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The Impact of Integrating Sustainability and Country of Origin in Export Branding on the Willingness to Pay for Norwegian Salmon

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Abstract

This study aims to quantify to what extent the integration of sustainability with another driver of choice (taste) and country of origin cues in export branding influences consumers' willingness to pay. We focus on the case of Norway and exports of salmon to the United States and carry out a between-subject experiment with six different treatment groups. Utilizing a two-way ANCOVA factor analysis, we find significant evidence that the mean willingness to pay for those shown an ad that featured integration of sustainability combined with taste was $3.50 higher than for those shown an ad that featured taste alone. Both the ad with the highest willingness to pay and the lowest advertised European origin. The sample of American consumers did not demonstrate a significant preference for Norwegian origin over European origin, however, those with above-average income and those who had traveled to Europe did demonstrate a significant increase in willingness to pay for products of Norwegian origin. In addition, we find that a $3.50 increase in average willingness to pay could have potentially large effects on the demand for Norwegian salmon exports, utilizing a simple model of the own price elasticity of demand. Overall, the results of the study partially support the hypothesis that the integration of sustainability with country of origin and another driver of choice increases the consumer's average willingness to pay for the product.

Key terms: *integration of sustainability (IOS), driver of choice, country of origin (COO), willingness to pay (WTP), own price elasticity of demand*

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1. Introduction

1.1 Background

Norway has been one of Europe's largest oil exporters since the 1970s, with petroleum activities contributing to over NOK 18,000 billion to Norway's GDP (Norsk Petroleum, 2023). Despite this, several international rankings consider Norway a highly sustainable country (Shieler, 2020; SolAbility, 2021). In the past few decades, Norway has been a leader in fighting climate change and consumes relatively few fossil fuels, which could present a paradox for its sustainable image. International policy and the UN sustainability goals have forced companies and countries alike to address the climate change issue and at the same time consumers are becoming increasingly environmentally conscious when making purchasing decisions (Schramade, 2017; Su et al., 2019). This has led companies to increasingly promote and communicate their sustainability efforts to enhance their appeal and reap benefits (Dinnie, 2022). However, sustainability branding and communications literature has been unclear on the best way to approach this topic, especially in the terms of export and country marketing.

To stand out in globalized and increasingly competitive markets and emphasize Norway as a sustainable country, Norwegian products can use national branding. For example, America is known as the "land of opportunities", Italy is known for its rich food like pasta and pizza, and France is synonymous with wine and luxury (Dinnie, 2008). By creating a well-known reputation for a country, this can increase exports for this product (French wine, Italian pizza). With this objective in mind, "Brand Norway" recently launched an export initiative to brand the country of Norway and its products as "sustainable pioneers" that are "powered by nature" (Brand Norway, 2022). Additionally, the Norwegian seafood council has trademarked the "Seafood from Norway" label to have consistent origin labeling across products that meet their criteria in terms of quality and production (Norwegian Seafood Council, 2023).

Based on these national and global trends, the branding of Norway and its exports as sustainable is imperative to continue succeeding in international markets and to increase national GDP; however, how to do this effectively and the effectiveness of sustainable country branding are not yet well documented. Norway is the world's largest global exporter of farmed Atlantic salmon, with a market share of more than 55%, and most major Norwegian salmon producers such as MOWI, Greig Seafood and Lerøy consistently rank highly on sustainability criteria (Valumics, 2021; FAIRR, 2023). The farmed salmon export industry has grown

rapidly in recent years and could play a crucial role in Norway's eventual shift away from oil and natural gas (World Wildlife Fund, 2023). The economic implications of such a branding campaign for seafood exports are potentially significant, as international advertising by the Norwegian Seafood Export Council has been effective in increasing demand for Norwegian salmon in the past (Xie, 2008).

The findings of this study on the effectiveness of integrating country branding and sustainability with another driver of choice in brand positioning and marketing communications can serve as an example of how other industries can properly market their products to increase international exports and capitalize on the Norwegian country brand. While COO has been proven to be an effective branding tool, and sustainability has been proven to be an effective driver of choice, the combined effect of these elements has not yet been tested, and it is likely based on previous research that tying together sustainability, the country of origin, and a main choice driver for the product could result in an increased willingness to pay (WTP) due to presenting cohesive and connected brand associations. If this is found to be the case, Norwegian exporters can use this research as a guide to build their brand positioning and create effective marketing communications to increase their own company performance and increase industry demand overall.

1.2 Purpose

This study's purpose is to investigate to what extent integrating sustainability with another driver of choice and using country of origin branding (COO) in export products affects consumers' purchase intention and willingness to pay (WTP).

Therefore, our research questions are as follows:

RQ1: How to properly exploit the national reputation of Norway on sustainability in the marketing of Norwegian seafood products, specifically salmon?

Country branding has proven to be an effective measure to increase the countries' connection to favorable associations, so this may also be an effective measure to transfer these associations to export products. Using country branding in export products may also be strengthened by not only integrating the Norwegian country of origin into the product's brand positioning but also integrating the sustainability aspect directly into the brand positioning by

tying it to the Norwegian country of origin and another major driver of choice relevant for the product. If the export brand can integrate these aspects together, we may expect a positive response. Therefore, our next research question is as follows:

RQ2: Will hinting at sustainability and the country of origin in export communication increase consumers' willingness to pay for Norwegian salmon?

Willingness to pay quantifies the price at which consumers would hypothetically be willing to purchase the product advertised. It is one of the key components of a customer-based pricing model which is considered by many marketing experts to be a key aspect of a successful branding strategy. Measuring consumers' willingness to pay in monetary terms enables an analysis of the potential economic implications of the proposed changes in marketing communications.

RQ3: What are the potential economic implications of an increase in WTP for the demand for Norwegian seafood exports (specifically salmon in our example)?

Successful branding can have significant implications for product demand and can even stimulate a rightward shift in the demand curve for that product (Xie, 2008; Hutchinson, 2017; Reibstein, 2017). If the integrated marketing communications are found to increase WTP by a significant monetary amount, the effect on the quantity demanded can be predicted using a simple demand model.

Answering these questions will provide practical implications for Norwegian companies who wish to compete in the international marketplace and give insight as to how these measures could impact the Norwegian economy.

1.3 Structure

To answer research questions 1 and 2, this study outlines the relevant existing literature and frameworks, and presents three hypotheses. The methodology section then outlines the approach taken regarding the between-subject experiment design, data collection, and measurements. The data is then analyzed and explained, and the results are presented in section 5. Research question three will be evaluated in section 6 using a simple economic model of the demand for Norwegian salmon. The demand analysis is conditional upon there

being significant empirical findings from the experiment. The study then discusses the findings, and their implications, in section 7. Validity and reliability of the experiment are then addressed in section 8, and conclusions are made alongside recommendations for future research in section 9.

2. Literature Review

This thesis expands upon several theoretical topics; therefore, it is essential to introduce the theoretical background of the research. Brands and the concept of brand positioning are first defined and then connected to the concept of country branding and country-of-origin marketing. Then the concept of marketing communications, and more specifically research on sustainability communications, is outlined. Lastly, the literature review defines and explores the research on the topics of customer-based pricing, willingness to pay (WTP), and purchase intention through the lens of behavioral economics.

2.1 Branding

A brand can be defined as "a name, term, sign, symbol, or design or combination of them which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors" (Keller, 1993).

Brands have two perceptions, the brand identity, and the brand image. The identity is on the sender's side (the brand), which is where the brand itself purposefully specifies the brand's meaning, aim, and self-image (Kapferer, 2007). Kapferer (2007) has developed a brand identity prism where 6 facets of identity are established: 1) A brand has physical qualities; 2) A brand has a personality; 3) A brand has its own culture; 4) A brand is a relationship; 5) A brand is a reflection; 6) A brand speaks to our self-image. A brand should encompass all 6 of these facets; however, there may be a gap in how consumers perceive them – leading to the brand image. The brand image is on the receiver's side and focuses on how certain groups perceive a product, brand, etc. This image is created from various brand signals and communications such as the brand name, visual symbols, products, ads, sponsors, and preconceived biases (Kapferer, 2007). Therefore, image is an interpretation of identity.

2.1.1 Positioning

It is common for consumers to identify brands through brand associations resulting from the brand positioning. Positioning a brand allows for distinctive characteristics that are appealing and different from its competitors to be emphasized (Kapferer, 2007). However, as mentioned above, there may be a gap in how consumers position a brand (identity vs image), and how a

brand positions itself. Therefore, it is essential to clarify the brand positioning by identifying key differentiating factors to properly create brand associations in customers' minds influencing the brand image.

To clarify these brand associations to influence consumer perceptions, it can be beneficial to use “the target network model” (see Figure 1).

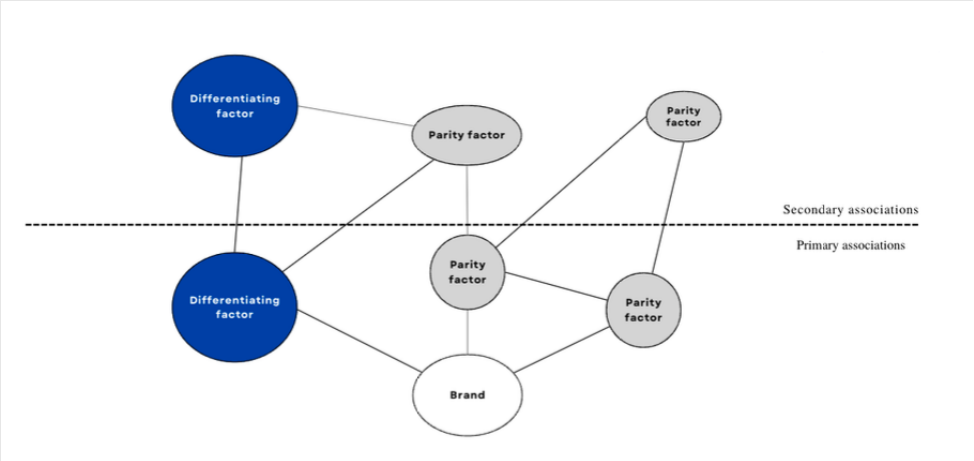


Figure 1: Target network model

To properly differentiate the brand, the main drivers of choice should be defined and tied to the company’s strategic resources, while also being difficult for competitors to imitate (Supphellen et al., 2014, s. 401). These main drivers will represent the primary perceptions that consumers should tie to the brand, while secondary associations provide further meaning to the main drivers. For example, for salmon, a primary driver may be “quality”, and a secondary association related to that may be “good production process”.

There are two fundamental types of brand associations: points of differentiation (POD), which are characteristics that are different, and unique from competitors; and points of parity (POP) which are characteristics that are not unique and are similar to competing products, allowing for customers to relate the product to a certain category (Webster & Keller, 2004). Differentiating factors should be relevant to the target group and meet their needs, in addition to being unique from competitors. These different points can also be classified by which benefits are provided to consumers such as symbolic, functional, and experiential. In communications efforts, these key differentiators should be emphasized.

2.1.2 Drivers of Choice and Integration

Successful brands can build strong brand equity when consumers have high levels of brand familiarity and awareness, and strong, favorable, and unique brand associations developed from the positioning tactics described above (Keller and Swaminathan, 2020). The brand elements such as name, logo, story, and associations should be as "mutually reinforcing" as possible, meaning that each brand element should be integrated with the others. Brand associations can be measured by their level of congruence, or "the extent to which a brand association shares content and meaning with another brand association" (Keller, 1993, p. 7). The congruence of brand associations can increase consumers' ability to remember said associations, and how easily new associations can be linked (Keller, 1993). Therefore, if associations are congruent, or in other words integrated, the strength of the association increases, and the brand will appear more cohesive.

Integrating Sustainability into Brand Positioning

Sustainable branding involves incorporating sustainability perspectives into brand management practices. It encompasses the development, upkeep, and communication of a brand that effectively delivers sustainable benefits to its stakeholders (Foroudi & Palazzo, 2021). As per Deloitte's report in 2022, the heightened awareness of the detrimental impact of brands on the environment and the rising demand for sustainable products among consumers has made sustainable branding an inescapable trend that businesses must adopt. However, even though consumers are becoming increasingly focused on sustainability, it may not represent their primary driver of choice for choosing a brand – representing a possible attitude-behavior gap. Therefore, it is necessary to integrate sustainability into the brand positioning and connect sustainability to other main drivers of choice (Supphellen, 2020).

Supphellen (2020) identifies the importance of properly integrating sustainability into the brand positioning based on market and brand analysis, as well as overall sustainability strategy and the company's strategic abilities. To differentiate from competitors and make sustainability the central driver of choice, brands should integrate sustainability as the "primary differentiating factor" into the positioning and be interplayed and connected to other associations that spur from sustainability products such as "health" (51). On the other hand, sustainability is often indirectly communicated solely through other associations such as healthy, quality, taste, etc. While these attributes are often associated with and are indirect

effects of sustainability, the lack of a clear tie to sustainability in the brand positioning will lead to weaker sustainability associations and may affect purchase intentions (Cho & Baskin, 2019).

While sustainability may also act as a point of parity (POP), or be a stand-alone association, connecting sustainability to another relevant association as a point of differentiation (POD) will create a positive interaction effect and increase a brand's competitive abilities (Supphellen, 2020). Additionally, when sustainability is connected to another driver, it may strengthen the connected driver. For example, if sustainability is connected to taste, it may strengthen good taste association by providing a reason for the product tasting good. Consequently, consumers are then more likely to remember the sustainability association due to the repeated activation of the driver (Supphellen, 2020). This connected association should be or can become a direct driver of choice as well. However, if sustainability is not explicitly integrated into a brand's positioning, it may become a less prioritized sub-topic that lacks strategic relevance in the day-to-day process of building the brand (Supphellen, 2020).

Supphellen's (2020) recommendation is that when there is uncertainty about whether to link sustainability to other drivers or to take an individual approach, the general rule should be to always seek connections and interactions with other associations. This approach will enhance the value of the sustainability dimension.

2.2 Country Brands

Countries are much like brands, shaped by what Simon Anholt (2005) described as the National Brand Hexagon, which defines 6 key factors that influence the national brand: 1) people 2) culture 3) tourism 4) inward investment 5) foreign and domestic policy/governance 6) exporting brands. In this study we will focus on strengthening the Norwegian nation brand through export brands.

A national brand, just like a product brand, consists of two concepts: national identity (true identity) and national image (people's perceptions) (Dinnie, 2008). The national image is subjective and can be based on different heuristics such as past personal experiences, stereotypes, and biases that may not represent the national identity. However, this image can be shaped by strategic marketing communications (He, Wang & Wu, 2020). Nation brands should represent an attractive macro-image, which is relevant to several important export

industries. Norway's main export industry is oil, which may affect the sustainable brand they want to convey. Therefore, it is essential to assess stereotypes and beliefs about a nation brand to identify changes that need to be made to cultivate the desired associations and national image (He, Wang & Wu, 2020). For example, Japan rebranded itself by moving away from its image of cheap products to be associated with advanced technological productions through the "Made in Japan" imitative (He, Wang & Wu, 2020).

These images and associations will be in the form of both macro and micro associations. Macro images are country-level associations (flag, government, geography, key industries, cultural characteristics), while micro images are more detailed and focus on the Country-of-origin Effect (COO) (He, Wang & Wu, 2020). COO refers to how national reputation influences the perception of products. The country's image can influence consumer attitudes towards products through the halo and summary effect. The halo effect is when a buyer transfers a country image to a product evaluation when they cannot determine the true quality of the product before purchase (He, Wang & Wu, 2020). The summary effect describes how consumers summarize their experiences with the specified country and its products subsequently affecting consumers' attitudes and processing of the product (He, Wang & Wu, 2020). The stereotypes that often influence our purchasing choices based on a country's image are outdated and unoriginal and often do not reflect the current reality of the country (Anholt, 2005). However, they are so ingrained in our consciousness that we tend to accept them without much thought. Consequently, we also associate products with the perceived qualities of the countries they originate from, based on these preconceived notions (Anholt, 2005). Countries should highlight and promote positive and new aspects of their image to transfer positive associations to their products, leveraging consumer attitudes.

The country image can also be product specific or general. The general image refers to consumers' perceptions of a country across product categories, while a product-specific image focuses on only certain product categories. National marketing programs often use a general country image to promote the country as a provider of quality goods across various categories, such as the "New Zealand Way" campaign that promoted associations between the country and qualities such as adventure, nature, and friendliness (He, Wang & Wu, 2020). While on the other hand, Colombia promotes its high-quality coffee without relying upon a general country image. Similarly, the Norwegian Seafood Council launched a campaign to "eat more

Norwegian salmon" to increase awareness of Norwegian salmon products specifically (Xie, 2008).

COO has been proven by to influence consumer perceptions of products, therefore improving the country brand image, and positioning the product according to the COO is imperative (Bannister and Saunders, 1978; Kilduff & Núñez Tabales, 2016; O'Shaughnessy & O'Shaughnessy, 2000). However, the level of influence COO brings brands has not been properly quantified.

2.2.1 Country-of-Origin Labels

According to Dinnie (2022), companies can utilize country-of-origin (COO) communication to leverage national equity and associate their brand with national values to differentiate themselves from their rivals. COO communication is often presented through package labeling and messaging, allowing consumers to be influenced by the country of origin in their purchasing decision. The origin could then act as a primary driver and POD in the brand positioning, adding competitive leverage to the brand through origin effects and increasing consumers' assessment of the product (Koschate-Fischer et al., 2012; Supphellen, 2022). However, for this cue to have a positive effect, the origin must trigger positive associations that make the product more attractive due to the specific origin (Johansson, 1989).

If the said nation has strong associations, these country brand associations will spill over to the brand or product as well and vice versa (Dinnie, 2022). Therefore, it is pertinent that the product and nation have similar associations and can therefore mutually reinforce each other, to drive the purchase intention of the product and to possibly better the reputation of the country.

2.2.2 Export Marketing

While the global focus on sustainability is increasing, companies operating in export markets are facing an increasingly difficult and challenging international market environment. This is primarily due to the growing resistance to globalization in recent years, leading to the emergence of the concept of deglobalization (Dinnie, 2022). Research on optimizing a company's position in foreign markets suggests that achieving the desired export venture goals through effective export marketing strategies requires two crucial elements: successful

implementation of the intended export marketing strategy and attainment of the expected reactions in the export marketplace. Both factors are essential to accomplish desired export venture objectives, as noted in studies by Madsen in 1989 and Morgan et al. in 2012. Implementing an export program that helps brand effectively integrate sustainability and the Norwegian country of origin into their brand positioning could hypothetically increase their competitive advantage in export markets.

One way to operate in export markets successfully, is to use recognizable labels such as vegan labels, eco-labels, fair-trade labels and so on. Using easily recognizable labels such as these has been shown to ease decision making, drive purchase intention, and give lesser-known international companies a competitive advantage (Mueller and Szolnoki, 2010; Alexander & Nicholls, 2006). Muller and Szolonki (2010) also suggest that labels play a crucial role in boosting the credibility of a product, thereby enhancing customers' perceptions of its quality. This, in turn, can have a positive impact on marketing outcomes. Additionally, Madsen (1989) found that product strength is an extremely important determinant of export market performance. Oftentimes buyer uncertainty can cause major obstacles in choosing a foreign supplier or product, so emphasizing high product quality may reduce uncertainty and increase seller credibility (Madsen, 1989). Therefore, one could assume that COO labels may provide the same advantage given that the flag or country name is well known and seen in a favourable light by the consumer.

Brand Norway

Brand Norway, Norway's export marketing agency, helps companies become more visible and attractive internationally through export marketing initiatives and strategic branding. The Norwegian export brand is continually trying to brand themselves as "sustainability pioneers" who are powered by nature, built on equal opportunities, and are north of the ordinary (Brand Norway, 2023). By tying one's brand positioning to the Norway's pillars of their country brand, the country associations may act as a POD due to consumers transferring these associations to the perspective products.

2.3 Customer-based Pricing and Willingness to Pay

One of the key objectives of this study is to quantify the positive effect of integrated nation branding, so that Norwegian exporters can make an informed decision about the potential

monetary value of this type of marketing. We seek to do this by measuring consumers' willingness to pay in monetary terms, which we will then use as an estimate of the maximum price retailers can charge for the product using the customer-based pricing method.

Consumers' willingness to pay (WTP) is considered by economic and marketing researchers alike to be a key metric in quantifying the value of a product to its firm (Steiner et al., 2016). In economic theory, WTP can be defined as "the maximum price a consumer is willing to pay for a given quantity of a product or a service" (Schmidt & Bijmolt, 2020, p.501). At this price, the consumers' perceived benefit of buying the product is exactly equal to the perceived benefit of not buying and keeping their money; in other words, at this limit they are indifferent. Accurate estimates of consumers' WTP for a product are considered to be one of the most important inputs in marketing strategy and enable managers to assess the effectiveness of their marketing efforts and optimally price new products (Schmidt & Bijmolt, 2020). Customer value-based pricing using WTP requires an understanding of the sources of value for customers and can be considered strategically superior to cost-based pricing strategies most used by companies (Hinterhuber, 2008).

A successful Norwegian national branding campaign is likely to increase foreign consumers' willingness to pay for export products, given that it has been demonstrated empirically that both country of origin and eco-labeling can have significant positive effects on WTP (Hu & Wang, 2010; Koschate-Fischer et al., 2012; Zander & Feucht, 2018; Sun et al., 2017; MDPI, 2020). A ceteris paribus (all else equal) increase in WTP is associated with a temporary consumer surplus, as the consumer's perceived benefit of buying the good increases (Hutchinson, 2017). This short-term increase in consumer surplus could trigger a rightward shift in the demand curve for that good, as the price remains constant, but consumers purchase more (Reibstein, 2017; Xie, 2008). As is the goal of most advertising campaigns, this has the desired effect of increasing the quantity of goods sold, without necessarily needing to provide a price discount (Xie, 2008).

The profitability of this maneuver for the supplier will depend on their marginal cost function (which can be expected to decrease with increased quantity, up to a certain point), as well as the costs associated with being part of the export branding program, which will likely be minimal. Other important assumptions that must be considered when modeling the potential economic consequences of the program include whether the elasticity of demand can be expected to stay constant, as well as Norwegian firms' ability to set prices in the industry. An

overview of relevant market data and studies on demand elasticity in our industry, as well as market conditions, will be detailed in section 4.1 and revisited in section 6.

2.3.1 Country Branding and Demand for Exports

Branding is a key strategy for firms as well as countries as it gives consumers a way to differentiate products and services, build customer loyalty, willingness to pay premium prices, and brand equity. The same goes for nations, or in other words nation equity, which can be defined as "a set of country assets and liabilities linked to a country, its name and symbols, that add to or subtract from the value provided by the country's outputs to its various internal and external publics" (Papadopoulos and Heslop, 2003, pp. 427-428). According to Chu (2013), a product's country of origin can contribute to its equity, which can be measured using sales data and evaluated through factors such as price premiums, price discounts, and market share. Furthermore, this equity can be monetized.

Several studies have examined the impact of national branding campaigns on demand for that country's products. Specifically for Norway, Xie (2008) studied the economic effect of advertising by the Norwegian Seafood Export Council in the EU market and found that pro-Norwegian advertising resulted in a rightward shift of the demand curve for Norwegian salmon. The advertising campaign was targeted at EU consumers and encouraged them to "eat more Norwegian salmon", reinforcing associations between Norway and salmon which in turn created a positive COO effect among consumers (Xie, 2008). Effective national export promotion programs have been shown to enhance export competitive advantage, which can in turn improve export performance, particularly among large firms (Lionidou et al., 2011).

2.4 Marketing Communications

When consumers receive communications from brands, they can process the information in two ways (also known as the dual process theory). System 1 processing involves making intuitive and fast decisions allowing consumers to simplify information and use little brain power by applying heuristics and biases (cognitive shortcuts) (Frankish, 2010). System 2 processing involves reflective and slow processing allowing for logical and effortful decision making (Frankish, 2010). Most daily decisions made by consumers are system 1 (low involvement decisions), especially those in grocery stores and food purchases (Smith & Carsky, 1996). However, in food purchasing decisions, the level of involvement may differ

between individuals due to the extent of which food and meal preparation are associated with one's self-expression, self-concept, and household role (Smith & Carsky, 1996). For instance, a consumer who is very concerned with health, humane production, and sustainability may spend more time analyzing each product carefully when choosing meat and seafood options at a grocery store.

The message of communications can be found within the brand positioning by choosing which elements/associations to focus on. Messages must be easy to understand, interesting and credible while being informational, emotional, or symbolic. Therefore, if a brand is choosing to focus on sustainability in its communications, it must include this in its brand positioning, and be strategic in its messaging.

2.4.1 Sustainability Communications

Green marketing is "the marketing practices, policies, and procedures that explicitly account for concerns about the natural environment in pursuit of the goal of creating revenue and providing outcomes that satisfy organizational and individual objectives for a product or line" (Menon et al. 1999 in Leonidou et al., 2013). In this thesis we will be focusing on the communication aspect of green marketing, otherwise known as green promotional programs, which are designed to "inform stakeholders about the firm's efforts, commitment, and achievements toward environmental preservation and communicate the environmental benefits of the firm's goods and services" (Belz and Peattie 2009; Dahlstrom 2011 in Leonidou et al., p. 154, 2013). This includes methods such as "advertising environmental appeals and claims, publicizing environmental efforts, and incorporating environmental claims on product packaging" (Banerjee 2002; Menon et al. 1999 in Leonidou et al., p. 154, 2013). In a study by Leonidou, Katsikeas, & Morgan (2013), they found that green promotional programs are positively related to return on assets. In industries with a bad environmental reputation, green promotion programs had a positive effect on firms' product market performance, which may allow firms in these industries to differentiate themselves more effectively from competitors. It is also important to note that in the study, customers assigned higher values to green product and distribution strategies than green promotional efforts. Therefore, export brands that integrate the sustainable Norwegian country image into the brand positioning should have sustainable products and distribution strategies to back up

their communications and reap the highest benefits of green promotional efforts and avoid greenwashing accusations for both Norway and the product brand itself.

While participating in green promotional programs, it is important to frame these messages effectively and delicately when trying to communicate sustainability. A study by Olsen, Slotegraaf, & Chandukala (2014) quantifies how message framing for green products can change brand attitudes. They found that green products have a significant positive effect on brand attitude. Specifically, they revealed that fewer green claims are more efficient as to not overload consumers with information making processing difficult. This is especially important for products where consumers are making low-involvement decisions. However, for vice products (products seen as traditionally harmful), a greater quantity of green claims will be more helpful to consumers as they attempt to quantify the benefits and negatively framed messages were seen to be more effective for goal fulfillment (Olsen, Slotegraaf, & Chandukala, 2014). Therefore, Norwegian export companies should recognize the product type and industry reputation, before deciding on how to structure green promotional claims.

Influencing Consumer Behavior

It could also be relevant to utilize the SHIFT framework created by White, Habib, & Hardisty (2019) when looking into how to specifically frame these messages to influence consumer behavior to choose more sustainable options. The SHIFT framework details 5 main influences of changing consumer behavior: 1) Social Influence; 2) Habits; 3) Individual Self; 4) Feelings and Cognition; and 5) Tangibility. When creating green messaging in hopes to change consumer behavior one must consider these 5 factors. The specific factors that will be more heavily utilized will depend on the product, brand, and the target market. However, it is unknown which of these, or which combination of these factors is most effective.

Social influence contains social norms, social identities, and social desirability. Social norms (beliefs about what is socially appropriate) and descriptive norms (refers to what other people are doing) can be a powerful influence on consumer behavior in each context (Cialdini et al., 2006; Peattie, 2010 in White, Habib, & Hardisty, 2019). Social identities refer to one's sense of identity from group membership (White, Habib, & Hardisty, 2019). For example, young and liberal people are more likely to engage in sustainable behavior, which can be a determinant of pro-environmental choices. People may also be more inclined to purchase sustainable products if the option will make a positive impression on others to convey social

status (Green & Peloza, 2014). One suggestion then is to make sustainable products more socially desirable to fight against possible negative perceptions. Export companies should consider target group preferences and play off external consumers' social pressure and image when crafting their promotional efforts to influence consumer behavior and adoption.

Many behaviors and product choices are highly habitual; therefore, marketers can disrupt these habits or provide incentives and prompts to change these habits (White, Habib, & Hardisty, 2019). Companies can make it easier for consumers to change their habits through messages that remind consumers of the desired sustainable behavior or provide incentives, rewards, and discounts to increase positive habit formation.

Promotional messaging can also play on consumers' individual sense of self through their self-concept, self-consistency, self-interest, and self-efficacy (White, Habib, & Hardisty, 2019). Consumers may buy sustainable products to view themselves in a positive light and may continue to do so to view themselves as being consistent (Van der Werff, Steg, & Keizer, 2014). Therefore, positioning and labeling your product as sustainable is important for consumers who wish to conform to their own self-concept. Additionally, marketers have also found success in targeting those with already strong personal values around sustainability and strengthening these norms through priming.

Feelings and cognition can also predict sustainable consumer behavior, and consequently, it can be pertinent to play off positive and negative emotions, as well as consumer or pre-existing knowledge in marketing communications (White, Habib, & Hardisty, 2019). Subtle activations of guilt, fear, and sadness can persuade consumers to purchase sustainable products while activating positive emotions to help consumers derive some hedonic pleasure from their behavior (White, Habib, & Hardisty, 2019). Marketers can also present information that informs consumers of the positive or negative consequences of their choices and utilize eco-labels that are consistent and easy to understand to help consumers make better-informed decisions (White, Habib, & Hardisty, 2019). Here the COO labels could also again be seen as beneficial to play off pre-existing knowledge of the origin, and specifically knowledge of Norway’s reputation on sustainability.

Lastly, marketers can make their messages more tangible for consumers by encouraging them to focus on future impacts and providing them with concrete information about the immediate impacts, vivid imagery, and analogies (White, Habib, & Hardisty, 2019). Marketers should draw clear pictures and provide specific information about the benefits and possible consequences of consumers' choices to properly influence their behavior. Through the lens of behavioral economics, present bias may be relevant, given that consumers care more about benefits in the present than benefits realized in the future. The consequences of climate change tend to be perceived as more concrete when psychological distance is minimized, which can be challenging to achieve in a low-involvement purchase setting (McDonald et al., 2015). Buying sustainable products may be more appealing if the branding is integrated with another driver of choice and hints that the consumer gains a present benefit (i.e., a better taste) *because* the product is sustainable. This may be more effective than ads/labels which fail to connect sustainability to a present benefit but rather rely on the consumer's altruism and desire to improve the future world, which are more abstract and psychologically distant concepts (McDonald et al., 2015).

Connection to Nature

Consumers who have feelings of likeness toward nature are more likely to engage in sustainable behaviors. For example, those with strong values connected to mindfulness and nature have been shown to predict sustainable behaviors (White, Habib, & Hardisty, 2019). Therefore, it could be beneficial to use imagery connected to the natural environment to signify the sustainable nature of the product or brand. Therefore, it may be beneficial to communicate sustainability as a main driver of choice through environmental elements such as describing or displaying natural landscapes, showcasing renewable energy, or endangered species. The use of nature imagery can subtly evoke ecological associations, triggering implicit references to nature (Hartmann & Apaolaza-Ibanez, 2009).

As previously mentioned, Norway (in association with Brand Norway's export initiative) has positioned itself as a country "powered by nature," this helps consumers associate Norway with "green" and "sustainable" through their connection with nature and beautiful landscapes and renewable energy. This is then connected to Norway's country brand positioning and can be used in export communication and advertising efforts relating to sustainability.

3. Hypothesis Development

The literature has shown that integrating drivers of choice such as sustainability and COO is associated with positive effects, but the effect on WTP has yet to be measured. Additionally, COO and national branding has been shown to create positive advantages for both the brand/product and the country, including theoretical proposed increases on WTP, but this has not been tested empirically. Further, the effects of integrating COO in the brand positioning and marketing communications alongside other drivers of choice, including sustainability, has not been researched. To answer our research question and address these gaps, the following model and hypotheses have been created.

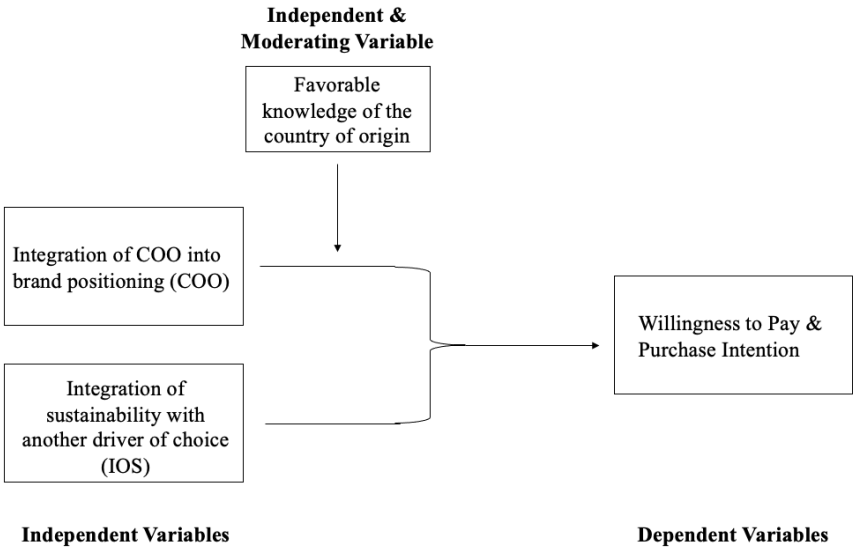


Figure 2: Hypothesis model

3.1 Drivers of Choice

3.1.1 Integrating Sustainability with Another Driver of Choice

As Supphellen (2020) found, integrating sustainability into the brand positioning allows for sustainability to be one of the main drivers of choice to ensure it is not a side topic. Additionally, linking it to another main driver of choice will allow the drivers to mutually reinforce each other, strengthening the effects. We hypothesize that the connection between sustainability and another main driver of choice in marketing communications will lead

consumers to understand how sustainability enhances other drivers, leading to a more cohesive brand image which could in turn result in an increased WTP.

H1: *Integrating sustainability into the marketing communications in association with another product attribute (driver of choice) will increase the consumer's willingness to pay and/or purchase intention.*

3.1.2 Integrating the Country of Origin in Brand Positioning

If brands wish to associate with Norway and their reputation for sustainability, this needs to be integrated into the brand positioning and connected to other drivers of choice. If sustainability and the Norwegian national identity are not an explicit element of the target brand perception, it will remain a side issue. Based on the six aspects of brand identity (Kapferer, 2007), we believe it would be most relevant for brands to integrate the Norwegian country brand into the brand culture and brand reflection. As the brand culture is the basic principle governing the brand and its outward sign, it is most important to associate with the Norwegian identity (sustainable, nature/landscapes, innovative) in marketing communications. This imagery could also be drawn upon in the brand reflection aspect, as consumers use brands that reflect their self-identity and brands attract buyers that reflect the brand. Therefore, if a consumer wishes to shop sustainably, as this is part of their self-identity, they may see themselves in a brand that associates with Norway's and Norway's associations with sustainability. Therefore, we hypothesize that:

H2: *Incorporating the country of origin (Norway) into the marketing communications will increase the consumer's willingness to pay and/or purchase intention.*

Moderating Factor

Additionally, authors find a negative moderating influence of brand familiarity on the COO effect in a high-involvement setting but not in a low-involvement setting (Koschate-Fischer et al., 2012). Since low involvement settings make up most consumers' decisions, we will be analyzing an export product where consumers will utilize low involvement processing: salmon. Consumers may rely on country of origin and brand positioning signals more heavily relative to goods or hedonic services (Koschate-Fischer et al., 2012). For example, heuristics, stereotypes, and pre-existing biases may affect consumer purchases when using COO as a

purchasing factor, as some may have biases or preconceived notions about Norway. Therefore, we predict the following:

***H3**: Knowledge of the country of origin will have a positive moderating effect on the relationship between the COO and willingness to pay and/or purchase intention.*

3.1.3 Combination Effect of COO & IOS

According to existing literature, COO and the integration of sustainability (IOS) with another driver of choice should create a positive interaction effect if they mutually reinforce each other in the brand positioning. Both the Norwegian origin and sustainability messages will be the strongest if positioned as a point of difference and integrated together, ensuring that the Norwegian origin is directly associated with sustainability. By integrating sustainability into Norway's country branding through export branding, Norway will strengthen macro and micro associations between the country of Norway and sustainability. Additionally, by integrating sustainability with another primary driver of choice that is related to sustainability and the benefits derived from it will strengthen the claims of sustainability.

Consumer products which utilize this integrated form of branding are likely to see an increase in willingness to pay for the product that is greater than if country of origin and sustainability and the 3rd driver of choice are communicated separately. There is compelling empirical evidence that consumers' willingness to pay increases with favorable country of origin (Hu & Wang 2010; Koschate-Fischer et al., 2012; many others), as well as with more sustainable or eco-labelled products (Zander & Feucht, 2018; Sun et al., 2017; MDPI, 2020). Therefore, COO should also be tied to IOS to strengthen brand associations and the cohesiveness of the brand image even further, enhancing WTP.

***H4:** Combining positive COO cues and integration of sustainability (IOS) with another driver of choice (IOS:COO) in the marketing communications will increase the consumer's willingness to pay and/or purchase intention.*

3.2 Summary of Hypotheses

Based on the theories and implications discussed, this study will focus on the following four hypotheses:

H1: *Integrating sustainability (IOS) into the marketing communications in association with another product attribute (driver of choice) will increase the consumer's willingness to pay and/or purchase intention.*

H2*: Incorporating the country of origin (COO) into the marketing communications will increase the consumer's willingness to pay and/or purchase intention.*

H3: *Favorable knowledge of the country of origin will have a positive moderating effect on the relationship between COO and willingness to pay and/or purchase intention.*

H4: *Combining positive COO cues and integration of sustainability (IOS) with another driver of choice (IOS:COO) in the marketing communications will increase the consumer's willingness to pay and/or purchase intention.*

4. Methodology

4.1 Research Setting

The United States is the largest importer of Norwegian salmon by volume. In 2022, Norway exported 66,465 tonnes of salmon to the United States; of this quantity, 28,636 tonnes (43%) were fresh salmon filets while 20,390 tonnes (31%) were frozen filets. The United States accounted for 22% of all exports of Norwegian fresh salmon filets in 2022 (all data retrieved from Norwegian Seafood Council 2023). Norway is best known internationally for its fresh salmon products, while most Chilean salmon exported to the USA is sold frozen (Lodhi, 2015). Based on the market data and evidence from existing empirical studies, we chose to focus our study on American consumers and exports of fresh salmon, but the results could also be applicable to European consumers and other export products.

Rapid growth of the global salmon market from the 1980s to early 2000s has mainly been due to increased farmed salmon production (Asche et al., 2003). According to the World Wildlife Fund (2023), salmon aquaculture is currently the fastest growing food production system in the world. Promoting sustainable practices in the salmon farming industry is thus becoming increasingly important to nonprofit organizations, governments, and consumers worldwide. Numerous empirical studies have demonstrated that consumers in the United States and Europe are willing to pay more for sustainably sourced seafood products (Zander & Feucht, 2018; Sun et al., 2017).

The average export price for fresh salmon filets in 2022 was 139.94 NOK/kg, which roughly converts to $6.18/lb (Norwegian Seafood Council, 2023). The export price is almost always lower than the retail price, and in our study, we directly elicit consumers' WTP through survey methods, which most closely reflects the retail price. Some large Norwegian salmon producers, such as Mowi, sell most of their products directly to retailers and food service providers (Mowi, 2022). This enables them to have greater influence over the end retail price.

Asche et al. (2003) finds that in the Japanese salmon market, the relative prices of farmed salmon compared to wild-caught salmon are stable over time, indicating that the products share the same market. This suggests that the same factors appear likely to influence the price of both farmed and wild-caught salmon. We thus utilize current retail prices for fresh salmon, both farmed and wild, as the basis for our reference price range (provided to survey

respondents when asked to specify their WTP). We measure hypothetical WTP using direct survey methods to attempt to quantify the economic performance of the branding. Possible hypothetical bias in our estimates must therefore be considered in the validity of our analysis (Harrison and Rutström, 2008; Koschate-Fischer et al., 2012).

Norway is the largest global producer of salmon, with a global market share of more than 55%, and has maintained a large market share largely due to its consistently low production costs (Iversen et al., 2020). Most Norwegian salmon is produced by large companies, the largest of which (Mowi) reported having a 20% market share worldwide (Mowi, 2020 in Valumics, 2021). Barriers to entry are relatively high given that salmon farming requires expensive equipment and technology, and the Norwegian government gives out a limited number of production licenses (Valumics, 2021). Given that demand for salmon has rapidly exceeded supply, large Norwegian producers are principally price-setters, however it was determined that no one salmon producer was able to set the price in the long term (Olafsdottir, 2019). For these reasons, the industry can be tentatively characterized as monopolistically competitive.

Demand for Norwegian salmon has historically been found to be relatively elastic (estimates for Marshallian own price elasticities vary from -1.68 to –1.05), indicating that consumers are sensitive to retail price changes and fresh salmon can be characterized as a luxury food product (Xie, 2008; Lodhi, 2015; Ling, 2018). Fresh salmon was shown to have a higher elasticity of demand than frozen salmon when evaluated using data from the US and Europe from 2002 to 2014 but given the rapid growth in the demand for salmon during the past decade, these estimates may be outdated (Lodhi, 2015). However, empirical estimates of the own price elasticities using more recent data are not currently available.

This study will use the brand SALMA to act as an example for salmon export products and recommendations. This was chosen because SALMA is not currently exporting products to the US market, therefore we can avoid any positive bias in our data collection and analysis from previous brand knowledge and recognition. Additionally, SALMA represents a high quality and high price product that uses sustainable methods of production to enhance tase, therefore allowing us to make the necessary claims needed in our advertisements (described below).

4.2 Research Design

4.2.1 The Experiment

Our methodology and experiment design build upon another master's thesis which carried out a between-subject 2x2 factorial experiment with the same independent variables but different outcome variables (Napsøy & Amilie, 2022). However, this experiment and subsequent analysis did not find any significant effects and the authors suggested that this may be due to insufficient manipulation of the variables. Our design seeks to address some of the potential shortcomings of the previous experiment by showing survey respondents six advertisement variations instead of four, with three different advertising messages (henceforth referred to as "levels" of IOS). For continuity, we utilize the same salmon brand "SALMA" but have created new versions of the advertisements where the taste and sustainability messages are clearly separated, allowing for better manipulation of the independent variable (IOS).

The main dependent variable is consumers' willingness to pay (WTP) for the product advertised, measured in USD/pound ($/lb). We will measure the apparent effect of sustainable message integration on WTP, the effect of COO on WTP, and the combined effect of both independent variables. WTP is a preferable outcome variable because data on purchase intention can often contain systemic biases and be a less accurate reflection of true consumer behavior (Koschate-Fischer et al., 2012). One such bias is acquiescence bias, where some respondents are more likely to agree with a positive statement than disagree (Graeff, 2005; Baxter et al., 2015). WTP also enables an economic analysis of consumers' price sensitivity based on brand-specific factors. If our treatment groups demonstrate significantly different WTP, we can evaluate the potential impact of this on demand for Norwegian salmon exports. However, we will also measure consumers' purchase intention and their perception of various product attributes to see if our results differ when these outcome variables are used in our analysis rather than WTP.

To quantify the effect on the dependent variable (WTP) at different levels of the independent variables (COO and IOS), while also measuring the effect of the moderating variable (knowledge of COO) and testing for an interaction effect (IOS:COO), we will conduct a 2x3 factorial experiment where a representative sample of American consumers are shown one advertisement (out of six possible variations) for SALMA salmon and then respond to several questions. Assignment of respondents to the six treatment groups was done automatically

using the A/B test function on the Survey Monkey platform. The experiment thus utilizes random assignment as it makes use of a "randomization mechanism that ignores any features of the individual units" (Wooldridge, 2018, pg. 54). By presenting respondents with just one randomly selected advertisement, unwanted carryover effects are eliminated (Saunders et al., 2019). In theory, this also eliminates the need for control variables in our analysis, provided that respondents are roughly equally distributed to the six treatment groups and are representative of the greater American population in terms of demographics (gender, household income, and state of residence). However, given that our survey involves a screening question and manipulation check, this may lead to issues with selection that can be addressed by using control variables (covariates).

Table 1: The Experiment Design

	COO cue (**Norway**)	COO cue (Europe)
Sustainability as a driver of choice	Cell 1: 	Cell 2: 
Taste as a driver of choice	Cell 3: 	Cell 4: 
Sustainability **integrated** as a driver of choice	Cell 5: 	Cell 6: 

Throughout the rest of this study, the different treatments will be referred to as the corresponding cells.

Cell 1: Sustainability as a separate driver of choice and COO cues (sustain_norway).

Cell 2: Sustainability as a separate driver of choice and **no** COO cues (sustain_europe).

Cell 3: Taste as a separate driver of choice and COO cues (taste_norway).

Cell 4: Taste as a separate driver of choice and **no** COO cues (taste_europe).

Cell 5: Sustainability **integrated** as a driver of choice and COO cues (integrated_norway).

Cell 6: Sustainability **integrated** as a driver of choice and **no** COO cues (integrated_europe).

Treatments

The main independent variable, integration of sustainability (IOS), was measured by testing how sustainability was perceived as a separate attribute and when integrated with another driver of choice. According to the Norwegian Seafood Council (2022), *taste* is one of the strongest drivers of choice for salmon in the US market. Thus, taste was chosen as the other driver of choice in these advertisements. Taste is also measured separately to measure the WTP when this driver is presented alone compared to sustainability alone and when integrated into sustainability. This way we can measure how taste and sustainability mutually reinforce each other when integrated together into the brand positioning.

Each ad has the same image, font, and brand name. The image shows a simple raw piece of fresh salmon and features the SALMA brand name in the center. This way we can ensure we are only measuring the effects of the intended variables (text), and not the effects of the imagery.

The independent variables are presented through the text in the ads. In cells 1 and 2, the ad text is “Salmon from cold and clean waters”, which signifies sustainability as a separate driver of choice. Using text that evokes imagery of a clean and pure natural environment signifies the sustainability of the product (Schmuck et al., 2015). “Cold and clean” water is one of the main signals for high quality salmon, as cold water and high-quality water is one of the main

factors for hygienic fish production and high-quality fish (Salma, 2023). Using vivid imagery and descriptions of nature has been shown to be an effective communication method for green claims, as well as fitting with the Brand Norway message of "powered by nature" (White, Habib, & Hardisty, 2019; Brand Norway, 2023). Additionally, having a concise statement on green claims helps to not overload consumers making primarily system 1 decisions.

In cells 1, 3, and 5, Norway is presented as the COO cue through the text "Premium Norwegian Seafood" and the Norwegian flag in the bottom right corner. This reasserts that Norwegian seafood is of high quality while alerting consumers to the product's origin using COO labels and national branding. The same was done in cells 2, 4, and 6, however, the origin is referred to simply as "European", with no specific origin other than that region.

In cells 3 and 4, the ad reads "Superior tasting salmon," directing consumers' attention toward taste as a driver of choice and making no reference to sustainability. The message here is informational and is taken from the brand positioning – high-quality taste –while also being easy to understand.

Cells 5 and 6 state "Superior tasting salmon from cold and clean waters", tying together taste and sustainability as the main drivers of choice. This text tells consumers that the salmon tastes superior since it comes from cold and clean waters, therefore integrating the drivers together. Cell 6 represents the integration of all factors, COO (Norway), sustainability and taste. This cell should in theory provide the highest WTP through the mutual reinforcement of sustainability, taste, and COO cue and the possible spillover effects between the nation brand and the product brand.

4.3 Data Collection

4.3.1 The Questionnaire

The collection of data was done through an online questionnaire. The provider Survey Monkey was used to find qualified respondents in the United States. Age and gender distribution were balanced according to the census to ensure we obtained a representative sample of American consumers. Through the Survey Monkey Audience feature, 300 completed responses were requested and 344 qualified responses were received.

The respondents were first informed of the purpose of the study, anonymity of their answers, and the expected time to complete prior to completion. Then using A/B testing, respondents were randomly assigned to one of six advertisements, with the goal of evenly splitting respondents between each ad. Each respondent was only exposed to one advertisement and a small number of questions.

4.3.2 Manipulation and Attention Check

A manipulation check was used to make sure participants were paying attention and comprehending the questionnaire to ensure the effectiveness of the experimental design (Hoewe, 2017). To do this, we added a multiple-choice question to test their ability to recall the COO cue that was displayed in their treatment ad. The answers were Europe, Norway, Chile, or Canada, where the last two answers were not included in our experiment. Hoewe (2017) suggests that the correct perception, interpretation, and reaction to the stimulus provided during an experiment are pivotal in arriving at precise conclusions about the relationship between the independent and dependent variables. Thus, answering this question accurately is crucial to ensure the study's findings are more reliable.

4.3.3 Measurement of Variables

11 questions asked respondents to express to what extent they agreed or disagreed with the statement using a variation of the 7-point Likert scale, ranging from (1) “strongly disagree” to (7) “strongly agree”, which is considered a standardized way of quantifying consumers’ perceptions (Hair et al., 2014). Questions regarding perceived attributes of the product, including purchase intention and WTP, were placed directly below the image of the advertisement so that respondents could reference the ad as they answered. All questions were worded positively.

Reference retail prices for fresh salmon in the US were used in the WTP question to help respondents identify a realistic range of answers. Reference prices were obtained manually by searching for fresh salmon products on the websites of American grocery retailers, such as Amazon, Whole Foods, Trader Joes, Sam’s Club, etc. (see Appendix 10.3). Respondents then wrote in their WTP for their respective ad/treatment as free response.

Constructs

Earlier literature and research concepts were transformed into questions to operationalize various constructs, enabling the measurement of their effects and relative changes in research variables (Saunders et al., 2019). For the remaining constructs, questions were developed based on the literature review.

Table 2: Survey Constructs

Construct	Items	Reference
Perception of Product Attributes	Q1, 2, 3, 4, 5	Partly adapted from Lee et al. (2008) and Kim et al. (2015)
Willingness to pay	Q6	Partly adapted from Zander & Feucht (2018)
Purchase intention	Q7	Partly adapted from Spears & Singh (2004)
Knowledge of Origin	Q9, 10, 11, 12	
Evaluation of Origin	Q13, 14, 15	Partly adapted from Shamma & Bisht, 2021
Demographics	Q16,17,18,19	Saunders et al. (2016) and Tumasjan & Braun (2012)
Consumption	Q20, 21, 22	

4.4 Descriptive Data Summary

4.4.1 Overview of Dataset

To qualify for the survey, potential respondents were asked if they ate fish at home at least once a month. Of those who attempted the survey, 85% were deemed to fit the target consumer demographic based on the initial screening question about fish consumption. This was somewhat higher than the anticipated range (50-75%) and may suggest that fish consumption is on the rise among Americans. The screening question resulted in 344 completed responses and 61 disqualifications.

Respondents who passed the screening question were randomly assigned to one of the six treatment groups (each with a different advertisement). The distribution of the respondents into the different treatment groups, as well as the number of participants who passed the manipulation check, can be found in the table below.

Table 3: Survey respondents by treatment group

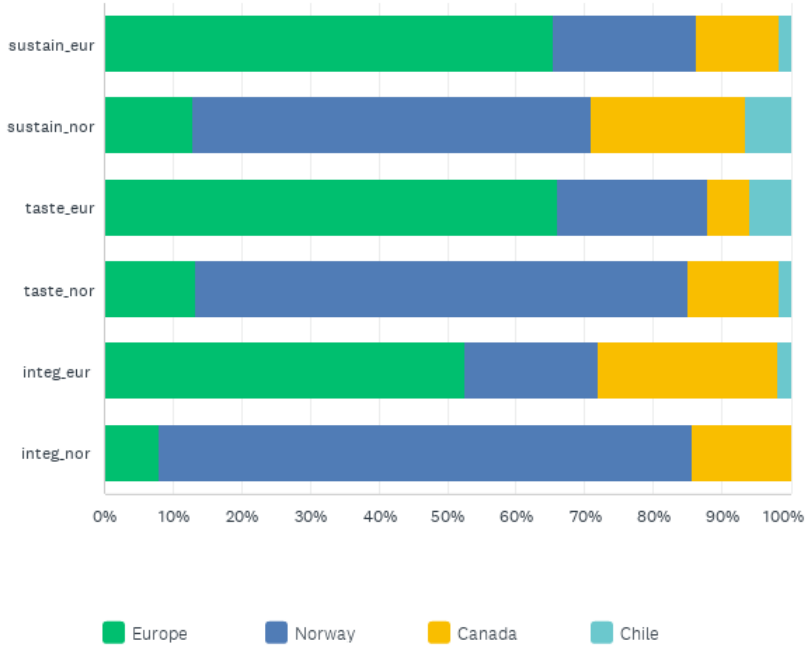
Treatment Group	COO cue (**Norway**)	COO cue (**Europe**)
Sustainability as a separate driver of choice	Obtained: 62 (17.66%) Passed check: 36	Obtained: 58 (16.52%) Passed check: 38
Taste as a separate driver of choice	Obtained: 60 (17.09%) Passed check: 43	Obtained: 50 (14.25%) Passed check: 33
Sustainability integrated as a driver of choice	Obtained: 63 (17.95%) Passed check: 49	Obtained: 58 (16.52%) Passed check: 30
Total	Obtained: 185 (52.7%) Passed check: 128	Obtained: 166 (47.3%) Passed check: 101

The assignment was done automatically and did not end up perfectly even due to a margin of error in the A/B test function, with some treatment groups having slightly more participants than others. However, all treatment groups initially had at least 50 participants. In the middle of the survey, participants were asked to identify the origin of the salmon in the ad they had just seen. As mentioned earlier, this served as a manipulation check to measure to what extent the respondents perceived the differences between the treatment ads, which can enable more accurate estimation of the relationship between the independent and dependent variables (Hoewe, 2017). To make answering the question easier, participants were able to go back to the ad to check the origin and were given limited answer choices (unlike Napsøy & Amilie (2022) who used a free response format for this question). 65.24% of respondents correctly identified the origin of the salmon and passed the manipulation check, compared to 54% in the survey carried out by Napsøy & Amilie (2022). While this percentage is still lower than we might expect given the ability to refer to the ad, it does suggest that respondents were more easily able to recall the origin when presented with limited answer choices.

Filtering respondents according to whether they passed the manipulation check presented possible issues with selection, as the percentage of respondents who passed the check differed significantly between the groups. Because of this, the treatment groups were no longer of approximately equal size, with integrated_europe becoming the smallest group with 30 observations while integrated_norway was the largest with 49. A two-way analysis of variance (ANOVA) was used to determine whether the restricted sample could still be considered randomly assigned, and the results are reported later in this section.

When carrying out further statistical analysis, the benefit of a larger sample size was weighed against the benefit of the manipulation check. A larger sample size minimizes standard errors and is more representative of the greater population (American fish consumers), which supports the external validity of the study (Wooldridge, 2018). However, in this sample, due to the survey format there was an increased risk of careless responses which may mask a potentially significant relationship between variables. The central limit theorem supports running a two-way analysis of covariance (ANCOVA) if the sample size is at least 30, which was true for the restricted sample (LaMorte, 2016). For these reasons, hypothesis analysis was carried out with both the cleaned full sample and the restricted sample with only those who passed the manipulation check. The sample which includes only those who passed the manipulation check will be referred to as the "restricted sample" furthermore.

Figure 3: Responses to manipulation check



4.4.2 Demographics

Gender

It was requested that Survey Monkey balance the gender of respondents according to the US census. Of those surveyed, 52.91% identified as female, 45.64% identified as male, and 1.45% identified as other. A two-way ANOVA with gender as the dependent variable revealed that the gender distribution was not significantly different across the treatment groups. This is what we would expect with random assignment and implies that gender does not need to be included as covariate in our analysis.

Figure 4: Gender distribution (full sample)

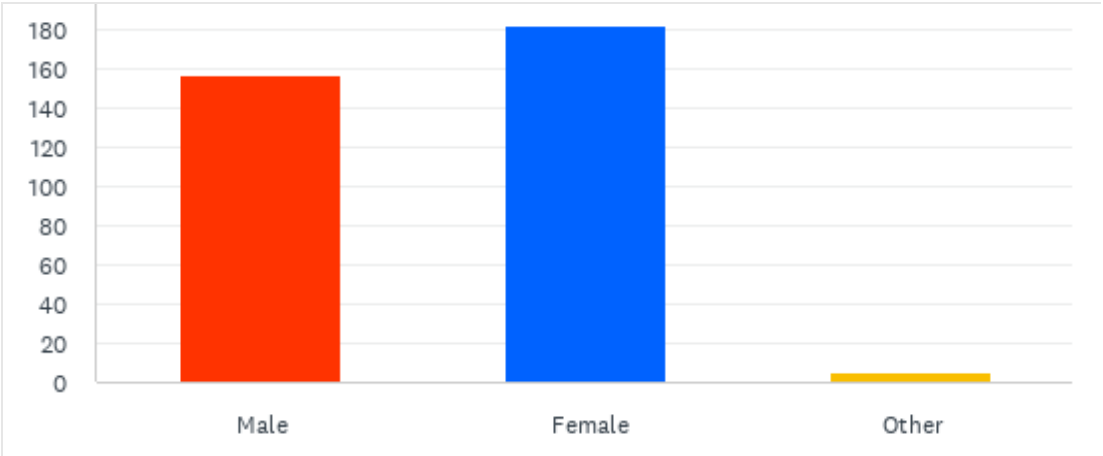
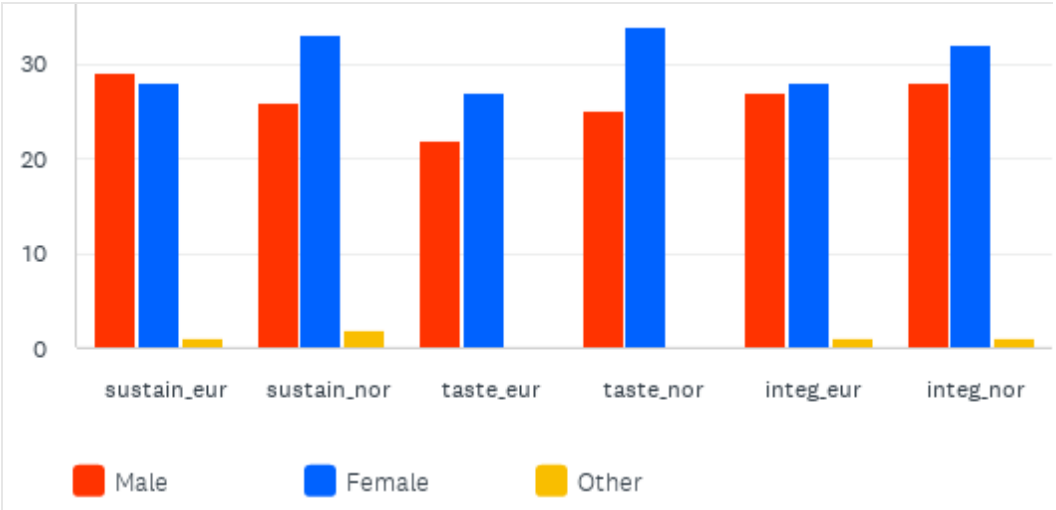
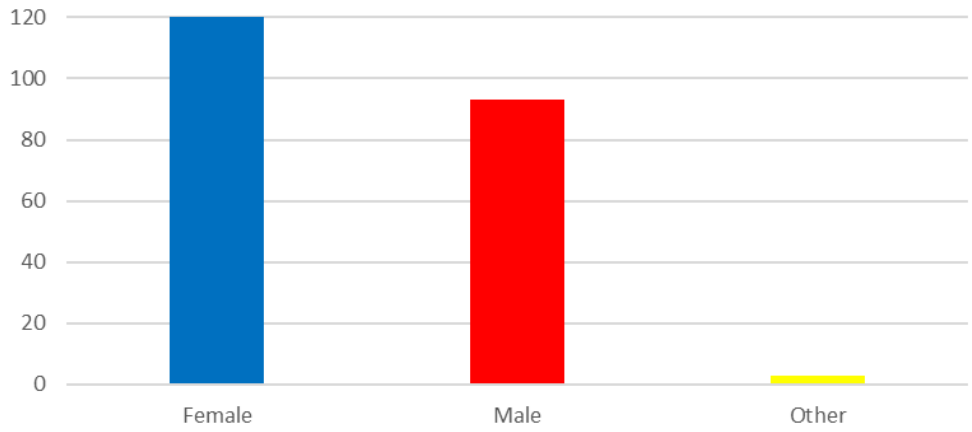


Figure 5: Gender distribution across treatment groups (full sample)



After removing respondents who failed the manipulation check from the dataset, the two-way ANOVA was redone with gender as the dependent variable and gender was still balanced across the treatment groups. This implies that screening based on the manipulation check did not affect the treatment groups differently with regards to gender and it still did not need to be included as a covariate when using the restricted sample.

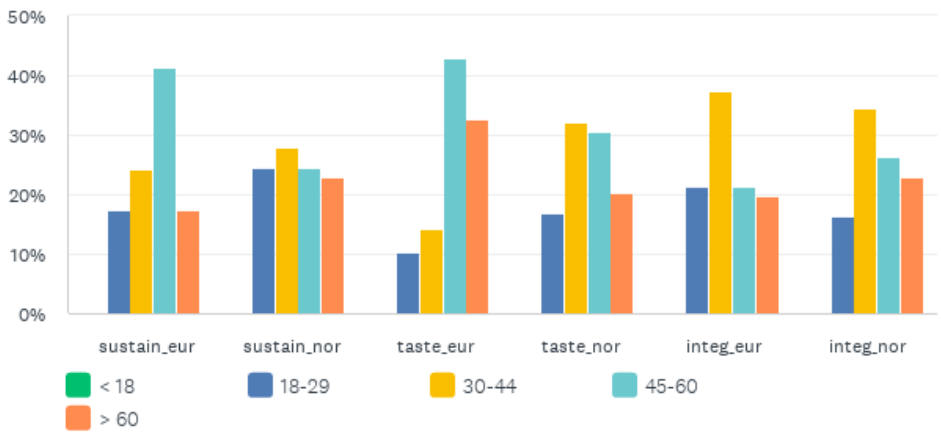
Figure 6: Gender distribution (restricted sample)



Age

The mean age in the full sample was 47 years and the median age group was 45-60. A two-way ANOVA with age as the dependent variable revealed that the age distribution was not significantly different across the treatment groups. Again, this is as expected due to the random assignment.

Figure 7: Age distribution

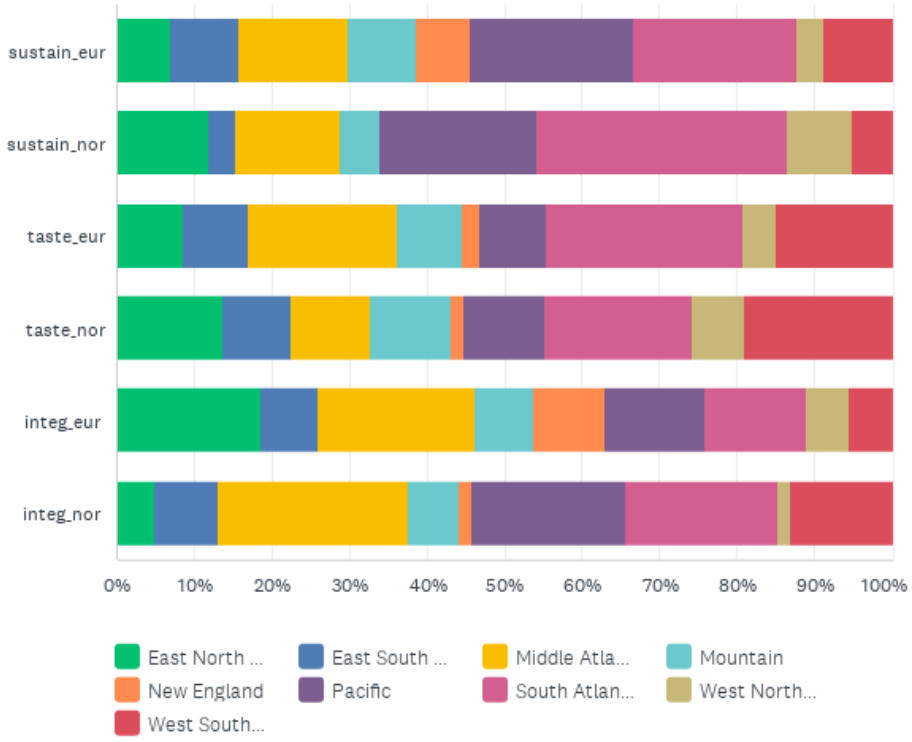


The mean age for those who passed the manipulation check was 46 years and the median age group was still 45-60 years. The mean age across the treatment groups was confimed to not be significantly different after removing those who failed the manipulation check.

Region

Respondents came from a wide array of regions within the United States. We again used a two-way ANOVA to confirm that region of residence was not significantly different across the treatment groups.

Figure 8: Region of residence



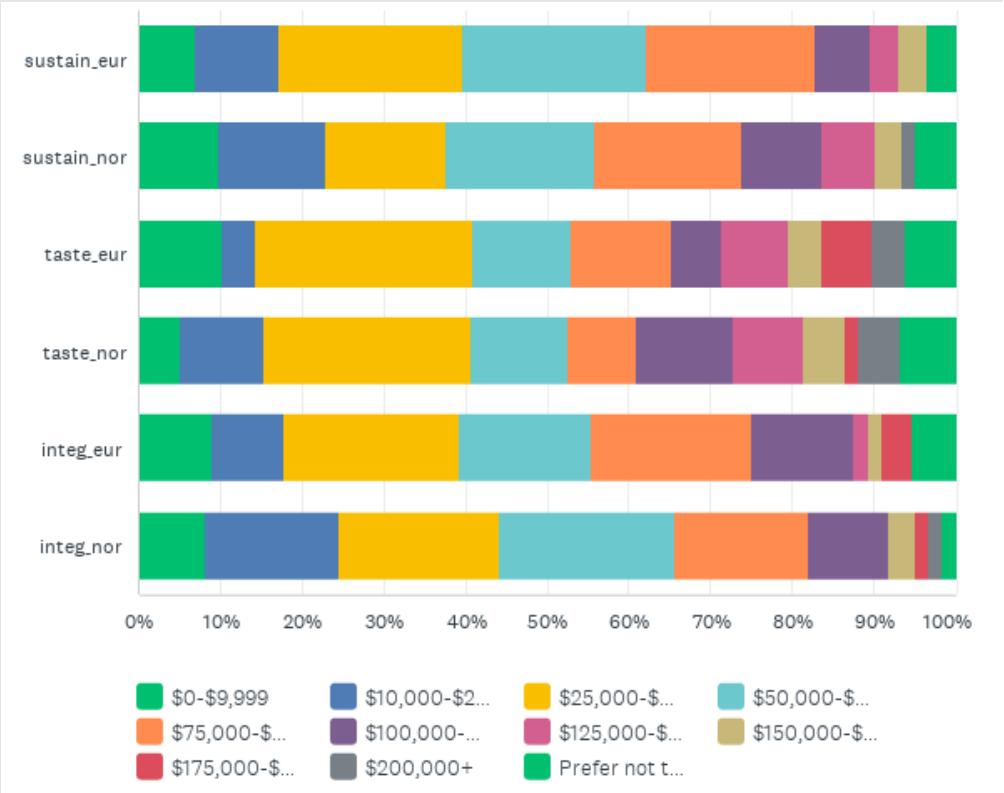
After removing those who failed the manipulation check, another two-way ANOVA was run to confirm that region of residence remained balanced between the groups.

Household Income

Household income was also not significantly different across the treatment groups. The mean household income in the sample was approximately $70,000, and the median income group was $50,000-$74,999. The United States Census Bureau reported that the US median

household income was $70,784 in 2021 and have not yet reported figures for 2022. This suggests that the median income in our sample was approximately representative of the greater US population.

Figure 9: Household income



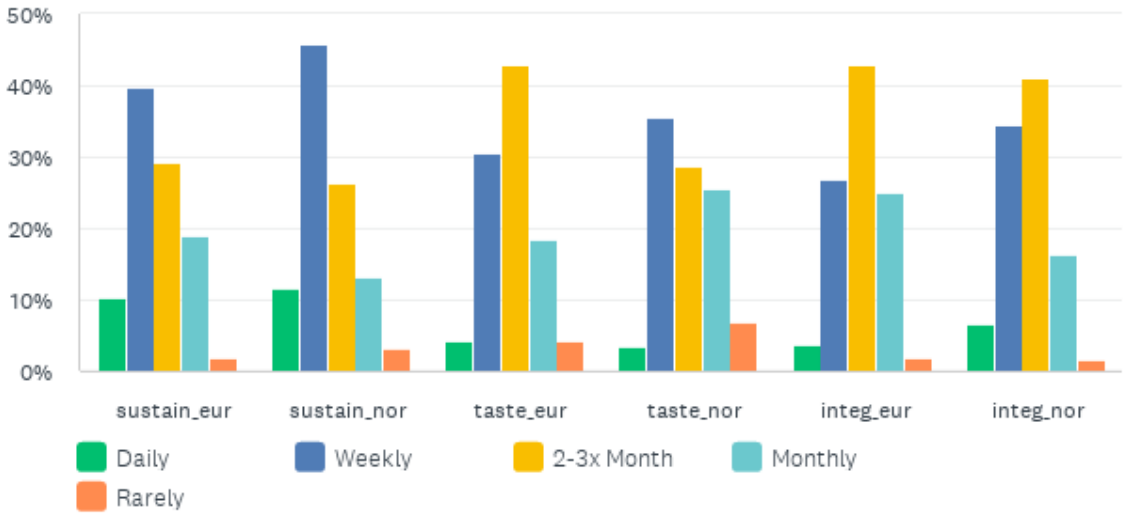
After the sample was restricted to those who passed the manipulation check, the mean household income was found to still not be significantly different across treatment groups.

Overall, screening respondents based on whether they passed the manipulation check did not appear to generate any bias in the demographic variables, suggesting that the sample remained randomly assigned even after removing those who failed the check.

4.4.3 Consumption Behavior

35.76% of respondents reported eating fish weekly, while another 34.88% reported eating fish 2-3 times per month. Only 6.69% of those surveyed stated that they ate fish on a daily basis. Mean level of fish consumption was shown to be significantly different across the treatment groups in the full sample, but not in the restricted sample. The implications of these results for our analysis will be explained in more detail in the following data analysis section.

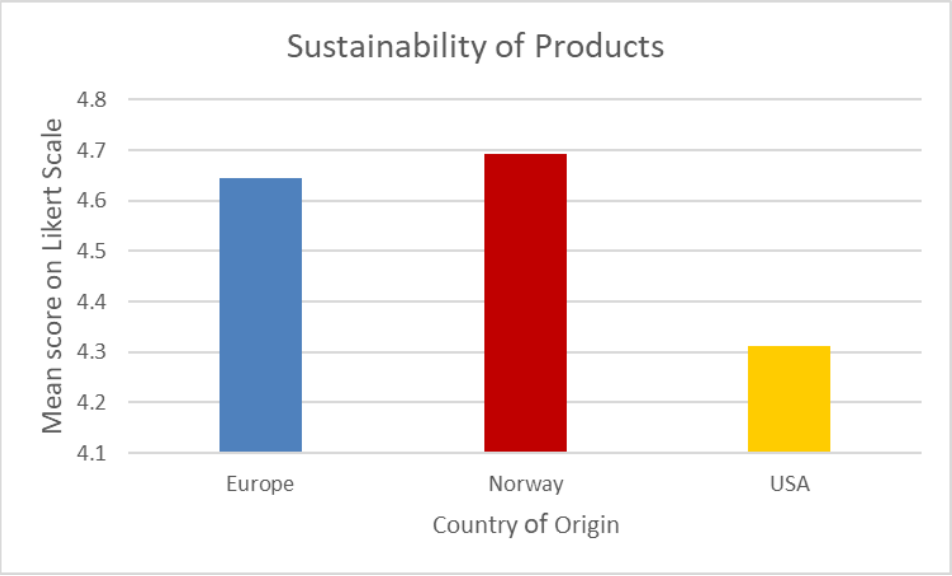
Figure 10: Fish consumption



4.4.4 Beliefs about Sustainability

Respondents were asked to what extent they believed products from Europe, Norway and the USA were sustainable. This question sought to quantify how strong pre-existing associations between Norway and sustainability were and to what extent consumers differentiate between products from Norway, Europe and the USA. As expected, Norway scored the highest but only marginally higher than Europe, which may indicate that American respondents had a hard time differentiating between Norway and Europe as a whole.

Figure 11: Beliefs about sustainability by country of origin



5. Data Analysis

5.1 Testing Hypotheses 1, 2 and 4

The following section details the results of our analysis as it relates to Hypotheses 1, 2, and 4. These hypotheses were tested simultaneously using a two-way ANCOVA. Analyses were run using both the full cleaned sample and the restricted sample, and both willingness to pay (WTP) and purchase intention were used as the dependent variable. Hypothesis 3 requires segmentation of the data based on reported familiarity with Norway, so this hypothesis is analyzed separately in section 5.2. A summary of the most relevant findings can be found in section 5.4.

5.1.1 Two-way ANCOVA with Purchase Intention and WTP

Assumptions

In the full dataset, gender was not positively correlated with either of the outcome variables (purchase intention and WTP) and was also balanced across the treatment groups. This suggested that gender did not need to be included as a covariate. Frequency of fish consumption was the only characteristic we tested for which did differ significantly across the treatment groups. Therefore, fish consumption was included as a covariate in our analysis to account for any bias it may have caused in the outcome variables. Fish consumption appeared to have an approximately linear relationship with the dependent variables (WTP and purchase intention) when examined visually using a scatterplot.

The treatment groups were randomly assigned, and each participant was assigned to only one group, ensuring independence of observations. In our continuous outcome variable, WTP, we identified and removed significant outliers (greater than one standard deviation) before moving forward with our analysis.

Normality of the Data

The purchase intention outcome variable suffers from some truncation due to the nature of the Likert scale, but the Q-Q plot is approximately consistent with that of a truncated normal distrbution (SSCC, 2021). Variables measured on the Likert scale can be classified as interval/scale variables and can be treated in the same way as continuous variables using

ANCOVA, provided that all other assumptions are met (Dickinson, 2013). Given that the smallest treatment group in the restricted sample was 30, the sample size was sufficiently large for the central limit theorem to hold and for the data to be considered approximately normally distributed (LaMorte, 2016; Dickinson, 2013).

Figure 12: Histogram for purchase intention with normal frequency (restricted sample)

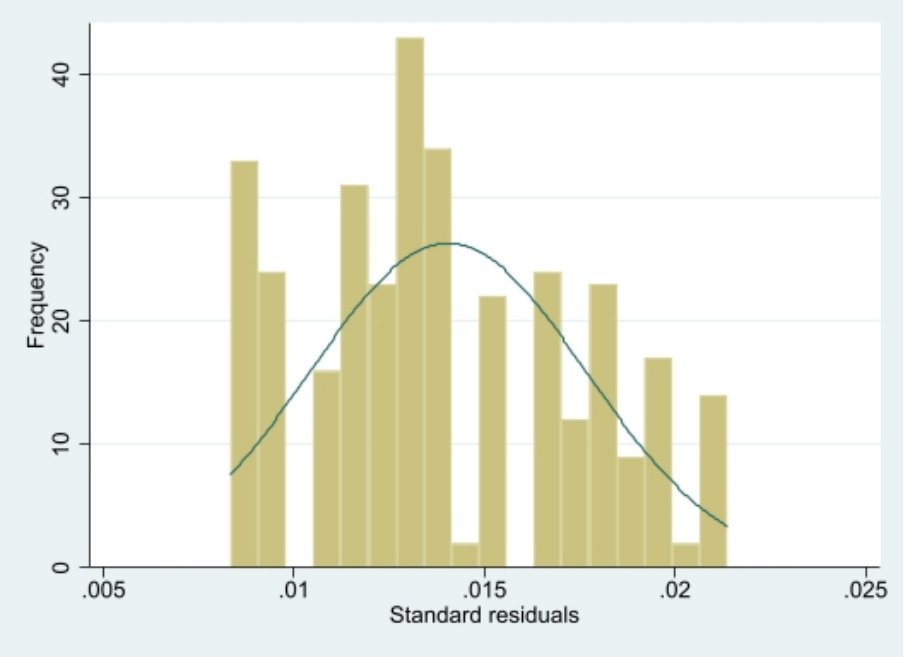
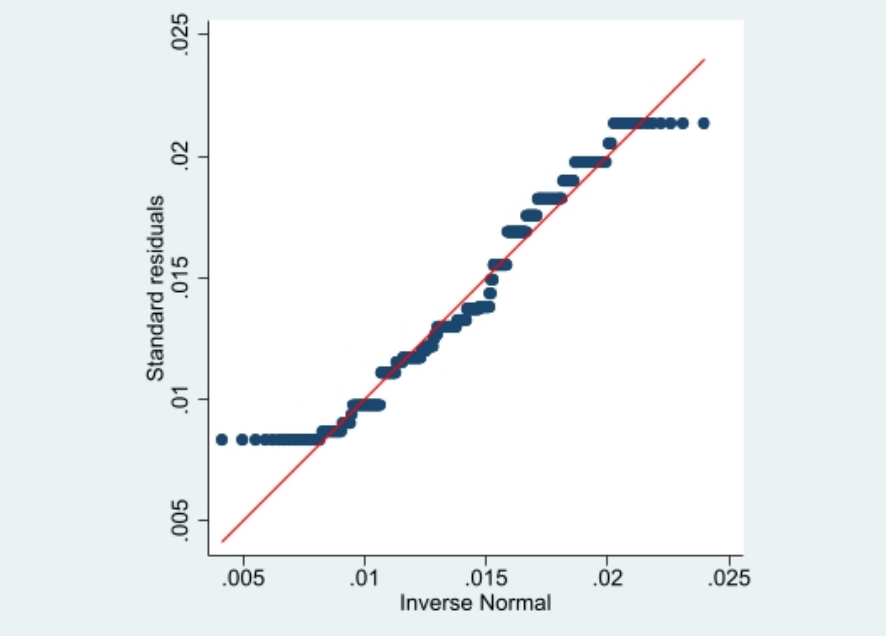


Figure 13: Q-Q plot for purchase intention



Figures 14 and 15 below demonstrate that WTP appears to be approximately normally distributed in both the full and restricted samples, with the majority of responses clustered around the mean. The Q-Q plot (depicted in Figure 15) revealed that this variable suffered from slight truncation due to the limited range of responses but overall is consistent with a standard normal distribution (SSCC, 2021). The distribution appeared closer to a standard normal distribution with the restricted sample, suggesting results using the restricted sample may have greater validity.

Figure 14: Histogram for WTP with normal frequency line (restricted sample)

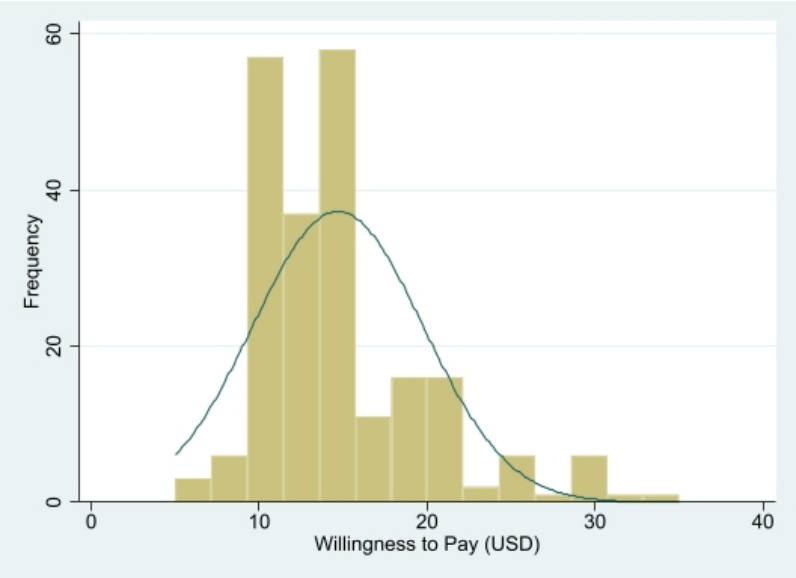
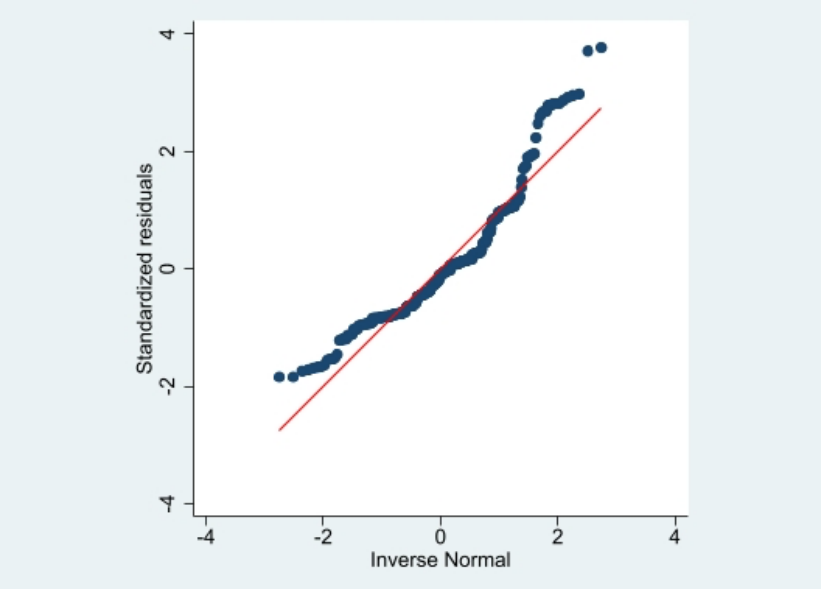


Figure 15: Q-Q plot for WTP



Homogeneity of variance

The Levene's test for homogeneity of variance was performed with both the full sample (minus outliers) and the restricted sample consisting of those who passed the manipulation check. For the full sample, homogeneity of variance between the six treatment groups was confirmed with p-values significantly greater than 0.05 for both WTP and purchase intention. This led us to fail to reject, and therefore accept, the null hypothesis which is homogeneity of variance. The results were the same when the test was performed using the restricted sample.

We thus confirmed that our sample appeared to fullfill the necessary statistical assumptions to carry out a two-way ANCOVA.

Testing Hypotheses 1, 2 and 4 Using Purchase Intention

We first evaluate Hypotheses 1,2 and 4 using purchase intention as the dependent variable. The mean purchase intention was 5.524 for the full sample and 5.579 for the restricted sample, implying that the score increased only slightly when those who failed the manipulation check were removed. The purchase intention variable was scored on a 7-point Likert scale and the mode answer was (5) "slightly agree" for all treatment groups. In the full sample, shown in Figure 16, the mean score was highest for those in the integrated_norway treatment group and lowest for those in the taste_europe treatment group.

Figure 16: Mean purchase intention by treatment group (full sample)

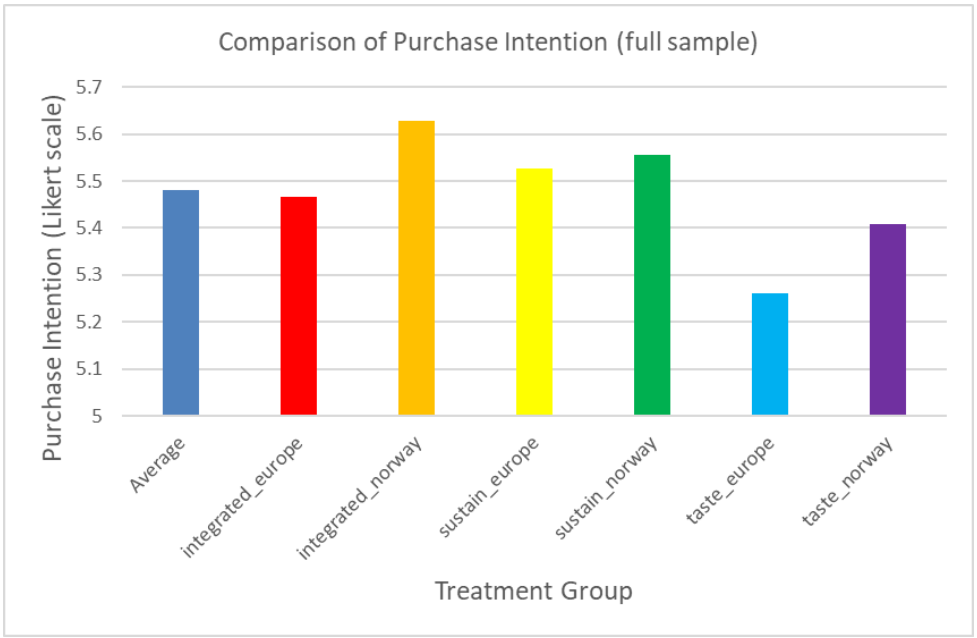


Table 4: Results of ANCOVA with purchase intention (full sample)

Dependent variable = purchase intention			Number of observations = 344	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	1.6189312	2	0.45	0.6351
COO	1.1003959	1	0.62	0.4324
IOS:COO	.32726738	2	0.09	0.9122
Fish consumption	9.8775072	4	1.39	0.2382
Residual	594.82418	334		

Table 4 displays the results of the two-way ANCOVA for the full sample with purchase intention as the dependent variable, IOS, COO and IOS:COO as the independent variables and fish consumption as a covariate. As shown by the two-tailed p-values, no evidence was found to support Hypotheses 1, 2 or 4 given that neither COO, IOS or IOS:COO were statistically significant, implying that the mean purchase intention between the treatment groups was not significantly different. The integrated_norway group had the highest mean purchase intention score but this difference was not found to be statistically significant. This leads us to fail to reject the null hypothesis that the mean purchase intention is the same between the treatment groups.

In the restricted sample, the mean purchase intention score among those in the sustain_europe treatment group increased significantly, making it the group with the highest score (see Figure 17). This was not expected, as we would assume that those shown an ad with Norwegian origin would be more likely to pass the manipulation check.

Figure 17: Mean purchase intention by treatment group (restricted sample)

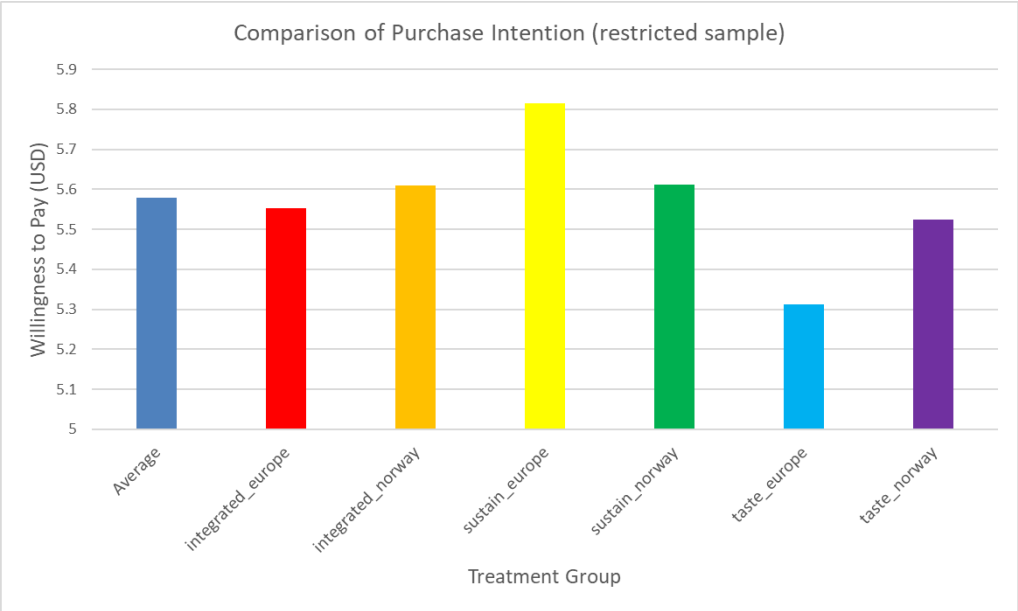


Table 5: Results of ANCOVA with purchase intention (restricted sample)

Dependent variable = purchase intention			Number of observations = 221	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	2.3035099	2	0.74	0.4764
COO	.18230391	1	0.12	0.7318
IOS:COO	1.8667387	2	0.60	0.5481
Fish consumption	3.2405559	4	0.52	0.7186
Residual	318.80936	206		

Table 5 above shows the results of the two-way ANCOVA for the restricted sample with purchase intention as the dependent variable, IOS and COO as the independent variables and fish consumption as a covariate. The results were not different from the full sample, and no evidence was found to support Hypotheses 1, 2 or 4; neither COO, IOS nor IOS:COO had p-values which were statistically significant at the 5% level, so we fail to reject the null hypothesis that the means are the same between the treatment groups.

Testing Hypotheses 1, 2 and 4 Using Willingness to Pay (WTP)

In this section, we evaluate Hypotheses 1, 2 and 4 using WTP as the dependent variable. The mean WTP for the product was $14.34 for the full sample and $14.69 for the restricted sample, an increase of $0.35 (see Figures 18 and 19).

Figure 18: Mean WTP by treatment group (full sample)

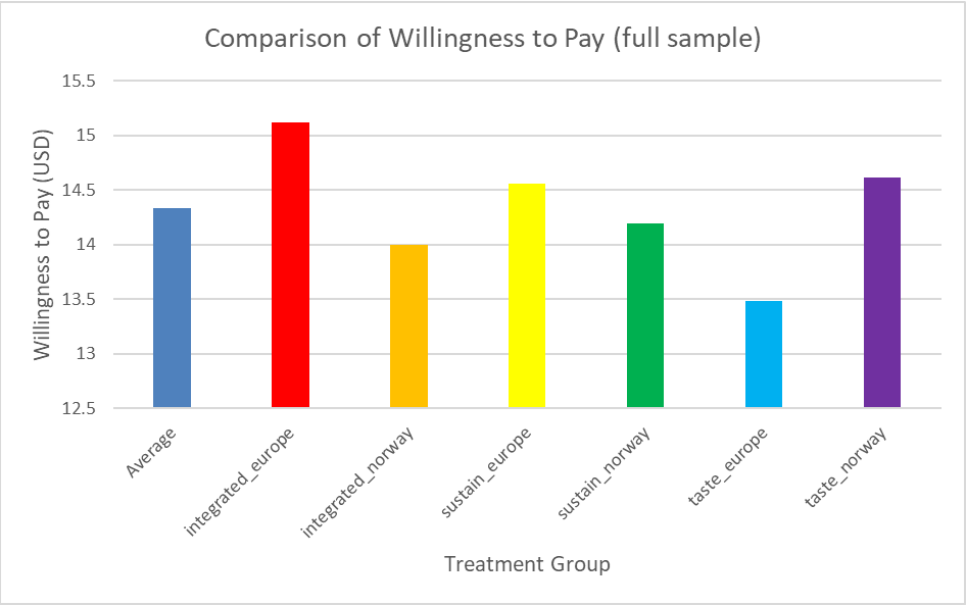


Table 6: Results ANCOVA with WTP (full sample)

Dependent variable = WTP			Number of observations = 329	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	14.978589	2	0.24	0.7863
COO	1.4302629	1	0.05	0.8304
IOS:COO	71.19857	2	1.14	0.3199
Fish consumption	166.76605	4	1.34	0.2550
Residual	9927.5527	319		

Table 6 summarizes the results of a two-way ANCOVA with WTP as the dependent variable and fish consumption as a covariate, using the full sample. IOS and COO have p-values >0.05, so there is no evidence to support Hypothesis 1 or Hypothesis 2. IOS:COO has a larger p-

value than either IOS or COO separately, but the p-value is still >0.05, implying that Hypothesis 4 is also not supported in this instance.

Figure 19: Mean WTP by treatment group (restricted sample)

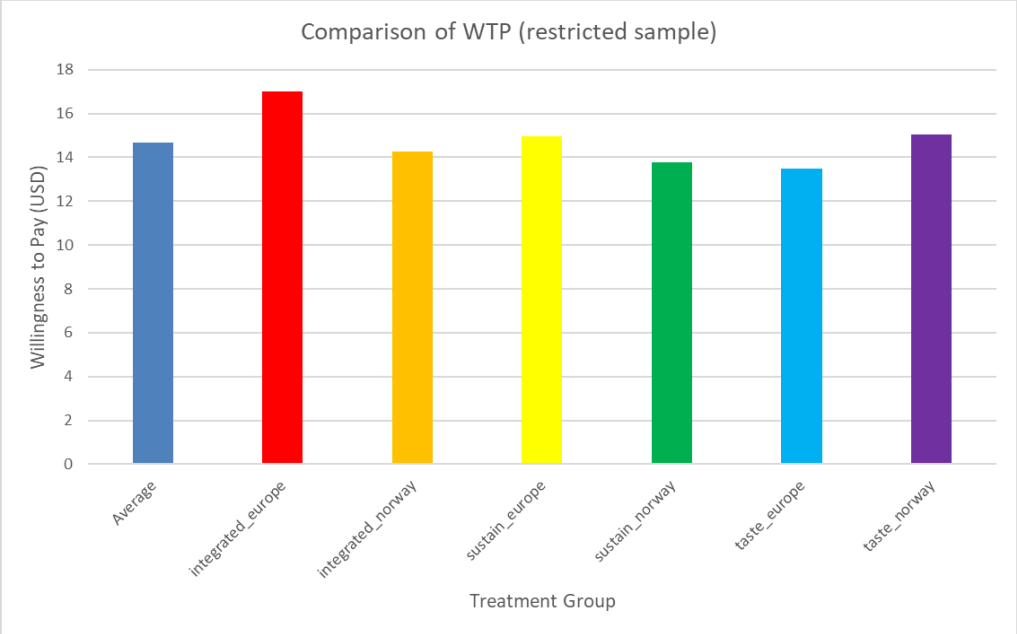


Table 7: Results of ANCOVA with WTP (restricted sample)

Dependent variable = WTP			Number of observations = 221	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	86.65948	2	1.69	0.1870
COO	21.36072	1	0.83	0.3624
IOS:COO	156.7592	2	3.06	0.0491**
Fish consumption	48.64107	4	0.47	0.7545
Residual	5279.781	206		

P-values marked with ** are statistically significant at the 5% level.

Table 7 above summarizes the results of a two-way ANCOVA with WTP as the dependent variable and fish consumption as a covariate, using the restricted sample. In this instance, there *was* found to be a significant relationship between IOS:COO on WTP, implying that the mean WTP was significantly different across the treatment groups. This effect was highly statistically significant at the 5% critical level, with a p-value of 0.0491 and an F-statistic of

3.06. We can thus reject the null hypothesis that the mean WTP was the same between the treatment groups and have significant evidence in support of Hypothesis 4.

As can be seen from their p-values, neither COO nor IOS alone had a statistically significant effect on WTP at the 5% significance level, so there is no evidence in support of either Hypothesis 1 or 2.

To further analyze Hypothesis 4, Table 8 shows the results of an ANCOVA testing the mean WTP between respondents who received the taste message and those who received the integrated message (excluding those who received the sustainability message). The effect of IOS:COO on WTP becomes even more statistically significant when IOS is categorized only by these two levels, with a two-tailed p-value of 0.0246.

Table 8: Results of ANCOVA with WTP (restricted, two levels of IOS)

Dependent variable = WTP			Number of observations = 143	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	59.452897	1	1.97	0.1624
COO	11.55663	1	0.38	0.5367
IOS:COO	155.66229	1	5.17	0.0246**
Fish consumption	58.473168	4	0.49	0.7466
Residual	4067.1216	135		

P-values marked with ** are statistically significant at the 5% level.

Given that empirical evidence was found in support of Hypothesis 4, it became necessary to determine which treatment groups were significantly different from one another. To identify this and also test the overall robustness of the relationship, a Tukey HSD pairwise comparison was carried out post-hoc (see Table 9). This revealed that the mean WTP for the integrated_europe group and the taste_europe group were significantly different when tested against a studentized range critical value of 4.0683 (5% significance level, marked with * in Table 9). The differences between the other treatment groups were not deemed to be statistically significant based on their HSD-test statistics.

Table 9: Results of Tukey HSD pairwise comparison of WTP across treatment groups

Group vs. group	Group means		Mean diff	HSD-test
Integrated_europe vs. Integrated_norway	16.9921	14.2365	2.7555	3.2668
Integrated_europe vs. Sustain_europe	16.9921	14.9442	2.0479	2.4278
Integrated_europe vs. Sustain_norway	16.9921	13.7747	3.2173	3.8142
Integrated_europe vs. Taste_europe	16.9921	13.4944	3.4977	4.1466*
Integrated_europe vs. Taste_norway	16.9921	15.0605	1.9316	2.2899
Integrated_norway vs. Sustain_europe	14.2365	14.9442	0.7077	0.8390
Integrated_norway vs. Sustain_norway	14.2365	13.7747	0.4618	0.5475
Integrated_norway vs. Taste_europe	14.2365	13.4944	0.7421	0.8798
Integrated_norway vs. Taste_norway	14.2365	15.0605	0.8240	0.9768
Sustain_europe vs. Sustain_norway	14.9442	13.7747	1.1695	1.3865
Sustain_europe vs. Taste_europe	14.9442	13.4944	1.4498	1.7188
Sustain_europe vs. Taste_norway	14.9442	15.0605	0.1163	0.1379
Sustain_norway vs. Taste_europe	13.7747	13.4944	0.2803	0.3324
Sustain_norway vs. Taste_norway	13.7747	15.0605	1.2858	1.5243
Taste_europe vs. Taste_norway	13.4944	15.0605	1.5661	1.8567

Test statistics which exceed the critical value are marked with *.

5.2 Testing Hypothesis 3

5.2.1 Familiarity with Origin

An ordered logistic regression with purchase intention as the dependent variable demonstrated that reported familiarity with Norway appeared to have a significant effect on purchase intention for respondents shown the ads with Norwegian origin (positive COO). This could suggest that consumers who are more familiar with the country of origin are more likely to purchase products from there, which is supported by literature on country branding (Johansson, 1989; He et al., 2020). Fish consumption was included as a control variable given that it differed between treatment groups. Regression results are reported in Table 10. As shown by the p-value of 0.001, purchase intention and reported familiarity with Norway

appear to be highly correlated for those shown ads with Norwegian origin. This supports Hypothesis 3 in that familiarity with the COO appears likely to have a positive moderating influence on consumers' purchase intention.

A linear regression with WTP as the dependent variable did not find a significant relationship between reported familiarity with Norway and WTP for those shown ads with Norwegian origin. A linear regression was used for WTP because it is an approximately continuous variable, while purchase intention more closely resembles an ordinal/scale variable and is more closely approximated by an ordered logistic regression (CEED, 2022).

Table 10: Ordered logistic regression with purchase intention (Norwegian COO)

Dependent variable = purchase intention			Number of observations = 184	
Independent variable	**Coefficient**	**Standard error**	**Z-statistic**	**P>Z (p-value)**
Familiarity Norway	0.2650832	0.0832365	3.18	0.001***
Fish consumption	-0.0628005	0.076765	-0.82	0.413

P-values which are significant at the 1% critical level are marked with ***.

When the full sample was segmented to only respondents who reported having traveled to Europe (144 respondents), COO did appear to have a significant effect on purchase intention. The results are shown in Table 11. This provides empirical evidence in support of Hypothesis 2 for this segment of consumers. This also supports Hypothesis 3 that increased familiarity with the country/region of origin has a positive moderating influence on purchase intention. One potential reason for this could be that respondents who have traveled to Europe are more able to differentiate between European and Norwegian origin and are thus more likely to want to purchase products with a positive COO cue (from Norway). When tested using the restricted sample, COO no longer appeared to have any effect on purchase intention for this customer segment.

Table 11: Results of ANCOVA with purchase intention (respondents who traveled to Europe)

Dependent variable = purchase intention			Number of observations = 144	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	3.3515981	2	0.96	0.3852
COO	6.806102	1	3.90	0.0503**
Fish consumption	6.8936058	4	0.99	0.4163
Residual	233.70339	134		

P-values which are significant at the 5% critical level are marked with **.

5.3 Additional Analysis

5.3.1 Effects on Perceived Product Attributes

When testing with the full sample, neither IOS, COO nor IOS:COO had a significant effect on how respondents perceived the quality of the product when tested with the two-way ANCOVA model.

Once we restricted our sample to only those who passed the manipulation check, IOS:COO was associated with an increase in respondents' perception of how the product would taste, with a p-value of 0.0174. IOS alone also was associated with an increase in perception of how the product would taste, with a p-value of 0.0135. In addition, IOS:COO was shown to be associated with a significant increase in respondents' beliefs about how sustainable and healthy the product was, with p-values of 0.0271 and 0.0070 respectively. IOS alone also was associated with a significant positive effect on respondents' belief about how healthy the product was, with a p-value of 0.0266. Results are summarized in Table 12.

A Tukey HSD pairwise comparison was run post-hoc and revealed that the treatment groups integrated_europe and taste_europe were sufficiently different (at the 5% level) with regards to how they perceived the product would taste, with those in the integrated_europe group reporting significantly higher scores. Those in the sustain_europe group appeared significantly more likely to report that they thought the product was healthy and sustainable compared to those in the taste_europe group. Unfortunately, all the significant differences in means associated with IOS alone were between those who received the sustainability message

and those who received the taste message, while those who received the integrated message did not report significantly higher scores.

Table 12: Results of ANCOVA with perceived product attributes (restricted sample)

Dependent variable = product taste			Number of observations = 221	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	13.619229	2	4.39	0.0135**
COO	.1052024	1	0.07	0.7947
IOS:COO	12.80219	2	4.13	0.0174**
Fish consumption	12.33212	4	1.99	0.0973*
Dependent variable = product sustainability				
IOS	2.0103805	2	0.69	0.5037
COO	.00295427	1	0.00	0.9642
IOS:COO	10.727254	2	3.67	0.0271**
Fish consumption	25.577271	4	4.38	0.0020***
Dependent variable = product healthiness				
IOS	9.2268034	2	3.69	0.0266**
COO	.33878057	1	0.27	0.6031
IOS:COO	12.684332	2	5.08	0.0070***
Fish consumption	13.588663	4	2.72	0.0308**

P-values which are significant at the 1% critical level are marked with ***, values significant at the 5% critical level are marked with ** and values significant at the 10% critical level are marked with *.

5.3.2 Moderating Effect of Taste on WTP

As shown in Table 12, respondents' perception of how the product would taste differed significantly for two of the treatment groups, integrated_europe and taste_europe. Therefore, perceived taste may interact with our main independent variables, IOS:COO, in increasing WTP between these groups. We re-ran our two-way ANCOVA model on the restricted sample with perception of taste as a covariate. When the effect of perceived taste on WTP was controlled for, the effect of IOS:COO on WTP was no longer statistically significant.

The F-statistic was 1.92 with a p-value of 0.1494, whereas without taste as a covariate the F-statistic was 3.06 with a p-value of 0.0491 (refer back to Table 7). This would suggest that there was a high degree of correlation between respondents' perception of how the product would taste and their WTP.

Table 13: Results of ANCOVA with taste as a covariate (restricted sample)

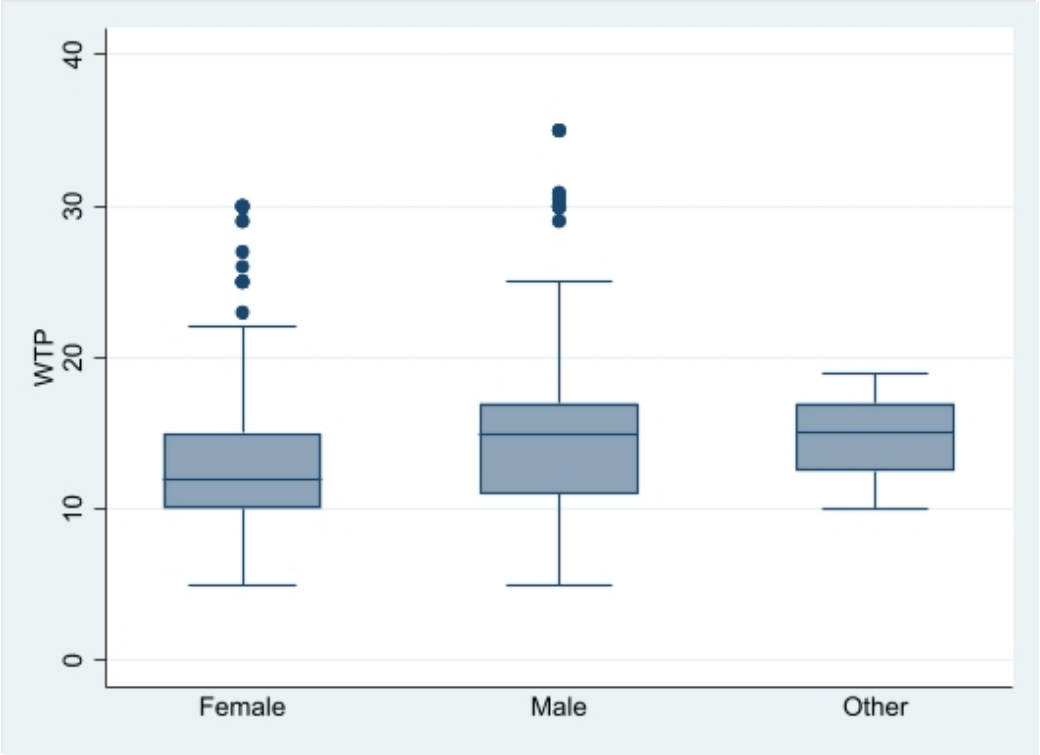
Dependent variable = WTP			Number of observations = 221	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	87.482199	2	1.70	0.1862
COO	26.86499	1	1.04	0.3088
IOS:COO	99.038206	2	1.92	0.1494
Fish consumption	57.505531	4	0.56	0.6940
Taste	119.46026	6	0.77	0.5930
Residual	5160.3212	215		

5.3.3 Segmentation Analysis

Thus far respondents have been segmented based on whether they passed the manipulation check, their reported familiarity with Norway, and whether they reported having traveled to Europe at least once. It may also be worthwhile to explore whether there is a significant effect of IOS and COO on our outcome variables for other customer segments, such as women, young people, and high-income individuals. Because the segmentation-imposed restrictions on the size of the treatment groups which would violate the necessary statistical assumptions, we only analyze effects on IOS and COO separately and not IOS:COO. In this way, we maintain sufficiently large treatment groups by comparing means between the three levels of IOS and two levels of COO rather than between all six treatment groups.

Female Consumers

Figure 20: WTP by gender



Mean WTP among female respondents was $13.91 whereas for male respondents it was $14.94. A one-way ANOVA revealed that this difference in means was not statistically significant at the 5% critical level, but it is still noteworthy that female respondents were generally more conservative when stating how much they would be willing to pay for the product. The same two-way ANCOVA model was re-run using only female respondents and then only male respondents. Neither group yielded statistically significant results for IOS, COO or IOS:COO when using WTP and purchase intention as the dependent variable. There was therefore no additional evidence found in support of Hypotheses 1, 2, or 4 for this customer segment.

Younger and Older Consumers

There is abundant evidence to support that younger generations tend to be more conscious of sustainability when making purchasing decisions. Millennials have been shown to have a direct relationship between their self-identify with sustainability and the environment and

their purchase intentions, while Gen Z's WTP is positively influenced by perceived green quality and environmental concerns (Mishra et al, 2022; Gomez, Lopes & Nogueira, 2023)

This is partly supported in our data given that there is a weak negative linear relationship between age and WTP; each additional year of age is associated with a decrease of $0.03 in WTP, with a p-value of 0.087 (significant at the 10% but not the 5% critical level).

Our two-way ANCOVA model was re-run using respondents younger than the mean age of 46 and did not yield any statistically significant results. It also did not prove meaningful to group respondents who were over the age of 46. For both groups, we fail to reject the null hypothesis that the means of the outcome variables are the same. There was therefore no additional evidence found in support of Hypotheses 1, 2, or 4 for this customer segment either.

High- and Low-Income Consumers

Those with greater financial resources may be willing to pay more for a product with favorable qualities. Respondents were segmented into high- versus low-income based on the median US income of $70,784 (US Census Bureau 2022). 128 respondents (37%) fell into the high-income category and the two-way ANCOVA model was re-run with this group only, for both WTP and purchase intention.

For the high-income consumer segment, the mean WTP for the different IOS levels was determined to be significantly different at the 10% critical level, but not at the 5% critical level (see Table 14). This would provide weak empirical support for Hypothesis 1 among high-income consumers, however the difference is only significant when comparing the sustainability message to the taste message (and not the integrated message). When purchase intention was used as the dependent variable, IOS was no longer significant, but COO became highly significant, indicating that we can reject the null hypothesis that the mean purchase intention is the same for Norwegian COO vs. European COO at the 1% critical level (see Table 15). This was confirmed using a Tukey HSD pairwise comparison post-hoc where the mean values for Norwegian COO and European COO were found to be significantly different at the 1% critical level. These results provide significant empirical evidence in favor of Hypothesis 2 among high-income consumers, and implications will be discussed further in section 7.

Table 14: Results of ANCOVA with WTP (high-income consumers)

Dependent variable = WTP			Number of observations = 128	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	114.39947	2	2.63	0.0761*
COO	2.3698466	1	0.11	0.7418
Fish consumption	167.42904	4	1.93	0.1105
Residual	2563.9259	118		

P-values which are significant at the 10% critical level are marked with *.

Table 15: Results of ANCOVA with Purchase Intention (high-income consumers)

Dependent variable = purchase intention			Number of observations = 128	
Independent variable	**Partial SS**	**Degrees of freedom**	**F-statistic**	**Prob>F (p-value)**
IOS	3.0896449	2	1.30	0.2758
COO	9.9612968	1	8.39	0.0045***
Fish consumption	7.6790175	4	1.62	0.1740
Residual	144.77104	122		

P-values which are significant at the 1% critical level are marked with ***.

5.4 Summary of Results

Table 16 summarizes the empirical results as they relate to each hypothesis. A result of "rejected" signifies that the p-value was greater than the 0.05 critical level and we fail to reject the null hypothesis that the mean values are the same. A result of "accepted" signifies that the p-value was less than or equal to the 0.05 critical level and we can reject the null hypothesis that the mean values are the same.

Table 16: Summary of relevant results by hypothesis

Hypothesis	Results	Conclusion
H1: *Integrating sustainability into the marketing communications in association with another driver of choice (IOS) will increase the consumer's purchase intention and/or WTP.*	**WTP**: Rejected with p-value >0.05 when tested for all samples tested. **Purchase intention**: Rejected with p-value >0.05 for all samples tested.	**Rejected.**
H2: *Incorporating COO into the marketing communications will increase the consumer's purchase intention and/or WTP.*	**WTP**: Rejected with p-value >0.05 for all samples tested. **Purchase intention**: Rejected with p-value >0.05 when tested for full sample and restricted sample. Accepted with p-value of 0.0045 when tested for high-income consumers, verified with Tukey HSD test post-hoc.	**Partially supported**: strong empirical evidence (1% critical level) of apparent effect of COO on purchase intention among high-income consumers.
H3: *Favorable knowledge of the COO will have a positive moderating effect on the relationship between COO and WTP/purchase intention.*	**WTP**: Rejected with p-value >0.05 for all samples tested. **Purchase intention**: Accepted with p-value of 0.0503 when conditional on having traveled to Europe. Familiarity with Norway and purchase intention shown to be highly correlated.	**Supported**: empirical evidence (5% critical level) of apparent effect of COO on purchase intention for those who had travelled to Europe.
H4: *Combining positive COO cues and IOS with another driver of choice (IOS:COO) in the marketing*	**WTP**: Rejected with p-value >0.05 when tested for full sample. Accepted with p-value 0.0491 when tested for restricted sample. Tukey HSD test post-hoc verified mean WTP for treatment	**Partially supported**: empirical evidence (5% critical level) of apparent effect of IOS:COO on WTP.

communications will increase the consumer's purchase intention and/or WTP.	groups integrated_europe and taste_europe were significantly different ($16.99 vs. $13.49). **Purchase intention**: Rejected with p-value >0.05 for all samples tested.	However highest WTP was for treatment group integrated_europe rather than integrated_norway.

6. Economic Implications

The following section utilizes the results of our empirical study to carry out a theoretical economic demand analysis for the US market for Norwegian fresh salmon to address research question 3.

6.1 Demand for Norwegian salmon in the US

As mentioned in section 4.1, the United States is the largest importer of Norwegian salmon by volume. Product branding which demonstrates the ability to increase consumers' WTP for the target product has potentially significant financial implications for Norwegian salmon exporters and the Norwegian economy as a whole. This resulting increase in WTP could trigger a rightward shift in the demand curve for Norwegian export products which use the integrated branding, as consumers' perceived benefit of buying increases while prices remain the same (Xie, 2008). The implicit target of the program is thus to increase the quantity of exports demanded, rather than generate a price premium. However, in the longer term, price will adjust back to equilibrium and become equal to WTP. The overall demand for Norwegian salmon in the US would increase, holding the elasticity of demand fixed. These assumptions will be evaluated in detail in section 6.2.3.

A detailed empirical model of the demand and supply for Norwegian salmon in the United States is beyond the scope of this study. However, we can utilize the formula for the own price elasticity of demand to carry out a simple simulation of how an increase in WTP might impact the quantity of Norwegian salmon demanded in the American market. Xie (2008) and Lodhi (2015) have calculated estimates of the own price elasticity of demand for Norwegian salmon using historical data on Norwegian imports and a linear approximation of an Almost Ideal Demand system. A much more simplistic estimation for the most recent years has also been calculated using data on average export price and quantity exported for fresh salmon filets (Norwegian Seafood Council, 2023). These elasticities provide general benchmarking for the industry; however, the export price and volume will differ for each individual Norwegian exporter.

Table 17: Estimates of own price elasticities of demand, Norwegian fresh salmon

Own Price Elasticity of Demand	Estimation Source	Export Market	Timeframe
-1.678	Lodhi (2015)	USA	2002-2014
-1.144	Lodhi (2015)	EU	2002-2014
-1.049	Xie (2008)	EU	1998-2007
-0.4279	This study, data from Norwegian Seafood Council (2023)	USA	2021-2022

6.2 Simple demand model of impact of increased WTP

We assume a perfectly linear demand function, where the own price elasticity of demand can be defined as: $E_D = \frac{\%\Delta Q}{\%\Delta P} = \frac{\frac{(Q_2 - Q_1)}{(\frac{Q_2 + Q_1}{2})}}{\frac{(P_2 - P_1)}{(\frac{P_2 + P_1}{2})}}$ (Greenlaw & Shapiro, 2017). In our model, Q1 is the quantity of fresh salmon exported to the United States in 2022, Q2 is the new quantity demanded after the branding increases WTP, P1 is the WTP for salmon before the new branding is introduced, and P2 is the expected WTP after the new branding is introduced (as estimated empirically using our ANCOVA model). As shown in Table 9, two of the treatment groups demonstrated significantly different WTP, taste_europe with a mean WTP of $13.49 and integrated_europe with a mean WTP of $16.99. The WTP for the taste_europe group closes aligns with current US retail prices for fresh salmon filets from Norwegian producer Mowi, who does not currently utilize IOS or COO in their branding (Mowi, 2022). The quantity of fresh salmon filets exported to the US in 2022 was reported in section 4.1 as 28,636 tonnes (Norwegian Seafood Council, 2023).

Table 18: Values used in demand analysis

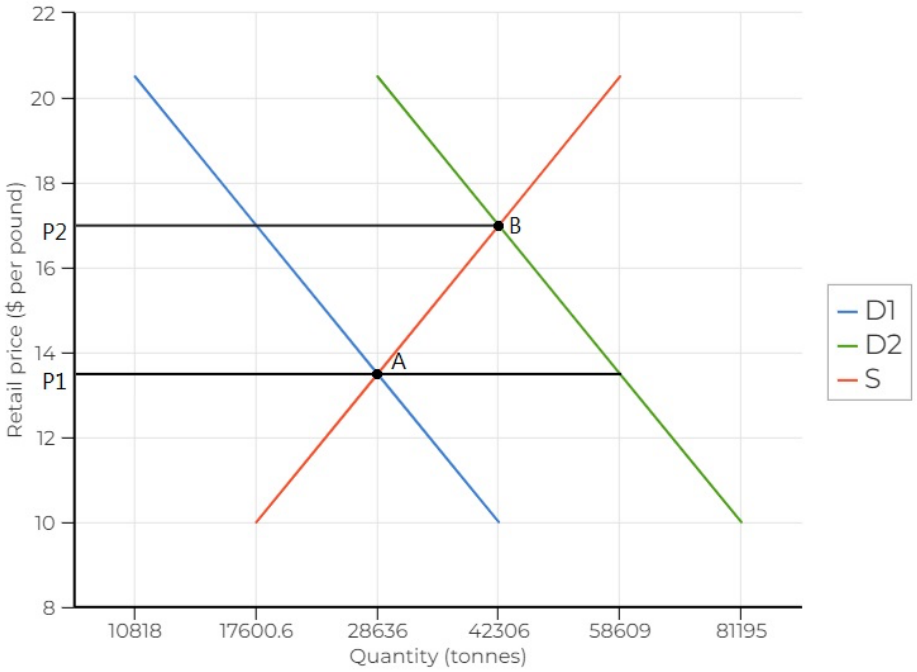
Variable	Value
Q1	28,363 tonnes
P1	$13.49
P2	$16.99

6.2.1 Analysis with Relatively Elastic Demand

Using the estimates of Lodhi (2015) and Xie (2008), we first model the effect of a hypothetical increase in WTP on quantity demanded for an own price elasticity range of -1.678 to -1.049, which can be characterized as relatively elastic (Greenlaw & Shapiro, 2017). This implies that quantity demanded is sensitive to changes in price. We assume the market is in equilibrium at a price of $13.49 and a quantity demanded of 28,636 tonnes (point A). In the short-term, given that customers are willing to pay $16.99 for the product but the price remains at $13.49, there is a rightward shift in the demand curve from D1 to D2 (see Figure 22). This shift in the demand curve leads to an increase in the quantity demanded, and in the longer-term the market finds a new equilibrium at point B (Xie 2008). The market price will eventually become equal to the higher WTP of $16.99, assuming the integrated branding continues.

With an elasticity of demand of -1.678, a hypothetical increase of $3.50 in WTP caused by the new branding would lead to an estimated increase in quantity demanded of 13,670 tonnes of fresh salmon over the course of a year. With a more conversative elasticity of demand of -1.049, there would be a hypothetical increase in quantity demanded of 7,843 tonnes. The model depicted in Figure 22 would look very similar for this demand elasticity, only the demand curves would be flatter with a slope of almost -1. The branding thus would generate a producer surplus by creating a new equilibrium where salmon can be sold for $16.99/lb and a greater quantity is demanded. The producer surplus would be equal to the area of P2P1AB.

Figure 21: Potential effects of branding on demand for fresh salmon



6.2.2 Analysis with Relatively Inelastic Demand

As global demand for salmon increases and it becomes more of a staple rather than luxury food product, demand for fresh salmon is likely to become more inelastic (Xie et al. 2009; Ling 2018). Therefore, the analysis is redone using a range of -0.4279 to -0.9999 to illustrate what the effects may look like when demand for fresh salmon is characterized as relatively inelastic (Greenlaw & Shapiro, 2017).

With an elasticity of demand of –0.4279, a hypothetical increase of $3.50 in WTP caused by the new branding would lead to an estimated increase in quantity demanded of 2,960 tonnes of fresh salmon over the course of a year. With an elasticity of demand of –0.9999, there would be a hypothetical increase in quantity demanded of 7,421 tonnes. The demand model depicted in Figure 22 would function in the same way for these demand elasticities, only the slope of the demand curves would be flatter and the increase in demand associated with the increase in WTP would therefore be less. The equilibrium would shift from point A to point B due to a rightward shift in the demand curve and the producer surplus would still be equal to the area of P2P1AB.

6.2.3 Assumptions and Limitations

This is a static model, implying that hypothetical changes in quantity demanded are modelled in isolation; in other words, it is assumed that there are no other shocks to the demand or supply of Norwegian fresh salmon during the period immediately before and after the new branding is introduced. The rightward shift in demand depends upon WTP being greater than the equilibrium price in the short-term, so any market developments which result in an increase in the retail price of salmon would potentially disrupt the demand effects modelled here.

The model assumes there are linear demand and supply curves, which is a necessary simplification and one which is generally supported in economic theory (Xie, 2008; Lodhi, 2015; Ling, 2018; Xie et al., 2009). This allows an analysis of the demand curve where the own price elasticity can be modelled as the % change in quantity divided by the % change in price (Greenlaw & Shapiro, 2017).

The model assumes that there is constant price elasticity of demand both before and after the rightward shift of the demand curve. This might be a reasonable assumption in the very short-term, given that producers and retailers often enter into sales agreements spanning three to 12 months, but is less likely to be valid in the long-term given the many factors which influence market demand and supply (Mowi, 2022). We try to account for potential variation in our analysis by using a range of elasticity estimates rather than a single value.

The model also assumes that retail prices are constant in the short-term. This could be reasonable in the very short-term but is unlikely to be valid in the longer-term given inflation and retail markups. Salmon producers do not have full control over retail prices except if they are selling directly to consumers. Mowi (2022) does note that they are actively seeking to reduce their dependence on market prices by producing more value-added products, for which consumer prices are generally more stable. The model indicates that it may be profitable for retailers and Norwegian salmon producers to enter an agreement to keep retail prices stable in the short-term to stimulate a rightward shift in the demand curve. Eventually prices will gradually increase to equal WTP, and this may cause the demand curve to shift back to D1. The positive demand effects of the branding are thus most likely to be realized in the short-term, but there could also be long-term spillover effects, as was the case with the advertising

campaign run by the Norwegian Seafood Council from 1998-2005 (Xie, 2008; Xie et al., 2009).

Finally, WTP was measured in our survey in terms of retail rather than export prices. Each exporter has their own agreements with retailers in the US and will experience a different retail markup. A percentage of the benefit of the WTP increase will therefore go to the retailer rather than the exporter, but this must be calculated on the micro (firm) rather than macro (industry) level. The exception would be in the case where producers sell directly to consumers. Large Norwegian companies which sell directly to American retailers are likely to capture a greater percentage of the producer surplus than smaller companies which go through a wholesaler, as noted by Mowi in their 2022 annual report.

6.3 Summary of Results

Table 19: Theoretical effects of branding on demand for fresh salmon

Own Price Elasticity of Demand	Market Characterization	Estimated Increase in Quantity Demanded
-1.678	Elastic	13,670 tonnes
-1.049	Elastic (lower threshold)	7,843 tonnes
-0.999	Inelastic (upper threshold)	7,421 tonnes
-0.4279	Inelastic	2,960 tonnes

As can be seen in Table 19, the potential effects of the branding program depend heavily on the price elasticity of demand. Given that there are not any current estimates of the own price elasticity of demand for Norwegian salmon, we have modelled a range of potential effects according to whether demand can be characterized as elastic or inelastic. The increase in quantity demanded is greatest when demand is elastic, and the increase in WTP will generate a large increase in the quantity demanded. However, more conservative estimates may be more realistic given that Norwegian salmon producers in most cases do not sell directly to consumers and demand from retailers is likely to be more inelastic than demand from consumers given longer-term sales agreements, and historic evidence demonstrates that demand for salmon is becoming more inelastic over time (Mowi, 2022; Xie et al., 2009).

7. Discussion

7.1 Main findings

7.1.1 Hypothesis 1: Integration of Sustainability

H1: *Integrating sustainability into the brand communications in association with another driver of choice (IOS) will increase the consumer's purchase intention and/or willingness to pay.*

Hypothesis 1 was tested empirically using data collected from a between-subject experiment where respondents were shown advertisements with three different messages: one which advertised taste as a separate driver of choice, one which advertised sustainability as a separate driver of choice, and one which advertised sustainability as an integrated driver of choice alongside taste. The results of the two-way ANCOVA model with IOS as an independent variable and fish consumption as a covariate did not find that the mean WTP or purchase intention was higher for those shown the integrated message. This was tested for both the full sample and the restricted sample, and p-values were >0.05 in all cases. There was found to be weak support among high-income consumers that IOS is associated with an increase in mean WTP, with a p-value of 0.0761, but this relationship did not hold up to the robustness check of the Tukey HSD pairwise comparison.

A possible reason why no statistically robust support was found for Hypothesis 1 is that the differences in the advertisements were too subtle to be perceived by the average American respondent. This is supported by the fact that the treatment groups which were shown ads with sustainability as separate driver of choice performed better than expected, and in some cases outperformed the integrated ads (see Figure 20 and 22). There was no manipulation check which verified that respondents perceived the differences in the messages. It may be that the integrated variation, since it had slightly more text than the other two, took longer to read and survey respondents did not take the time to process the information presented. This is one drawback of utilizing survey methods rather than presenting consumers with different branding in a real-world setting where they may be more invested.

7.1.2 Hypothesis 2: Country of Origin

H2: *Incorporating COO into the marketing communications will increase the consumer's purchase intention and/or willingness to pay.*

Two variations of COO, European and Norwegian, were presented to respondents through both text and imagery. The two-way ANCOVA with COO as an independent variable and fish consumption as a covariate found that Norwegian COO did not elicit a significantly higher WTP or purchase intention for the full sample or restricted sample. P-values were >0.05. However, among high income consumers, COO was found to be associated with a significant increase of 0.5314 in mean purchase intention score (from 5.3387 to 5.8701), and the effect was highly significant at the 1% critical level. High-income consumers may purchase luxury food products more often and thus have existing positive associations with Norwegian salmon. Other possible reasons for this relationship will be explored in the section on theoretical implications.

COO was also found to be associated with an increase in mean purchase intention for respondents who reported having travelled to Europe, which provides further support in favor of Hypothesis 2 among those who have greater familiarity with Europe. Having travelled to Europe at least once may enable American respondents to better differentiate between Europe and Norway. No support was found for Hypothesis 2 with WTP as the dependent variable, in contrast to the findings of Koschate-Fischer et al. (2012). This may be because Norway is part of Europe, and positive associations with Norway and other European countries may transfer to Europe in general for Americans who have limited familiarity with the region. European origin did not therefore evoke the negative associations that may have been necessary to see significant negative effects on WTP, in contrast to a country which is generally associated with poorer quality goods (such as China). This conclusion is supported by the results of the questions which asked respondents to score how sustainable they believed products from Europe and Norway were, respectively. While Norway scored slightly higher, the difference in mean score was found to not be statistically significant using a paired t-test.

7.1.3 Hypothesis 3: Moderating Influence of Familiarity with Origin

H3: *Favorable knowledge of the COO will have a positive moderating effect on the relationship between COO and willingness to pay and/or purchase intention.*

Respondents' reported familiarity with Norway and Europe was measured two ways: they were asked to what extent they agreed with the statement "I am familiar with Norway/Europe" and provided a response on a 7-point Likert scale, and they were also asked whether they had ever travelled to Europe/Norway. Hypothesis 3 is based on existing COO literature which suggests that consumers who are more familiar with the COO will be more responsive to the incorporation of the COO in the branding, resulting in higher WTP and purchase intention (Koschate-Fischer et al., 2012; He, Wang, & Wu, 2022).

The two-way ANCOVA model found that this hypothesis was generally supported for purchase intention, as COO was shown to be associated with a significantly higher purchase intention for respondents who reported having travelled to Europe. This increase was significant at the 5% significance level. In addition, an ordered logistic regression with reported familiarity with Norway as an independent variable found a significant correlation between familiarity with Norway and purchase intention for those shown an ad with Norwegian origin. This would suggest that reported familiarity with Norway had a positive moderating influence on consumers' purchase intention score. There was no significant evidence to support Hypothesis 3 when WTP was used as the dependent variable, however.

7.1.4 Hypothesis 4: Combined Effect of COO and IOS

H4: *Combining positive COO cues and IOS with another driver of choice (IOS:COO) in the marketing communications will increase the consumer's purchase intention and/or willingness to pay.*

The experiment utilized a 2x3 factorial design to enable an analysis of the combined effect of two independent variables, IOS and COO, on our outcome variables WTP and purchase intention. This was done by comparing the mean values for all six treatment groups and determining whether any of the groups had values which were significantly different from one another. The results of the two-way ANCOVA model with fish consumption as a covariate and IOS and COO as independent variables found significant evidence that the mean WTP was different for the six treatment groups when tested for the restricted sample. Hypothesis 4 is thus partially supported by our data as the mean WTP for the group integrated_europe was found to be significantly higher than for the group taste_europe. The difference of $3.50 was found to be robust using a Tukey HSD pairwise comparison. There

was no evidence in support of this hypothesis when purchase intention was the dependent variable.

However, Hypothesis 4 remains only partially supported because we would have expected integrated_norway to have the highest WTP, and taste_europe the lowest. European origin when combined with IOS seemed to elicit a more favorable response among American consumers than Norwegian origin, perhaps because Americans had a hard time differentiating between Europe and Norway and found Europe to be more recognizable. When combined with the taste message, however, European origin yielded the lowest WTP on average. This could suggest that Americans' perception of European origin is somewhat flexible and can be positively or negatively influenced by the brand positioning it is presented alongside.

7.2 Additional Findings

7.2.1 Positive Impact on Perceptions of Product Quality

In addition to using purchase intention and WTP as outcome variables, the two-way ANCOVA model was also run using respondents' reported perceptions of product quality. Specifically, they were asked to what extent they agreed that the product advertised would taste good, was sustainable, and was healthy, with answers scored on a 7-point Likert scale. When tested using the restricted sample, we did find that IOS:COO was associated with a significant effect on respondents' perception of how the product would taste, with a p-value of 0.0174. In addition, IOS:COO was shown to be associated with a significant effect on respondents' beliefs about how sustainable and healthy the product was, with p-values of 0.0271 and 0.0070 respectively. IOS alone appeared to have a significant positive effect on perception of how the product would taste, with a p-value of 0.0135. IOS alone also was associated with a significant positive effect on respondents' belief about how healthy the product was, with a p-value of 0.0266. While these results do not directly support any of the stated hypotheses, they do provide additional empirical evidence that IOS:COO and IOS alone appear to significantly influence what consumers think of the product.

To identify the sources of these results and run a robustness check, a Tukey HSD pairwise comparison was run post-hoc. The results of this test for IOS:COO revealed that it was again the treatment groups integrated_europe and taste_europe which were sufficiently different (at the 5% level) with regards to how they perceived the product would taste, with those in the

integrated_europe group reporting significantly higher scores. In addition, those in the sustain_europe group appeared significantly more likely to report that they thought the product was healthy and sustainable compared to those in the taste_europe group. With regards to differences in IOS alone, those who were shown the message which advertised sustainability as a separate driver of choice (sustain) had significantly higher mean scores on perception of taste and healthiness compared to those who were shown the message which advertised taste as a separate driver of choice (taste). This would suggest that the integrated message (when combined with European COO) outperformed the taste message with regards to perception of taste, while the sustainability message outperformed the taste message with regards to perception of healthiness. This generally supports literature on sustainable communications which states that consumers perceive sustainably labelled products to be healthier (Zander & Feucht, 2018; Sun et al., 2017).

7.3 Implications

7.3.1 Theoretical Implications

This study aimed to contribute to existing research on sustainability branding and communications by looking at how companies can improve their competitive advantage in export markets through an increased willingness to pay and purchase intention. This was done by integrating sustainability as a driver of choice with another major driver of choice, along with incorporating the brand's COO in branding and communications efforts. These factors were all established by Anholt (2021), Dinne (2022), Keller and Swaminathan (2020) and Supphellen (2020) as leading to increased competitive advantages.

As shown, Hypothesis 1 (IOS), was not supported in terms of increasing WTP or purchase intention. This does not support the findings of Supphellens (2020) as well as Cho & Baskins (2019) suggestions. However, communicating sustainability did lead to the product being perceived as better tasting and healthier than those ads in which sustainability was not communicated, providing support for the increased effects of green promotional efforts in Leonidou et al. (2013), as well as the strengthening of congruent associations Supphellen (2020). When sustainability was communicated through nature, the product was seen as significantly healthier and better tasting versus the ads that only referenced taste, showing that sustainability communications can lead to increased positive attributes.

The country of origin (H2) was found to increase purchase intention among high income consumers. Again, this could be due to the fact that they have more disposable income to spend on luxury items like salmon, and because high income people may have a higher degree of education and more opportunities to travel to Europe and Norway specifically, leading them to be more familiar with the COO. Therefore, our research only supported Dinnie (2022) and Koschate-Fischer et al. (2012) claims that utilizing COO will differentiate your brand, increase consumer assessment of the product, and increase competitive leverage among the high-income group by showing a positive effect on purchase intention. This also coincides with Anholt (2006) who explains that some countries are known but by the wrong target audience. In our case, Norwegian salmon is a luxury product, so our research may have found stronger results if it was limited to the correct target audience instead of the wider US population. However, COO did not by itself increase WTP as proposed by Papadopoulos and Heslop (2003) and Chu (2013).

This coincides with the fact that the data showed that people who were familiar with Norway and those who had traveled to Europe were significantly more likely to purchase products from there. This supports Koschate-Fischer et al.'s (2012) claim that consumers rely on past experiences, heuristics and preexisting biases when using COO to make purchasing decisions and He, Wang, & Wu's claim of the use of the halo and summary effects among consumers when presented with COO labels.

It is important to note that the highest WTP was for the integrated Europe group and not Norway, but this again may be due to a decreased familiarity and knowledge of Norway in comparison to Europe. American consumers may struggle to differentiate between Norway and Europe as a whole, and there may be too much overlap between the Norwegian COO and the EU, leading positive associations with Norway to possibly spillover to Europe. Our results would therefore suggest that Europe does have a COO effect unlike we originally hypothesized.

Subsequently, it is probable that consumers exposed to the new branding program will transfer product evaluations to their perceived country image of Norway, leading to an inverse COO effect. A study by White (2012) found that a positive perception of a product brand led to a more positive perception of the country of origin of the brand. Therefore, Norwegian products abroad, such as salmon, may influence the perception and associations of the country brand of Norway. For example, if Norway ensures that the products, they export are sustainable, the

Norwegian country image may become more sustainable. Thus, a branding program that utilizes COO for Norway may induce positive macro-level economic effects on Norwegians exports from other industries as well by improving the overall country image of Norway abroad. We will not evaluate this claim empirically as that is beyond the scope of this study, but possible synergies and positive externalities could merit further research in determining the inverse COO effects of Norwegian exports abroad.

Regarding H4, the restricted sample (those who passed the manipulation check) showed that the combination of integrating sustainability and the country-of-origin was statistically significant in terms of willingness to pay. When IOS was combined with COO, the product was seen as significantly tastier, showing that integrating the country of origin with sustainability and another driver of choice helps to mutually reinforce and strengthen other drivers of choice. This supports the past literature (Supphellen, 2020) in the way that the ad that integrated sustainability, COO, and another driver of choice was more differentiated leading to stronger associations and an increased competitive advantage. Our research brings this even further by suggesting that integrating and connecting the country of origin to sustainability and another driver of choice brings even more advantages, in particular an increase in WTP. This is in line with past literature such as Keller (1993) who found that brands with congruent and linked associations appear more cohesive leading consumers to remember said associations more easily.

7.3.2 Practical Implications

This study found that incorporating COO in the brand positioning significantly increased purchase intention for high-income consumers and integrating COO and IOS together significantly increased WTP (for European ads only). Given that the ad which combined European origin with an integrated message had the highest WTP, we can assume in this study that the ads labeled “European”, found a COO effect for a region of origin. This may be due to the fact that Americans are more familiar with “Europe” than they are the country of Norway and its country's brand image. Our survey respondents showed that 42% of respondents had traveled to Europe, while only 14% had traveled to Norway. Consequently, respondents were a full point more familiar with Europe than Norway.

To increase familiarity and take advantage of these benefits, the Norwegian government could increase its efforts to market Norway internationally as a tourist destination, and a country

with immense natural beauty and sustainable resources to increase consumers' familiarity with Norway and create possible spillover effects from the country image to export product evaluations. This could also be done on an industry-wide level to increase Norway's reputation for supreme products in a certain industry. As COO still proves valuable, and if the Norwegian government can implement a stronger country branding program, Norwegian export firms should benefit from integrating COO, sustainability, and another major of driver of choice into the brand positioning and linked between each other to reap the greatest benefits of a cohesive brand image.

Export brands should be aware of their target market and price point when looking to utilize our findings, as we only found apparent effects among high-income consumers for COO. This may be due to our study being focused on Norwegian salmon, a high quality, and high-priced product that only certain consumers are willing to pay for. Additionally, it would be beneficial to do research on the target market's familiarity and associations with Norway to ensure that COO branding will bring positive effects, as familiarity and especially previous travel to the COO showed to be a moderating factor.

Additionally, as our study supported the connection between sustainability communications and other drivers such as health and taste, Norwegian export firms should ensure that they communicate the sustainability of their products if applicable to increase positive associations to other attributes.

With regards to the economic implications, the demand analysis demonstrated that the increase in WTP associated with the integration of sustainability and European COO has potentially significant implications for the Norwegian salmon industry. Although in this study European COO was associated with the highest WTP, if efforts are made to increase familiarity with Norway in the US, our results suggest that utilizing Norway in the branding may still be beneficial. The benefits of the branding program with regards to an increase in quantity demanded depend on the own price elasticity of demand and retail price of salmon, so exporters looking to incorporate this branding into their products can expect the greatest effects if they are able to negotiate with retailers to keep prices stable in the short-term. To obtain results which are more tailored to the individual firm, we recommend that each Norwegian exporter run a similar analysis utilizing their equilibrium price and historic estimates of the own price elasticity of demand for their products.

8. Validity and Reliability

8.1 Internal Validity

Random assignment was essential to the internal validity of our results and was achieved using an automatic function in Survey Monkey, which was deemed to meet the requirements to be considered random (Wooldridge, 2018). ANOVA was used to compare the means of the different treatment groups for various demographic characteristics including gender, age, region, and household income. The results of the ANOVA analysis determined that random assignment seemed to hold, and treatment groups were adequately balanced in terms of demographics. This was found to be true both before and after those who failed the manipulation check were removed from the sample. Based on these results, selection bias resulting from differences between the different treatment groups most likely did not present a challenge to the internal validity of this study.

The data was determined to meet the necessary assumptions for an ANCOVA analysis, however, there were some challenges regarding the normality assumption in particular. These challenges arose mainly due to our use of the Likert scale which resulted in noncontinuous variables, and the positive wording of some of the questions which may have led respondents to be more likely to agree than disagree due to acquiescence bias (Dickinson, 2013; Baxter et al., 2015). The presence of acquiescence bias was likely the source of the positive skew observed in the variable purchase intention, given that the mode answer was “slightly agree” rather than “neutral”. This was somewhat adjusted for by standardizing the residuals of an ordered logistic (rather than linear) regression, which produced a histogram and Q-Q plot that appeared more normally distributed.

WTP is an approximately continuous variable, and we would thus expect a normal distribution for sample sizes of at least 30 observations (LaMorte, 2016). This may explain why WTP does not suffer from the skew that impacted purchase intention (a scale/interval variable). In addition, WTP suffers from less truncation than purchase intention because it was phrased as an open-ended question with a greater range of possible responses. In general, results of the ANCOVA analysis with WTP as a dependent variable have greater internal validity given that it is a continuous variable, however statistics professionals support the use of ANCOVA with variables measured on the Likert scale given that it is simply comparing the mean scores (Dickinson, 2013).

Our study measured consumers' hypothetical WTP using direct survey methods versus their actual WTP. Measurement of actual WTP requires a setting where consumers are required to actually purchase the product in the question, which can be difficult and expensive to execute when random assignment is also essential. As noted by Koschate-Fischer et al. (2012) and Harrison and Rutström (2008), measurements of hypothetical WTP can be biased and tend to overstate prices compared to actual WTP, given that consumers are more conservative when there is real money at stake. However, the nature of the between-subject experiment ensured that all respondents were presented with the same questions and WTP was elicited in the same way for all treatment groups, thus analysis of relative changes is still valid.

When utilzing a third-party survey provider, in our case Survey Monkey, there is a risk of careless responses which may distort the results and present a challenge to the internal validity of the study. For this reason, it was important that our survey featured a manipulation check which assessed to what extent respondents took the time to actually read the advertisement. The manipulation check filtered out around 35% of responses and we did find results that more closely matched our hypotheses after removing those who failed, implying that the check enabled a better estimate of the relationship between our variables (Hoewe, 2017). It is worth noting that respondents were exposed to the ads briefly and only once when taking the survey, whereas in a real-world purchase setting they would likely be exposed multiple times and/or for a longer period of time. The differences in the ads would thus be more observable and the relative differences in WTP we observed in our study could be even greater in a real-world purchase setting with multiple exposures.

8.2 External Validity

One potential challenge to the external validity of our study is our relatively small sample size, especially for the individual treatment groups. 30 is the minimum size to be considered empirically valid based on the central limit theorem, and larger sample sizes almost always have greater external validity due to reduced standard error (Wooldridge, 2018; LaMorte, 2016). In our analysis using the restricted sample, the smallest treatment group had 30 participants, and ideally, we would have liked for the groups to be quite a bit larger for the results to be deemed externally valid for American consumers in general. However, the sample size we were able to obtain was largely constrained by the cost, given that Survey Monkey charges per response.

Our survey targeted American consumers, who are likely to differ from European consumers and consumers in other parts of the world. The results of this study are therefore only externally valid for American consumers and not for consumers in other salmon markets, such as Europe. If the study were to be replicated using European respondents, we might expect to see larger effects of COO associated with WTP, given that Europeans are more knowledgeable about countries in Europe and likely more able to differentiate between Norway and Europe as a whole. The COO effect for Norway thus might be more salient among Europeans than Americans, who seemed to favor European origin in some of the treatment groups.

We also carried out further analysis with certain consumer segments, such as Americans who reported having travelled to Europe and those with above-average income. These results have limited external validity because they can only be deemed valid for those particular consumer segments and not the population as a whole. Imposing these restrictions also led to a smaller sample size, however this was addressed by not testing for differences between the six treatment groups but rather for the different levels IOS and COO only.

To what extent the results of the study are relevant for Norwegian salmon exporters depends on whether their target market is similar enough to those we surveyed. As noted earlier, salmon can be considered a luxury food product based on its own price elasticity, so a survey which targeted only those who eat salmon regularly may have produced different results that are more directly applicable to Norwegian salmon exporters. However, the main goal of the study was to determine if the average American consumer associated the differences in the ads with an increased WTP/purchase intention so that the results are more generally applicable.

Finally, it is worth addressing that those taking surveys on the Survey Monkey platform are compensated for their time and may have certain characteristics which differ from American population as a whole (Malhotra et al., 2017). We might expect, for example, that survey respondents are more likely to be lower income and may have a lower level of education than Americans in general. Our study may therefore suffer from some selection, although our sample did appear to be approximately representative in terms of household income.

8.3 Reliability

When assessing the reliability of the study, we consider whether the same study would produce relatively consistent findings if repeated with a different sample of respondents from the same population or at a different point in time (Saunders et al., 2019). Given that consumer attitudes surrounding sustainable products are rapidly evolving, and this is increasingly becoming a more salient issue for the average consumer, repeating the study at a later point in time may yield different results. However, the literature would suggest that sustainability will play an increasingly important role in consumer behavior in the future, and this would support the hypotheses put forth in this study. We would thus expect that our findings regarding IOS:COO being associated with an increase in WTP would still be valid and this relationship may be strengthened over time.

In addition, the pricing data used in this study can only be seen as valid for the current period. Reference prices which were provided to survey respondents would need to be updated based on adjustments in the retail market for fresh salmon, and the demand analysis would need to consider updated estimates of the own price elasticity.

Measurement errors may have occurred due to careless responses and the way this impacted the results may not be consistent should the survey be repeated with a different sample. However, cleaning the sample for outliers and running the analysis with the sample consisting of only those who passed the manipulation check helped to eliminate any random error which may have occurred due to careless responses. Most survey items utilized a 7-point Likert scale which helps to ensure consistency of results, as the scale can be reliably interpreted to mean the same thing by different respondents at different points in time, thus ensuring test-retest reliability (Price et al., 2015).

9. Concluding Remarks

9.1 Limitations

One of the limitations of this study was its relatively small sample size, given that a larger sample size would have greater external validity and smaller standard errors. In addition, consumers may not pay as much attention to an advertisement in a survey setting as they would in a real-world setting, which may have affected our results. Norwegian firms looking to explore the potential benefits of this type of branding might consider having an A/B test on their website, where consumers are shown different versions of the website that utilize IOS and COO. This would allow the firm to directly measure how their consumers respond and the potential practical implications for their product. Future research which utilizes a large sample size and places consumers in a real-world decision setting would provide interesting insights into whether these factors contribute to a more significant relationship between IOS:COO and WTP.

Our study results can only be directly applied to the American market for Norwegian salmon; however, the literature suggests that similar results may be expected for other low-involvement products (such as other types of seafood). The treatments utilized one type of sustainable communications, one additional driver of choice (taste) and two origins (Norwegian and European) but other variations could further strengthen the relationship documented in this study and certainly merit further research. Finally, willingness to pay is an important outcome variable due to its implications for customer-based pricing but measuring willingness to pay using survey methods has numerous limitations. Future research which compares what consumers actually paid for products with different types of branding would be highly preferable for a similar analysis. However, these results suggest that research on this topic is a good path for future inquiry.

9.2 Future Research

In terms of communications and how to best present the integrated brand positioning to consumers, this may need to be further investigated to determine best practices for packaging and promotional efforts in terms of message valence, quality, and appeal types. However, it is worth suggesting that export brands that integrate sustainability may want to do so more explicitly. Our study integrated sustainability by connecting the product to nature, as this also

connects to Norway's country image, however, this may have led to decreased effects of IOS on WTP. As noted by Parguel, Benoit-Moreau & Russell (2015), consumers' knowledge of environmental topics may moderate how they process the messaging. In our case, if consumers were unaware of why cold and clean waters make salmon production more sustainable and increase quality then they may not have been influenced to pay more. Additionally, Cho & Baskin (2019) warned against indirectly communicating sustainability through associated attributes, therefore in future research it may be recommended to communicate sustainability directly. This may be particularly relevant as regulations regarding the sustainability of specific industries go into effect and consumers learn to seek more concrete evidence of sustainability.

Our study found that Norwegian COO was associated with a higher WTP among high-income consumers, which is expected for a luxury product such as sustainable salmon. When running this study again, it may be more beneficial to segment the test audience to a targeted sample that is most relevant for the industry or product to obtain more specific results. For our sample, European and Norwegian origin did not appear to have significantly different associations, so in seeking to measure a COO effect one might want to choose two countries that have significantly different reputations. This can be measured using a pretest prior to carrying out the experiment (Koschate-Fischer et al., 2012).

9.3 Conclusion

An abundance of literature from both marketing and economics researchers provides a strong theoretical foundation for the existence of a significant relationship between export branding and willingness to pay. Specifically, export branding which incorporates sustainability messages with another driver of choice and country of origin will be more effective in increasing consumers' willingness to pay for the product compared to export branding which does not include these elements or includes them separately. This study set out to provide empirical evidence for this relationship by carrying out a between-subject factorial experiment, utilizing the American market for Norwegian salmon as an example. Six ads were created with three different messages and two different origins, Norwegian and European. The relationship between integration of sustainability (IOS) and country of origin (COO) on willingness to pay and purchase intention was examined using a two-way ANCOVA analysis. Willingness to pay for the product appeared to be significantly higher for the ad where

European origin was combined with the message which integrated sustainability with another driver of choice (taste). While the literature theorized that consumers would be willing to pay more for Norwegian origin due to a positive COO effect, we find this is not the case with our sample of American consumers, possibly due to positive spillover effects and a lack of familiarity with Norway. We conclude that Europe appears to benefit from a positive COO effect when combined with the integrated message.

The increase in willingness to pay compared to the control group was $3.50, which could contribute to a significant increase in demand for Norwegian salmon abroad by stimulating a rightward shift in the demand curve. These results provide the first known empirical evidence that there appears to be a noteworthy relationship between the combination of IOS and COO on the willingness to pay for Norwegian salmon.

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10. Appendix

10.1 Appendix 1: The questionnaire

Category		
Screening Question (yes/no)	*Do you eat fish at home at least once a month?*	
Introduction	*This is a questionnaire developed for research purposes. In the following section you will be presented with an ad for salmon from the website of a brand called SALMA. Thereafter you will be asked to answer various questions related to the ad, which will take approximately 5 minutes. Your answers will be completely anonymous.*	
Exposure to 1 of 6 ads, 3x2 experiment	***Sustainable message*** ***Taste message*** ***Sustainability and taste message***	***European/NorwegianEuropean/NorwegianEuropean/Norwegian***
	Question	***Answer***
Perceptions of product attributes	*Q1: I believe this product would taste good.*	*(1) Strongly disagree - (7) Strongly agree*
	Q2: I believe this product would taste better than most other salmon products.	*(1) Strongly disagree - (7) Strongly agree*
	Q3: *I believe this product is sustainable.*	*(1) Strongly disagree - (7) Strongly agree*
	Q4: I believe this product is more sustainable than most other salmon products.	*(1) Strongly disagree - (7) Strongly agree*
	Q5: I believe this is a healthy product.	*(1) Strongly disagree - (7) Strongly agree*
Willingness to Pay	*Q6: Fresh salmon can cost from $9.99 up to $29.99 per pound at the grocery store. What is the maximum price you would be willing to pay for the salmon advertised?*	*Free response: $_/lb.*
Purchase Intention	*Q7: I would try this product if it was available.*	*1) Strongly disagree - (7) Strongly agree*
Manipulation Check (multiple choice)	*Q8: Previously in this survey you saw an ad for salmon. Where was the salmon from?*	*Europe* *Norway* *Canada* *Chile*
Knowledge of Origin	*Q9: Have you ever travelled to Europe?*	Yes/No
	Q10: Have you ever travelled to Norway?	Yes/No

	Q11: I am familiar with Europe.	*1) Strongly disagree - (7) Strongly agree*
	Q12: I am familiar with Norway.	*1) Strongly disagree - (7) Strongly agree*
Evaluation of Origin	*Q13: Food products from Europe are sustainable.*	*1) Strongly disagree - (7) Strongly agree*
	Q14: Food products from Norway are sustainable.	*1) Strongly disagree - (7) Strongly agree*
	Q15: Food products from the USA are sustainable.	*1) Strongly disagree - (7) Strongly agree*
Demographics (MC/free response)	*Q16: What is your gender?*	*Male* *Female* *Other*
	Q17: How old are you?	*Free response*
	Q18: Which state do you reside in?	*Multiple Choice*
	Q19: What is your annual household income?	*Free response*
Consumption of fish	*Q20: How often do you eat fish at home?*	*(1) Daily (2) Weekly (3) 2-3 times per month (4) Approximately once per month (5) Rarely*
	Q21: How often do you eat salmon at home?	*1) Daily (2) Weekly (3) 2-3 times per month (4) Approximately once per month (5) Rarely (6) Never*
	Q22: How often do you prepare fish dishes for other people (friends, spouse, children, etc.)?	*1) Daily (2) Weekly (3) 2-3 times per month (4) Approximately once per month (5) Rarely (6) Never*

10.2 Appendix 2: The Treatments


Superior
Tasting Salmon
SALMA®
Premium Norwegian
Seafood


Superior
Tasting Salmon
SALMA®
Premium European
Seafood


Superior
tasting salmon
from cold and
clean waters
SALMA®
Premium Norwegian
Seafood


Superior
tasting salmon
from cold and
clean waters
SALMA®
Premium European
Seafood

10.3 Appendix 3: Reference Prices for Fresh Salmon from US Retailers

Brand	Price (USD)	Country of Origin
Seafood Connection	$ 13.52	Chile
Oshen Salmon	$ 19.60	Chile
New York's Delicacy	$ 26.32	Chile
Sam's Club	$ 13.60	Norway
Catalina	$ 28.99	Canada
Mowi	$ 13.72	Atlantic (Chile, Canada or Norway)
Amazon Fresh	$ 12.39	Chile
Whole Foods	$ 11.04	Atlantic (no COO given)
Whole Foods (center-cut)	$ 16.99	Atlantic (no COO given)
Amazon Fresh (wild-caught)	$ 16.63	USA (Alaska)
Mowi (side-cut)	$ 13.33	Atlantic (Chile, Canada or Norway)
Amazon Fresh (King salmon)	$ 20.33	New Zealand
Walmart	$ 11.74	Atlantic (no COO given)
Walmart (wild-caught)	$ 13.98	USA (Alaska)
Safeway	$ 12.99	Atlantic (no COO given)
Whole Foods (wild-caught)	$ 29.99	USA (Alaska)

10.4 Appendix 4: Tests of Statistical Assumptions for ANCOVA Analysis

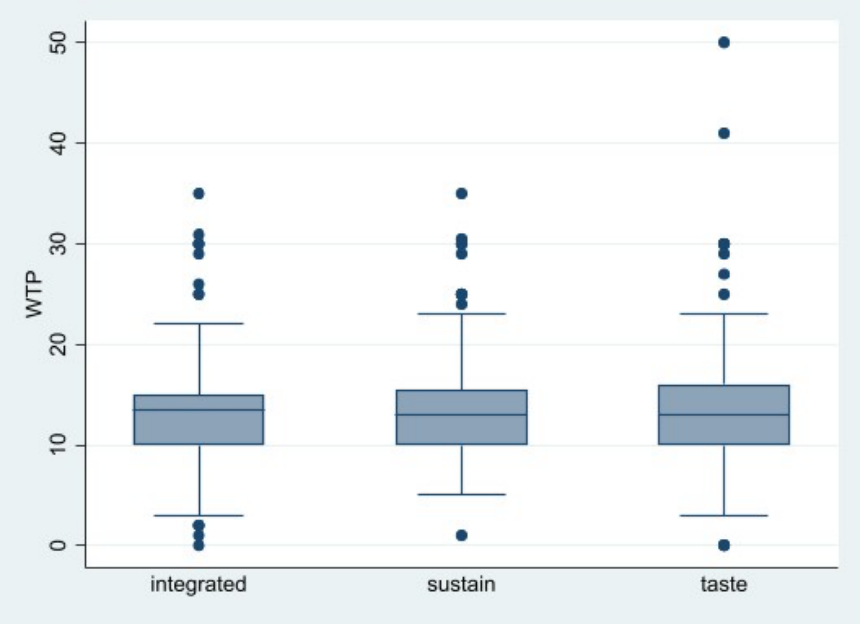
This section contains more information on how the statistical assumptions necessary for our ANCOVA analysis were assessed and deemed to be met.

Age was not positively correlated with WTP but did have a positive relationship with purchase intention, indicating that age should possibly be used as a covariate in the analysis of that dependent variable. However, a two-way ANOVA with age as the dependent variable revealed that the mean age across the different treatment groups was not significantly different, so any positive bias was evenly allocated across the groups and should not impact the between-group analysis.

Outliers

Free response questions present an opportunity for outliers, "unusual" answers which stand out from the range of typical responses to the question (Wooldridge, 2018). Using a box and whisker plot, outliers can be visually identified: given that the suggested range provided for the WTP question was \$9.99-\$29.99, answers more than \$5 above or below that range (approximately one standard deviation) were classified as outliers and not used in the analysis. However, only 15 answers were eliminated based on this criterion, and re-running the analysis of demographics using a two-way ANOVA revealed that this did not result in any imbalance between the treatment groups. All treatment groups were still sufficiently large after dropping the outliers from the sample.

Figure 22: Box and whisker plot for WTP (full sample)



More details on distribution of the data

The Shapiro-Wilk test found that the variable purchase intention was not normally distributed, likely due to skewedness. Purchase intention was scored on a 7-point Likert scale, so acquiescence bias may have been a factor given that the mode answer was "slightly agree" rather than "neutral" as we would expect in a perfectly normal distribution. Both variables suffer from some truncation (purchase intention more than WTP) due to the scale presented in the survey questions.

After standardizing the residuals of an ordered logistic regression with purchase intention as the dependent variable to account for skew in the responses (possible reasons for this will be elaborated upon in Section 7), the data appeared to approximately fit a normal distribution in both a histogram and Q-Q plot. The restricted sample more closely resembled a standard normal distribution in its histogram and its Q-Q plot was very similar to that of the full sample.

Figure 23: Histogram for purchase intention with normal frequency (full sample)

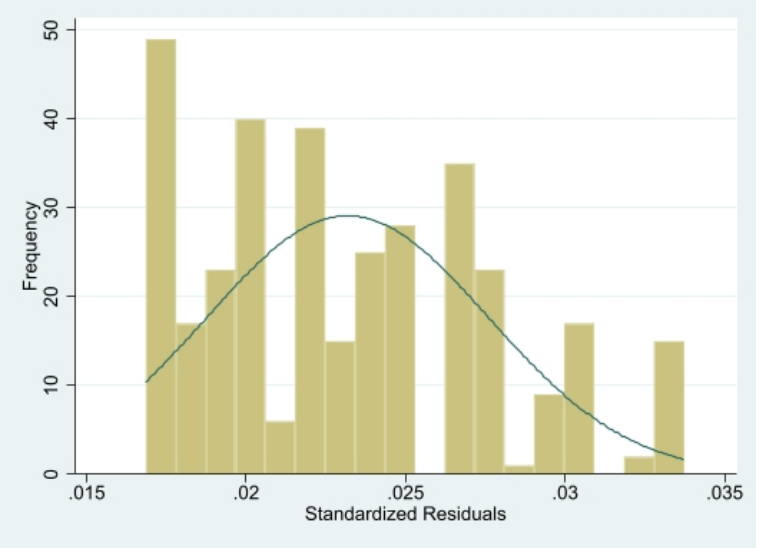


Figure 24: Histogram for WTP with normal frequency (full sample)