining sustainable food market segments: Do motivations and values vary by shopping locale? *American Journal of Agricultural Economics*, 583-589.
- Park, C. W., & Lessig, V. P. (1981). Familiarity and Its Impact on Consumer Decision Biases and Heuristics. *Journal of consumer research*, 223-230.
- Park, C. W., Mothersbaugh, D. L., & Feick, L. (1994). Consumer Knowledge Assessment. *Journal of consumer research*, 71-82.
- Peano, C., Merlino, V. M., Sottile, F., Borra, D., & Massaglia, S. (2019). Sustainability for Food Consumers: Which Perception? *Sustainability*, 5955.
- Pérez y Pérez, L., Gracia, A., & Barreiro-Hurlé, J. (2020). Not Seeing the Forest for the Trees: The Impact of Multiple Labelling on Consumer Choices for Olive Oil. *Foods*, 186.
- Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of consumer research*, 381-391.
- Pretty, J. N., Ball, A. S., Lang, T., & Morison, J. (2015). Farm costs and food miles: An assessment of the full cost of the UK weekly food basket. *Food policy*, 1-19.
- Przyrembel, H. (2004). Food labelling legislation in the EU and consumers information. *Trends in Food Science & Technology*, 360-365.
- Qi, X., Yu, H., & Ploeger, A. (2020). Exploring influential factors including COVID-19 on green food purchase intentions and the intention-behaviour gap: A qualitative study among consumers in a Chinese context. *International Journal of Environmental Research and Public Health*, 7106.
- Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy = tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing*, 170-184.
- Reich, B., Beck, J. T., & Price, J. (2018). Food as ideology: Measurement and validation of locavorism. *Journal of Consumer Research*, 849-868.
- Rimanoczy, I., & Klingenberg, B. (2021). THE SUSTAINABILITY MINDSET INDICATOR: A Personal Development Tool. *Journal of Management for Global Sustainability*.
- Risius, A., Janssen, M., & Hamm, U. (2017). Consumer preferences for sustainable aquaculture products: Evidence from in-depth interviews, think aloud protocols and choice experiments. *Appetite*, 246-254.
- Roy, H., Hall, C. M., & Ballantine, P. W. (2017). Trust in local food networks: The role of trust among tourism stakeholders and their impacts in purchasing decisions. *Journal of Destination Marketing & Management*, 309-317.
- Sadilek, T. (2019). Consumer preferences regarding food quality labels: the case of Czechia. *British Food Journal*.

- Sama, C., Crespo-Cebada, E., Díaz-Caro, C., Escribano, M., & Mesías, F. J. (2018). Consumer Preferences for Foodstuffs Produced in a Socio-environmentally Responsible Manner: A Threat to Fair Trade Producers? *Ecological Economics*, 290-296.
- Scekic, A. (2022, March). Survey Methods. *Customer Intelligence and CRM*. Rotterdam, The Netherlands.
- Schmidt, C., Rocker, S., & Tian, Z. (2020). Google searches reveal changing consumer food sourcing in the COVID-19 pandemic. *Journal of Agriculture, Food Systems, and Community Development*, 9(3), 9-16.
- Shemkus, S. (2015, March 12). *Is the era of Big Food coming to an end?* Retrieved from The Guardian: <https://www.theguardian.com/sustainable-business/2015/mar/12/big-food-agriculture-brands-health-organic-packaged>
- Shen, J. (2012). Understanding the determinants of consumers' willingness to pay for eco-labeled products: An empirical analysis of the China Environmental Label. *Journal of Service Science and Management*.
- Sheth, K. (2018, August 15). *Top Apple Producing Countries In The World*. Retrieved from WorldAtlas: <https://www.worldatlas.com/articles/top-apple-producing-countries-in-the-world.html>
- Simpson, P. M., Siguaw, J. A., & Cadogan, J. W. (2008). Understanding the consumer propensity to observe. *European Journal of Marketing*.
- Skalkos, D., Kosma, I. S., Chasioti, E., Bintsis, T., & Karantonis, H. C. (2021). Consumers' Perception on Traceability of Greek Traditional Foods in the Post-COVID-19 Era. *Sustainability*, 12687.
- Skalkos, D., Kosma, I. S., Chasioti, E., Skendi, A., Papageorgiou, M., & Guiné, R. P. (2021). Consumers' Attitude and Perception toward Traditional Foods of Northwest Greece during the COVID-19 Pandemic. *Applied Sciences*, 4080.
- Softeis - Own work, C. B.-S. (2022, May 31). *Wikipedia*. Retrieved from <https://en.wikipedia.org/wiki/Tomato>: [https://en.wikipedia.org/wiki/Tomato#/media/File:Tomato\\_je.jpg](https://en.wikipedia.org/wiki/Tomato#/media/File:Tomato_je.jpg)
- Sparks, P., & Shepherd, R. (1992). Self-Identity and the Theory of Planned Behavior: Assessing the Role of Identification with "Green Consumerism. *Social psychology quarterly*, 388-399.
- Statista Research Department. (2022, May 20). *Vegetable industry in Europe - Statistics & Facts*. Retrieved from statista: <https://www.statista.com/topics/3782/vegetable-industry-in-europe/#dossierKeyfigures>
- Tanner, C., & Wölfing Kast, S. (2003). Promoting sustainable consumption: Determinants of green purchases by Swiss consumers. *Psychology & marketing*, 883-902.
- Temple, N. J., & Fraser, J. (2014). Food labels: a critical assessment. *Nutrition*, 257-260.
- Teng, H. J., & Lo, C. F. (2021). Personal Life Styles and Willingness to Pay on Salt Consumption. *International Journal of Trade, Economics and Finance*, 12(5).
- Thøgersen, J. (2000). Psychological determinants of paying attention to eco-labels in purchase decisions: Model development and multinational validation. *Journal of consumer policy*, 285-313.



- Tighe, T. (2022, January 20). *Share of consumers waiting to make a purchase until a discount is offered in the Netherlands in 2021, by category*. Retrieved from Statista: <https://www.statista.com/statistics/1088705/share-of-consumers-waiting-for-discounts-in-the-netherlands-by-category/>
- Toukabri, M. (2021). The determinants of purchasing local food: price transparency and customer expertise role. *International Journal of Business Environment*, 149-169.
- United Nations. (2022). *Sustainability*. Retrieved from United Nations: <https://www.un.org/en/academic-impact/sustainability>
- Van Crombrugge, M. (2021, September). Experimental Design and ANOVA. *Lecture 2: Experimental Design and ANOVA*. Rotterdam, The Netherlands.
- Van Crombrugge, M. (2021, October). Factor Analysis. *Lecture 7: Factor Analysis*. Rotterdam, The Netherlands.
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude–behavioral intention” gap. *Journal of Agricultural and Environmental ethics*, 169-194.
- Vermeir, I., & Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecological economics*, 542-553.
- Weinrich, R., & Spiller, A. (2016). Developing food labelling strategies: Multi-level labelling. *Journal of Cleaner Production*, 1138-1148.
- Wong, V., Turner, W., & Stoneman, P. (1996). Marketing Strategies and Market Prospects for Environmentally -Friendly Consumer products. *British journal of Management*, 263-281.
- Yuan, C., Wang, S., & Yu, X. (2020). The impact of food traceability system on consumer perceived value and purchase intention in China. *Industrial Management & Data Systems*, 810-824.
- Yue, C., & Tong, C. (2009). Organic or Local? Investigating Consumer Preference for Fresh Produce Using a Choice Experiment with Real Economic Incentives. *HORTSCIENCE*, 366–371.
- Zander, K., & Feucht, Y. (2018). Consumers’ Willingness to Pay for Sustainable Seafood Made in Europe. *Journal of international food & agribusiness marketing*, 251-275.
- Zhang, T., Grunert, K. G., & Zhou, Y. (2020). A values–beliefs–attitude model of local food consumption: An empirical. *ELSEVIER*, 103916.
- Zou, P., Yu, B., & Hao, Y. (2011). Does the Valence of Online Consumer Reviews matter for Consumer Decision Making? The Moderating Role of Consumer Expertise. *JOURNAL OF COMPUTERS*, 484-488.

## Appendix I: Survey's Example



English - United Kingdom ▼

Dear participant,

First of all, thank you for your participation in this survey!

This questionnaire is part of my Master's Thesis at Erasmus University Rotterdam and it is for academic research only. Your responses are completely anonymous and will be treated with confidentiality. It will take you about 6 minutes to complete all questions.

There are no right or wrong answers, so please answer the questions truthfully. You can refuse to participate or withdraw from the survey at any time.

In case you have any questions regarding this questionnaire, please email me at [619226ek@student.eur.nl](mailto:619226ek@student.eur.nl)

If you agree to participate, please press the "next" button to start the survey.

Kind regards,  
Eugenia Krystallaki

>>

**How often do you buy groceries?**

- Every day
- Every 2 – 3 days per week
- Once per week
- Every 2 weeks
- Once a month or less
- Never

>>

**Please imagine that you are going to buy groceries from the store or supermarket where you usually go.**

>>

Figure 6: Overview of the "No label" condition

What is the maximum price you would pay for 1 kg of the tomatoes below?



Use the slider below to indicate the price in euros (€).

0 1 2 3 4 5 6 7 8 9 10

Price per kg



What is the maximum price you would pay for 1 kg of the apples below?



Use the slider below to indicate the price in euros (€).

0 1 2 3 4 5 6 7 8 9 10

Price per kg



**This question is an attention check. The apples you just saw had:**

- No label
- "Local product" label
- "Organic product" label
- "Local organic product" label



**To what extent do you agree with the following statements?**

**I'm worried about the climate change and the future of the planet.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**The global warming does not affect my everyday life.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**The balance of nature is strong enough to cope with the impacts of modern industrial nations.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**The so-called “ecological crisis” facing humankind has been greatly exaggerated.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**The balance of nature is very delicate and easily upset.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**If things continue on their present course, we will soon experience a major ecological catastrophe.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree



**To what extent do you agree with the following statements?**

**I have a lot of experience in purchasing local food.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**I learned to distinguish the local food.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**I am an expert in the purchase of local food.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**It is important to know the country of origin of my food.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**If I don't trust the country of origin, I prefer not to buy food.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

**I know how to select food products of high quality.**

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree



**What is your gender?**

- Male
- Female
- Non-binary / third gender
- Prefer not to say

**What age group do you belong to?**

- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 - 84
- 85 or older

**In which country do you currently live?**

**What is the highest level of education you have completed? If you are currently studying, please select your current level of education.**

- Middle School or lower
- High School
- Bachelor's Degree
- Master's Degree
- PhD or higher

**What is your average weekly spending on groceries (in euros)?**

- Less than €15
- €15 - €25
- €26 - €35
- €36 - €45
- €46 - €60
- €61 - €75
- €76 - €90
- €91 - €110
- €111 - €140
- €141 - €180
- More than €180

**What is your total yearly gross household income (in euros) ?**

- Less than €12,000
- €12,000 - €24,000
- €24,001 - €36,000
- €36,001 - €48,000
- €48,001 - €60,000
- €60,001 - €72,000
- More than €72,000
- Prefer not to say



We thank you for your time spent taking this survey.  
Your response has been recorded.



## Appendix II: SPSS Outputs of Moderators' Reliability Analyses

Table 22: Cronbach's Alpha – Sustainable Mindset

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.656	6

Table 23: Cronbach's Alpha – Consumer Expertise

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.820	6

### Appendix III: Overview of the Descriptive Statistics

Figure 7: The descriptive statistics - Pie chart of Gender

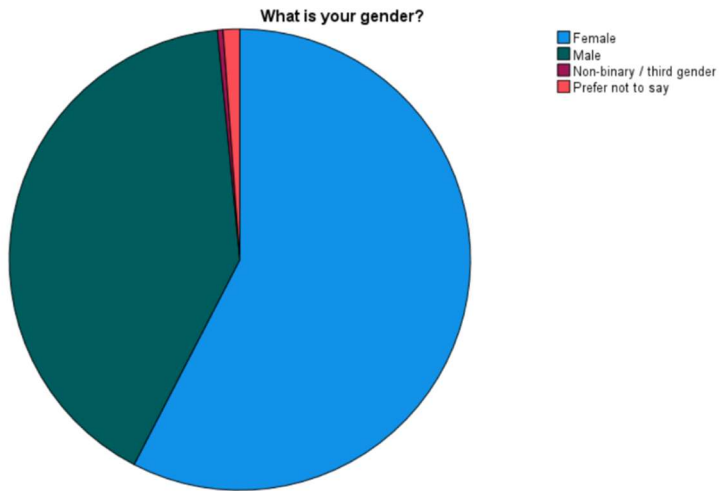


Table 24: The descriptive statistics – Gender

What is your gender?		
	N	%
Female	148	57.6%
Male	105	40.9%
Non-binary / third gender	1	0.4%
Prefer not to say	3	1.2%

Figure 8: The descriptive statistics - Pie chart of Groceries' Purchase Frequency

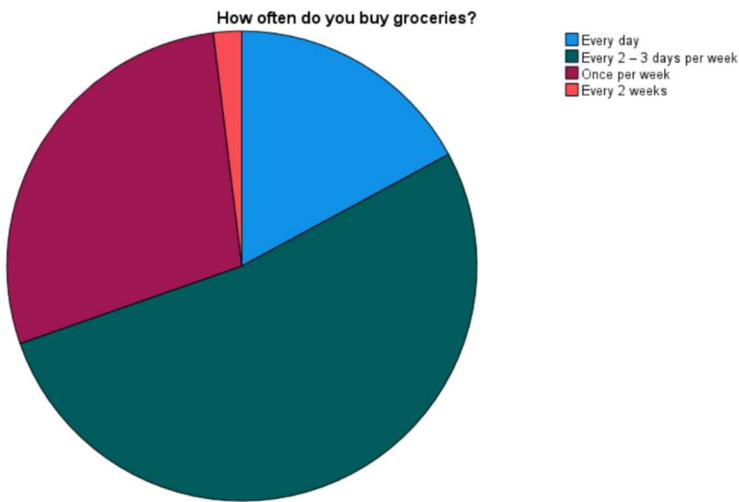


Table 25: The descriptive statistics - Groceries' Purchase Frequency

How often do you buy groceries?		
	N	%
Every day	44	17.1%
Every 2 – 3 days per week	135	52.5%
Once per week	73	28.4%
Every 2 weeks	5	1.9%

Figure 9: The descriptive statistics - Pie chart of Education

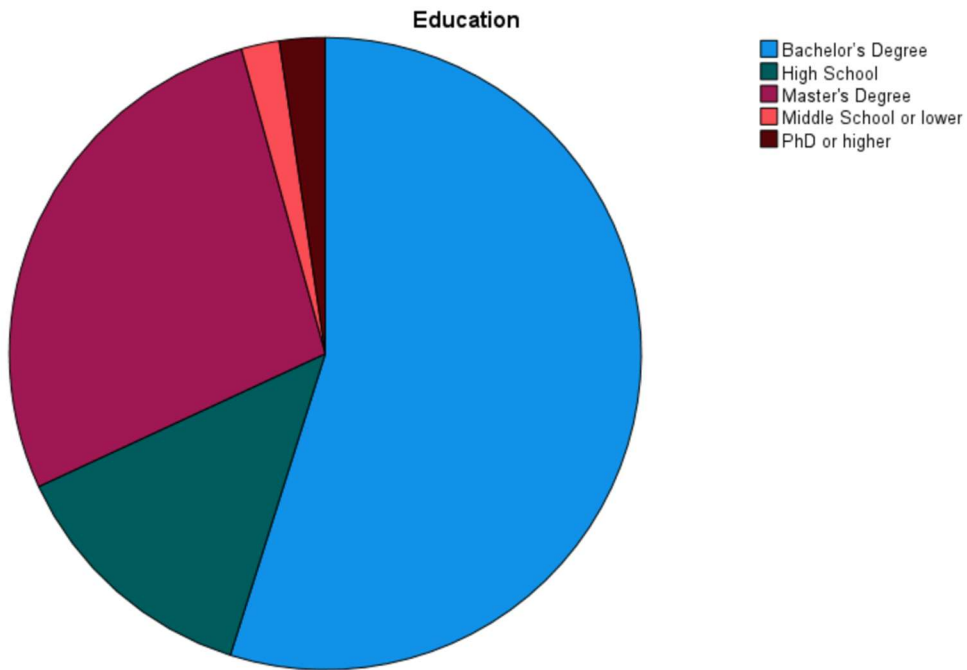


Figure 10: The descriptive statistics – Age Group

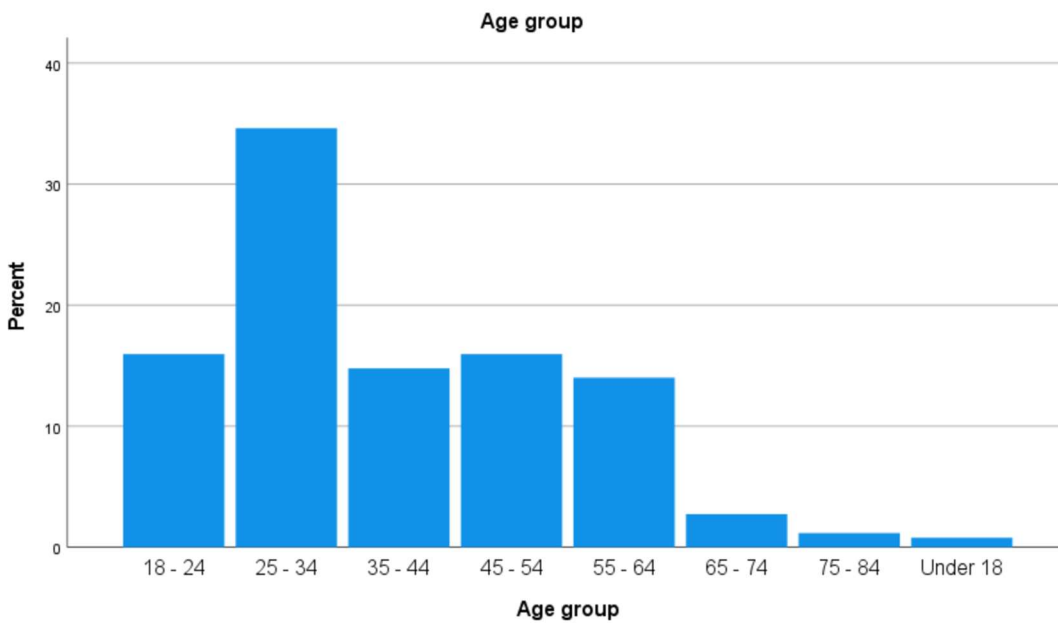


Figure 11: The descriptive statistics - Groceries Spend

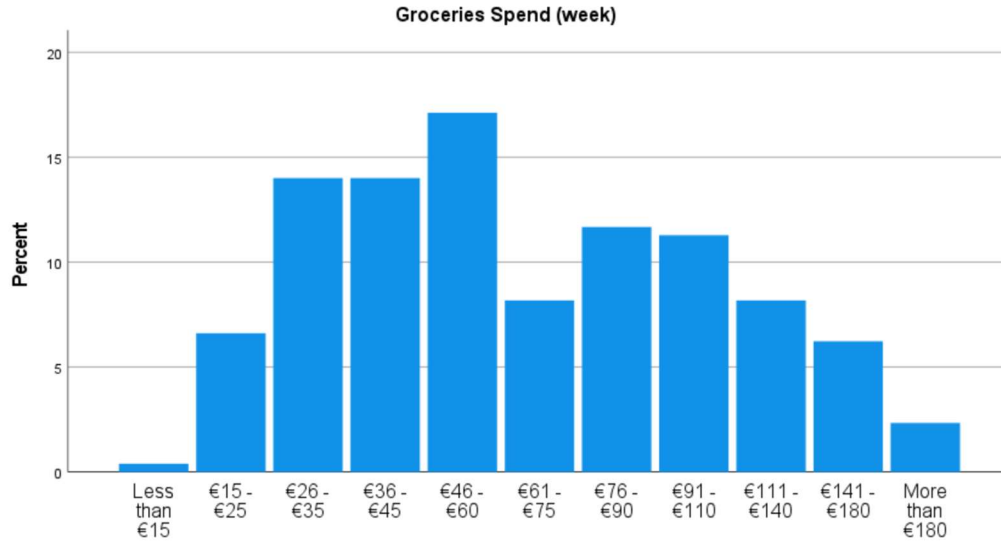
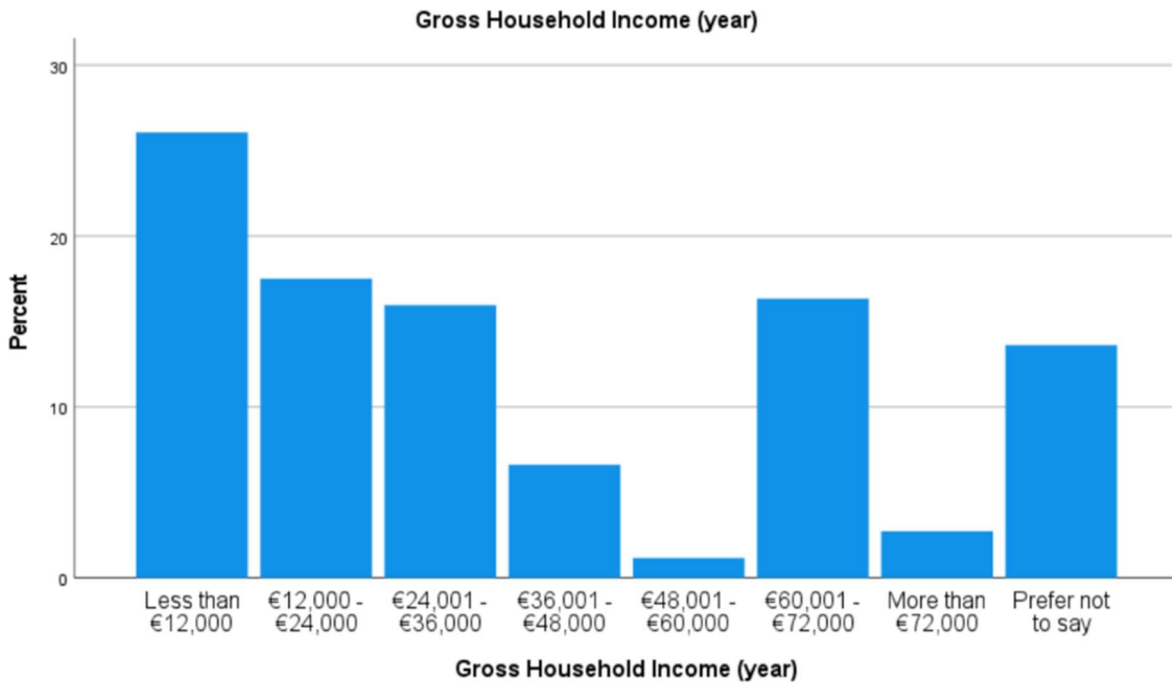


Figure 12: The descriptive statistics - Income



**Appendix IVa: SPSS Output of Assumptions of Linear Regression, WTP - Tomato**

*Table 26: Assumptions of Linear Regression - WTP Tomato - Model Summary*

<b>Model Summary<sup>b</sup></b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.304 <sup>a</sup>	.092	.081	.8739

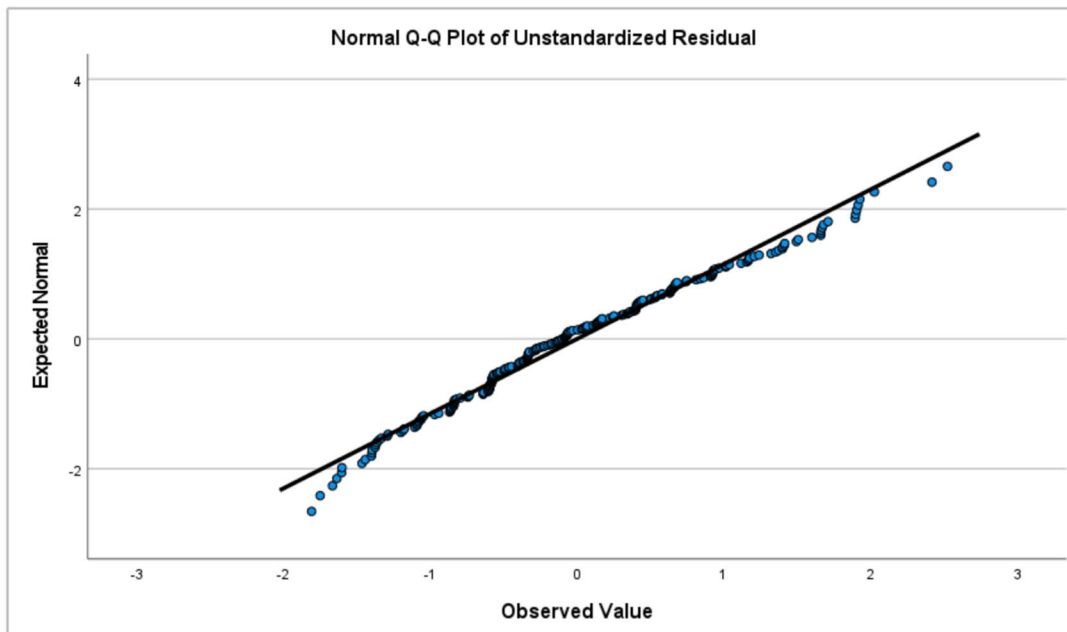
a. Predictors: (Constant), ConsExp, SustMind, LABEL  
 b. Dependent Variable: WTP Tomato

*Table 27: Assumptions of Linear Regression - WTP Tomato - ANOVA*

<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.362	3	6.454	8.450	<.001 <sup>b</sup>
	Residual	190.181	249	.764		
	Total	209.543	252			

a. Dependent Variable: WTP Tomato  
 b. Predictors: (Constant), ConsExp, SustMind, LABEL

*Figure 13: Assumptions of Linear Regression - WTP Tomato - Q-Q Plot*



## Appendix IVb: SPSS Output of Assumptions of Linear Regression, WTP - Apple

Table 28: Assumptions of Linear Regression - WTP Apple - Model Summary

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.250 <sup>a</sup>	.062	.051	.9638

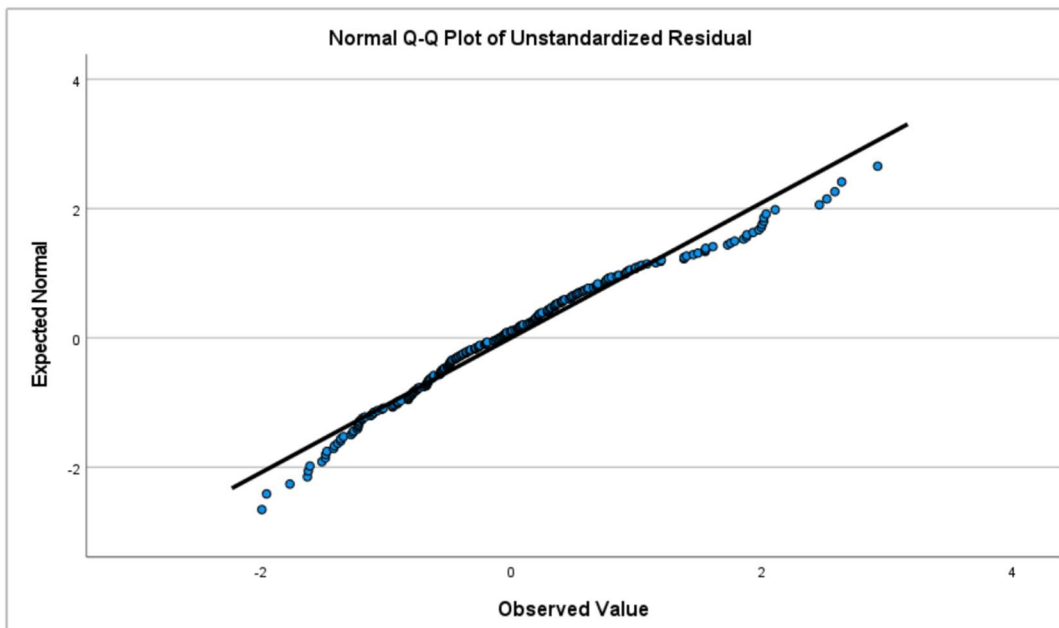
a. Predictors: (Constant), ConsExp, LABEL, SustMind  
b. Dependent Variable: WTP Apple

Table 29: Assumptions of Linear Regression - WTP Apple - ANOVA

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.318	3	5.106	5.497	.001 <sup>b</sup>
	Residual	230.376	248	.929		
	Total	245.694	251			

a. Dependent Variable: WTP Apple  
b. Predictors: (Constant), ConsExp, LABEL, SustMind

Figure 14: Assumptions of Linear Regression - WTP Apple - Q-Q Plot



## Appendix Va: SPSS Outputs of Hypothesis 1 – Full Sample

Table 30: Hypothesis 1 – WTP Tomato - Coefficients - Full Sample

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.016	.422		4.773	<.001
	Local	.140	.145	.069	.972	.332
	Organic	.451	.146	.219	3.097	.002
	Local Organic	.772	.161	.333	4.791	<.001
	SustMind	.015	.059	.015	.254	.800
	ConsExp	.006	.050	.007	.122	.903

a. Dependent Variable: WTP Tomato

Table 31: Hypothesis 1 – WTP Apple - Coefficients - Full Sample

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.786	.470		3.803	<.001
	Local	-.020	.159	-.009	-.127	.899
	Organic	.377	.161	.166	2.339	.020
	Local Organic	.719	.178	.281	4.037	<.001
	SustMind	.025	.066	.023	.381	.704
	ConsExp	.057	.056	.061	1.016	.311

a. Dependent Variable: WTP Apple

## Appendix Vb: SPSS Outputs of Hypothesis 1 – Full Sample - Country as control

Table 32: Hypothesis 1 – WTP Tomato - Coefficients - Full Sample - Country as control

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.431	.062		39.121	<.001
	Netherlands	.000	.160	.000	.003	.998
	Other Countries	-.047	.260	-.011	-.179	.858
2	(Constant)	2.126	.108		19.669	<.001
	Netherlands	.024	.154	.009	.158	.874
	Other Countries	-.034	.251	-.008	-.137	.891
	Local	.138	.145	.068	.949	.343
	Organic	.450	.147	.219	3.062	.002
	Local Organic	.771	.160	.333	4.822	<.001

a. Dependent Variable: WTP Tomato

Table 33: Hypothesis 1 – WTP Apple - Coefficients - Full Sample - Country as control

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.429	.068		35.513	<.001
	Netherlands	-.103	.176	-.036	-.583	.561
	Other Countries	-.006	.286	-.001	-.021	.984
2	(Constant)	2.207	.119		18.608	<.001
	Netherlands	-.095	.170	-.033	-.557	.578
	Other Countries	-.032	.278	-.007	-.114	.909
	Local	-.027	.160	-.012	-.171	.864
	Organic	.365	.162	.161	2.247	.025
	Local Organic	.727	.177	.284	4.099	<.001

a. Dependent Variable: WTP Apple



## Appendix VIa: SPSS Outputs of Hypothesis 1, WTP Tomato – Greek and Dutch Sample

Table 34: Hypothesis 1 – WTP Tomato - ANOVA

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.858	3	6.619	8.689	<.001 <sup>b</sup>
	Residual	189.685	249	.762		
	Total	209.543	252			

a. Dependent Variable: WTP Tomato  
b. Predictors: (Constant), Local Organic, Organic, Local

Table 35: Hypothesis 1 - WTP Tomato - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.308 <sup>a</sup>	.095	.084	.8728

a. Predictors: (Constant), Local Organic, Organic, Local

## Appendix VIb: SPSS Outputs of Hypothesis 1, WTP Apple – Greek and Dutch Sample

Table 36: Hypothesis 1 - WTP Apple - ANOVA

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.829	3	5.610	6.079	<.001 <sup>b</sup>
	Residual	228.865	248	.923		
	Total	245.694	251			

a. Dependent Variable: WTP Apple  
b. Predictors: (Constant), Local Organic, Organic, Local

Table 37: Hypothesis 1 - WTP Apple - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.262 <sup>a</sup>	.068	.057	.9606

a. Predictors: (Constant), Local Organic, Organic, Local

## Appendix VII: SPSS Outputs of Hypothesis 2 – Model 1

Table 38: H2 - WTP Tomato – Statistical Results

```

OUTCOME VARIABLE:
WTP_Tom

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .3382    .1144    .7606    3.9394    8.0000    244.0000    .0002

Product terms key:
Int_1   :      X1      x      SustMind
Int_2   :      X2      x      SustMind
Int_3   :      X3      x      SustMind

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0196    1.7980    3.0000    244.0000    .1481
  
```

Table 39: H2 - WTP Apple - Statistical Results

```

OUTCOME VARIABLE:
WTP_Appl

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .3268    .1068    .9031    3.6307    8.0000    243.0000    .0005

Product terms key:
Int_1   :      X1      x      SustMind
Int_2   :      X2      x      SustMind
Int_3   :      X3      x      SustMind

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0342    3.1028    3.0000    243.0000    .0273
  
```

X1: “No Label” condition

X2: Organic Label

X3: Local Organic Label

## Appendix VIII: SPSS Outputs of Hypothesis 3 – Model 1

Table 40: H3 - WTP Tomato – Statistical Results

```

OUTCOME VARIABLE:
WTP_Tom

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .3131   .0980   .7746   3.3147   8.0000   244.0000   .0013

Product terms key:
Int_1   :      X1      x      ConsExp
Int_2   :      X2      x      ConsExp
Int_3   :      X3      x      ConsExp

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0032      .2901      3.0000      244.0000      .8325
    
```

Table 41: H3 - WTP Apple – Statistical Results

```

OUTCOME VARIABLE:
WTP_Appl

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .2861   .0818   .9283   2.7077   8.0000   243.0000   .0071

Product terms key:
Int_1   :      X1      x      ConsExp
Int_2   :      X2      x      ConsExp
Int_3   :      X3      x      ConsExp

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W      .0093      .8202      3.0000      243.0000      .4838
    
```

X1: “No Label” condition

X2: Organic Label

X3: Local Organic Label

**Appendix IX: SPSS Output of Model 2 of Process Macro by Hayes (2013) - Income and Education as Control Variables**

*Table 42: WTP Tomato - Income and Education as Control Variables*

OUTCOME VARIABLE:

WTP\_Tom

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3609	.1303	.7626	2.7533	13.0000	239.0000	.0012

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.9665	.1569	12.5362	.0000	1.6575	2.2755
X1	.1693	.1497	1.1312	.2591	-.1255	.4641
X2	.4828	.1517	3.1835	.0016	.1841	.7816
X3	.7243	.1730	4.1877	.0000	.3836	1.0650
SustMind	.2307	.1231	1.8737	.0622	-.0119	.4732
Int_1	-.3298	.1607	-2.0524	.0412	-.6464	-.0132
Int_2	-.1857	.1832	-1.0138	.3117	-.5466	.1751
Int_3	-.3911	.1904	-2.0547	.0410	-.7662	-.0161
ConsExp	-.0495	.1064	-.4650	.6423	-.2591	.1602
Int_4	-.0108	.1448	-.0747	.9405	-.2960	.2743
Int_5	.0344	.1486	.2313	.8173	-.2584	.3272
Int_6	.1555	.1515	1.0261	.3059	-.1430	.4540
INCOME	.0425	.0256	1.6597	.0983	-.0079	.0929
EDUCAT	.0235	.0871	.2698	.7876	-.1482	.1952

Product terms key:

Int_1	:	X1	x	SustMind
Int_2	:	X2	x	SustMind
Int_3	:	X3	x	SustMind
Int_4	:	X1	x	ConsExp
Int_5	:	X2	x	ConsExp
Int_6	:	X3	x	ConsExp

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0210	1.9231	3.0000	239.0000	.1265
X*Z	.0056	.5110	3.0000	239.0000	.6750
BOTH	.0243	1.1139	6.0000	239.0000	.3548

Table 43: WTP Apple - Income and Education as Control Variables

OUTCOME VARIABLE:

WTP\_Appl

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3538	.1252	.9031	2.6200	13.0000	238.0000	.0020

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.0989	.1711	12.2656	.0000	1.7618	2.4360
X1	-.0078	.1622	-.0482	.9616	-.3273	.3116
X2	.3467	.1652	2.0985	.0369	.0212	.6721
X3	.5597	.1878	2.9799	.0032	.1897	.9298
SustMind	.2853	.1340	2.1298	.0342	.0214	.5493
Int_1	-.3886	.1749	-2.2218	.0272	-.7332	-.0440
Int_2	-.1481	.2001	-.7401	.4599	-.5423	.2461
Int_3	-.5847	.2077	-2.8155	.0053	-.9937	-.1756
ConsExp	-.0235	.1157	-.2034	.8390	-.2515	.2045
Int_4	.0770	.1575	.4886	.6256	-.2333	.3872
Int_5	-.0203	.1632	-.1244	.9011	-.3418	.3012
Int_6	.2492	.1635	1.5239	.1289	-.0729	.5713
EDUCAT	-.0018	.0945	-.0188	.9850	-.1880	.1845
INCOME	.0366	.0278	1.3171	.1891	-.0182	.0914

Product terms key:

Int_1	:	X1	x	SustMind
Int_2	:	X2	x	SustMind
Int_3	:	X3	x	SustMind
Int_4	:	X1	x	ConsExp
Int_5	:	X2	x	ConsExp
Int_6	:	X3	x	ConsExp

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0361	3.2721	3.0000	238.0000	.0219
X*Z	.0123	1.1132	3.0000	238.0000	.3444
BOTH	.0459	2.0808	6.0000	238.0000	.0562

## Appendix X: SPSS Output of Model 2 of Process Macro by Hayes (2013) - WTP Apple

Table 44: WTP Apple - Model 2

OUTCOME VARIABLE:

WTP\_App1

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3447	.1188	.9021	2.9417	11.0000	240.0000	.0011

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.1756	.1131	19.2320	.0000	1.9528	2.3985
X1	.0074	.1621	.0459	.9634	-.3118	.3267
X2	.3665	.1626	2.2538	.0251	.0462	.6868
X3	.5794	.1855	3.1232	.0020	.2139	.9448
SustMind	-.0914	.1108	-.8250	.4102	-.3097	.1269
Int_1	.3818	.1737	2.1976	.0289	.0396	.7239
Int_2	.2050	.1839	1.1145	.2662	-.1573	.5673
Int_3	-.2262	.1923	-1.1762	.2407	-.6050	.1526
ConsExp	.0643	.1079	.5961	.5517	-.1482	.2769
Int_4	-.0700	.1573	-.4451	.6566	-.3800	.2399
Int_5	-.0955	.1584	-.6030	.5471	-.4075	.2165
Int_6	.1737	.1587	1.0944	.2749	-.1389	.4863

Product terms key:

Int_1	:	X1	x	SustMind
Int_2	:	X2	x	SustMind
Int_3	:	X3	x	SustMind
Int_4	:	X1	x	ConsExp
Int_5	:	X2	x	ConsExp
Int_6	:	X3	x	ConsExp

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0370	3.3555	3.0000	240.0000	.0196
X*Z	.0120	1.0932	3.0000	240.0000	.3527
BOTH	.0463	2.0998	6.0000	240.0000	.0540

Focal predict: LABEL (X)  
 Mod var: SustMind (W)  
 Mod var: ConsExp (Z)

Conditional effects of the focal predictor at values of the moderator(s):

Moderator value(s):

SustMind -.9131  
 ConsExp -1.0724

	Effect	se	t	p	LLCI	ULCI
X1	-.2660	.2900	-.9172	.3599	-.8373	.3053
X2	.2818	.2994	.9410	.3476	-.3081	.8717
X3	.5996	.2974	2.0165	.0449	.0138	1.1854

Test of equality of conditional means

F	df1	df2	p
2.9011	3.0000	240.0000	.0356

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.1901
1.0000	1.9241
2.0000	2.4719
3.0000	2.7898

Moderator value(s):

SustMind -.9131  
 ConsExp .0000

	Effect	se	t	p	LLCI	ULCI
X1	-.3411	.2300	-1.4833	.1393	-.7941	.1119
X2	.1794	.2368	.7574	.4496	-.2871	.6458
X3	.7859	.2335	3.3656	.0009	.3259	1.2459

Test of equality of conditional means

F	df1	df2	p
6.9110	3.0000	240.0000	.0002

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.2591
1.0000	1.9180
2.0000	2.4385
3.0000	3.0450



Moderator value(s):  
 SustMind -0.9131  
 ConsExp 1.0724

	Effect	se	t	p	LLCI	ULCI
X1	-.4162	.2804	-1.4846	.1389	-.9685	.1360
X2	.0769	.2832	.2716	.7861	-.4809	.6348
X3	.9722	.2803	3.4687	.0006	.4201	1.5242

Test of equality of conditional means

F	df1	df2	p
7.2262	3.0000	240.0000	.0001

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.3281
1.0000	1.9119
2.0000	2.4050
3.0000	3.3002

Moderator value(s):  
 SustMind .0000  
 ConsExp -1.0724

	Effect	se	t	p	LLCI	ULCI
X1	.0826	.2321	.3557	.7224	-.3747	.5398
X2	.4689	.2280	2.0566	.0408	.0198	.9181
X3	.3931	.2662	1.4768	.1410	-.1312	.9175

Test of equality of conditional means

F	df1	df2	p
1.8671	3.0000	240.0000	.1358

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.1067
1.0000	2.1892
2.0000	2.5756
3.0000	2.4998

Moderator value(s):

SustMind .0000  
ConsExp .0000

	Effect	se	t	p	LLCI	ULCI
X1	.0074	.1621	.0459	.9634	-.3118	.3267
X2	.3665	.1626	2.2538	.0251	.0462	.6868
X3	.5794	.1855	3.1232	.0020	.2139	.9448

Test of equality of conditional means

F	df1	df2	p
4.8561	3.0000	240.0000	.0027

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.1756
1.0000	2.1831
2.0000	2.5421
3.0000	2.7550

Moderator value(s):

SustMind .0000  
ConsExp 1.0724

	Effect	se	t	p	LLCI	ULCI
X1	-.0677	.2358	-.2870	.7744	-.5322	.3968
X2	.2641	.2421	1.0908	.2764	-.2128	.7409
X3	.7656	.2364	3.2384	.0014	.2999	1.2313

Test of equality of conditional means

F	df1	df2	p
4.9115	3.0000	240.0000	.0025

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.2446
1.0000	2.1769
2.0000	2.5087
3.0000	3.0102

Moderator value(s):  
 SustMind .9131  
 ConsExp -1.0724

	Effect	se	t	p	LLCI	ULCI
X1	.4311	.2719	1.5854	.1142	-.1046	.9668
X2	.6561	.2659	2.4672	.0143	.1323	1.1799
X3	.1866	.3390	.5503	.5826	-.4813	.8544

Test of equality of conditional means

F	df1	df2	p
2.2023	3.0000	240.0000	.0884

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.0232
1.0000	2.4543
2.0000	2.6793
3.0000	2.2098

Moderator value(s):  
 SustMind .9131  
 ConsExp .0000

	Effect	se	t	p	LLCI	ULCI
X1	.3560	.2235	1.5927	.1125	-.0843	.7963
X2	.5536	.2307	2.4002	.0171	.0993	1.0080
X3	.3728	.2756	1.3527	.1774	-.1701	.9158

Test of equality of conditional means

F	df1	df2	p
2.0369	3.0000	240.0000	.1094

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.0922
1.0000	2.4482
2.0000	2.6458
3.0000	2.4650

Moderator value(s):

SustMind .9131

ConsExp 1.0724

	Effect	se	t	p	LLCI	ULCI
X1	.2809	.2879	.9755	.3303	-.2863	.8481
X2	.4512	.3056	1.4764	.1412	-.1508	1.0533
X3	.5591	.3081	1.8148	.0708	-.0478	1.1660

Test of equality of conditional means

F	df1	df2	p
1.2874	3.0000	240.0000	.2793

Estimated conditional means being compared:

LABEL	WTP_Appl
.0000	2.1611
1.0000	2.4420
2.0000	2.6124
3.0000	2.7202