Master's thesis

Packaging Design Elements as Marketing Tools: Effects on Purchase Intention for Local Food in Retail Environments

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Abstract

The growing popularity of locally grown food worldwide has prompted retailers to explore the potential of marketing local food in supermarkets. However, there is no research on the most effective way to present local food in a retail setting, particularly with regard to packaging. This study examines the influence of claim and image use on consumers' purchase intention for locally produced food and the moderating effect of product involvement. An online experiment was conducted with 205 Dutch consumers to test nine packaging designs and assess their impact on consumer purchase intention. The results of the ANCOVA analysis indicate that claim use has a direct influence on consumer purchase intention. Surprisingly, the absence of claims on the packaging was found to positively influence consumer purchase intention compared to the presence of a nutrition or health claim. The use of images does not influence consumer purchase intention. Furthermore, the level of product involvement was found to not affect the relationships between claim and image use on consumer purchase intention. This study contributes to the existing body of literature on local foods. Moreover, the findings of this study provide valuable insights for supermarket managers on how to market local food.

Keywords: retailers; claim use; image use; consumer purchase intention; local food; product involvement

Preface

This thesis represents the final stage of my Master's degree in Business Administration, with a specialization in Marketing, at Radboud University. It symbolizes the efforts, challenges, and insights I have gained throughout my academic career.

First, I would like to express my profound gratitude to my first supervisor, Dr. Marleen Hermans, for her support, guidance, and encouragement throughout this research. Her approach of encouraging independent thought and expertise proved to be of great benefit in the development of this research and my own development. I am also grateful to Dr. Pao Franco, my second supervisor, for his invaluable feedback and enthusiasm about this research.

Second, I would like to express my gratitude to my parents, sister, boyfriend, friends, and fellow students for their encouraging words and moral support throughout the writing process. The opportunity to exchange ideas proved to be a highly enlightening experience, ultimately leading to the best possible result.

Finally, I would like to extend my gratitude to the respondents who participated in this study. The success of this research would not have been possible without the cooperation of the respondents involved.

I hope this Master's thesis will contribute to the existing body of knowledge in the field of local food and serve as a source of inspiration for future research in this area.

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1. Introduction

Locally grown food is becoming increasingly popular worldwide. In the Netherlands, farm sales revenue has grown from €89 million to €370 million between 2013 and 2020 (Verheul, 2022). Feldmann and Hamm (2015) suggest that the growing popularity of local food consumption is due to consumers seeking greater transparency in the food chain and closer relationships. In addition, the growing awareness and concern about global climate change has led to an increase in local food consumption as a means of reducing food miles and preserving the environment (Blake, Mellor & Crane, 2010).

The growing recognition of the advantages of consuming local food has generated interest from food retailers (Nie & Zepeda, 2011). Initiatives such as farmers' markets, farm shops, and specialty food stores are becoming increasingly prevalent due to the growing demand for local food and challenge the control of retailers over the coordination and provision of the food supply (Ilbery & Maye, 2006). To address this competition, retailers engage in local retailing practices (Zwart & Wertheim-Heck, 2021). Despite the growing interest in local food from a retailer perspective, there is currently little empirical evidence on how to effectively market local food in supermarkets. This may be because local food retailing is a relatively new practice. Consequently, consumers are often unaware of the local food assortment available in the supermarket (Penney & Prior, 2014).

One effective strategy to address this issue is through packaging design, which plays a crucial role in attracting and retaining customer attention (Rundh, 2013). In the competitive world of food retailing, packaging must work harder than ever to stand out among the crowd of competing products (Wells et al., 2007). However, few retailers know how to use packaging as a marketing tool for local food.

Previous research has identified the use of claims as a fundamental element in packaging design. Claims are often used on traditional food packaging to influence consumer purchase intention (Kozup et al., 2003). However, there is some disagreement in the literature regarding the added value of claims on packaging design. On the one hand, when consumers search for information during their decision-making process, nutrition and health claims have been identified as one of the most crucial verbal elements in packaging (Butkevičienė et al., 2008). On the other hand, including such claims on packaging can generate negative impressions and skepticism toward the product (Williams, 2005). Moreover, retailers use different verbal text on the front local food packaging, including indications of the product's origin, emphasizing the benefits of local food in promotional messages, and providing information about the farmer

(Dunne et al., 2011). This indicates that retailers may lack a clear understanding of the most effective ways to promote local food. Despite the common use of claims by retailers, the impact of such claims has yet to be empirically examined. Therefore, this study aims to examine the impact of nutrition and health claims on local food packaging.

Additionally, previous research has demonstrated the value of images on packaging. The existing body of literature indicates that images on packaging have a favorable impact on consumers' purchase intention. This is because of their ability to enhance visibility and recall, evoke sensory experiences, and reinforce brand beliefs (Underwood & Klein, 2002; MacInnis & Price, 1987; Wang et al., 2023). However, other existing literature indicates that the value of images is dependent upon the context (Silayoi & Speece, 2004). Currently, retailers utilize different images on local food packaging to enhance the product's storytelling (Dunne et al., 2011). Nevertheless, no research has been conducted to ascertain whether and which type of image is more effective than others for local food packaging. Therefore, this study aims to determine the impact of image use (i.e., a farm image and a geographical illustration) on local food products.

Furthermore, this study investigates whether the impact of claim and image use on consumer purchase intention is moderated by product involvement. Involvement is a key determinant of consumer shopping behavior (Swoboda et al., 2009). Hence, the level of product involvement may influence the perceived importance of different package elements, such as claims and images (Silayoi & Speece, 2004). Zepeda and Deal (2009) found that consumers who purchase local food are more inclined to seek information than those who purchase traditional foods, indicating varying levels of product involvement. Consequently, the impact of claims and images on purchase intention may vary according to the individual level of product involvement. Therefore, further investigation is warranted.

In sum, this research will contribute to the existing literature in three ways. First, this research examines the impact of claims on local food packaging on consumers' intentions to purchase. Second, the study examines the impact of image use on purchase intention. Finally, the study examines whether product involvement moderates the aforementioned effects. It is of value to investigate this matter further, as several researchers have found that local food shoppers place different emphasis on different aspects of food products compared to traditional food shoppers. Therefore, it cannot be assumed that the effects of visual packaging elements (i.e., use of images) and verbal packaging elements (i.e., use of claims) are the same as for traditional food shoppers. The research question guiding this study is: *"To what extent do the use of claims (i.e. nutrition and health claims) and the use of images (i.e. farm image and*

geographical illustration) influence consumers' intention to purchase local food and how is this moderated by product involvement?".

The structure of this study is as follows. The next chapter reviews and analyzes the existing literature on local food, claims, images, and product involvement. Subsequently, in the third chapter, the conceptual framework will be presented with the corresponding hypotheses. The fourth chapter discusses the methodology of this study. The fifth chapter consists of the results of the study, followed by the final chapter; the discussion and conclusion.

2. Literature review

2.1: Local food

Despite the growing popularity of local food, there is still no unified definition in academic literature. Reaching a unified definition for local food can be challenging as there are several actors (e.g. producers, consumers, and retailers) who hold conflicting objectives and values within food systems (Enthoven & Van den Broeck, 2021). Brune et al. (2023) found three categories of local food definitions in the literature. The first category underscores the significance of reducing the supply chain to reestablish a direct connection between producers and consumers via direct marketing (Feldmann & Hamm, 2015). This definition confines the commercialization of local food to alternative market platforms like farmer's markets. The second category relies on the measurement of distance, commonly referred to as 'food miles' (Adams & Adams, 2011). The term 'food miles' refers to the distance that food travels from its place of production to the end consumer, including the resulting carbon emissions and packaging needs (La Trobe & Acott, 2000). Numerous researchers and food retailers support this definition due to its straightforward applicability (Eriksen, 2013; Pearson et al., 2011). The third classification is centered on geographic or political delineations, such as food originating within a specific state or country (Eriksen, 2013). Brune et al. (2023) found that consumers tend to favor local food definitions based on political boundaries. This observation contributes to the growing consensus on utilizing locality or political boundaries as defining factors for local food (Dunne et al., 2011). Following this, in this study 'local food' is conceptualized in terms of geographical boundaries. Hence, local food refers to products that are produced, marketed, and consumed within the same country. This differs from the 'country-of-origin effect' concept, which is a psychological effect describing how consumers' attitudes, perceptions, and purchasing decisions are influenced by products' country-of-origin labeling (Al-Sulaiti et al., 1998).

The term 'local' is gaining significance in consumers' choices when it comes to purchasing food (Jensen et al., 2019). This is because consumers generally view local food favorably due to the perceived health, social, economic, and environmental benefits (Zhang et al., 2020). First, consumers derive a sense of satisfaction from buying local food because they believe they are supporting local producers (Memery et al., 2015). Jensen et al. (2019) posit that consumers view supporting local producers as a method of retaining money within their community, thereby strengthening the local economy. Second, several researchers have found that local products are often of higher quality (Feldmann & Hamm, 2015), considered fresher

(Lim & Hu, 2016), more nutritious (Bianchi & Mortimer, 2015), and tastier (Jensen et al., 2019). These benefits can be attributed to the shortened transportation time between production and consumption. As a result, local food requires minimal use of chemicals during production (Skallerud & Wien, 2019). Furthermore, a decrease in transportation time results in a reduction in the use of transportation fuels (Bianchi & Mortimer, 2015). Third, the term 'local' is often linked to sustainable and healthy production and consumption patterns (Murdoch et al., 2017). According to Schmitt et al., (2017), local products perform better in areas of sustainability compared to global food products.

Besides drivers, consumers encounter various barriers to purchasing local food. Convenience is a significant barrier, as consumers tend to prefer supermarkets that offer a 'one-stop shop' rather than visiting multiple farmers' markets (Penney & Prior, 2014). Additionally, the time and availability of farmers' markets have also been identified as barriers. This presents an opportunity for supermarkets to meet customer demand by offering local products and overcoming these barriers. However, incorporating local products in retail stores can be challenging due to the need for a consistent and regular supply of products in large volumes to meet customer demand (Zwart & Wertheim-Heck, 2021). This centralized distribution structure can create tension between retailers and local food suppliers (Oosterveer et al., 2014).

2.2 Use of claims

A 'claim' means any representation that states, suggests, or implies that a food has particular qualities relating to its origin, nutritional properties, nature, processing, composition, or any other quality (World Health Organization, 2018). This study will use claims to present the beneficial nutritional and health properties of local food.

The Codex Alimentarius, a collection of internationally adopted food standards, guidelines, and codes of practice, distinguishes between two categories of claims: nutrition claims and health claims (World Health Organization, 2018). The Codex Alimentarius describes two types of nutrition claims. First, nutrient content claim, which is a nutrition claim that describes the amount of a nutrient in a food (e.g., "source of calcium", "high in fiber", "low in fat"). Second, a comparative nutrient claim, which is a claim that compares the nutrient content and/or energy value of two or more foods (e.g., "reduced", "less than", "fewer", "increased", "more than"). This study focuses on the comparative nutrient claim, as consumers often perceive local food as healthier and of better quality compared to traditional food (Birch et al., 2018). Furthermore, there are three types of health claims (World Health Organization, 2018). First, nutrient function claims, which describe the role of a nutrient in the normal physiological

growth, development, and functions of the body. Second, other function claims, which posit that nutrients or other substances can improve or modify the normal functions of the body. Finally, disease risk reduction claims, which are claims that the consumption of a food or food ingredient, in the context of the total diet, reduces the risk of developing a disease or health-related condition. This study focuses on nutrient function claims, as the average consumer may find these claims easier to understand compared to disease reduction claims, which may contain difficult terms such as 'metabolism' (Nocella & Kennedy, 2012). There are two perspectives in the literature on this subject.

The first stream of literature has found benefits to using claims on food packaging. The results of Williams' (2005) research show that health claims on foods are seen as useful by consumers. Consumers view a product as healthier when it features a health claim and are more likely to purchase it. Similarly, Kozup et al. (2003) found that presenting favorable nutrition information or health claims can lead to more favorable attitudes and purchase intentions, particularly when targeting consumer segments that are unlikely to access nutrition information presented on the back of packaged food. Whereas research has found that consumers are genuinely interested in health-related claims (Nocella & Kennedy, 2012), attention given to nutrition information on food packages varies across situations and products (Grunert & Wills, 2007). Thus, nutrition and health claims on food packaging are effective in influencing consumer purchase intention. However, it is questionable whether nutrition claims are as beneficial as health claims.

The second stream of literature has found no effects, or even negative effects, from the use of claims on food packaging. In the same study mentioned above, Williams (2005) found that consumers exhibit a high degree of skepticism regarding all aspects of information presented on food labels, including claims. Consequently, when consumers perceive health claims as useful, they may also exhibit skepticism regarding the trustworthiness of the information conveyed. Furthermore, Williams (2005) discovered that consumers do not differentiate clearly between nutrition and health claims. Meanwhile, Nocella and Kennedy (2012) found that when consumers do not understand the claims, it can even have a negative impact on market efficiency. In addition, previous research suggests that there are some domains of judgment where more negative impressions might be expected, such as 'taste quality'. Nutrient content claims, such as 'low fat', are perceived as healthier, yet they may also negatively impact the expected taste quality (Schuldt & Hannahan, 2013). There is a trade-off between the hedonic experience and health goals when consumers purchase and consume foods.

2.3 Use of images

Penney and Prior (2014) identified the challenge consumers face in identifying locally produced food in supermarkets, emphasizing the need for distinctive packaging. Megicks et al. (2012) found that local support and provenance were the most influential drivers for local buying behavior and intentions. Therefore, the authors recommended that this information should be communicated in-store and on the packaging. Dunne et al. (2011) propose that one method of indicating the local origin on packaging is through the use of images, a practice that has already been employed by retailers. Currently, retailers utilize images of farms, farmers, animals, or natural landscapes on local food packaging to indicate the local origin. Similarly, it is a common practice in the wine labeling industry to use an illustration of the country or place of production to indicate the origin of the product (Balestrini & Gamble, 2006). Therefore, in this study, the term 'image' refers to a visual representation that identifies the local origin.

Previous research focusing on visual imagery suggests that images may provide potential benefits for packaging strategy, primarily by increasing the accessibility of packaging information (Underwood et al., 2001). Consumers typically rely on external cues when they have little or no experience with a product (Underwood et al., 2001). Consequently, the utilization of images on packaging may be relevant for brands that are less familiar than national brands, such as local brands. However, two perspectives regarding the use of images on packaging can be found in the literature.

First, there is a body of literature suggesting that the use of images on packaging can benefit consumers' purchase intention. Several researchers have noted that images on packaging can increase their noticeability and recall due to the vividness and ability to evoke imagery that images provide (Underwood & Klein, 2002). MacInnis and Price (1987) suggest that imagining a brand's sensory experience (i.e., how a product looks, tastes, feels, smells, or sounds) reduces the number of brands evaluated, thereby increasing the likelihood of purchase. Moreover, Wang et al. (2023) found that images were the most significant factor influencing consumer purchase decisions. Similarly, Underwood and Klein (2002) found that images on packaging significantly improved brand beliefs. Furthermore, images can convey concrete information, which tends to be more influential in the decision-making process than more abstract verbal information (Alesandrini & Sheikh, 1983). Similarly, Vriens et al. (1998) also demonstrated that images enhance the perceived importance of product attributes more than verbal information.

Second, a body of literature exists which suggests that the value of images on packaging is dependent on the context. Silayoi and Speece (2004) suggest that the importance of images may depend on the consumer's degree of involvement. This can be explained by Petty and

Cacioppo's (1986) Elaboration Likelihood Model. Petty and Cacioppo (1986) found that a person's elaboration likelihood is high or low depending on their motivation, ability, and opportunity. The degree of elaboration determines which route to persuasion occurs. The "central route" represents the persuasion processes involved when elaboration is high. This involves extensive consideration of the message's arguments. Thus, when consumers are highly involved, the informational elements of the packaging tend to play a key role, and the visual elements of the packaging, such as images, are less effective (Silayoi & Speece, 2004). The "peripheral route" represents the persuasion processes that occur when elaboration is low. This requires little cognitive effort, as consumers rely on peripheral cues such as source credibility and heuristics (e.g., "If it is a well-known brand, it must be good"). Therefore, visual packaging attributes are prioritized in low-involvement situations (Silayoi & Speece, 2004). However, Miniard et al. (1991) propose that the efficacy of images on packaging is contingent upon the level of involvement and the type of image employed. Product-relevant images that highlight the product's key features and benefits are associated with an increase in the perceived value of the product, which in turn leads to consumers being more willing to purchase it. As involvement increases, product-relevant images utilized as arguments exert a greater influence (Miniard et al., 1991). Conversely, images that serve as peripheral cues without product-relevant information have a reduced persuasive impact as involvement increases.

2.4 Involvement

Given the demonstrated importance of involvement in the context of this study, a more detailed examination of this construct is provided herewith. Involvement was first introduced by Sherif and Cantril (1947) as: "The state of an organism when presented with any stimulus that is ego-central, or when any stimulus is consciously or subconsciously related to the ego". However, involvement seems to be a more complex concept in marketing. Today, there are different definitions and measures of involvement (Zaichkowsky, 1985).

The academic literature suggests that a person can be involved with advertising, with products, or with purchase decisions (Zaichkowsky, 1985). Product involvement is defined as a consumer's enduring perceptions of the importance of the product category based on the consumer's inherent needs, values, and interests (Bian & Moutinho, 2011). Purchase-decision involvement can be defined as the extent of interest and concern that a consumer brings to bear upon a purchase-decision task (Mittal, 1989). The purchase of local food is driven by the norms and values held by local food buyers, such as supporting the local community and

environmental factors (Megicks et al., 2012). Therefore, this study investigates the level of product involvement as it relates to the consumer's needs and values.

Three domains influence a person's level of involvement: the personal domain, which includes inherent interests, values, or needs that motivate one towards the object; the physical domain, which includes the characteristics of the object that differentiate it and increase interest; and the situational domain, which refers to temporary factors that increase relevance or interest towards the object (Zaichkowsky, 1985). This study adopts an involvement perspective that prioritizes personal relevance. This approach has been chosen because the study aims to optimize local food packaging based on consumers' preferences for the benefit of retailers. Furthermore, the literature shows a consensus that high involvement refers to personal relevance or importance (Mittal, 1995). Bloch and Richins (1983) use the term 'perceived importance' instead of 'involvement'. Concluded, this study defines 'involvement' as a person's perceived relevance of the object based on inherent needs, values, and interests', following Zaichkowsky's (1985) article.

3. Conceptual framework

This chapter discusses the relationships between claim and image use (i.e., independent variables) on consumers' purchase intention (i.e., dependent variable), with product involvement serving as a moderator. The independent variable "Use of claims" consists of three categories: comparative nutrient claim, nutrient function claim, and no claim (serving as a control condition). The independent variable "Use of images" consists of two types of images: an image of the farm and a geographical illustration of the home country where the local food is produced, with no image included as the control condition.

Figure 1 visualizes the conceptual framework with the possible relationships. The relationships and corresponding hypotheses are discussed below.

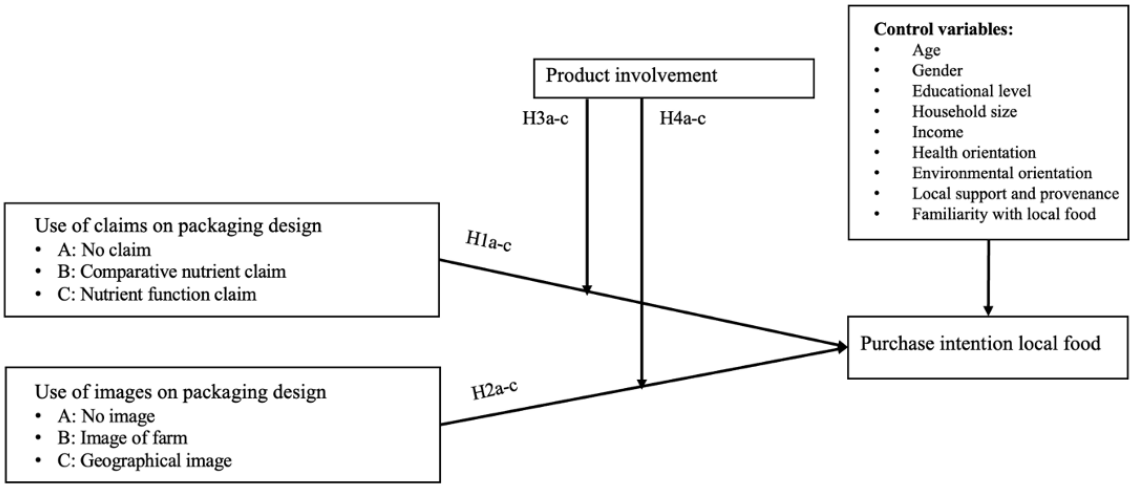

Figure 1. Conceptual framework of the potential relationships between the independent variables, moderator, and dependent variable

3.1 Use of claims

Ballco and Gracia (2022) conducted a systematic review and found that several studies suggest that the presence of nutrition claims, such as comparative nutrient claims, increases the perception of food products as healthy, and therefore, their acceptance. The importance of this finding lies in that the perceived healthiness of products substantially influences the purchase decisions of local food buyers, who are typically more health-conscious than traditional food buyers (Bianchi & Mortimer, 2015; Ballco & Gracia, 2022). Furthermore, Bianchi and Mortimer (2015) found that nutrition claims have a greater impact on the perceived healthiness of food products that already have a positive health image. Given that the local food buyer is typically more health-conscious and local food is already perceived as healthier than traditional food (Birch et al., 2018), it is hypothesized that nutrition claims, including comparative nutrition claims, will have a positive effect on the purchase intention compared to no claim:

H1a: Local food with comparative nutrient claims on the packaging has a higher purchase intention compared to no claims on the packaging

In addition, Dean et al. (2007) found that products with claims addressing personal concerns, such as health, are more attractive to consumers. Thus, in the context of this study, highlighting the health benefits of a product through health claims on the packaging is expected to be more attractive to local food buyers, as they are more health-conscious (Bianchi & Mortimer, 2015). This assumption is also supported by research indicating that health claims are more personally relevant to females and those with higher socioeconomic status (Ares et al., 2008; Ares et al., 2009; Sabbe et al., 2009), who are typically the local food buyers as found by Nie and Zepeda (2011). The following hypothesis is proposed:

H1b: Local food with nutrient function claims on the packaging has a higher purchase intention compared to no claims on the packaging

Verhagen et al. (2010) found that consumers were more likely to perceive a product as having health benefits when it included a health claim, compared to the same product without a claim or with a nutrition claim. Specifically, consumers are more likely to accept health claims than nutrition claims. This is because health claims communicate specific health benefits in contrast to nutrition claims, such as "reduces the risk of heart disease". This appeared to be more appealing to consumers. As the typical local food buyer is health-conscious (Bianchi & Mortimer, 2015), it is expected that the higher acceptance of health claims will result in health claims being more effective than no claims or nutrition claims. This is supported by Verbeke et al. (2009) who found that health claims are more persuasive, attractive, and credible, and lead to higher purchase intentions than nutrition claims. Therefore, the following hypothesis is proposed:

H1c: Local food with nutrient function claims on the packaging has a higher purchase intention compared to comparative nutrient claims

3.2 Use of images

Ampuero and Vila (2006) found that consumers preferred the use of images when a product's national origin was emphasized on the packaging as a key selling point, rather than the absence of an image. The authors described this as a product positioning strategy based on country of origin or patriotism. In this study, the packaging image communicates the local origin, which is consistent with this strategy. Moreover, consumers generally have positive perceptions of

local food (Zhang et al., 2020). Therefore, including an image of the farm on the packaging that indicates the local origin of the food is expected to have a positive effect on consumers' purchase intention. The following hypothesis is proposed:
H2a: Local food with an image of the farm on the packaging has a higher purchase intention compared to no image on the packaging

In addition, Ampuero and Vila (2006) found that no image had a slightly greater impact than an illustration on the product positioning strategy based on country of origin or patriotism. Thus, when the local origin is emphasized as a key selling point, local foods without an image on the package are expected to have a higher purchase intention than local foods with an illustration on the package. In their research, Ampuero and Vila (2006) utilized an illustration of the product in question. This illustration can be considered an 'irrelevant' one, as it fails to convey any meaningful information about the product (Miniard et al., 1991). In contrast, the current study employs a geographical illustration to indicate the local origin of the product, thereby providing relevant product information. Given that the illustration indicates the local origin of the product and this is positively perceived by consumers (Zhang et al., 2020), it is predicted that the positive attitudes and associations conveyed by the geographical illustration will compensate for the fact that it is an illustration. The following hypothesis is proposed:
H2b: Local food with a geographical illustration on the packaging has a higher purchase intention compared to no image on the packaging

Finally, Ampuero and Vila (2006) found that images have a greater impact on the positioning strategy based on country of origin or patriotism than illustrations. According to this finding, consumers are more likely to associate an image of the farm with the local origin of a product than with a geographical illustration of the home country. Given that the local identity is more likely to be identified by an image of a farm on the packaging, and the fact that local food is generally viewed favorably (Zhang et al., 2010), it is expected that this will lead to higher purchase intentions compared to a geographical illustration. Therefore, the following hypothesis is proposed:
H2c: Local food with an image of the farm on the packaging has a higher purchase intention compared to local food with a geographical illustration on the packaging

3.3 Moderator effect – claims

Ballco and Gracia (2022) found that consumers who are highly involved with a product are more likely to pay attention to and seek out products with nutrition and health claims, which increases purchase intention. Roe et al. (1999) support this by showing that such claims positively influence purchase intention among highly involved consumers who read both front and nutrition labels. Therefore, the absence of claims on local food products' packaging, which other brands have, may result in the elimination of the local food product when consumers compare several brands. The theory of non-compensatory models (Hoyer et al., 2018) can explain this phenomenon. According to this model, negative information leads to the rejection of an option (Hoyer et al., 2018, p. 215). Therefore, the impact of nutrition and health claims on consumers' purchase intentions is expected to be strengthened when consumers are more involved. The following hypotheses have been formulated:

H3a: The purchase intention of local food with comparative nutrient claims on the packaging compared to no claims is strengthened when consumers are more involved with the product

H3b: The purchase intention of local food with nutrient function claims on the packaging compared to no claims is strengthened when consumers are more involved with the product

As previously stated, Verhagen et al. (2010) and Verbeke et al. (2009) demonstrated that health claims are more effective than nutrition claims. For this reason, it is expected that consumers who are highly engaged with a product, and therefore are more likely to pay attention to claims (Ballco & Gracia, 2022), have a higher purchase intention for local foods with a health claim than a nutrition claim. This can be explained by the expectancy-value model of Fishbein and Azjen (1975). Based on this model, consumers are more likely to be persuaded if they perceive the attitude object to have highly valued characteristics. The health-conscious mindset of local food buyers is more likely to be influenced by health claims on local food products due to the specific health benefits they promote and the acceptance of health claims (Verhagen et al., 2010). The following hypothesis is proposed:

H3c: The purchase intention of local food with nutrient function claims on the packaging compared to comparative nutrient claims is strengthened when consumers are more involved with the product

3.4 Moderator effect – images

As mentioned previously, Zepeda and Deal (2009) found that consumers who purchase local food seek more information than those who purchase traditional foods. Consequently, local food buyers tend to be more involved with a product, as evidenced by the Elaboration

Likelihood Model, which suggests that consumers who are highly involved engage in more extensive information processing (Petty & Cacioppo, 1986). Miniard et al. (1991) demonstrated that as consumer involvement increases, their purchase intention increases when images convey product-relevant information. These images are commonly referred to as 'relevant images', and illustrate arguments supporting the product's benefits. However, images that do not communicate relevant information about the product are considered peripheral cues, also known as 'irrelevant images'. These images evoke emotion and capture consumer attention in low-involvement situations. As the image of the farm and the geographical illustration are intended to indicate the local origin of the product, which can be seen as product-relevant information, it is expected that these will have a positive effect on purchase intention. The provenance of food products can be considered as product-relevant information for local food buyers, as the local origin is a key driver for purchasing local food (Birch et al., 2018). The following hypotheses are formulated:

H4a: The purchase intention of local food with an image of the farm on the packaging compared to no image is strengthened when consumers are more involved with the product

H4b: The purchase intention of local food with a geographical illustration on the packaging compared to no image is strengthened when consumers are more involved with the product

Heuer (2015) demonstrated that images provide consumers with more information than line drawings (i.e., illustrations) due to the presence of color, luminance, texture, and shading cues. The greater semantic richness of images enables consumers to comprehend and remember products more effectively than line drawings. Given the greater depth of processing performed by the local food buyer, who is more involved with the product (Zepeda & Deal, 2009), images are assumed to be favored over line drawings, as they provide more information (Heuer, 2015). Consequently, packaging bearing an image of the farm is assumed to be preferred over a geographical illustration when the consumer is more involved, as it offers more visual cues and detailed information. The following hypothesis is proposed:

H4c: The purchase intention of local food with an image of the farm on the packaging compared to a geographical illustration is strengthened when consumers are more involved with the product

4. Methodology

4.1 Research design

This study employed a quantitative research approach to test the hypotheses. Quantitative methods involve measuring variables that yield numeric outcomes to support or refute a theory (Field, 2024). Data was collected through an online experiment instead of a laboratory, as no physical interactions or manipulations were necessary for this study (Birnbaum, 2004). In addition, no sensitive topics were discussed that would require a controlled and private setting.

An online experiment was chosen for several reasons. First, an online experiment can be easily distributed and respondents can complete it at a time and place of their choosing (Clifford & Jerit, 2014). Second, online experiments are cost-effective compared to laboratory experiments, as there are no printing or location costs. Third, an online experiment can be conducted in a short amount of time, reaching a large sample. Fourth, an online experiment could be conducted using the Qualtrics program. This allowed direct analysis of data in SPSS and ensured the confidentiality of the data.

The study employed a between-subject design, whereby each respondent was exposed to a single experimental condition (Field, 2024). This approach was selected for multiple reasons. First, it removes practice effects that may cause respondents to perform differently in the second condition due to familiarity with the experimental situation and measures being used (Field, 2024, p. 60). Second, it eliminates boredom effects that may cause respondents to perform differently in the second condition due to fatigue or boredom from completing the first condition (Field, 2024, p. 60). Furthermore, when a single choice or treatment option is involved, between-subject designs may exhibit higher external validity, making their results more readily applicable to real-world scenarios (Charness et al., 2012).

The statistical analysis used is the Analysis of Covariance (hereinafter referred to as ANCOVA). According to Hair et al. (2018, p. 391), a minimum of 20 observations is recommended for ANCOVA. The number of cells is the product of the number of levels for each treatment. In this study, there are 2 treatments with each 3 levels. Therefore, this study has a 3x3 design, and thus a total of 9 cells. Consequently, to maintain a sufficient sample size for each cell, a total sample of 180 or more was required.

The online experiment was conducted among Dutch consumers aged 18 years or older. This was done to comply with legal restrictions and ensure that data was not collected from minors without parental or legal guardian consent (Autoriteit Persoonsgegevens, n.d.). The online experiment questions were presented in Dutch, as the research was conducted in the

Netherlands. To gather respondents, this study used non-probability sampling techniques, specifically convenience sampling and snowball sampling. Convenience sampling involves inviting respondents who are easily accessible to the researcher to take part in the online experiment (Broekhoff et al., 2021). Respondents were recruited through the students' workplace and social media platforms, such as WhatsApp, Facebook, and LinkedIn. Furthermore, the snowball sampling technique was employed by requesting respondents to share the participation link with others (Broekhoff et al., 2021). The text and images used to gather respondents for the online experiment can be found in Appendix A. Furthermore, the online experiment can be found in Appendix B.

The respondents initiated the online experiment by clicking on the provided link, which guided them through a series of steps facilitated by the Qualtrics program. The respondents were initially greeted by a welcome screen that introduced the researcher and the purpose of the study. Thereafter, respondents were presented with a page explaining how data would be collected and stored, ensuring anonymity and confidentiality. Contact details were provided for any queries. Before taking part in the online experiment, respondents were required to give their informed consent. Subsequently, an attention check was employed to ensure that respondents were paying attention. After this, the definition of local food was explained, and the respondents were randomly assigned to one of nine experimental conditions. The focus on local food products in the supermarket was highlighted in the text. After viewing one of the nine visualizations, respondents were asked questions about their purchase intentions. Finally, respondents were asked questions about their product involvement and the control variables. At the end of the online experiment, respondents were thanked for their participation.

4.2 Operationalization

In this study, scales from previous research were used, and visualizations were developed for the measurement of variables. An overview of all variables, items, and supporting references can be found in Appendix C.

4.2.1 Pre-test

Local food products commonly found in farmer shops and supermarkets include potatoes, fruits, vegetables, dairy products (e.g. cheese and milk), and meat. According to CBS data (2023), milk production is the highest in Dutch agriculture. Therefore, milk was used as an example of a local food product in this study. Additionally, to prevent potential bias based on prior brand experiences, a fictitious brand name was used for the visualizations. A pre-test was conducted

to ensure that the treatments were perceived correctly, with manipulation checks (Hair et al., 2018) (see Appendix D). Moreover, the most appropriate fictitious brand name and claims were identified through the pre-test. Please refer to Appendix E for the results of the pre-test.

4.2.2 Purchase intention

To measure purchase intention, Burton et al.'s (1999) seven-point scale was used. This scale measures the likelihood of a consumer purchasing a product based on the information presented on the product's packaging. Therefore the scale was suitable for measuring purchase intention in the context of this study. Burton et al. (1999) reported an alpha of .89, indicating that the items properly measured the construct 'purchase intention'.

4.2.3 Use of claims and Use of images

One of the independent variables manipulated in this study was the use of claims with the categories: no claim, a comparative nutrient claim, and a nutrient function claim. The results of the pre-test indicated that the claims "Twice as much calcium as regular milk products" and "High in protein for muscle building and recovery" were most appropriate to use.

The second independent variable manipulated was the use of images, with three categories: no image, an image of the farm, and a geographical illustration. The different visualizations can be found in Appendix F.

4.2.4 Product involvement

Chandrasekaran's (2004) scale, which consists of three statements with a five-point Likert-type response format, was utilized to measure product involvement. Two of the three statements were used in this study; the rationale for this can be found in Appendix C. This scale was the most appropriate for measuring product involvement as it assesses a consumer's interest in and personal relevance of a product. Chandrasekaran (2004) reported an alpha of .91, indicating that the construct of 'product involvement' was measured accurately by the items.

4.2.5 Control variables

This study considered several control variables that could impact the dependent variable 'purchase intention'. According to Zepeda and Li (2006), household size has an impact on the likelihood of purchasing local food. Specifically, the presence of more than one adult in the household significantly increases the probability of buying local food. Previous research also suggests that the typical local food shopper is a college-educated female with above-average

income (Nie & Zepeda, 2011). Additionally, Mirosa and Lawson (2012) found that local buyers tend to be older and better educated. Therefore, the demographic control variables are age, gender, educational level, household size, and income. In addition, the following variables were included as control variables: health orientation, environmental orientation, local support and provenance, and familiarity with local food. Mirosa and Lawson (2012) found that the personal motivation for consumers to purchase local food is their belief that it is healthier. Additionally, the use of fewer chemical preservatives in local food, due to the shorter transportation and storage times, contributes to this perception. This is in line with another driver for consumers to purchase local food, namely the perceived environmental benefits (Pearson et al., 2011). The reduced travel distance results in a decrease in the need for packaging and storage, which in turn reduces environmental costs. Furthermore, consumers who are interested in a product's origin and supporting the local community may influence their purchase intention towards local food. Supporting the local community is one of the main reasons for consumers to buy local food (Megicks et al., 2012). Additionally, Pearson et al. (2011) found that more consumers are becoming interested in the origin and production of their food. Finally, familiarity with local food is included as a control variable, as this can increase the purchase intention of local food (Keller & Swaminathan, 2019).

4.3 Data analysis

ANOVA is a statistical tool used to determine whether an observed difference is due to a treatment effect or random sampling variability (Hair et al., 2018). This involves examining mean differences between groups, specifically experimental treatments. ANOVA is beneficial when used in conjunction with experimental designs (Hair et al., 2018). This study conducted an ANCOVA, which is an extension of ANOVA, because of the presence of covariates. ANCOVA reduces the error variance in the dependent variable by adjusting for covariate effects (Hair et al., 2018). The covariates in this study were the control variables and the moderating variable.

The two independent variables, namely the use of claims and the use of images, were measured on a categorical scale. The dependent variable, purchase intention, was measured on a metric scale. Furthermore, for ANCOVA analysis, covariates must be measured at the metric level. Consequently, no transformations were required (Hair et al., 2018).

Concluded, the equation for this study can be expressed as follows:

$$
\begin{aligned}
&Purchase\ intention\ i \\
&\quad = b_0 + b_1 Claim_i + b_2 Image_i + b_3 Product\ involvement_i \\
&\quad + b_4 Product\ involvement_i * Claim_i + b_5 Product\ involvement_i * Image_i \\
&\quad + b_6 Age_i + b_7 Gender_i + b_8 Educational\ level_i + b_9 Household\ size_i \\
&\quad + b_{10} Income_i + b_{11} Health\ orientation_i + b_{12} Environmental\ orientation_i \\
&\quad + b_{13} Local\ support\ and\ provenance_i + b_{14} Familiarity\ with\ local\ food_i + e_i
\end{aligned}
$$

4.4 Research ethics

Researchers conducting studies involving human respondents are required to meet various ethical standards (Smith, 2003). In this study, a consent process was included at the beginning of the online experiment to ensure that respondents participated voluntarily with knowledge of the potential risks and benefits (Smith, 2003). Following APA's Ethics Code, the respondents were informed about the following topics. First, the introduction included the purpose of the research, expected duration, and procedures. Second, respondents were informed of their right to decline participation and withdraw from the research at any time without consequences. Third, respondents were informed that their participation would be anonymous and the confidentiality of their data was explained (Smith, 2003). In this study, the collected data was analyzed and stored in a location accessible only to the researcher. Finally, contact information for inquiries was provided.

5. Results

5.1 Sample

The initial sample consisted of 206 respondents. All 206 respondents correctly passed the attention check. One respondent, however, was excluded from the sample due to being below the age of 18. Consequently, the final sample size comprised 205 respondents who were 18 years of age or older and who completed the online experiment in its entirety. The sample consisted of 59 males (28.8%), 145 females (70.7%), and one non-binary individual (0.5%). Table H1 demonstrates that the majority of respondents (29.8%) reported a household size of two, followed by four (21.0%). Additionally, the mean income ranged from €20,000 to €39,999. The highest level of education attained was a Master's degree, followed by the University of Applied Sciences. Furthermore, Table H1 demonstrates that 92.7% of the respondents have previously purchased local food. Moreover, Table H1 presents descriptive statistics for the dependent variable, the moderator, and the covariate age. The average purchase intention was 4.3577. In addition, the average product involvement was 2.7878. The mean age of the sample was 39 years.

5.2 Reliability analysis

A series of reliability analyses were conducted to assess the internal consistency of the items within a scale. The three items of the scale purchase intention demonstrated internal consistency, as they exceeded Cronbach's alpha value of .70 (Hair et al., 2018) (see Table H2). Consequently, a summated scale was created to utilize the variable purchase intention for the ANCOVA analysis.

The reliability analysis for the covariates product involvement, health orientation, familiarity with local food, environmental orientation, and local support and provenance can be found in Table H3. All of the corresponding items exceeded the threshold of .70, indicating that they were suitable for transformation to a summated scale (Hair et al., 2018).

5.3 Standardization

The moderator, product involvement, was standardized with mean centering. This was done because centering is associated with improvements in the interpretation of moderation and interaction effects (Hair et al., 2018, p. 102). The mean of the variable (see Table H4) was subtracted from the values of all objects.

5.4 Assumptions

Before conducting an ANCOVA analysis, it is necessary to ensure that several assumptions are met. The assumptions are briefly discussed here; for a more detailed examination please refer

to Appendix G. First, the assumption regarding the measurement levels was met without the need for any adjustment. Second, the assumption of normality was evaluated by assessing the skewness and kurtosis values, the group sizes, and normal probability plots. The data exhibited a normal distribution. Third, the independence of the observations was guaranteed through the research design. Fourth, Levene's test demonstrated that the variances were homogeneous, thus meeting the assumption of homogeneity of variance. Fifth, the linearity between the covariates and the dependent variable was assessed using scatter plots. The covariates gender and household size exhibited non-linear patterns, while others demonstrated linear relationships. Sixth, the covariates product involvement, age, gender, education, household size, and income demonstrated no significant correlation with the dependent variable, thus failing to meet this assumption. Furthermore, no high correlations were found among the covariates, thereby ensuring the absence of multicollinearity. Finally, the homogeneity of regression effects was tested. This assumption was not met, as some interaction effects were found to be significant.

Strictly taken, it is not allowed to conduct an ANCOVA analysis, as not all of the assumptions have been met. Nevertheless, an ANCOVA analysis was conducted to interpret the results. The rationale behind this approach is that a theoretical explanation of the expectations and the intended testing methods has already been provided. Consequently, the data will be analyzed using an ANCOVA analysis. Robustness checks were conducted to ascertain whether the violation of the assumptions influenced the outcomes.

5.5 ANCOVA analysis

First, the significance and strength of the effects were analyzed (see Table 5.5.1). In this study, a statistically significant difference is indicated by a p-value that is less than .05. The whole model is significant ($F(18, 165)= 4.561$, $p<.001$), explaining 33.2% of the variation in the dependent variable (i.e., $R^2=.332$). The covariates were found to influence the dependent variable; the model that excluded the covariates was only able to explain 2.6% of the variation in the dependent variable (i.e., $R^2=.026$) (see Table H12). The covariate "Environmental orientation" was found to be significant at the .05 alpha level, with a value of ($F(1, 165) =10.412$, $p<.01$). Additionally, the covariate "Local support and provenance" was found to be significant with ($F(1, 165)= 11.349$, $p<.001$). Finally, the covariate "Income" was found to be significant with ($F(1,165)=5.217$, $p<.05$). Local support and provenance contribute the greatest additional value to the prediction accuracy of the dependent variable ($\eta^2=.064$), in comparison to environmental orientation ($\eta^2=.059$) and income ($\eta^2=.031$). Second, the main effects of the independent variables were examined. The main effect of "Claim type" ($F(2,165)=.802$,

p=.450) and “Image type” (F(2,165)=.980, p=.377) was not significant. Therefore, the hypotheses H1 and H2 were not supported. Finally, the interaction effects were evaluated. The interaction effect of “Claim type * Product involvement” (F(2, 165)=1.639, p=.197), and “Image type * Product involvement” (F(2,165)=1.213, p=.384) was not significant. Consequently, hypotheses H3 and H4 were not supported. The non-significant interaction effects are illustrated in Figures H12.1 and H12.2, where no pattern can be identified.

Table 5.5.1: *Test of Between-Subjects Effects Output*

Tests of Between-Subjects Effects						
Dependent Variable: Mean of Purchase intention						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	103.365[a]	18	5.742	4.561	<.001	.332
Intercept	1.272	1	1.272	1.010	.316	.006
Independent variables:						
Claim type	2.021	2	1.010	.802	.450	.010
Image type	2.468	2	1.234	.980	.377	.012
Moderator:						
Mean centered product involvement	1.347	1	1.347	1.069	.303	.006
Control variables:						
Health orientation	3.536	1	3.536	2.809	.096	.017
Familiarity with local food	.764	1	.764	.606	.437	.004
Environment orientation	13.109	1	13.109	10.412	.002	.059
Local support and provenance	14.289	1	14.289	11.349	<.001	.064
Age	.109	1	.109	.086	.769	.001
Gender	2.213	1	2.213	1.758	.187	.011
Education	.000	1	.000	.000	.993	.000
Household size	.067	1	.067	.053	.818	.000
Income	6.569	1	6.569	5.217	.024	.031
Interaction effects:						
Claim type * Mean centered product involvement	4.127	2	2.064	1.639	.197	.019
Image type * Mean centered product involvement	2.426	2	1.213	.963	.384	.012
Error term	207.746	165	1.259			
Total	3897.444	184				
Corrected Total	311.111	183				
a. R Squared = .332 (Adjusted R Squared = .259)						

Second, the direction of the relationship between the covariates and the dependent variable was evaluated (see Table H13). The output of the parameter estimates table indicates that the covariate “Environmental orientation” exerts a positive effect on consumer purchase intention (β=.170; p<.01). Additionally, the covariate “Local support and provenance” was found to have a positive effect on the purchase intention (β=.241; p<.001). Furthermore, the covariate “Income” was found to have a negative effect on purchase intention (β= -.150; p<.05).

Finally, it is noteworthy that the interaction effect between health claim and product involvement is marginally significant at the alpha level of .10 (β=.340; p<.10).

Third, the main effects were evaluated through a post-hoc test, as detailed in Table H14. The Tukey test was employed, given that equality of variance (i.e., homogeneity of variance) was observed and group sizes were equal. All p-values were greater than .05 for both independent variables, indicating that the observed differences between the three categories of the independent variables are not statistically significant. Nevertheless, the interpretation of the mean differences between the categories will proceed. First, for the independent variable "Use of claims", the packaging with the nutrition claim demonstrated a lower purchase intention than with the health claim (*MD*=-.0837; p=.927) and no claim (*MD*=-.3283; p=.335). The difference between the health claim and the no claim is -.2446 (p=.927). Second, for the variable "Use of images", the packaging with the farm image exhibited a lower purchase intention than the country image (*MD*=-.1781; p=.709) and no image (*MD*=-.0658; p=.955). The difference between the country image and the no image condition was .1123 (p=.878).

As post-hoc analyses are unable to incorporate covariates (Hair et al., 2018), plots were generated to illustrate the influence of the independent variables on the dependent variables, while controlling for the covariates. The plots can be found in Table H15. The plots demonstrate that there is no interaction between the categories of the independent variables, as the lines are parallel.

5.6 Robustness checks

Robustness checks were conducted to determine the impact of the violated assumptions on the results (Hair et al., 2018). The first robustness check excluded the outliers, as detailed in Table H16. The second robustness check excluded covariates gender and household size, which were found to be non-linear. The third robustness check was conducted without the covariates that demonstrated a non-significant correlation with the dependent variable. The fourth robustness check was conducted without the covariates that did not demonstrate a homogeneous regression effect. In the fifth robustness check, a three-way interaction between the two independent variables and the moderator was included. The final robustness check was conducted to assess the impact of employing a mean split for product involvement on the interaction effects. The results and outcomes can be found in Appendix I.

In conclusion, the various robustness checks show that the original ANCOVA analysis can be considered quite robust. The first robustness check, which excluded the outliers, demonstrated a significant main effect of "Claim type" on purchase intention, whereas this

effect was not initially significant in the original model. This effect was not in line with H1, as no claim was identified as having the highest purchase intention. This new model, excluding the outliers, was found to be the most adequate in explaining the variation in the dependent variable (R^2_{adj}=.295) compared to the original model (R^2_{adj}=.259). Consequently, the new model will serve as the primary model for the conclusions. Moreover, the covariate "Health orientation" demonstrated a significant effect on purchase intention with robustness checks 1, 3, and 4. Finally, when a mean split was used for product involvement, the figures generally showed a similar pattern of purchase intentions for the interaction effects between the independent variables and the moderator compared to the metric product involvement variable.

6. Discussion and conclusion

6.1 Theoretical implications

The purpose of this study was to contribute to the existing local food literature. The research question was as follows: *"To what extent do the use of claims (i.e. nutrition and health claims) and the use of images (i.e. farm image and geographical illustration) influence consumers' intention to purchase local food and how is this moderated by product involvement?"*.

First, the study revealed that the utilization of claims had no impact on consumer purchase intention. It was expected that nutrition claims would have a positive impact on consumer purchase intention, compared to no claims. This was hypothesized, given that the typical local food buyer is more health-conscious and that nutrition claims have been found to have a positive relationship with the perceived healthiness of food products (Bianchi & Mortimer, 2015). The absence of an observed effect may be explained by the high level of consumer skepticism exhibited toward claims, which results in a lower purchase intention (Williams, 2005). Another potential explanation for this finding is that the impact of nutrition claims on purchase intention varies across products (Grunert & Wills, 2007). The study conducted by Kim et al. (2009) revealed that nutrition claims were more effective for hedonic foods than for utilitarian foods, such as milk. It was similarly proposed that the utilization of health claims would have a positive effect on consumer purchase intention, compared to no claims. This hypothesis was derived from the findings of Dean et al. (2007), which indicated that products with claims addressing personal concerns are more attractive to consumers. Therefore, the packaging with a health claim was expected to be more attractive to local buyers due to their health-consciousness. Nevertheless, the findings demonstrated no effect on purchase intention. This may be because local food products are already perceived as healthy (Bianchi & Mortimer, 2015), and health claims on the packaging may thus be considered as unnecessary as discussed by Lampila et al. (2009). Finally, it was hypothesized that a health claim would result in a higher purchase intention, compared to a nutrition claim. Once more, no effect was observed on consumer purchase intention. This may be explained by the study of Williams (2005), which demonstrated that consumers do not make clear distinctions between nutrition and health claims. However, in the first robustness check, which involved the removal of all outliers, it was observed that claim type did have an effect on purchase intention. Specifically, no claim was identified as having the highest purchase intention in comparison to either a nutrition claim or a health claim.

Second, the utilization of images did not influence consumer purchase intention. It was expected that an image of the farm and a geographical illustration would have a positive impact on consumer purchase intention, compared to no image. The presence of images on packaging enhances the accessibility of information and improves brand beliefs, as demonstrated by Underwood and Klein (2002). Moreover, the images indicated the local origin of the product, which is viewed favorably by consumers (Zhang et al., 2020). Nevertheless, the findings of this study are in line with other studies indicating that the value of images on packaging is dependent on the context. The degree of vividness and the ability to evoke imagery with an image on the packaging may depend on the type of product (Underwood et al., 2001). Products with higher levels of experiential benefits are more likely to benefit from using images because the imagery processing evoked by the images aligns with the experiential nature of the product. However, milk is typically a utilitarian product that serves primarily functional purposes, such as its nutritional value (Maehle et al., 2015). Consequently, images may be less valuable in terms of their vividness and the ability to evoke imagery. An additional potential explanation is that the local origin was not identified in the images by the consumers. Consumers may not associate an image of a farm with the idea that the product is locally sourced. Moreover, there is no consensus regarding the boundaries of local food, as indicated by Brune et al. (2023). As a result, the geographical illustration indicating that the milk is produced in Brabant may not have been perceived as local. Consequently, the favorable attitudes consumers hold towards local food were not associated with the product through the images, and therefore did not result in an increased purchase intention. Finally, it was proposed that an image of the farm would result in a higher purchase intention, compared to a geographical illustration. Ampuero and Vila (2006) found that images were more likely to be associated with a product's national origin compared to illustrations. However, no difference was found between the image of the farm and the geographical illustration on the purchase intention. One potential explanation for this is that an image of the product itself was most often associated with a product's national origin in the study by Ampuero and Vila (2006). In this study, however, the image included the farm where the product was produced, rather than the product itself. Consequently, the absence of a product image in this study may have resulted in a diminished preference for an image on the packaging.

Third, it was expected that the impact of claims on consumer purchase intention would be strengthened when consumers were more involved with the product. The findings of the original model, which included the outliers, indicated that the interaction between the health claim and product involvement may have a greater effect on purchase intention than the interaction between no claim and product involvement. This may be attributed to the greater

involvement of local food buyers, who tend to pay more attention to claims and value health claims to a greater extent (Ballco & Gracia, 2022; Verhagen et al., 2010). However, this finding provides some indication of an effect. Overall, the results suggest that product involvement does not moderate the relationship between claim use and consumer purchase intention. One potential explanation for the lack of influence of product involvement is that the positive and negative effects of product involvement cancel each other out. Building upon Ballco and Gracia's (2022) findings, it was expected that highly involved consumers would be aware of the absence of claims and, as a consequence, would be less inclined to purchase the product without a claim. Consequently, the inclusion of claims would have a positive effect. However, when a product has a nutrition or health claim, there is a tendency for consumers to question whether the claims are solely used as a sales tool (Williams, 2005). This could result in a negative effect when claims are included. This is particularly the case with highly involved consumers, who are likely to engage in a comprehensive examination of the message's arguments (Petty & Cacioppo, 1986). Consequently, the impact of product involvement may be neutralized in this instance, suggesting that there is no change in the purchase intention.

Fourth, the degree of product involvement did not influence the original relationship between image use and consumer purchase intention. Miniard et al. (1991) demonstrated that the inclusion of 'relevant' images would enhance the intention to purchase as the level of involvement increased. One potential explanation for the absence of an effect is that the extent to which the images were perceived as conveying product-relevant information may vary based on individual preferences. Some consumers may view the product's origin as a highly important attribute, whereas others might prioritize an image that illustrates how the product can be used (e.g., milk with cereal). The Fishbein Multi-Attribute Model (1967) explains this phenomenon, suggesting that consumer attitudes are shaped by beliefs about a product's attributes and the perceived value of those attributes.

In conclusion, the original model indicated that health claims might have a positive effect on consumer purchase intention, while moderating for product involvement. However, the new model, excluding the outliers, demonstrated that claim type has an effect on consumer purchase intention, specifically no claim compared to a nutrition claim, and more carefully, no claim compared to a health claim. Upon examination of the outliers, no specific reasons or patterns could be identified that would explain why these respondents are outliers (e.g., age, buying local food or not, degree of product involvement, inconsistent responses). Consequently, in consideration of the theoretical relevance of the main effect and the better fit, this study has elected to adhere to the new model, excluding the outliers.

6.2 Managerial implications

The findings of the new model, which excludes outliers, have implications for supermarket managers. First, it is recommended that local food be marketed without a claim on the packaging, as this leads to the highest purchase intention compared to a nutrition and health claim. Second, it is recommended that no images be included on the packaging of local food to reduce printing costs, as the use of images does not influence the purchase intention. However, it is important to consider that while images do not directly influence purchase intention, they are likely to serve as attention cues (Underwood et al., 2001). This suggests that products with images are more likely to be considered, especially for low-familiarity brands like local food brands. Without an image, local food brands are unlikely to be considered at all. Finally, the level of product involvement has been demonstrated to exert no moderating effect. Consequently, the packaging of local food does not require adaptation to different consumer groups based on their level of product involvement.

6.2 Limitations and future research

There are some potential limitations to the research design of this study. First, online experiments face challenges in ensuring respondent attention and preventing distractions that could affect data quality, whereas, in a laboratory setting, researchers can directly monitor respondents to ensure engagement (Birnbaum, 2004). Future research should consider the potential value of a laboratory setting or real-life experiment to enhance control over respondent attention and distractions.

Second, the use of convenience and snowball sampling can introduce sampling bias as respondents are selected based on ease of access or referrals from existing respondents (Sharma, 2017). This affects the validity of the collected data and its generalizability to the larger population. This is also evidenced by the statistics of the sample. The majority of the sample was female (70.7%), and respondents between the ages of 18 and 30 years accounted for 51.2% of the sample. Consequently, the effects of claim and image use on purchase intention are underestimated, as the typical local food buyer is found to be older (Mirosa & Lawson, 2012). Moreover, the respondents may not be representative of the larger population because of self-selection bias. This bias occurs because respondents voluntarily choose to participate (Birnbaum, 2004), which can impact the validity of the data. Concluded, future research should adopt a probability sampling method to generate a more representative sample of the population, thereby enhancing the generalizability of the findings. Additionally, random sampling techniques should be considered to reduce the likelihood of self-selection bias.

Third, a between-subject design may have a lower statistical power compared to within-subject designs (Charness et al., 2011). One potential explanation for this is that variability in responses may be attributable to individual differences among respondents, rather than solely to the manipulation of the independent variable. Future research could investigate additional control variables that may control these individual differences. For instance, the availability of local food and eating habits, such as organic food consumption, may also have an impact on the outcome.

Fourth, the results of the pre-test determined which brand name, nutrition claim, and health claim to be presented on the packaging visualizations. However, the pre-test was conducted with a small sample size of 12 respondents, which limits the generalizability of the findings. It is possible that a larger sample size would result in different claims being selected, which in turn would lead to different outcomes. It is recommended that future research conduct a pre-test with a larger sample size to increase the generalizability of the findings.

Fifth, the consumer purchase intention was measured in this study. However, an intention does not necessarily indicate actual purchase behavior. Discrepancies may arise due to biases in reporting intentions (Sun & Morwitz, 2010). Consequently, the applicability of the findings to supermarket managers may be limited, given that their primary objective is to influence actual purchase behavior. Future research could investigate the potential for measuring purchase behavior.

Sixth, the decision to utilize an image of the farm and a geographical illustration was based on previous literature. However, as previously stated, respondents may not have identified the local origin of the product by these images. Therefore, future research may wish to include a variety of image types in the pre-test to ascertain the most appropriate image for indicating the local origin.

Seventh, the product selected for visual representation in this study was milk. This was a well-considered choice, however, it is important to note that this also carries generalizability issues. The findings of this study are not generalizable to other locally sourced products, such as fruit and vegetables. Moreover, milk is a more utilitarian product, and thus, the findings cannot be generalized to local products that are more likely to be hedonic. Furthermore, milk is a product that may be controversial. Individuals who adhere to a vegan diet, which excludes the consumption of milk, may exhibit a degree of bias in their responses. To prevent this from occurring, respondents were asked to imagine themselves purchasing milk. However, it is possible that respondents found it challenging to identify themselves with this scenario.

Consequently, future research may include a control variable indicating whether the respondent adheres to a vegan diet or not, or alternatively, choose another product to visualize.

Eighth, one respondent indicated a household size of 100. This is extremely high and appears to be somewhat less probable. However, this was not noticed until all analyses were completed, and therefore this respondent was not deleted from the dataset. As this response was given for a control variable, it is assumed to have no determinate impact on the results. Nevertheless, it would be advisable to set the number constraint lower than 100 in the future. This would prevent the entry of such an extraordinary number. Moreover, it is recommended to examine the descriptive statistics of all variables before the analysis.

Finally, the respondents indicated that additional control variables should have been incorporated into the analysis. The respondents indicated that the price and the availability of organic food influence their purchasing behavior. Future research may wish to investigate the value of including these control variables. Additionally, future research could investigate the influence of different price levels on consumer purchase intention.

Despite the several limitations previously outlined, this study presents the first insights into the effect of claim use and image use on consumer purchase intention for local food. Consequently, this study can be regarded as a contribution to the existing body of literature on local food and a point of departure for future research.

7. References

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8. Appendix

Appendix A: Text and images used for sending out pre-test/online experiment

Pre-test text for WhatsApp:

Good morning!

Please help me design my online experiment for my master's thesis by completing this pre-test. It takes 5 minutes, and your help would be appreciated! Thank you!

Click the link to go to the pre-test:

https://fmru.az1.qualtrics.com/jfe/form/SV_6D0CTkYYWshkxme

Kind regards,

Floor

Online experiment text for WhatsApp and Facebook:

Hey there,

Could you help me complete my master's thesis? I'm looking for respondents for my research as the final step of my Master's in Marketing at Radboud University.

In this online experiment, I am interested in your opinion on local food. It only takes 5 minutes of your time, but it means everything to me! 🍅🌽

I aim to reach more than 200 participants, so please share this link with all your friends, family, and colleagues who can spare a few minutes.

Thank you very much in advance for your support! 😊🙏

Link to the questionnaire: https://fmru.az1.qualtrics.com/jfe/form/SV_8HfpUTAKlbCNUV0

Kind regards,

Floor

Online experiment image for Instagram:

Online experiment text and image for LinkedIn:

Design the Future of Local Food! Join My Research! 🎨

Dear network,

Can I count on you? For my Master's in Marketing at Radboud University, I need respondents to complete my research on local food. Your opinion is valuable, and it only takes 5 minutes of your time. Let's make my graduation project a success together! 🎓

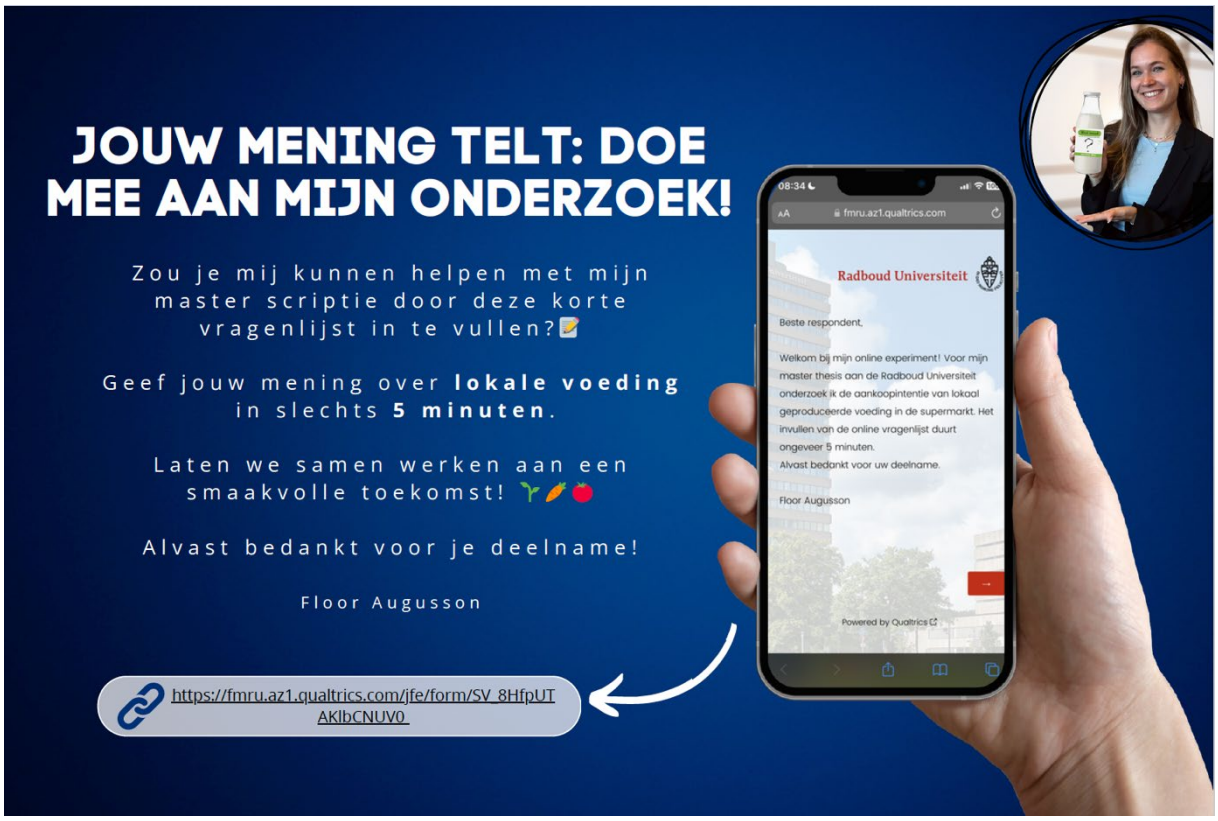
I aim to reach more than 200 participants, so every share is greatly appreciated. Feel free to share this message within your network!

Thank you for your support! 🙏 #Research #LocalFood #Graduation

Link to the questionnaire: https://fmru.az1.qualtrics.com/jfe/form/SV_8HfpUTAKlbCNUV0

Online experiment visualizations for the workplace of the student:

For e-mail:



For on the TV screen in the canteen:

Flyers for in the canteen:

Appendix B: Online experiment

- Introduction

Dear respondent,

Welcome to my online experiment! For my master's thesis at Radboud University, I am investigating the purchase intention of locally produced food in supermarkets. Completing the online questionnaire will take approximately 5 minutes.

Thank you in advance for your participation.

Floor Augusson

- Data collection and consent

What happens to your answers?

Radboud University ensures compliance with the General Data Protection Regulation (GDPR) in the processing of your data. The privacy statement of Radboud University can be found at: https://www.ru.nl/over-ons/beleid-en-regelingen/privacy. Your answers are securely collected and stored. The data is treated confidentially and is completely anonymous. They are only accessible to the researcher of the respective study.

Your participation

Your participation in this research is entirely voluntary. If you decide not to participate, this will have no consequences. If you wish to stop during the study, you can do so by closing the online questionnaire, without any consequences. Your data will then be deleted.

Contact

If you have any questions, comments, or suggestions about this research, please do not hesitate to contact us via email at floor.augusson@ru.nl.

Consent

Q1: By clicking the button "Yes, I want to participate in this study," you indicate that you:

- Have read the above information carefully;
- Are participating voluntarily in the study;
- Are 18 years of age or older.

• Yes, I want to participate in this study

• No, I do not want to participate in this study

- Attention check

Q2: To generate valid results, we are testing whether you are taking the time to read the question carefully. To demonstrate that you are reading the instructions attentively, please select the color 'green' as your answer to this question.

• Red
• Blue
• Yellow
• Green

- Explanation local food

Local Food Products

An increasing number of products from local farmers are available in supermarkets. In this study, we use the term 'local food products' to refer to food that is produced, sold, and consumed in the same country. Dutch strawberries at Albert Heijn are an example. Dutch milk is used as a local food product to illustrate this study.

- Conditions

View the image below of the packaging of a local milk product carefully. The questions that follow will relate to this image.

Visualization of one of the nine conditions, see Appendix F for the visualizations.

The following questions are about your willingness to buy the local milk product you just saw in the supermarket.

Imagine that you intend to buy milk.

Q3: Would you be more or less likely to purchase the product, given the information shown?

7-point scale (Very unlikely – Very likely)

Q4: Given the information shown, how probably is it that you would consider the purchase of the product?

7-point scale (Very unlikely – Very likely)

Q5: How likely would you purchase the product, given the information shown?

7-point scale (Very unlikely – Very likely)

- Product involvement

Engagement

The following statements are about your engagement with the local milk product you just saw.

Q6: How often do you buy milk?

• Daily

• Weekly

• Monthly

• Less than once a month

• Never

Q7: Indicate the extent to which you disagree or agree with the statement.

• I am particularly interested in milk.

5-point scale (Strongly disagree – Strongly agree)

Q8: Indicate the extent to which you disagree or agree with the statement.

• Overall, I am quite involved when I am purchasing milk products for personal use.

5-point scale (Strongly disagree – Strongly agree)

- Health orientation

Health

The following statements are about how important you consider health in relation to nutrition.

Q9: Indicate the extent to which you disagree or agree with the statements.

• I think it is important that the food I eat on a typical day contains a lot of vitamins and minerals.

• I think it is important that the food I eat on a typical day keeps me healthy.

• I think it is important that the food I eat on a typical day is nutritious.

• I think it is important that the food I eat on a typical day is high in protein.

• I think it is important that the food I eat on a typical day is high in fiber.

6-point scale (Strongly disagree – Strongly agree)

- Purchasing local food

Buying Behavior of Local Food

Q10: Do you ever purchase local products (i.e., food products produced by farmers within the same country where it is sold and consumed)?

• Yes

• No

- Familiarity with local food

Q11: Would you consider yourself knowledgeable about local food?

7-point scale (Know nothing at all – Know a great deal)

Q12: In general, would you consider yourself familiar or unfamiliar with local food?

7-point scale (Not at all informed – Highly informed)

Q13: Would you consider yourself informed or uninformed about local food?

7-point scale (Very unfamiliar – Very familiar)

- Environmental orientation

Environment

The following statements are about the role the environment plays for you when buying local food.

Q11: Indicate the extent to which you disagree or agree with the statement.

• I buy local produce because it reduces food miles (i.e., the total distance food travels from production to consumption).

7-point scale (Strongly disagree – Strongly agree)

Q12: Indicate the extent to which you disagree or agree with the statement.

• I buy local produce because it is environmentally friendly.

7-point scale (Strongly disagree – Strongly agree)

Q13: Indicate the extent to which you disagree or agree with the statement.

• I buy local produce because it is ethical.

7-point scale (Strongly disagree – Strongly agree)

- Local support and provenance

Supporting Farmers and provenance

The following statements are about the role supporting local farmers and knowing the origin plays for you when buying local food.

Q14: Indicate the extent to which you disagree or agree with the statements.

• I buy local produce because it supports local producers.

• I buy local produce because I know where it comes from.

7-point scale (Strongly disagree – Strongly agree)

- Demographic variables

Demographic Information

Q15: What is your age?

• Open question

Q16: What is your gender?

• Male

• Female

• Non-binary

• I prefer not to say

Q17: What is your highest completed level of education?

• No education completed

• High school or equivalent

• MBO

• HBO

• Bachelor's degree (University)

• Master's degree (University)

• PhD

• I prefer not to say

Q18: How many people are in your household?

• Open question

Q19: What is your approximate gross annual income?

• Less than €20.000

• €20.000 - €39.999

• €40.000 - €59.999

• €60.000 - €80.000

• More than €80.000

• I prefer not to say

Q20: If you have any comments, suggestions, or questions, please feel free to leave them below. Your feedback is greatly appreciated.

Open question

End of survey

Thank you for taking the time to participate in this online experiment.

Your response has been recorded.

Appendix C: Overview variables

It is essential to note that the scale developed by Chandrasekaran (2004) initially consisted of three statements designed to assess the construct of product involvement. The statement "Given my personal interest, this product is not very relevant to me," along with a 7-point scale from "Strongly disagree" to "Strongly agree," was not included in this study. This decision was made due to its lack of relevance in measuring product involvement within the context of milk. Milk, which is typically considered a utilitarian product, serves primarily functional purposes, notably its nutritional value (Maehle et al., 2015). In contrast, Chandrasekaran's (2004) study focused on Levi's jeans, a hedonic product that is associated with sensory pleasure and emotional satisfaction (Hoyer et al., 2018). Hedonic products are more closely aligned with personal interests such as enjoyment, pleasure, and emotional satisfaction. Therefore, it was deemed unnecessary to include this statement for milk.

Table C.1: *Overview variables*

Variable	**Items**	**Source**	**Cronbach's α**
Purchase intention (dependent variable)	1. Would you be more or less likely to purchase the product, given the information shown? *Very unlikely – Very likely* 2. Given the information shown, how probably is it that you would consider the purchase of the product? *Very unlikely – Very likely* 3. How likely would you purchase the product, given the information shown? *Very unlikely – Very likely* *7-point scale used*	Burton et al. (1999)	.89
Use of claims (independent variable) **Use of images** (independent variable)	1. One of the following scenario's/conditions were represented to each respondent (visualization). *1. Farm/No claim 2. Farm/Nutrition claim 3. Farm/Health claim 4. Country/No claim 5. Country/Nutrition claim 6. Country/Health claim 7. No Image/No claim 8. No image/Nutrition claim 9. No image/Health claim*		
Product involvement (moderating variable)	1. I am particularly interested in the product. *Strongly disagree – Strongly agree*	Chandrasekaran (2004)	.91

	2. Overall, I am quite involved when I am purchasing milk products for personal use. *Strongly disagree – Strongly agree* *Five-point scale used*		
Age (control variable)	1. What is your age? *Open question*		
Gender (control variable)	1. What is your gender? *1. Male; 2. Female; 3. Non-binary; 4. I prefer not to say*		
Educational level (control variable)	1. What is your highest level of education that you completed? *1. No education completed; 2. High school or equivalent; 3. MBO; 4. HBO; 5. Bachelor's degree (University); 6. Master's degree (University); 7. PhD; I prefer not to say.*		
Household size (control variable)	1. How many people are in your household? *Open question*		
Income (control variable)	1. What is your approximate gross annual income? *1. Less than €20.000; 2. €20.000 - €39.999; 3. €40.000 - €59.999; 4. €60.000 - €80.000; 5. More than €80.000; 6. I prefer not to say.*		
Health orientation (control variable)	1. I think it is important that the food I eat on a typical day containts a lot of vitamins and minerals. *Strongly disagree – Strongly agree* 2. I think it is important that the food I eat on a typical day keeps me healthy. *Strongly disagree – Strongly agree* 3. I think it is important that the food I eat on a typical day is nutritious. *Strongly disagree – Strongly agree* 4. I think it is important that the food I eat on a typical day is high in protein. *Strongly disagree – Strongly agree* 5. I think it is important that the food I eat on a typical day is high in fiber. *Strongly disagree – Strongly agree* *Six-point scale used*	Steptoe et al. (1995)	.87

Environmental orientation (control variable)	1. I buy local produce because it reduces food miles (i.e., the total distance food travels from production to consumption). *Strongly disagree – Strongly agree* 2. I buy local produce because it is environmentally friendly. *Strongly disagree – Strongly agree* 3. I buy local produce because it is ethical. *Strongly disagree – Strongly agree* *7-point scale used*	Megicks et al. (2012)	.88
Local support and provenance (control variable)	1. I buy local produce because it supports local producers. *Strongly disagree – Strongly agree* 2. I buy local produce because I know where it comes from. *Strongly disagree – Strongly agree* *7-point scale used*	Megicks et al. (2012)	.89
Familiarity with local food (control variable)	1. Would you consider yourself knowledgeable about local food? *7-point scale (Know nothing at all – Know a great deal)* 2. In general, would you consider yourself familiar or unfamiliar with local food? *7-point scale (Not at all informed – Highly informed)* 3. Would you consider yourself informed or uninformed about local food? *7-point scale (Very unfamiliar – Very familiar)*	Oliver & Bearden (1985)	.85

Appendix D: Pre-test

- Introduction

Dear respondent,

Welcome to my pre-test! Currently, I am conducting research on the packaging of locally sourced food products for my master's thesis at Radboud University. I have developed a short survey of fictitious brand names and product claims that can be used on local food packaging. There are no right or wrong answers; it is about your opinion. Participation in the survey is completely anonymous. The results will only be used as input for developing an online experiment on the packaging of local food products. The survey will take a maximum of 5 minutes to complete. By clicking the arrow, you voluntarily agree to participate in the survey. For questions and comments regarding the survey, please email floor.augusson@ru.nl.

Thank you in advance for your time and participation!

Floor Augusson

- Attention check

Q1: To produce valid results, we test whether you take the time to read the question carefully. Please demonstrate your attentiveness by selecting answer 26 instead of the correct answer to the question.

12+10=

- 22
- 24
- 26
- 28

- Part 1: fictional brands

More local farmers' products are appearing on supermarket shelves. Brand names on local food products are often linked to the farm or the fact that they are locally produced. In this study, we use the term 'local food products' to refer to food that is produced, sold, and consumed in the same country. The question below refers to brand names on local food packaging.

- **Q2:** Please indicate to what extent you associate the following fictitious brand names with local food production.
  - "Vers Vallei"
  - "Streek Smaak"

- "Boerderij De Vries"
- "Puur Plattelands"
- "Landelijk Leven"
- "Van Den Berg Oogst"

7-point scale (Very unsuitable – Very suitable)

- Part 2: comparative nutrient claim

Food packaging often includes nutritional claims. This study focuses on comparative nutrient claims, which are statements that compare the nutritional value of the product to that of other products. Examples of such claims include "Less fat," "Lower sugar content," "More fiber," and "Fewer calories". The following questions are about these claims on the packaging of locally produced milk products.

- **Q3:** Please indicate the attractiveness of the following comparative nutrient claims to describe the nutritional value of local milk products.
  - "Contains 20% more protein than other milk products."
  - "25% less fat than the leading competitor."
  - "Twice as much calcium as regular milk products."
  - "Our local milk, fresher than traditional alternatives."

7-point scale (Very unattractive – Very attractive)

- **Q4:** Which of the following comparative nutrient claims do you most associate with local milk products?
  - "Contains 20% more protein than other milk products."
  - "25% less fat than the leading competitor."
  - "Twice as much calcium as regular milk products."
  - "Our local milk, fresher than traditional alternatives."

7-point scale (Very unsuitable – Very suitable)

- **Q5:** Please indicate the extent to which you actually associate the following comparative nutrient claims as a comparative nutrient claim:
  - "Contains 20% more protein than other milk products."
  - "25% less fat than the leading competitor."
  - "Twice as much calcium as regular milk products."
  - "Our local milk, fresher than traditional alternatives."

7-point scale (Very unsuitable – Very suitable)

- Part 3: nutrient function claim

Packaging often includes health claims in addition to claims related to nutrition. In this study, we focus on nutrient function claims. These claims indicate the role a particular nutrient plays in the human body. Examples include: "Vitamin C supports healthy skin", "Omega-3 fatty acids for a healthy heart," and "Folic acid for normal cell division". The following questions relate to these claims and specifically address the labeling of locally produced milk products.

- **Q6:** Please indicate the attractiveness of the following nutrient function claims for describing the health benefits of local milk products:
  - "Rich in vitamin B12 for a healthy nervous system."
  - "Calcium for strong bones and teeth."
  - "Vitamin D promotes bone growth in children."
  - "High in protein for muscle building and recovery."

7-point scale (Very unattractive – Very attractive)

- **Q7:** Which of the following nutrient function claims do you most associate with local milk products?
  - "Rich in vitamin B12 for a healthy nervous system."
  - "Calcium for strong bones and teeth."
  - "Vitamin D promotes bone growth in children."
  - "High in protein for muscle building and recovery."

7-point scale (Very unsuitable – Very suitable)

- **Q8:** Please indicate the extent to which you actually associate the following nutrient function claims as nutrient function claims:
  - "Rich in vitamin B12 for a healthy nervous system."
  - "Calcium for strong bones and teeth."
  - "Vitamin D promotes bone growth in children."
  - "High in protein for muscle building and recovery."

7-point scale (Very unsuitable – Very suitable)

Q9: What is your gender?

- *Male*

- *Female*
- *Non-binary*
- *I prefer not to say*

Q10: What is your age?

Open question

Q11: If you have any comments, suggestions, or questions, please feel free to leave them below. Your feedback is greatly appreciated.

Open question

End of survey

Thank you for taking part in this pre-test.

Your responses have been recorded.

Appendix E: Pre-test results

In the pre-test results, no missing values or invalid answers were identified across all questions. To determine the most suitable brand name for local food production, the means were calculated. The brand name “Streek Smaak” had the highest mean compared to the other four brand names, and therefore was chosen to be used on the visualizations. Table E1 shows the mean values of the fictional brand names. To determine which comparative nutrient claim and which nutrient function claim were most appropriate, new variables were created. However, a reliability analysis was initially conducted to assess the internal consistency of the three items measured for both types of claims. The nutrition function claim “Rich in vitamin B12 for a healthy nervous system” demonstrated a Chronbach’s Alpha of α=.420. When an item was deleted, Cronbach’s Alpha increased to α=.589 (see Table E2). However, Chronbach’s Alpha was still α=<.60, indicating that the items should be analyzed separately. In contrast, for all other claims, a new variable was created by combining the three items. The means of the comparative nutrient claims and nutrient function claims were compared to identify the smallest differences between means. This was done to identify the two claims that were (almost) equally favored by the respondents. Subsequently, differences in outcomes in the online experiment can be attributed to the content of the claim and not to the attractiveness of the claims. The smallest difference between means was between “High in protein for muscle building and recovery” and “Twice as much calcium as regular milk products”, namely *MD*= 4,9167–4,8750= 0.0417 (see Table E3 and E4). Therefore, those two claims were chosen for the visualizations.

Table E1: *Fictional brand names*

Statistics

		Fictieve merknaam - Vers Vallei	Fictieve merknaam - Streek Smaak	Fictieve merknaam - Boerderij De Vries	Fictieve merknaam - Puur Plattelands	Fictieve merknaam - Landelijk Leven	Fictieve merknaam - Van Den Berg Oogst
N	Valid	12	12	12	12	12	12
	Missing	0	0	0	0	0	0
Mean		3.58	5.75	5.42	5.33	4.58	4.33

Table E2: *Reliability analysis claim “Rich in vitamin B12 for a healthy nervous system”*

Reliability Statistics

Cronbach's Alpha	N of Items
.420	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q6: aantrekkelijkheid - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."	9.00	4.000	.358	.212
Q7: associatie lokale melk - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."	10.50	3.909	.109	.589
Q8: associatie voedingsfunctie claims - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."	9.17	2.515	.354	.096

Table E3: *Descriptive statistics transformed variables comparative nutrient claims*

Statistics

		Mean_Bevatmeer	Mean_25minder	Mean_tweekeer	Mean_onzelokale
N	Valid	12	12	12	12
	Missing	0	0	0	0
Mean		5.4583	4.2083	4.8750	4.5417

Table E4: *Descriptive statistics transformed variables nutrient function claims*

Statistics

		Mean_Calciumvoor	Mean_VitamineD	Mean_Eiwitrijk	Q6: aantrekkelijkheid - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."	Q7: associatie lokale melk - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."	Q8: associatie voedingsfunctie claims - "Rijk aan vitamine B12 voor een gezond zenuwstelsel."
N	Valid	12	12	12	12	12	12
	Missing	0	0	0	0	0	0
Mean		5.0833	4.6667	4.9167	5.33	3.83	5.17

Appendix F: Visualizations

Farm image – no claim

Farm image – nutrition claim

Farm image – health claim

Geographical image – no claim

Geographical image – nutrition claim

Geographical image – health claim

No image – no claim

No image – nutrition claim

No image – health claim

Appendix G: Assumptions extended

The assumptions underlying the ANCOVA analysis are presented in greater detail below.

First, to conduct an ANCOVA, the dependent variable must be from a metric measurement level and the independent variables must be from a non-metric measurement level (Hair et al., 2018). This assumption was already met without the need for any adjustments.

Second, the normality of the data was tested, i.e., the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution (Hair et al., 2018, p. 94). Several tests were conducted to assess the assumption of normality. Initially, the skewness and kurtosis of the moderator and dependent variable were evaluated. Values of kurtosis and skewness outside the range of -3 to +3 indicate a peaked and/or skewed distribution (Hair et al., 2018). The frequency table demonstrated that the variables exhibited a skewness and kurtosis within the acceptable range of ±3 (see Table H5). Second, the group sizes were evaluated since a violation of the normality assumption has minimal impact if the groups are approximately equal in size (i.e., Largest group size / Smallest group size <1.5) (Hair et al., 2018, p. 400). For the independent variable "Claim type" the ratio of the largest group (73) to the smallest group (66) is 1.10. For the independent variable "Image type", the ratio of the largest group to the smallest group was 1.10, with 72 individuals in the largest group and 65 in the smallest group. For details regarding the group sizes, see Table H6. Finally, normal probability plots were conducted to ascertain whether the residual line plotted closely follows the straight diagonal line (Hair et al., 2018, p. 291). If the distribution of the error term is normal, this phenomenon will occur. From the plots, it can be inferred that the error term was distributed in a normal manner (see Table H7). Moreover, the histogram in Table H7 demonstrates a normal distribution for the dependent variable. Concluded, in light of the skewness/kurtosis, group sizes, and plots, it is assumed that the assumption of normality has been met.

Third, the observations must be independent of one another (Hair et al., 2018). This assumption was validated through the use of a between-subject design in the online experiment. The respondents were randomly assigned to one of the nine experimental conditions.

Fourth, the homogeneity of variance was tested with Levene's test. If the results of Levene's test are not statistically significant (i.e., p>.05), it can be concluded that the variances are equal and the assumption has been met. The results of Levene's test indicated that the variances were homogeneous, as the test was non-significant ($F(8, 175) = 1.372$, $p = .212$). The output can be found in Table H8.

Fifth, it is important to consider the linearity of the covariates and the dependent variable (Hair et al., 2018, p. 401). To assess this, scatterplots were created. In the absence of curves, clusters, or bends in the relationship, it can be assumed that the variables are linearly related. The covariates gender and household size exhibited a non-linear pattern in the data. Table H9 presents the clusters identified in the data for gender and household size. The remaining covariates exhibited no clear pattern, and thus are presumed to be linear.

Sixth, the covariates must exhibit a relationship with the dependent variable, which can be demonstrated by a significant correlation between the covariates and the dependent variable (Hair et al., 2018, p. 396). The correlation matrix, as presented in Table H10, indicated a significant correlation between the dependent variable and four covariates: "Health orientation" ($r(205)=.255$, $p<.001$), "Familiarity with local food" ($r(205)=.218$, $p=.002$), "Environmental orientation" ($r(184)=.406$, $p<.001$), and "Local support and provenance" ($r(190)= .39$, $p<.001$). The results indicated that there were no significant correlations between the dependent variable and the following covariates: "Product involvement" ($r(205)=.077$, $p=.274$), "Age" ($r(205)=.026$, $p=.711$), "Gender" ($r(205)=.121$, $p=.085$), "Education" ($r(205)=.013$, $p=.850$), "Household size" ($r(205)=-.042$, $p=.546$), and "Income" ($r(205)= -.115$, $p=.099$). Moreover, the correlation matrix indicated that there were no high correlations (i.e., $r>.80$) between the covariates. The highest correlation observed was between environmental orientation and local support and provenance ($r=.459$).

Finally, it is necessary to ensure that the covariates exhibit homogeneity of regression effect (Hair et al., 2018, p. 396). To test this, the main effects and interaction effects of the independent variables and the covariates were included (see Table H11). The interaction effects "Claim type * Gender" ($p<.05$), "Image type * Education" ($p<.01$), "Claim type * Income" ($p<.05$), and "Image type * Product involvement" ($p<.05$) were found to be significant. Consequently, these interactions fail to satisfy the assumption of homogeneity of regression effects.

Despite the failure to meet all of the assumptions, an ANCOVA analysis was conducted without any transformations in order to meet the assumptions. Nevertheless, in order to ascertain the robustness of the results obtained from this ANCOVA analysis, a series of robustness checks were conducted. These robustness checks allowed for the assessment of the impact of the violation of some assumptions on the results.

Appendix H: SPSS output original ANCOVA analysis

Table H1: *Descriptive statistics sample*

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Man	59	28.8	28.8	28.8
	Vrouw	145	70.7	70.7	99.5
	Zeg ik liever niet	1	.5	.5	100.0
	Total	205	100.0	100.0	

Household_size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	39	19.0	19.0	19.0
	2.00	61	29.8	29.8	48.8
	3.00	30	14.6	14.6	63.4
	4.00	43	21.0	21.0	84.4
	5.00	18	8.8	8.8	93.2
	6.00	8	3.9	3.9	97.1
	7.00	1	.5	.5	97.6
	9.00	2	1.0	1.0	98.5
	10.00	1	.5	.5	99.0
	16.00	1	.5	.5	99.5
	100.00	1	.5	.5	100.0
	Total	205	100.0	100.0	

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Minder dan €20.000	47	22.9	22.9	22.9
	€20.000 - €39.999	52	25.4	25.4	48.3
	€40.000 - €59.999	48	23.4	23.4	71.7
	€60.000 - €80.000	19	9.3	9.3	81.0
	Meer dan €80.000	17	8.3	8.3	89.3
	Zeg ik liever niet	22	10.7	10.7	100.0
	Total	205	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Middelbare school of vergelijkbaar	17	8.3	8.3	8.3
	MBO	21	10.2	10.2	18.5
	HBO	70	34.1	34.1	52.7
	Bachelor (Universiteit)	17	8.3	8.3	61.0
	Master (Universiteit)	77	37.6	37.6	98.5
	PhD	1	.5	.5	99.0
	Zeg ik liever niet	2	1.0	1.0	100.0
	Total	205	100.0	100.0	

Purchase_localfood					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ja	190	92.7	92.7	92.7
	Nee	15	7.3	7.3	100.0
	Total	205	100.0	100.0	

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Mean_purchaseintent	205	1.00	7.00	4.3577	1.32799
Involvement_product	205	1.00	5.00	2.7878	1.15686
Age	205	18.00	82.00	39.0098	17.36319
Valid N (listwise)	205				

Table H2: *Reliability analysis* of *purchase intention*

Reliability Statistics

Cronbach's Alpha	N of Items
.912	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Purchaseint_Q1	8.5463	7.582	.812	.884
Purchaseint_Q2	8.6585	7.255	.829	.870
Purchaseint_Q3	8.9415	7.251	.831	.869

Table H3: *Reliability analyses covariates*

Product involvement:

Reliability Statistics

Cronbach's Alpha	N of Items
.781	2

Health orientation:

Reliability Statistics

Cronbach's Alpha	N of Items
.793	5

Familiarity with local food:

Reliability Statistics

Cronbach's Alpha	N of Items
.952	3

Environmental orientation:

Reliability Statistics

Cronbach's Alpha	N of Items
.902	3

Local support and provenance:

Reliability Statistics

Cronbach's Alpha	N of Items
.766	2

Table H4: *Descriptive statistics of product involvement*

Statistics

Involvement_product

N	Valid	205
	Missing	0
Mean		2.7878
Median		3.0000
Skewness		-.012
Std. Error of Skewness		.170
Kurtosis		-.775
Std. Error of Kurtosis		.338

Table H5: *Skewness and Kurtosis variables*

		Mean_purchaseintent	Meancent_productinvolv
N	Valid	205	205
	Missing	0	0
Mean		4.3577	.0000
Std. Deviation		1.32799	1.15686
Skewness		-.634	-.012
Std. Error of Skewness		.170	.170
Kurtosis		.342	-.775
Std. Error of Kurtosis		.338	.338

Table H6: *Group sizes*

Claim_type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nutrition claim	66	32.2	32.2	32.2
	Health claim	73	35.6	35.6	67.8
	No claim	66	32.2	32.2	100.0
	Total	205	100.0	100.0	

Image_type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farm image	72	35.1	35.1	35.1
	Country image	68	33.2	33.2	68.3
	No image	65	31.7	31.7	100.0
	Total	205	100.0	100.0	

Table H7: *Normality plots and histogram*

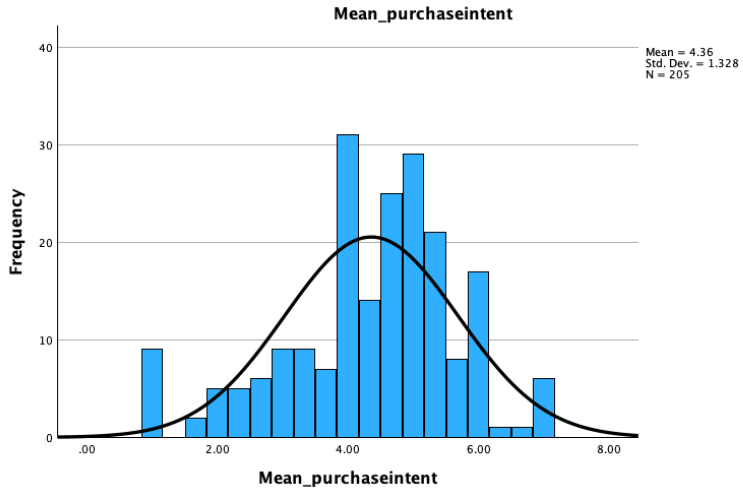


Figure H7.1: Histogram consumer purchase intention

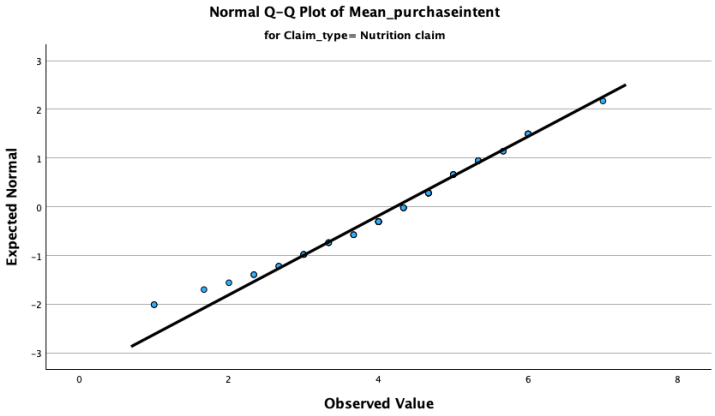


Figure H7.2: Scatterplot nutrition claim

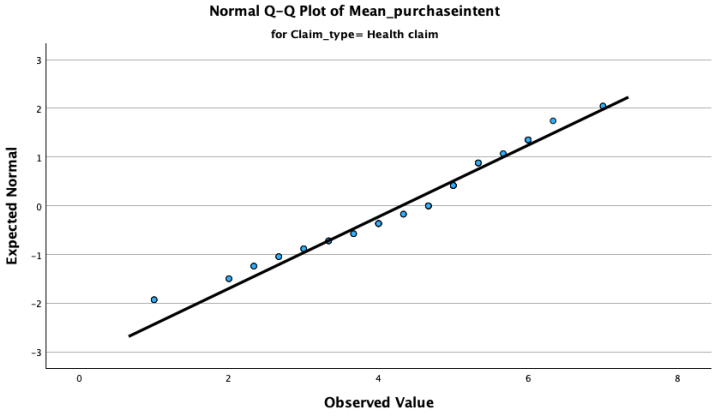


Figure H7.3: Scatterplot health claim

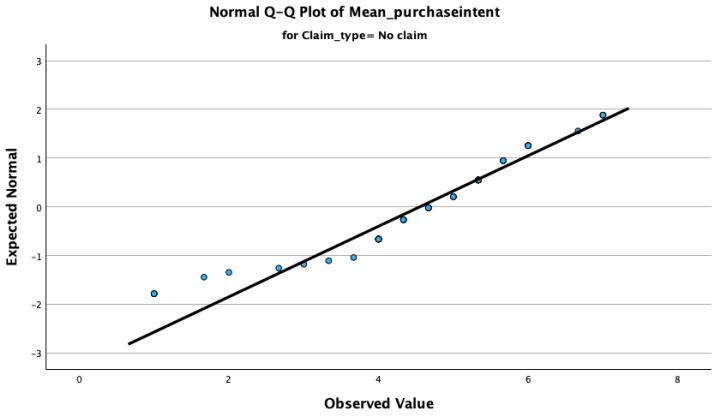


Figure H7.4: Scatterplot no claim

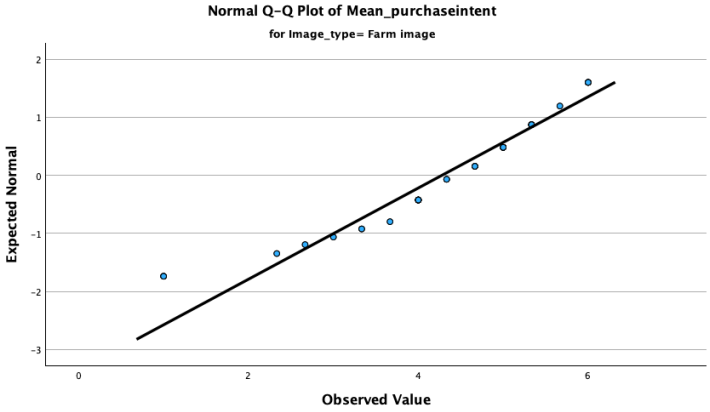


Figure H7.5: Scatterplot farm image

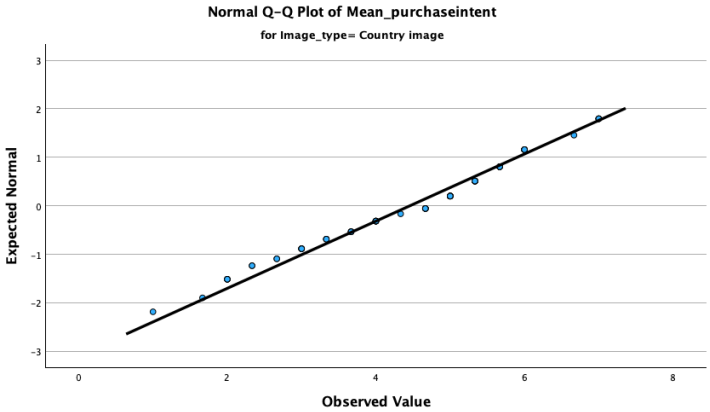


Figure H7.6: Scatterplot country image

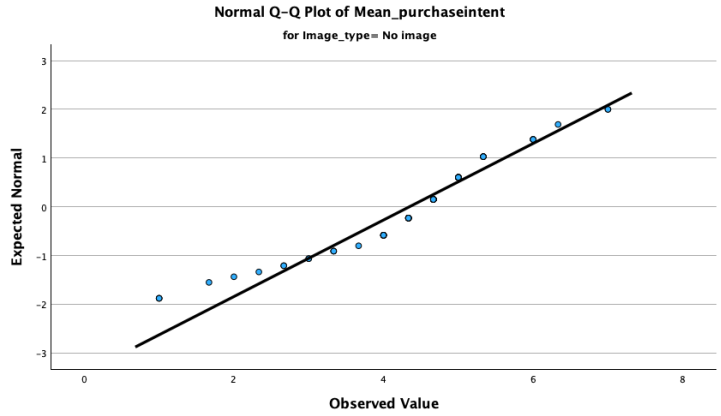


Figure H7.7: Scatterplot no image

Table H8: *Levene's test of Equality of Error Variances*

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
1.372	8	175	.212

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Claim_type + Image_type + Meancent_productinvolv + Health_orientation + Familiarity_localfood + Environment_orient + Local_support + Age + Gender + Education + Household_size + Income + Claim_type * Meancent_productinvolv + Image_type * Meancent_productinvolv

Table H9: *Scatterplots covariates*

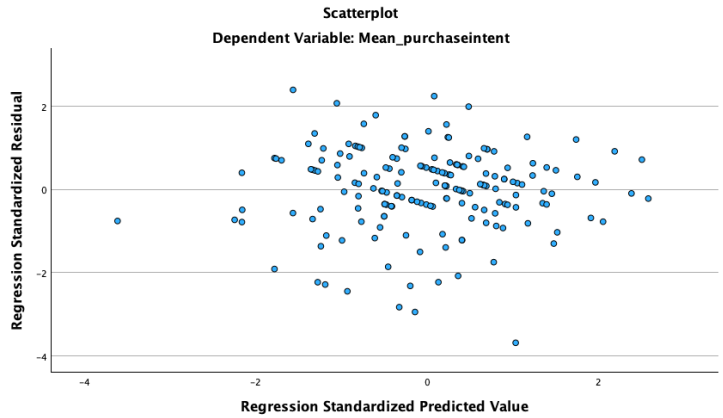


Figure H9.1: Scatterplot consumer purchase intention

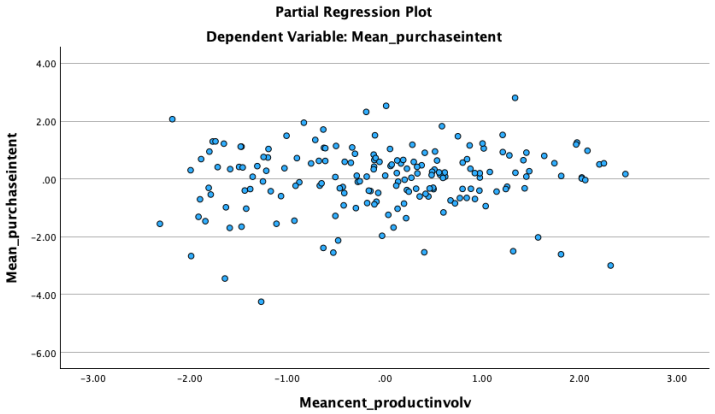


Figure H9.2: Scatterplot product involvement

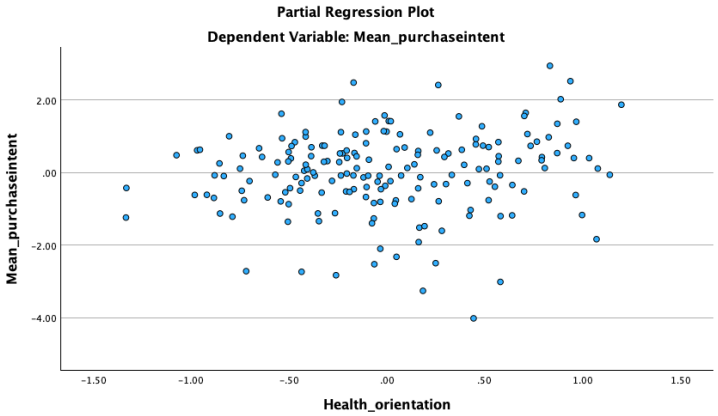


Figure H9.3: Scatterplot health orientation

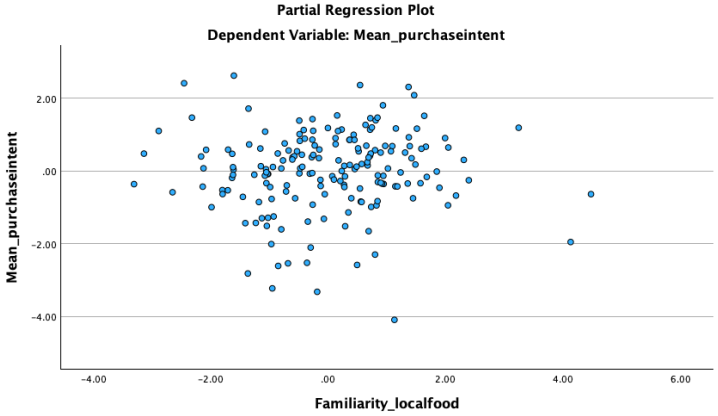


Figure H9.4: Scatterplot familiarity with local food

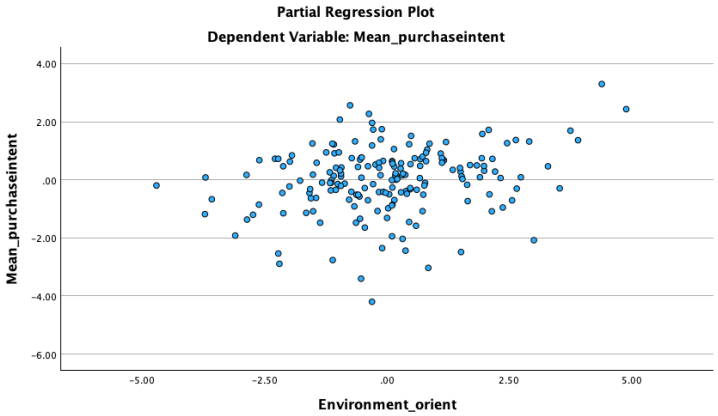


Figure H9.5: Scatterplot environmental orientation

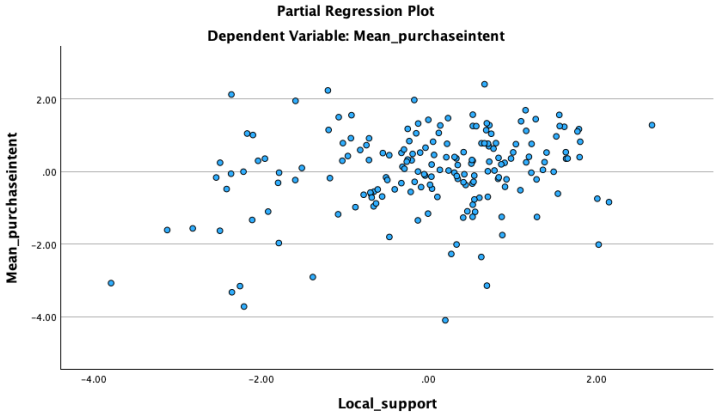


Figure H9.6: Scatterplot local support and provenance

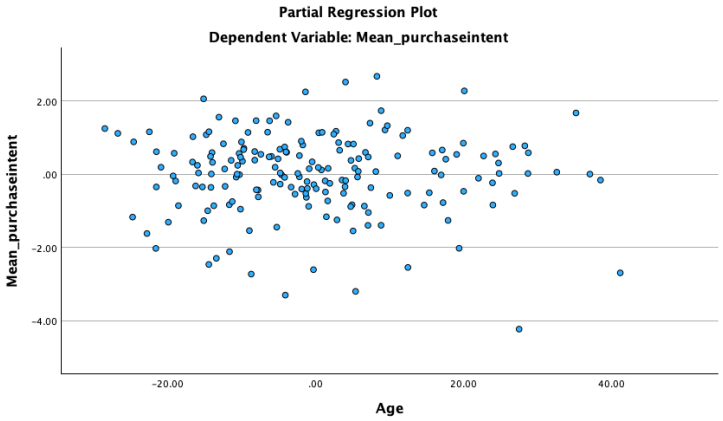


Figure H9.7: Scatterplot age

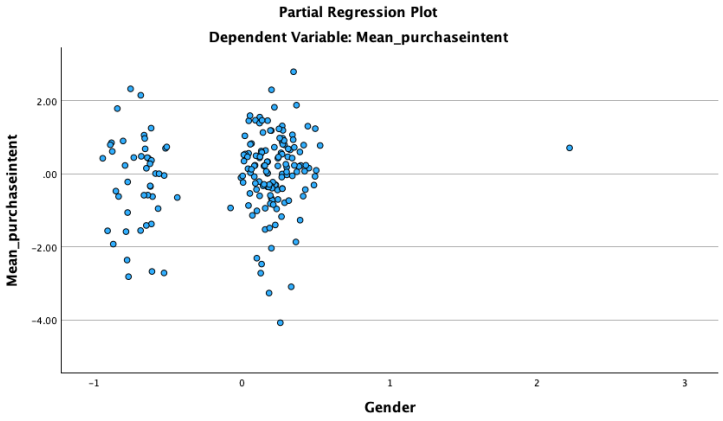


Figure H9.8: Scatterplot gender

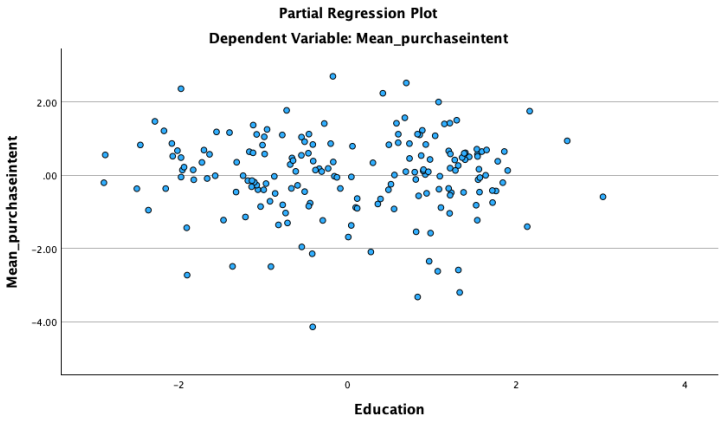


Figure H9.9: Scatterplot education

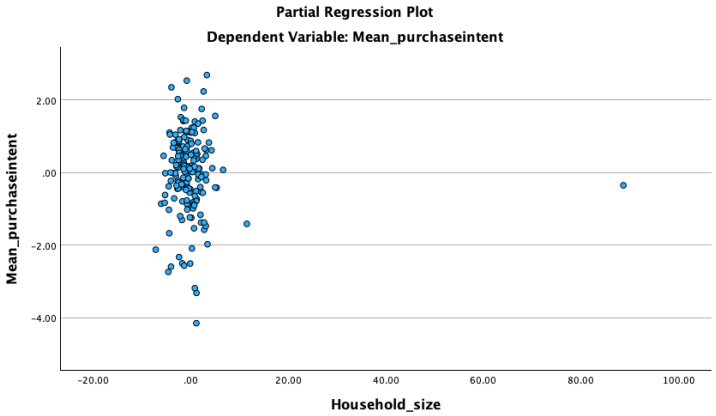


Figure H9.10: Scatterplot household size

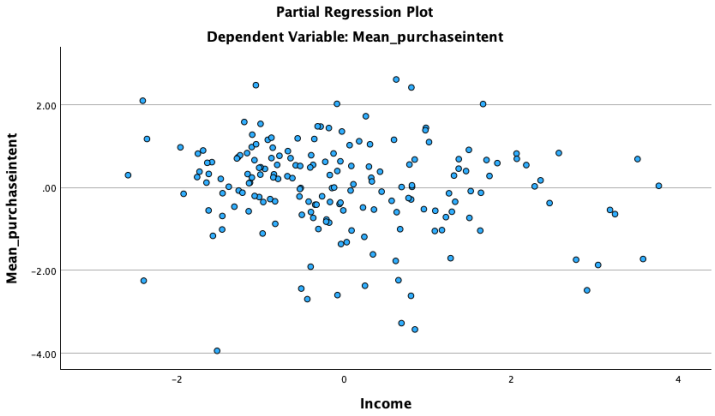


Figure H9.11: Scatterplot income

Table H10: *Correlation matrix covariates and dependent variable*

Correlations

		Mean_purchaseintent	Meancent_productinvolv	Health_orientation	Familiarity_localfood	Environment_orient	Local_support	Age	Gender	Education	Household_size	Income
Mean_purchaseintent	Pearson Correlation	1	.077	.255**	.218**	.406**	.390**	.026	.121	.013	-.042	-.115
Meancent_productinvolv	Pearson Correlation	.077	1	.154*	.144*	.012	.157*	.138*	-.146*	-.058	.101	.030
Health_orientation	Pearson Correlation	.255**	.154*	1	.119	.221**	.132	.153*	.067	.032	-.085	-.136
Familiarity_localfood	Pearson Correlation	.218**	.144*	.119	1	.340**	.294**	.292**	.086	.154*	.055	.145*
Environment_orient	Pearson Correlation	.406**	.012	.221**	.340**	1	.459**	.226**	.083	.156*	-.043	.103
Local_support	Pearson Correlation	.390**	.157*	.132	.294**	.459**	1	.141	-.057	.117	-.083	.128
Age	Pearson Correlation	.026	.138*	.153*	.292**	.226**	.141	1	-.089	.068	-.133	.449**
Gender	Pearson Correlation	.121	-.146*	.067	.086	.083	-.057	-.089	1	.070	-.115	-.035
Education	Pearson Correlation	.013	-.058	.032	.154*	.156*	.117	.068	.070	1	-.048	.277**
Household_size	Pearson Correlation	-.042	.101	-.085	.055	-.043	-.083	-.133	-.115	-.048	1	-.109
Income	Pearson Correlation	-.115	.030	-.136	.145*	.103	.128	.449**	-.035	.277**	-.109	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table H11: *Tests of Between-Subjects Effects output with interactions IVs and covariates*

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	212.991[a]	99	2.151	1.842	.002
Intercept	1.852	1	1.852	1.585	.211
Claim_type	5.381	2	2.691	2.304	.106
Image_type	1.802	2	.901	.771	.466
Meancent_productinvolv	1.578	1	1.578	1.351	.248
Health_orientation	.557	1	.557	.477	.492
Familiarity_localfood	.003	1	.003	.002	.962
Environment_orient	2.834	1	2.834	2.426	.123
Local_support	1.428	1	1.428	1.223	.272
Age	.823	1	.823	.705	.404

Gender	3.873	1	3.873	3.316	.072
Education	.040	1	.040	.035	.853
Household_size	.799	1	.799	.684	.411
Income	2.816	1	2.816	2.410	.124
Claim_type * Meancent_productinvolv	2.775	2	1.388	1.188	.310
Image_type * Meancent_productinvolv	.528	2	.264	.226	.798
Claim_type * Health_orientation	1.014	2	.507	.434	.649
Image_type * Health_orientation	.329	2	.165	.141	.869
Claim_type * Familiarity_localfood	4.365	2	2.183	1.869	.161
Image_type * Familiarity_localfood	1.718	2	.859	.735	.482
Claim_type * Environment_orient	5.919	2	2.959	2.534	.085
Image_type * Environment_orient	2.296	2	1.148	.983	.379
Claim_type * Local_support	.489	2	.244	.209	.812
Image_type * Local_support	1.491	2	.745	.638	.531
Claim_type * Age	1.820	2	.910	.779	.462
Image_type * Age	.157	2	.078	.067	.935
Claim_type * Gender	8.708	2	4.354	3.727	.028
Image_type * Gender	1.283	2	.641	.549	.580
Claim_type * Education	6.361	2	3.180	2.723	.071
Image_type * Education	12.558	2	6.279	5.375	.006
Claim_type * Household_size	2.443	2	1.222	1.046	.356
Image_type * Household_size	.093	2	.047	.040	.961
Claim_type * Income	9.342	2	4.671	3.999	.022
Image_type * Income	1.951	2	.976	.835	.437
Claim_type * Meancent_productinvolv * Health_orientation	3.575	2	1.787	1.530	.222
Image_type * Meancent_productinvolv * Health_orientation	2.961	2	1.481	1.267	.287
Claim_type * Meancent_productinvolv * Familiarity_localfood	3.102	2	1.551	1.328	.271
Image_type * Meancent_productinvolv * Familiarity_localfood	2.906	2	1.453	1.244	.294
Claim_type * Meancent_productinvolv * Environment_orient	4.573	2	2.287	1.958	.148
Image_type * Meancent_productinvolv * Environment_orient	2.480	2	1.240	1.062	.350

Claim_type * Meancent_productinvolv * Local_support	2.662	2	1.331	1.139	.325
Image_type * Meancent_productinvolv * Local_support	.657	2	.329	.281	.755
Claim_type * Meancent_productinvolv * Age	3.500	2	1.750	1.498	.229
Image_type * Meancent_productinvolv * Age	8.432	2	4.216	3.609	.031
Claim_type * Meancent_productinvolv * Gender	4.559	2	2.279	1.951	.148
Image_type * Meancent_productinvolv * Gender	2.547	2	1.274	1.090	.341
Claim_type * Meancent_productinvolv * Education	1.963	2	.981	.840	.435
Image_type * Meancent_productinvolv * Education	1.263	2	.632	.541	.584
Claim_type * Meancent_productinvolv * Household_size	1.129	2	.565	.483	.618
Image_type * Meancent_productinvolv * Household_size	1.040	2	.520	.445	.642
Claim_type * Meancent_productinvolv * Income	2.026	2	1.013	.867	.424
Image_type * Meancent_productinvolv * Income	6.838	2	3.419	2.927	.059
Error	98.120	84	1.168		
Total	3897.444	184			
Corrected Total	311.111	183			

a. R Squared = .685 (Adjusted R Squared = .313)

Table H12: *Test of Between-Subjects Effects output model without covariates*

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9.471[a]	8	1.184	.662	.724	.026
Intercept	3844.887	1	3844.887	2151.317	<.001	.917
Claim_type	3.998	2	1.999	1.118	.329	.011
Image_type	.973	2	.486	.272	.762	.003
Claim_type * Image_type	4.629	4	1.157	.648	.629	.013
Error	350.296	196	1.787			

Total	4252.667	205					
Corrected Total	359.767	204					

a. R Squared = .026 (Adjusted R Squared = -.013)

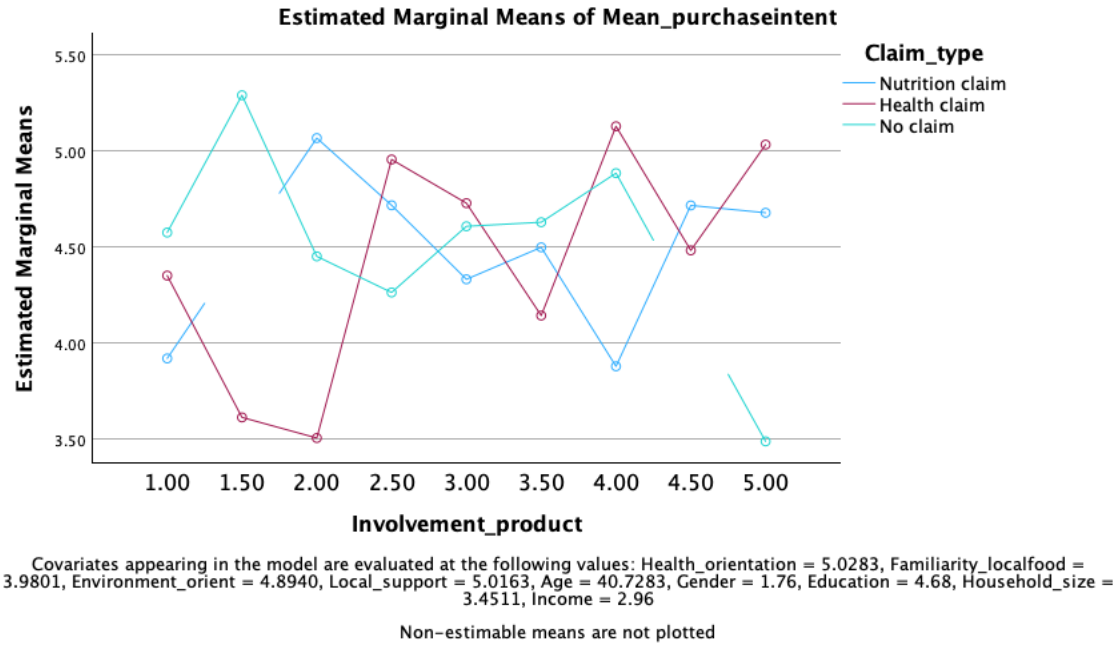


Figure H12.1: Interaction effect claim type and product involvement

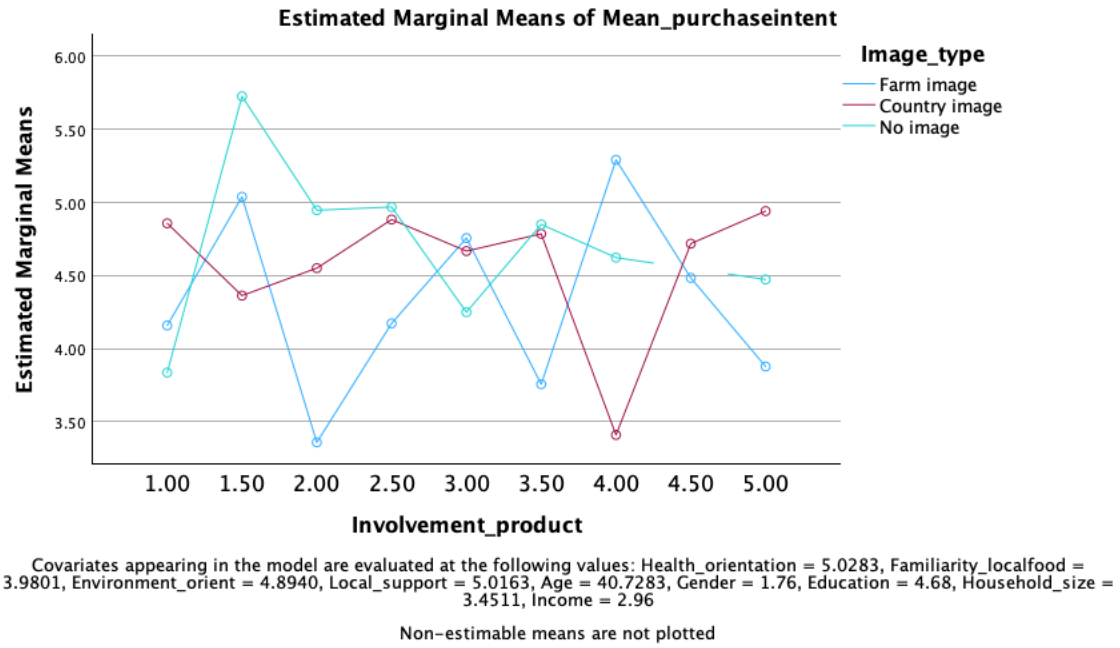


Figure H12.2: Interaction effect image type and product involvement

Table H13: *Parameter Estimates output*

Parameter Estimates

Dependent Variable: Mean_purchaseintent

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval

					Lower Bound	Upper Bound	Partial Eta Squared
Intercept	1.032	.969	1.065	.289	-.882	2.946	.007
[Claim_type=1]	-.269	.213	-1.264	.208	-.690	.151	.010
[Claim_type=2]	-.119	.206	-.579	.563	-.525	.287	.002
[Claim_type=3]	0[a]	.	.	.	.	.	.
[Image_type=1]	-.081	.207	-.391	.696	-.491	.328	.001
[Image_type=2]	.202	.212	.951	.343	-.217	.621	.005
[Image_type=3]	0[a]	.	.	.	.	.	.
Meancent_productinvolv	-.040	.164	-.242	.809	-.364	.284	.000
Health_orientation	.260	.155	1.676	.096	-.046	.567	.017
Familiarity_localfood	.053	.068	.779	.437	-.081	.187	.004
Environment_orient	.170	.053	3.227	.002	.066	.274	.059
Local_support	.241	.072	3.369	<.001	.100	.382	.064
Age	-.002	.006	-.294	.769	-.013	.010	.001
Gender	.249	.188	1.326	.187	-.122	.621	.011
Education	.001	.067	.009	.993	-.132	.133	.000
Household_size	-.003	.012	-.230	.818	-.027	.021	.000
Income	-.150	.066	-2.284	.024	-.280	-.020	.031
[Claim_type=1] * Meancent_productinvolv	.140	.182	.766	.445	-.220	.499	.004
[Claim_type=2] * Meancent_productinvolv	.340	.189	1.797	.074	-.034	.714	.019
[Claim_type=3] * Meancent_productinvolv	0[a]	.	.	.	.	.	.
[Image_type=1] * Meancent_productinvolv	.062	.178	.348	.728	-.289	.412	.001
[Image_type=2] * Meancent_productinvolv	-.184	.188	-.980	.329	-.556	.187	.006
[Image_type=3] * Meancent_productinvolv	0[a]	.	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Table H14: *Post-hoc analysis*

Claim type

Multiple Comparisons

Dependent Variable: Mean_purchaseintent

	(I) Claim_type	(J) Claim_type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Tukey HSD	Nutrition claim	Health claim	-.0837	.22627	.927	-.6180	.4506
		No claim	-.3283	.23190	.335	-.8759	.2193
	Health claim	Nutrition claim	.0837	.22627	.927	-.4506	.6180
		No claim	-.2446	.22627	.527	-.7789	.2897
	No claim	Nutrition claim	.3283	.23190	.335	-.2193	.8759
		Health claim	.2446	.22627	.527	-.2897	.7789

Based on observed means.

The error term is Mean Square(Error) = 1.775.

Image type

Multiple Comparisons

Dependent Variable: Mean_purchaseintent

	(I) Image_type	(J) Image_type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	Farm image	Country image	-.1781	.22527	.709	-.7100	.3538
		No image	-.0658	.22792	.955	-.6040	.4724
	Country image	Farm image	.1781	.22527	.709	-.3538	.7100
		No image	.1123	.23108	.878	-.4334	.6579
	No image	Farm image	.0658	.22792	.955	-.4724	.6040
		Country image	-.1123	.23108	.878	-.6579	.4334

Based on observed means.

The error term is Mean Square(Error) = 1.775.

Table H15: *Plots of independent variables with dependent variable*

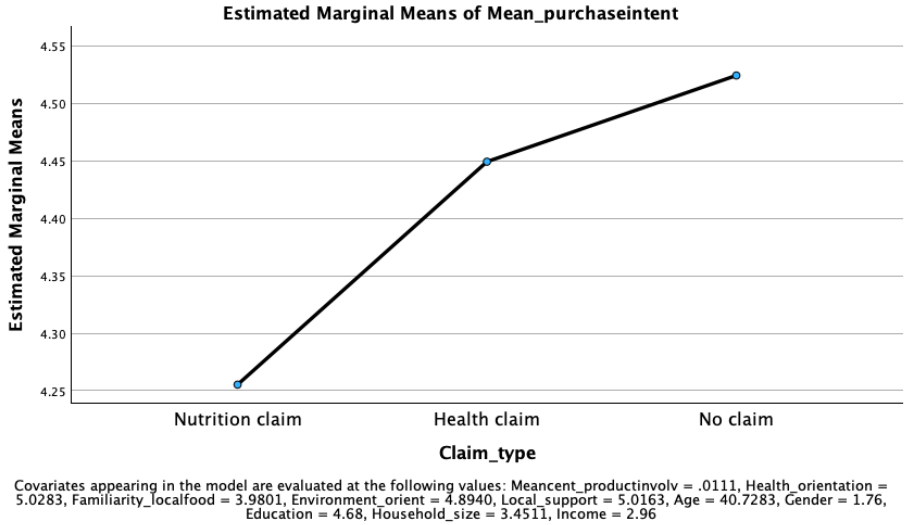


Figure H15.1: Plot claim type on consumer purchase intention

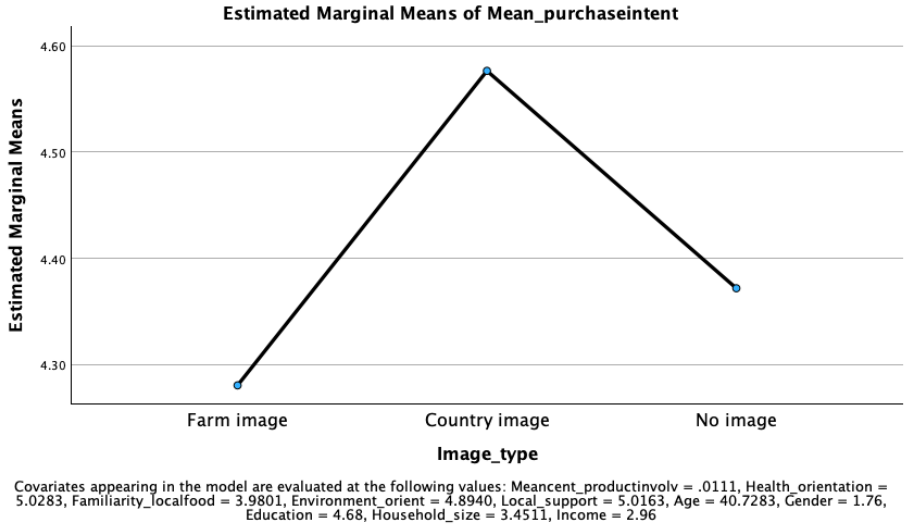


Figure H15.2: Plot image type on consumer purchase intention

Table H16: *Boxplots independent variables*

Boxplots of the independent variables revealed the presence of outliers for the conditions ‘no claim’, ‘farm image’, and ‘no image’ (see Figure H16.1-H16.2).

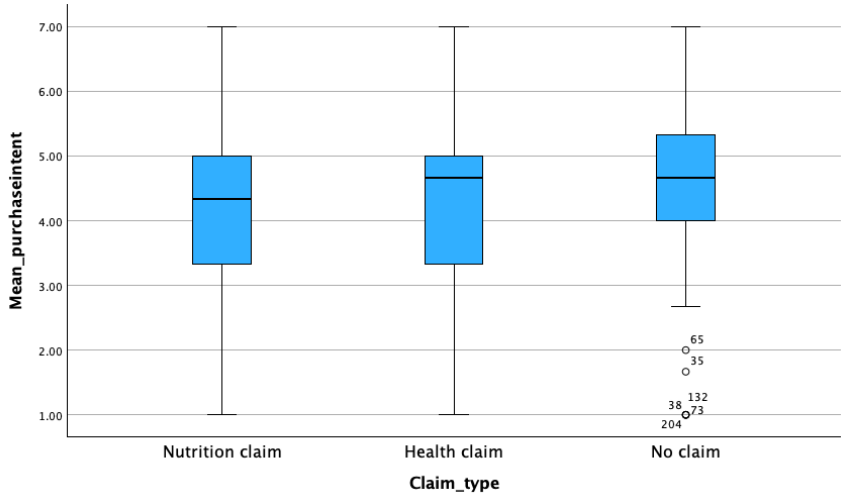


Figure H16.1: Boxplots claim type categories

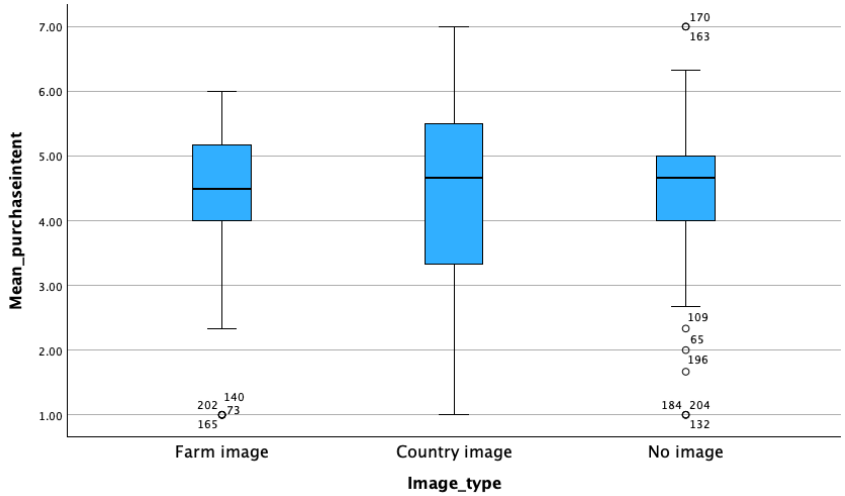


Figure H16.2: Boxplots image type categories

To address the influence of these outliers, data transformations may be employed (Hair et al., 2018). Nevertheless, data transformations are not recommended for dummy variables, such as the independent variables in our model. Consequently, the outliers were deleted to test the robustness of the results (see Table I1).

Appendix I: Robustness checks

Table I1: *Robustness check 1: normality assumption*

The dependent variable "Purchase intention" has a skewness of -.351 and a kurtosis of .164, in comparison to a skewness of -.634 and a kurtosis of .342 in the original ANCOVA analysis. Finally, the mean-centered product involvement has a skewness of -.071 and a kurtosis of -.736, in comparison to a skewness of -.012 and a kurtosis of .775 in the original ANCOVA analysis. It may be concluded that the removal of outliers had a minimal impact on the skewness and kurtosis. Nevertheless, the kurtosis exhibited a slight decline across the variables, indicating a slight reduction in the peakedness or flatness of the distributions (Hair et al., 2018).

		Mean_purchaseintent	Meancent_productinvolv
N	Valid	191	191
	Missing	0	0
Mean		4.5218	-.0365
Std. Deviation		1.09142	1.10962
Skewness		-.351	-.071
Std. Error of Skewness		.176	.176
Kurtosis		.164	-.736
Std. Error of Kurtosis		.350	.350

The ratio of the largest group size to the smallest group size remained below 1.5. The ratio of the largest group size to the smallest group size for the "Claim type" category is 70/59, which is equivalent to 1.19. The ratio of the largest group size to the smallest group size for the "Image Type" category is 67/57, which is equivalent to 1.18. Both ratios remain below 1.5, and have increased slightly in comparison to the original ANCOVA analysis, due to the exclusion of respondents with outliers.

Claim_type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nutrition claim	62	32.5	32.5	32.5
	Health claim	70	36.6	36.6	69.1
	No claim	59	30.9	30.9	100.0
	Total	191	100.0	100.0	

Image_type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Farm image	67	35.1	35.1	35.1
	Country image	67	35.1	35.1	70.2
	No image	57	29.8	29.8	100.0
	Total	191	100.0	100.0	

When the ANCOVA analysis was repeated without the outliers, Levene's test remained not significant $F(8, 164)= 1.955$, p=.055. The alpha level decreased from .212 in the original analysis to .055, which is close to a significant value of .05. Thus, the equality of error variances decreased.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
1.955	8	164	.055

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Claim_type + Image_type + Meancent_productinvolv + Health_orientation + Familiarity_localfood + Environment_orient + Local_support + Age + Gender + Education + Household_size + Income + Claim_type * Meancent_productinvolv + Image_type * Meancent_productinvolv

The whole model is significant ($F(18, 154)= 5.003$, p<.001) and explains 36.9% of the variation in the dependent variable. The original model explained 33.2% of the variance, indicating that this model is a better fit. The covariates "Environmental orientation" (p<.01), "Local support and provenance" (p<.05), and "Income" (p<.01) demonstrated again a significant effect on purchase intention. However, after the removal of outliers, the covariate "Health orientation" demonstrated a significant effect on purchase intention ($F(1, 154) = 6.040$, p<.05), whereas this was non-significant (p=.096) in the original ANCOVA analysis. Income demonstrated the greatest additional value to the prediction accuracy of the dependent variable (η^2=.057) in comparison to environmental orientation (η^2=.056), health orientation (η^2=.038), and local support and provenance (η^2=.031). The interaction effects between "Product involvement * Claim type" ($F(2, 154)= .858$, p=.426), and "Product involvement * Image type" ($F(2, 154)= .960$, p= .495) remained non-significant. However, the main effect of "Claim type" on purchase intention was significant ($F(2, 154)= 4.734$, p=.01) in comparison to the original ANCOVA analysis, whereas the main effect of "Image type" on purchase intention remained non-significant ($F(2, 154)= .363$, p=.696). Thus, the deletion of the outliers resulted in a statistically significant difference between the main effect of claim type on purchase intention and some covariates.

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	73.590[a]	18	4.088	5.003	<.001	.369
Intercept	1.338	1	1.338	1.638	.203	.011
Claim_type	7.737	2	3.869	4.734	.010	.058
Image_type	.594	2	.297	.363	.696	.005
Meancent_productinvolv	.299	1	.299	.365	.546	.002
Health_orientation	4.936	1	4.936	6.040	.015	.038
Familiarity_localfood	2.487	1	2.487	3.044	.083	.019

Environment_orient	7.534	1	7.534	9.220	.003	.056
Local_support	4.030	1	4.030	4.931	.028	.031
Age	1.076	1	1.076	1.317	.253	.008
Gender	.455	1	.455	.557	.457	.004
Education	.382	1	.382	.467	.495	.003
Household_size	.194	1	.194	.237	.627	.002
Income	7.576	1	7.576	9.271	.003	.057
Claim_type * Meancent_productinvolv	1.403	2	.702	.858	.426	.011
Image_type * Meancent_productinvolv	1.569	2	.784	.960	.385	.012
Error	125.841	154	.817			
Total	3785.667	173				
Corrected Total	199.431	172				

a. R Squared = .369 (Adjusted R Squared = .295)

In the post hoc test, the packaging with the nutrition claim exhibited a lower purchase intention than the packaging with the health claim (*MD*=-.1465; p=.717) and the packaging with the health claim exhibited a lower purchase intention than the packaging with no claim (*MD*=-.3942; p=.100). Consequently, the impact of a health claim on purchase intention is marginally significant when compared to the impact of no claim. Important to note that these differences were not found to be statistically significant at an alpha level of .05. In contrast, the packaging with the nutrition claim exhibited a significant difference compared to the packaging with no claim (*MD*=-.5407; p<.05). Moreover, the post hoc test demonstrated that there were no significant differences between the packaging with the farm image and the packaging with the country image (*MD*=.0249; p= .990), as well as between the packaging with the farm image and the packaging with no image (*MD*=-.0273; p= .989). Finally, no significant difference was found between the country image and the no image condition (*MD*=-.0522; p= .961).

Multiple Comparisons

Dependent Variable: Mean_purchaseintent

Tukey HSD

		Mean Difference			95% Confidence Interval	
(I) Claim_type	(J) Claim_type	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Nutrition claim	Health claim	-.1465	.18828	.717	-.5914	.2983
	No claim	-.5407*	.19635	.018	-1.0046	-.0768
Health claim	Nutrition claim	.1465	.18828	.717	-.2983	.5914
	No claim	-.3942	.19080	.100	-.8450	.0566
No claim	Nutrition claim	.5407*	.19635	.018	.0768	1.0046
	Health claim	.3942	.19080	.100	-.0566	.8450

Based on observed means.

The error term is Mean Square(Error) = 1.165.

*. The mean difference is significant at the .05 level.

Multiple Comparisons

Dependent Variable: Mean_purchaseintent

Tukey HSD

(I) Image_type	(J) Image_type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Farm image	Country image	.0249	.18652	.990	-.4158	.4656
	No image	-.0273	.19453	.989	-.4869	.4323
Country image	Farm image	-.0249	.18652	.990	-.4656	.4158
	No image	-.0522	.19453	.961	-.5118	.4074
No image	Farm image	.0273	.19453	.989	-.4323	.4869
	Country image	.0522	.19453	.961	-.4074	.5118

Based on observed means.
The error term is Mean Square(Error) = 1.165.

Table I2: *Robustness check 2: linearity covariates and dependent variable assumption*

The assumption of linearity of the covariates and dependent variable was violated. The covariate gender and household size demonstrated a non-linear pattern. Therefore, the ANCOVA analysis was repeated without these covariates (see tables below). The Levene's test yielded a non-significant result ($F(8, 175)= 1.272$, p=.261). The whole model is significant ($F(16, 167)= 5.012$, p<.001) and explains 32.4% of the variation in the dependent variable. The covariates "Environmental orientation" (p<.001), "Local support and provenance" (p=.001), and "Income" (p<.05) remained significant. The interaction effects between "Product involvement * Claim type" ($F(2, 167)= 1.668$, p=.192) and "Product involvement * Image type" ($F(2, 167)= 1.214$, p= .300) remained non-significant. The main effect of "Claim type" on purchase intention ($F(2, 167)= .942$, p=.392) and the main effect of "Image type" on purchase intention ($F(2, 167)= .848$, p=.430) remained non-significant.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
1.272	8	175	.261

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + Claim_type + Image_type + Meancent_productinvolv + Health_orientation + Familiarity_localfood + Environment_orient + Local_support + Age + Education + Income + Claim_type * Meancent_productinvolv + Image_type * Meancent_productinvolv

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	100.931[a]	16	6.308	5.012	<.001
Intercept	3.234	1	3.234	2.569	.111
Claim_type	2.372	2	1.186	.942	.392
Image_type	2.134	2	1.067	.848	.430
Meancent_productinvolv	.941	1	.941	.748	.388
Health_orientation	3.781	1	3.781	3.004	.085
Familiarity_localfood	.858	1	.858	.682	.410
Environment_orient	14.693	1	14.693	11.674	<.001
Local_support	13.908	1	13.908	11.051	.001
Age	.319	1	.319	.253	.615

Education	4.404E-6	1	4.404E-6	.000	.999
Income	6.730	1	6.730	5.348	.022
Claim_type * Meancent_productinvolv	4.199	2	2.100	1.668	.192
Image_type * Meancent_productinvolv	3.055	2	1.528	1.214	.300
Error	210.179	167	1.259		
Total	3897.444	184			
Corrected Total	311.111	183			

a. R Squared = .324 (Adjusted R Squared = .260)

Table I3: *Robustness check 3: covariates must have some relationship with the dependent variable assumption*

The assumption that the covariates should have a significant correlation with the dependent variable was violated for the covariates product involvement, age, gender, education, household size, and income. Consequently, a new ANCOVA analysis was conducted in which the abovementioned covariates were excluded (see tables below). The Levene's test was again not significant ($F(8, 175)= .978$, $p= .455$). The whole model is significant ($F(8, 175)= 7.890$, $p<.001$) and explains 26.5% of the variation in the dependent variable. The covariates "Environmental orientation" ($F(1, 175)= 10.024$, $p <.01$) and "Local support and provenance" ($F(1, 175)= 11.699$, $p<.001$) were again found to be significant. However, the covariate "Health orientation" became significant in comparison to the original ANCOVA analysis ($F(1, 175)= 6.460$, $p<.05$). The main effect of "Claim type" on purchase intention ($F(2, 175)= .965$, $p=.965$) and the main effect of "Image type" on purchase intention ($F(2, 175)= .924$, $p=.399$) remained non-significant.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
.978	8	175	.455

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + Claim_type + Image_type + Health_orientation + Familiarity_localfood + Environment_orient + Local_support

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	82.470[a]	8	10.309	7.890	<.001
Intercept	.234	1	.234	.179	.673
Claim_type	2.521	2	1.261	.965	.383
Image_type	2.415	2	1.208	.924	.399
Health_orientation	8.440	1	8.440	6.460	.012
Familiarity_localfood	.603	1	.603	.461	.498
Environment_orient	13.097	1	13.097	10.024	.002
Local_support	15.285	1	15.285	11.699	<.001

Error	228.640	175	1.307		
Total	3897.444	184			
Corrected Total	311.111	183			

a. R Squared = .265 (Adjusted R Squared = .231)

Table I4: *Robustness check 4: covariates homogeneous regression effects assumption*

The assumption that covariates must have a homogeneous regression effect was violated by the covariates gender, education, income, and age. To ascertain the robustness of the original ANCOVA analysis, an ANCOVA analysis was conducted again without the aforementioned covariates (see tables below). The Levene's test remained non-significant ($F(8, 175)= .954$, p=.474). The whole model is significant ($F(14, 169)= 4.850$, p<.001) and explains 28.7% of the variation in the dependent variable. The covariates "Environmental orientation" ($F(1, 169)= 9.670$, p<.01) and "Local support and provenance" ($F(1, 169)= 9.879$, p <.01) were again found to be significant. However, the covariate "Health orientation" became significant in comparison to the original ANCOVA analysis ($F(1, 169)= 5.044$, p<.05). The interaction effects between "Product involvement * Claim type" ($F(2, 169)= 1.574$, p=.210), and "Product involvement * Image type" ($F(2, 169)= .844$, p=.432) remained non-significant. Moreover, the main effect of "Claim type" on purchase intention ($F(2, 169)= .956$, p=.387) and the main effect of "Image type" on purchase intention ($F(2, 169)= .951$, p=.388) remained non-significant.

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
.954	8	175	.474

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Claim_type + Image_type + Meancent_productinvolv + Health_orientation + Familiarity_localfood + Environment_orient + Local_support + Household_size + Claim_type * Meancent_productinvolv + Image_type * Meancent_productinvolv

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	89.164[a]	14	6.369	4.850	<.001
Intercept	.741	1	.741	.565	.453
Claim_type	2.511	2	1.255	.956	.387
Image_type	2.498	2	1.249	.951	.388
Meancent_productinvolv	.677	1	.677	.515	.474
Health_orientation	6.624	1	6.624	5.044	.026
Familiarity_localfood	.330	1	.330	.251	.617
Environment_orient	12.700	1	12.700	9.670	.002
Local_support	12.974	1	12.974	9.879	.002
Household_size	.003	1	.003	.003	.959
Claim_type * Meancent_productinvolv	4.135	2	2.068	1.574	.210

Image_type * Meancent_productinvolv	2.217	2	1.108	.844	.432
Error	221.946	169	1.313		
Total	3897.444	184			
Corrected Total	311.111	183			

a. R Squared = .287 (Adjusted R Squared = .228)

Table I5: *Robustness check 5: interaction effects*

The interaction effect between the two independent variables and the moderator was tested. No specific expectations were held regarding this three-way interaction. It was, however, interesting to observe the outcome. The Levene's test remained non-significant ($F(8, 175)= 1.239$, p=.279). The whole model is significant ($F(22, 161)= 3.897$, p<.001) and explains 34.7% of the variation in the dependent variable. The covariates "Environmental orientation" (p=.001), "Local support and provenance" (p<.001), and "Income" (p <.05) were found to be significant again in this robustness check analysis. The interaction effects between "Product involvement * Claim type" ($F(2, 161)= 1.258$, p=.287), and "Product involvement * Image type" ($F(2, 161)= 1.237$, p=.293) were still not significant. Moreover, the interaction between "Product involvement * Claim type * Image type" was also not significant ($F(4, 161)= .940$, p=.442).

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Mean_purchaseintent

F	df1	df2	Sig.
1.239	8	175	.279

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Claim_type + Image_type + Meancent_productinvolv + Health_orientation + Familiarity_localfood + Environment_orient + Local_support + Age + Gender + Education + Household_size + Income + Claim_type * Meancent_productinvolv + Image_type * Meancent_productinvolv + Claim_type * Image_type * Meancent_productinvolv

Tests of Between-Subjects Effects

Dependent Variable: Mean_purchaseintent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	108.105[a]	22	4.914	3.897	<.001
Intercept	1.291	1	1.291	1.024	.313
Claim_type	2.314	2	1.157	.918	.402
Image_type	2.744	2	1.372	1.088	.339
Meancent_productinvolv	1.270	1	1.270	1.007	.317
Health_orientation	3.540	1	3.540	2.807	.096
Familiarity_localfood	.795	1	.795	.630	.428
Environment_orient	14.008	1	14.008	11.109	.001
Local_support	15.142	1	15.142	12.009	<.001
Age	.278	1	.278	.221	.639
Gender	1.888	1	1.888	1.497	.223
Education	.067	1	.067	.053	.818
Household_size	.055	1	.055	.044	.834
Income	5.919	1	5.919	4.694	.032

Claim_type * Meancent_productinvolv	3.172	2	1.586	1.258	.287
Image_type * Meancent_productinvolv	3.119	2	1.560	1.237	.293
Claim_type * Image_type * Meancent_productinvolv	4.741	4	1.185	.940	.442
Error	203.005	161	1.261		
Total	3897.444	184			
Corrected Total	311.111	183			

a. R Squared = .347 (Adjusted R Squared = .258)

Finally, plots were generated to illustrate the impact of the interaction between the independent variables on the dependent variables, while accounting for the covariates (see Figure I5.1). The plots demonstrate that there is no interaction between the categories of the independent variables, as the lines are parallel.

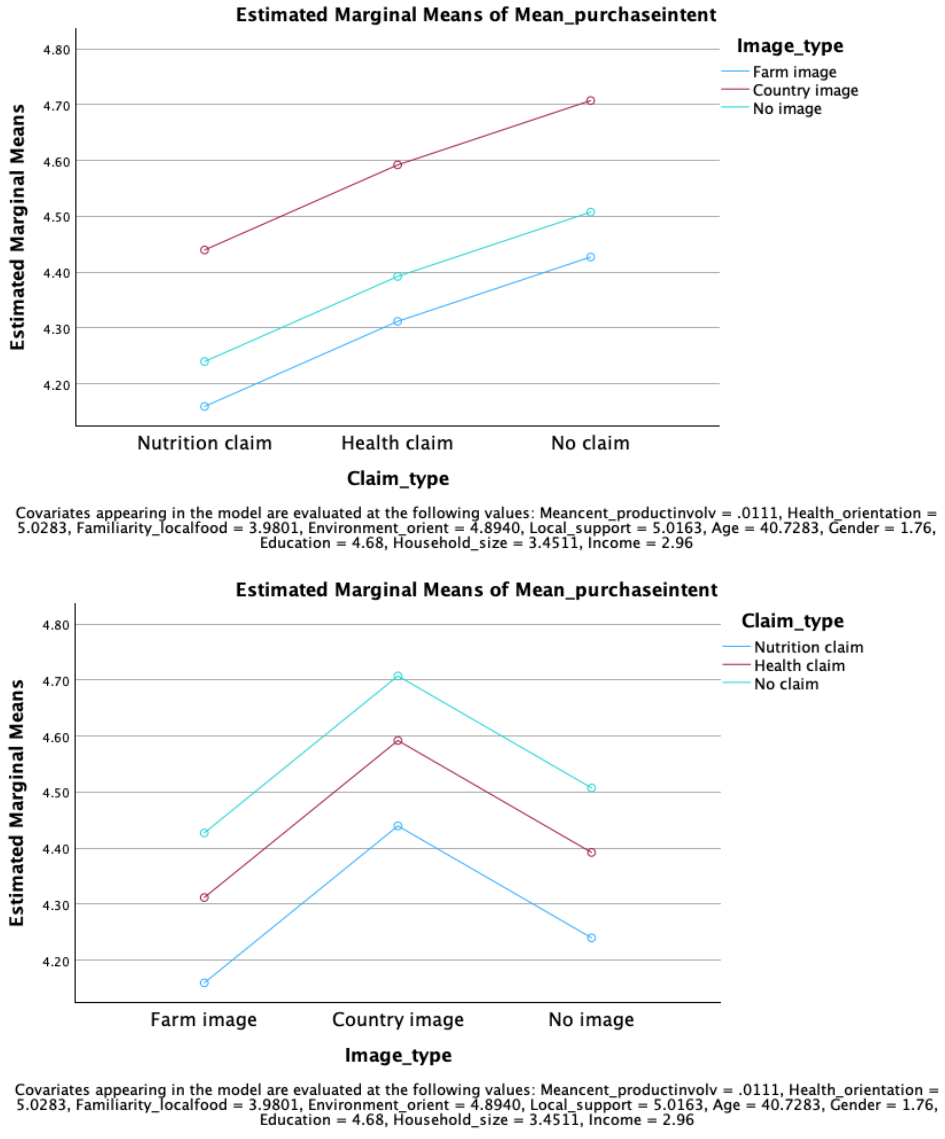


Figure I5.1: Interaction Claim type * Image type

Table I6: *Robustness check 6: product involvement variable split*

To illustrate the interaction effect of product involvement with the two independent variables, a mean split has been employed. Furthermore, the impact of categorizing product involvement into two distinct categories on the outcomes was examined. In this approach, the moderator product involvement has been divided into two groups, a group below the mean and a group above the mean. These groups are identified as "low" product involvement and "high" product involvement. A mean split was employed instead of a median split, as the variable product involvement was found to be normally distributed (Hair et al., 2018).

It is important to note that the observed differences did not reach statistical significance for both Figures I6.1-I6.2 and Figures H12.1-H12.2. The plots have been created to illustrate the effects and for the investigation of whether patterns can be identified.

The intention to purchase did not vary when the product involvement was high or low for the packaging bearing a nutrition claim (see Figure I6.1). Nevertheless, the packaging bearing a health claim and the packaging without a claim demonstrated the highest purchase intention when the level of involvement with the product was high. In general, the intention to purchase was found to be greater when the level of product involvement was high.

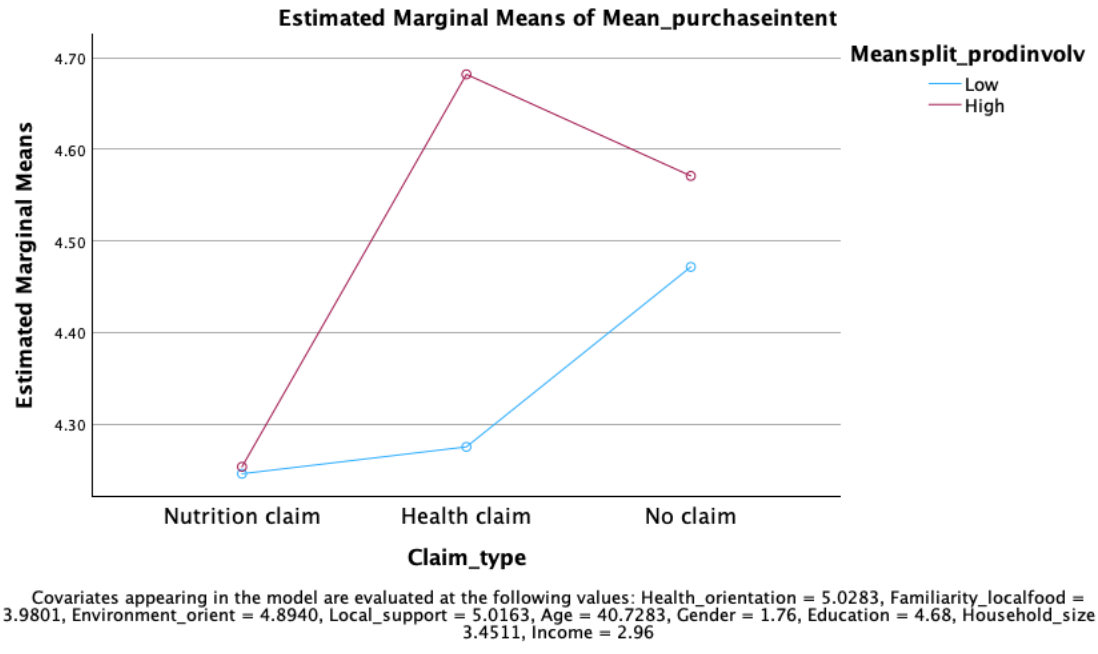


Figure I6.1: Two-way interaction Product involvement * Claim type

The intention to purchase was greater for the packaging with a country image and no image when the level of product involvement was low compared to high (see Figure I6.2). Conversely, the packaging with a farm image demonstrated the highest purchase intention when product

involvement was high. Concluded, the impact of the different image types on the intention to purchase varied across the two categories of product involvement.

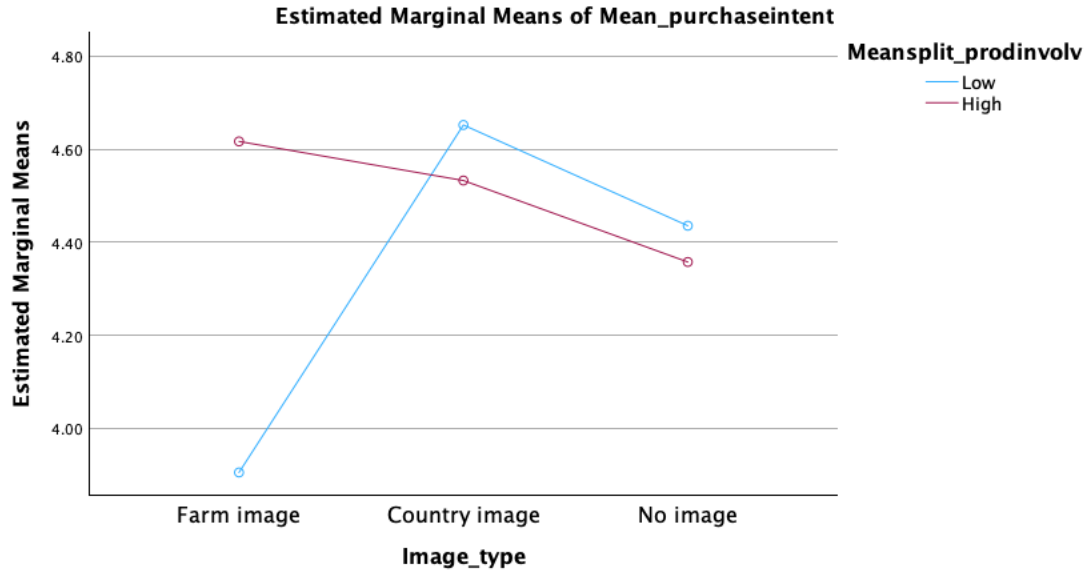


Figure I6.2: Two-way interaction Product involvement * Image type

Moreover, the three-way interaction between claim type, image type, and a low level of product involvement was demonstrated (see Figure I6.3). The highest level of purchase intention was observed for the packaging with a country image and no claim, while the lowest purchase intention was observed for packaging with a farm image and no claim.

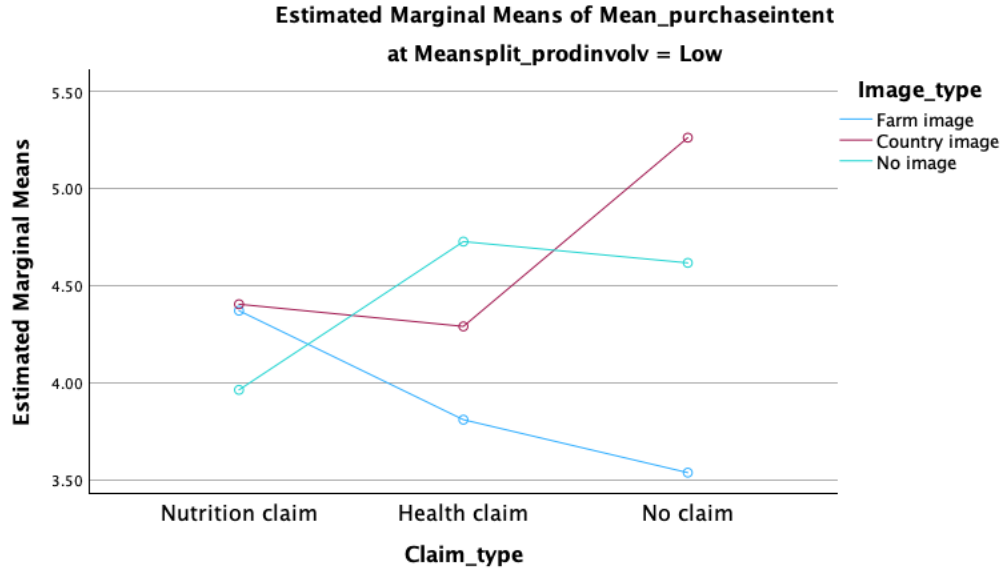


Figure I6.3: Three-way interaction Product involvement (low) * Claim type * Image type

In contrast, the three-way interaction between claim type, image type, and a high level of product involvement demonstrated the highest purchase intention when the packaging had a farm image and a health claim (see Figure I6.4). The lowest purchase intention was observed in the packaging with no image and a nutrition claim when the product involvement was high.

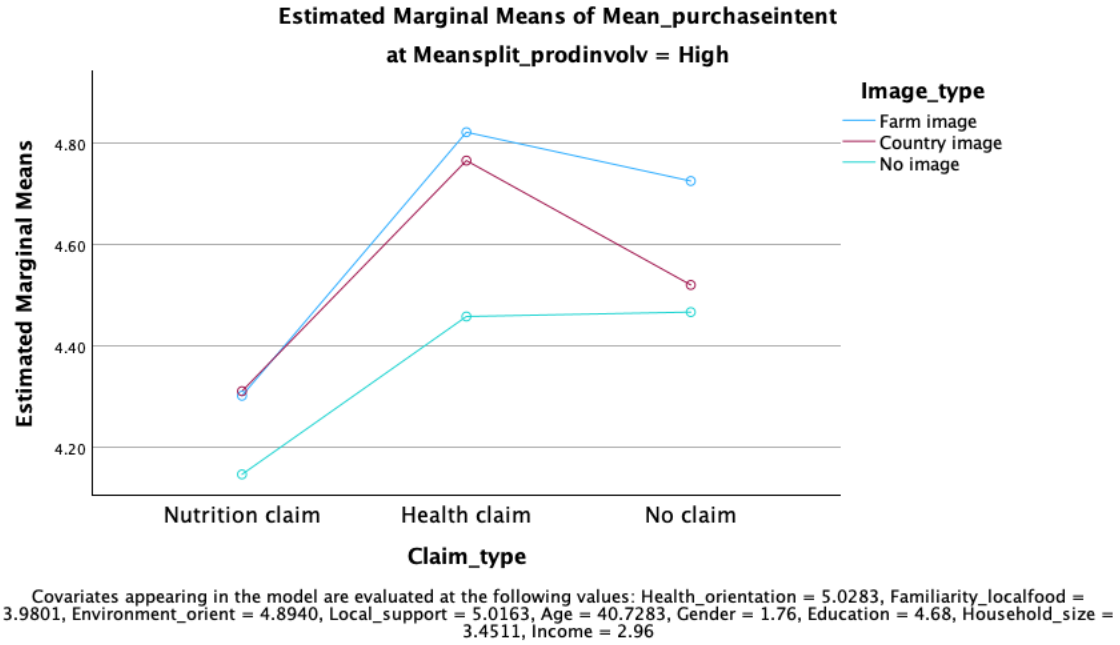


Figure I6.4: Three-way interaction Product involvement (high) * Claim type * Image type

Concluded, the packaging bearing a nutrition claim exhibited the highest purchase intention for all image types when the product involvement was high. Similarly, the packaging bearing a health claim demonstrated the highest purchase intention for all image types when the product involvement was high. Furthermore, the packaging bearing no claim and the farm image or no image exhibited the highest purchase intention when the product involvement was high. However, the packaging bearing no claim and a country image demonstrated the highest purchase intention when the product involvement was low.

Finally, the relationships between the independent variables and the dependent variable were compared when moderating for product involvement with two categories to when product involvement was a metric variable. The figures H12.1-H12.2 were compared with the figures presented above. No clear pattern could be identified for the nutrition claim and no claim when product involvement was a metric variable (see Figure H12.1). This finding is consistent with that of Figure I6.1, which indicates a little difference in purchase intention between the two levels of product involvement (low vs. high). In contrast, Figure H12.1 indicates that purchase intentions for the health claim generally increase as product involvement increases. This is also

consistent with Figure I6.1, which illustrates a substantial difference in purchase intention between individuals with high and low levels of product involvement. Moreover, no pattern could be identified for the three different image types when product involvement was a metric variable (see Figures H12.1-H12.2). This is consistent with the findings in Figure I6.2, which demonstrates that there is no substantial difference in the level of purchase intentions between those with low and high product involvement. However, Figure I6.2 demonstrates a substantial difference in purchase intention for the farm image between the low and high levels of product involvement. Consequently, the interaction effect between farm image and product involvement is not particularly robust when product involvement is transformed from a metric variable to a continuous variable. It can be concluded that the interaction effects are robust, as the majority of them exhibited a similar pattern when product involvement was a metric variable and when it was transformed into a continuous variable. With regard to the interaction with farm image, however, some differences were observed.