Prevent or Promote?

Exploiting Loss Biasness to Nudge Norwegian Consumers towards Eco-Friendly Packaged Wine

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Master's Thesis, Economics and Business Administration

Major: Business Analysis and Performance Management

NORWEGIAN SCHOOL OF ECONOMICS

Abstract

Players in the wine industry across the world, including the Norwegian monopoly player Vinmonopolet, are increasing their efforts to reduce their environmental footprint and achieve sustainable production and operation. A considerable challenge for Vinmonopolet to succeed with this transition is to nudge consumers, often subject to an intention-behaviour gap and potential liability effect, into purchasing eco-friendly lightweight plastic (PET) bottles. This study explores the effectiveness of framing combined with colour priming through eco-labels.

In an online scenario-based experiment, respondents from a sample of 500 individuals across Norway were randomly allocated into two experimental groups: loss and gain framing. Glass bottles were labelled with "Not eco-friendly packaging, glass" in the former group, whereas PET bottles were labelled with "Eco-friendly packaging, plastic" in the latter group. From a selection of 12 white wines, respondents were requested to purchase wine to serve ten friends at a dinner party. Among several other concepts, quality perception and emotions experienced during the decision-making process were measured and compared.

The findings suggest that loss framing is slightly more effective than gain framing in nudging consumers towards purchasing eco-friendly wine bottles. The effect is contingent on respondents noticing the label. Framing did not trigger emotions as postulated, which may indicate that the framed communication was not persuasive enough. Further, framing did not have different impacts on quality perception. Moreover, the results show that the framing effect is more prominent for individuals for whom environmental considerations are not inherent than for individuals with high environmental concerns. Another finding is that level of neuroticism can partly explain the greater effect of loss framing than gain framing.

Despite the failure to demonstrate a clear effect difference between loss and gain framing, the results indicate that loss framing is a slightly more effective method. This both in regard to consumers noticing the label and choosing eco-friendly bottles. Altering the loss-framed communication in favour of a more compelling statement is suggested for further academic research and to be tested in a field study at Vinmonopolet's stores.

Preface

This thesis was written during the fall semester of 2021 as the finalisation of our Master of Science degree in Economics and Business Administration at the Norwegian School of Economics (NHH). The thesis is an in-depth work within the profile Business Analysis and Performance Management, marking the end of a five-year course of study.

We have a great interest in sustainable business practices and wanted to write our thesis within a highly relevant topic. We considered it valuable to gain new insights into how a well-established Norwegian company could exploit the theory of consumer behaviour to support its efforts in sustainable development efforts. Most importantly, we wanted to conduct a study that could potentially have a real impact on the challenging journey towards more eco-friendly production and consumption practices.

With minimal previous knowledge of consumer behaviour, it was enlightening to deep dive into this area. The process of collecting relevant theories and former study findings followed by developing hypotheses for the experiment was challenging, yet a fun task. In retrospect, we agree to have chosen a topic and research question exciting enough to motivate us when hindrances occurred. To conclude, conducting the experiment and writing this thesis has been an enriching journey that we are grateful to have experienced.

We would especially like to thank our supervisor, Helge Thorbjørnsen, for constructive feedback, suggestions and support throughout the course work. Without his expertise in consumer behaviour and suggestion to research scope, our thesis might have taken a different direction. His extensive knowledge of behavioural science gave us valuable inspiration, lifting the quality of our research. Further, we would like to thank Rolf Erling Eriksen, Senior Environmental Advisor at Vinmonopolet. He contributed with practical elements of the experiment and helpful information.

Content

TABLE OF FIGURES

TABLE OF TABLES

1. Introduction

1.1 Background

"There can be no Plan B, because there is no Planet B" was stated by former United Nations Secretary General, Ban Ki-moon, during a march for climate action in the US in 2014 (Schoenmaker and Schramade, 2018). Climate action failure, extreme weather, and human-led environmental damage are on top of the World Economic Forum's list of global risks of this decade, both in terms of their likelihood and their level of impact (2021). According to The World Bank, out of the 2.01 billion tons of solid waste generated annually, at least 33 per cent is not environmentally managed (2021). Moreover, caused by economic and population growth and consumption habits, global waste generation may be expected to increase by 70 per cent in 2050 compared to 2016 (Tiseo, 2021). In 2015, as a call for climate change and other sustainability challenges, all United Nations member states adopted the 2030 Agenda for Sustainable Development, including 17 Sustainable Development Goals (SDGs) (United Nations, 2020).

Sustainable development refers to the development in which today's generations' needs are fulfilled without impairing coming generations' opportunity to fulfil their needs (Vårdal, 2020). With one of the world's most unsustainable consumption patterns per capita, Norway's overshoot day this year fell on April 12, compared to July 29 globally (Earth Overshoot Day, n.d.). This suggests that it would require 3.2 earths if everyone in the world would maintain a Norwegian consumption style. Consequently, the most crucial sustainability challenge for Norway is to achieve the SDGs concerning unsustainable consumption patterns and greenhouse gas emissions (Voluntary National Review 2021 Norway, 2021). To succeed in reducing the ecological footprint and reaching SDG 12, "Responsible consumption and production", will require a substantial change in how goods and services are produced and consumed (UNDP, 2021).

Global industries, businesses, and consumers need to be encouraged to prevent, reduce, recycle, and reuse waste. This has led to a growing trend towards sustainable packaging as many food and beverage companies have understood that to remain competitive and relevant, they need to adopt more sustainable approaches to package their goods. Following this, the Consumer-Packaged Goods industry has committed to a more sustainable future, with waste reduction as a top priority (Molinets, 2021). For instance, Cola Company

launched an environmental program called "World Without Waste" in 2018, committing to make their packaging fully recyclable by 2025 and to use 50 per cent recycled materials in their packaging. They also aim to collect one bottle or can for each they sell by 2030 (The Coca-Cola Company, 2021).

Of global human-produced GHG emissions, the wine sector contributes to about 0.3 per cent, estimated by Rugani *et al.* (2013). Concerning the sustainable aspect of wine, many tend to associate it with grape growing practices at the wineries. However, one primary source of environmental impacts in the wine industry is related to glass bottles, specifically massive consumption of energy in production and high transportation emissions due to glass bottles' weight. According to former research, the packaging processes account for 22 per cent of total carbon emissions, whereas winegrowing and end-of-life account for 17 and 22 per cent, respectively (Rugani *et al.,* 2013). Considering only emissions related to production, research indicates that packaging is responsible for around 41.1-57 per cent of a wine bottle's total carbon footprint (Ferrara and De Feo, 2018; Ponstein *et al.,* 2019). In this regard, the third-largest wine company in the world by volume, the Wine Group, has committed to eco-friendly shipping and local bottling of their wine, as well as aiming for lightweight alternatives in packaging (The Wine Group, 2021).

In accordance with the introduced research on the carbon footprint of wine, Vinmonopolet states that product packaging is the one factor that contributes most to their environmental footprint since the production and transportation of heavy glass bottles requires significant energy usage (2021). It is disclosed that wine packaging account for an average of 40 per cent of the total footprint from the products' cradle to grave. Vinmonopolet has implemented efforts to reduce their emissions by 40 per cent within 2030, such as requiring light-weight glass, plastic, aluminium or Bag-in-Box packaging on all new products for which this is possible. In addition, this year, Vinmonopolet started to label environmentally certified production to make it more convenient for customers to choose sustainable products (Vinmonopolet, 2021).

Producers and sellers of wine are more aware than ever of their contribution to the environment and have an increased willingness to undertake measures to make the wine industry more sustainable. Yet, an industry's process of going green requires consumers' willingness to adapt. With some reluctance by consumers to replace the glass bottle due to the perception that alternative wine packaging is incapable of maintaining wine quality and

durability (Ferrara *et al.*, 2020), the urgency of increased sustainability consciousness and motivation becomes particularly evident. Hence, lowering the wine industry's environmental impact requires more than simply replacing glass bottles with alternative packaging alternatives; consumers need to take sustainability and environmental issues into account when making their wine purchase decisions.

1.2 Positioning and Problem Statement

As a critical part of achieving environmental sustainability is to accomplish change in consumption patterns, the study of consumer behaviour is vital. Western consumption patterns have for many years been deemed as unsustainable with respect to both resource usage and generated emissions. Next to technological innovation for sustainable development is the importance of change in consumers' lifestyles and behaviour while simultaneously allowing people to maintain a living standard corresponding to current norms (Druckman and Jackson, 2010).

Becoming more sustainable and reducing their environmental footprint is one of Vinmonopolet's main focus areas. Efforts are made to influence their suppliers to consider sustainability aspects in their packaging and increase consumers' sustainability consciousness in their wine purchase decisions. Some labelling is visible in their stores, in addition to sustainability filters on their webshop, yet, there are still measures to be taken. To provide information in terms of carbon labelling, sustainability scales, quality and climate footprint statements, and to introduce sustainability filter on the website are examples of possible measures tested in former master's theses (Sherman and Spinelli, 2021; Gulliksen and Moh, 2021; Almås and Schøyen, 2020). However, many consumers seem to be subject to an intention-behaviour gap, an obstacle to sustainable and ethical consumption (Johnsen, 2016). Therefore, the purpose of this master's thesis is to understand how to impact consumers' subconsciousness and how to nudge them into making sustainable consumption decisions.

Based on this and the prospect theory, with loss aversion and reference dependence as central parts, we want to examine whether the use of loss versus gain framing influences individuals' consumption decisions to different degrees. In addition, we want to understand whether the colours green and red trigger positive and negative emotions, respectively, and

whether these emotions influence behaviour change differently. Accordingly, our research question is:

How do loss and gain framing, amplified by colour priming, of eco-labelling influence consumers' choice, emotions and quality perceptions of wine?

1.3 Structure

This chapter has presented the background of our research study and the problem statement that we aim to answer in the following eight chapters. First, the literature review in Chapter 2 will introduce the theoretical foundation of our research and former research on this area. Based on this, Chapter 3 proposes the hypotheses that will be used to answer the research question and displays the complete research model of the study. This is followed by an introduction to the statistical methods conducted and an elaboration of considerations made in Chapter 4. The considerations are regarding the design of the experiment, providing primary data, and the operationalisation of the different constructs necessary to test our hypotheses. The results from our statistical analyses are disclosed in Chapter 5. Next, in Chapter 6, we will discuss the results and draw lines to the literature review and other studies, followed by the conclusion in Chapter 7. Last, limitations of our study are discussed in Chapter 8, followed by implications for Vinmonopolet, the wine industry, and further research.

2. Literature Review

2.1 Consumer Behaviour

Consumer behaviour is the study of how consumers make decisions concerning "acquisitions, consumption and disposition of goods, services, time and ideas" (Hoyer *et al*., 2013, p. 3). Factors influencing consumer behaviour divide into four interrelated domains: the psychological core, the process of making decisions, consumer behaviour outcomes, and the consumer's culture (Hoyer *et al*., 2013).

Harrison *et al.* (2005) present a modified version of the 'Theory of planned behaviour', the most used psychological model for sustainable consumption investigation. Attitude, subjective norm, perceived behavioural control, self-identity, and ethical obligation, compose an individual's intention for actual behaviour.
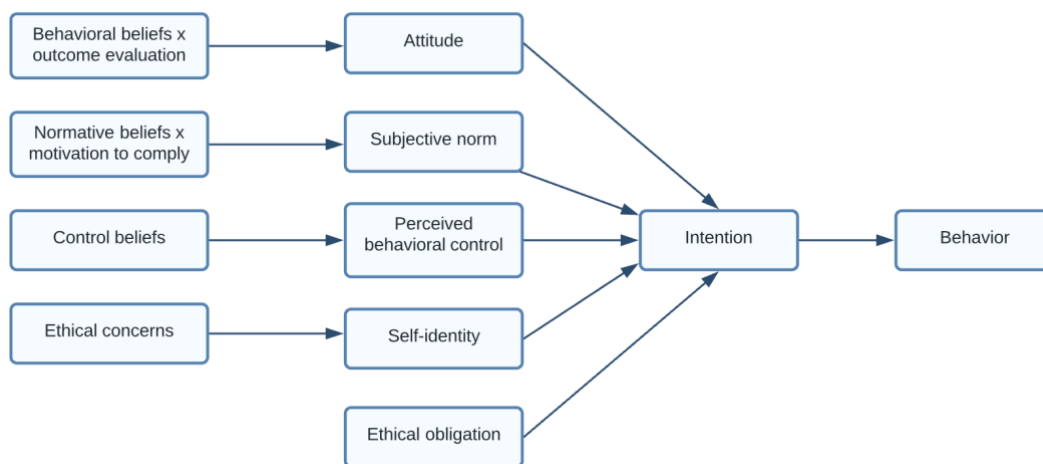
Figure 1: Modified version of the "Theory of planned behaviour"

Subjective norms include individuals' beliefs concerning how they are perceived, treated, or not treated by their peer groups if they behave in certain ways. Internalising subjective norms can impact and form personal norms, which are individual standards about appropriate behaviour. Wang and Chou (2019) found that subjective norms regarding fair-trade products, together with social responsibility to support such products, frame an individual's personal norms, influencing their associated attitude and purchase intentions.

As emphasised, the 'Theory of planned behaviour' includes intentional processes. However, there is an empirical question as to whether changes in intentions are correlated with changes in behaviour, challenged by several studies (Johnsen, 2016). For example,

based on the 'Theory of planned behaviour', Lehmann and Sheffi (2020) explore the interactions between attitude, subjective norm, perceived behavioural control, intention, and behaviour. They conducted an in-store experiment in which they observed consumer choices, followed by an immediate survey with questions on attitudes towards sustainable products. They found that attitude has a weak impact on both intention and behaviour, while subjective norms significantly impact intentions. Nevertheless, even though many participants had profound sustainable intentions, very few of them were likely to purchase a sustainable version over a regular version. This is a phenomenon within consumer behaviour referred to as the intention-behaviour gap.

2.1.1 Intention-Behaviour Gap

Several surveys suggest that consumers both prefer and are willing to pay more for sustainable products. For instance, Curtin (2018, cited in Lehmann and Sheffi, 2020) and Nielsen (2015, cited in Lehmann and Sheffi, 2020) find that 73 per cent of millennials, and 66 per cent of global respondents, respectively, have the intention to purchase sustainable products. Yet, the number of people who translate their intention into behaviour is in comparison not that high (Lehmann and Sheffi, 2020). The recognised intention-behaviour gap is particularly evident in sustainable and ethical consumption, emphasised in several studies. For example, Carrigan and Attala (2001) found that people only behave selectively ethically while at the same time having faith that their behaviour will be affected by their consciousness of unethical activity. This is supported by Carrington *et al.* (2014) and De Pelsmacker *et al.* (2005).

Studying the market of organic wine in Germany, Schäufele and Hamm (2018) find that despite positive attitudes related to organic wine identified through consumer surveys, sales of organic wine is significantly below 10 per cent of total wine sales. Also, even though 35 per cent of households purchasing wine in Germany indicated ethical concerns in wine consumption, the proportion demonstrating a relatively high level of action in this regard was barely 21 per cent. Clearly, attitude towards sustainable consumption is not necessarily a good predictor of sustainable behaviour.

2.1.1.1 Possible Reasons behind Intention-Behaviour Gap

Academic researchers are trying to understand the underlying factors of the intention-behaviour gap in sustainable consumption. In this regard, aspects such as norms and beliefs, socio-demographic profiles, and knowledge of environmental problems have been investigated (Lehmann and Sheffi, 2020). A meta-analysis by Webb and Sheeran (2006) proposes three moderators to explain why intentions do not always lead to compatible behaviour: habitual processes, social reactions, and lack of control. First, in their study, participants' behaviours were more impacted by intentions when the perception of control was high. For example, when the individual's behaviour is unconscious, control is low, causing the behaviour to be less impacted by intentions. Second, they found that when behaviours occurred infrequently and in unstable contexts, interventions to change intention had a more significant impact on behaviour than when respective behaviours occurred frequently in solid contexts. The action of putting on a seat belt is considered frequent and in a stable context, while enrolling in a new course is not. Lastly, when behaviours are risky and done in a social context, participants were likely to be more influenced by social reaction than intention.

Status Quo

One explanation to the intention-behaviour gap, closely related to the habitual process moderator suggested by Webb and Sheeran (2006), may be found in the cognitive anomaly of the status quo. This effect stems from loss aversion, a part of the prospect theory developed by Kahneman and Tversky (1979). Loss aversion is the idea that individuals' subjective perception of value is anchored around a neutral reference point and that changes for the worse gain greater importance than improvements of the same magnitude. A natural implication of this asymmetry is that people have a habit of staying at the status quo, as a potential disadvantage caused by leaving the status quo looms larger than its potential advantages (Kahneman *et al.*, 1991). The bias also builds on the endowment effect. Individuals generally demand a significantly higher amount to give up an item than what they are prepared to pay to acquire the same item. This was illustrated by Loewenstend and Kahneman (1991, cited in Kahneman *et al.*, 1991). In a group of 63 students, pens and tokens convertible to an unknown gift were allocated on a fifty-fifty basis. Given a choice between a pen or two chocolate bars, 56 per cent of those already in possession of a pen

preferred the pen, compared to only 24 per cent in the group without a pen. This suggests that people prefer to choose the option that does not require change or deliberate action.

Status quo bias implies that decision makers may favour their well-established preferences and habits in purchasing settings, despite being introduced to new options. It is a cognitive limitation because the bias is unconstrained by evidence of the presence or absence of difference in quality between the status quo product and its alternatives. This conflicts with the view that innovation, entrepreneurship, and change is imperative for business success. To generate ideas is not businesses' only challenge when it comes to innovation. Another challenge is to put the innovation into practice, as the status quo tendency may restrain consumers from changing behaviour (Insaf and Faten, 2020). This is particularly evident in the intention-behaviour gap challenge recognised in sustainable consumption. To achieve sustainable development and decrease negative externalities, businesses need to innovate their products and business models. In this regard, the wine industry is exploring new packaging methods to replace the traditional glass bottle.

Another explanation for the status quo tendency may be found in the presence of uncertainty. Consumers will be reluctant to replace their current choice with the unknown option unless they are no longer satisfied. Insaf and Faten (2020) found that the extent to which individuals develop a status quo tendency depends on risk preference. The results of their experiment indicate that status quo bias is positively correlated with risk aversion and age, of which the former will be discussed in the chapter concerning individual differences. Simply selecting a new, unknown wine in favour of wine consumed several times, mainly because of the bottle being eco-friendly, may not be appealing for everyone because of the associated uncertainty.

2.1.2 A Suggested Solution to Close the Intention-Behaviour Gap

The two systems of thinking, introduced by Kahneman (2011), can contribute to understanding how to overcome the intention-behaviour gap. System 1 is a fast and intuitive system that guides people through daily routines, performed nearly automatically. On the contrary, System 2 is slower and depends on a conscious cognitive effort when facing essential decisions in life. According to Lehner *et al.* (2015), it is often assumed that the key reasons that individuals do not act rationally or in line with personal preferences

are lack of information or inappropriate incentives. Consequently, many tools applied in sustainable consumption today target System 2, aiming to provide information and support people's cognitive capacity to make rational decisions. However, individuals, being impacted by the conditions in which choices are made, lacking self-control, procrastinating, or being overwhelmed by information, often make choices that are not in their best interest nor in accordance with their intentions. Thus, influencing consumers' subconsciousness may be a more efficient approach to achieving changed behaviour, especially in situations where System 1 thinking dominates. Clearly, in line with the two systems of thinking, it is not necessarily required to alter consumer intention to achieve the desired behaviour. In the following, we will go through a set of methods to attain behavioural change that has shown to be successful in closing the intention-behaviour gap.

2.2 SHIFT

To promote sustainability requires a unique set of tools, and as discussed, marketing and behavioural science provide significant insights into the necessary means to sufficiently influence consumption in this regard. From journals highly regarded in the field of marketing and consumer behaviour, the SHIFT framework collects the most frequently occurring concepts. The result, a framework consisting of five themes, aims to help reduce the intention-behaviour gap (White *et al.*, 2019). The themes most relevant for this research study will be presented in the following.

2.2.1 Social Influence

Social factors, such as peers' presence, behaviours, and expectations, are some of the most influential factors in provoking change in sustainable consumer behaviour (Abrahamse *et al.*, 2005). The three main categories of social influence are social norms, identity, and desirability (White *et al.*, 2019).

Social norm is a common understanding of what other people do, referred to as descriptive norms, and what is socially appropriate and accepted in a given setting, so-called injunctive norms (White *et al.*, 2019). Several studies show that perceived social pressure may have a substantial impact on sustainable consumer behaviour. For instance, Goldstein *et al.* (2008, cited in White *et al.*, 2019) found that to reduce hotel guests' use of towels, signs utilising descriptive norms, stating that the majority of guests reuse their towels, was far

more effective than traditional appeals focusing solely on the environmental aspect. Yet, if only the minority of people are engaging in the desired sustainable behaviour, emphasising this can reduce the preferred action. Therefore, according to Cialdini (2003), the tendency to inform people that a socially disapproved activity is widespread should be avoided.

The impact of social influence is further dependent on social identities or the feeling of identity arising from being part of a group (White *et al.*, 2019). This unfolds by consumers being more likely to pursue sustainable actions if other members of the group are doing so. Furthermore, social identity effects have shown to be greater for consumers that are high in group identification. For instance, identifying with being a "green consumer" has shown to be a predictor of green purchases (Verain *et al.*, 2013).

Social influence can also impact sustainable behaviour through social desirability, selecting sustainable alternatives to make a good impression on others (White *et al.*, 2019). Hence, individuals are more probable to endorse socially desirable consumption in a public context where their actions are observed and evaluated. Although, if the relevant others that a person wants to impress have a negative view of sustainable behaviours, this may cause the consumer to avoid choosing sustainable options. In the case of purchasing wine, it is conceivable that some consumers will abstain from choosing an eco-friendly alternative if their relevant others believe that wine contained in eco-friendly packaging is inferior to traditionally packaged wine.

2.2.2 Habit Formation

Many of the most common consumer habits are unsustainable, and habit change is thus critical to achieving sustainable behaviour (Verplanken, 2011, cited in White *et al.*, 2019). Kurz *et al.* (2015) refer to habits as a rather mechanical response to a particular context which is regularly encountered. To intervene with repeated non-desirable actions and routines, the SHIFT framework proposes several different actions that can be taken to form new positive habits and break poor ones. Possible ways to promote new habits are to make the sustainable alternative easy to choose or to give prompts reminding the consumer about the desired sustainable behaviour (White *et al.*, 2019). The former is an action to tackle the perception of sustainable choice as an effortful, time-consuming process, as this can be a barrier to sustainable actions (McKenzie-Mohr, 2000, cited in White *et al.*, 2019).

2.2.3 Feelings and Cognition

To inform consumers about issues and possible positive or negative actions is essential to succeed in spurring sustainable behaviour. However, information is often not enough to achieve change in consumer behaviour and adding other tactics may be necessary. To achieve the desired reaction to environment information, an approach can be to trigger negative or positive emotions (White *et al.*, 2019).

Positive Emotions

The feeling of responsibility for a positive outcome can lead to pride, self-consciousness, and a moral feeling. Pride can enhance feelings of effectiveness and may therefore lead to subsequently sustainable behaviours. To provoke positive emotions, such as hope, in climate-friendly consumers may have a positive impact on their behaviour (Habib *et al.*, 2021). Contrary, positive emotions in terms of affective benefits linked to the unsustainable product or action may reduce sustainable behaviours in consumption (White *et al.*, 2019).

Negative Emotions

"Fear appeals" underlining the negative consequences of a specific action or inaction is frequently used in communications to encourage sustainable behaviours. Pro-environmental behaviours can occur because of guilt, as consumers assume individual accountability for unsustainable outcomes (Lerner and Keltner, 2000, cited in White *et al.*, 2019). According to Habib *et al.* (2021), guilt and shame as motivation can be strikingly strong, and to provoke such emotions through negative framing communication may be very effective. This is also in line with loss aversion theory, suggesting that loss-framed messages effectively change behaviours (White *et al.*, 2019), which will be discussed more in detail in the Chapter 2.3.

2.2.4 The Individual Self

An individual's personal norms, beliefs, and characteristics have been shown to affect their level of environmental concern and environmental consumption behaviour (White *et al.*, 2019). Personal norms have implications for consumer behaviour, as people desire to maintain positive views of themselves and abide by this through the products they purchase. Moreover, as the consumption and possession of things can be seen as an

extension of a person's identity, individuals who positively associate sustainable behaviours to their feeling of self may feel a personal obligation to opt for eco-friendly products. Conversely, individuals who lack pro-environmental self-standards may view the behavioural change towards more environmentally friendly consumption as a threat to the self.

Sustainable consumption maintains fundamental challenges that make it different from typical consumption, including the self-other trade-off and the collective action requirement (White *et al.*, 2019). The former claims that sustainable consumer behaviours often denote prioritising and valuing entities that are outside the self over desires that are material to the self. Thus, such actions are often perceived to have a cost to the self, either in increased efforts, increased costs, or poorer quality or functionality (White *et al.*, 2019). The latter implies that many individuals are likely to feel unable to make a difference through their eco-friendly purchases (van Lange *et al.*, 1992, cited in Gleim *et al.*, 2013), as the result to a considerable degree depends on others' actions.

In the next chapter, we will search for an explanation of the psychological biases that cause the intention-behaviour gap. In this regard, we will look to the empirical findings by two well-known psychologists, Kahneman and Tversky, challenging the assumption of human rationality.

2.3 Prospect Theory

2.3.1 Origin

Kahneman and Tversky disputed some of the main elements of the standard economic approach to risk, the expected utility theory, which resulted in the development of prospect theory (1979), and later, the cumulative prospect theory (1992). The expected utility theory assumes that people exploit all relevant, available information and choose the alternative providing them with the highest level of satisfaction. The decision is based on the utility of each option weighted by its probability, found through complex estimations.

With the development of the prospect theory value function, Kahneman and Tversky illustrate some of the main elements of the prospect theory: loss aversion, reference

dependence, probability weighting and diminishing sensitivity. Only the two elements relevant for this study will be presented.
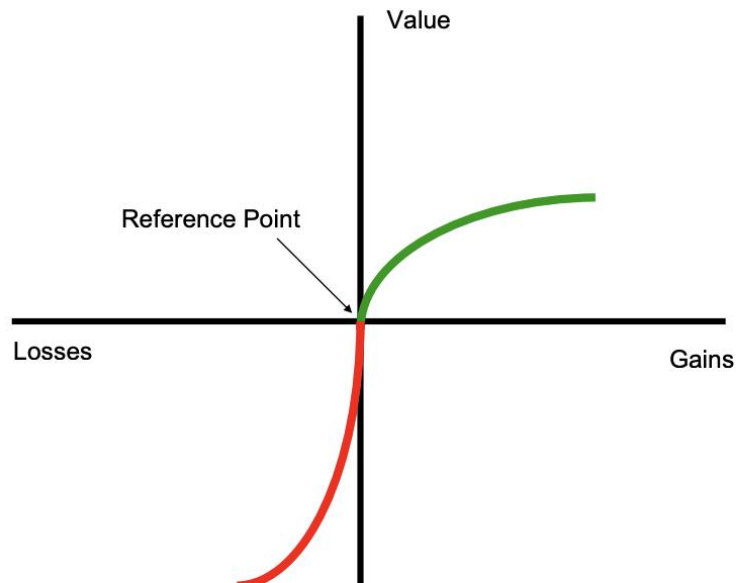
Figure 2: Prospect Theory Value Function

Loss Aversion

Loss aversion is reflected in the value function as it is steeper in the area of losses than in the area of gains. Kahneman and Tversky found that most people reject a gamble with an equal chance of winning $110 or losing $100, illustrating that the value placed on the loss is higher in absolute magnitude, indicating loss aversion (1979).

Reference Dependence

In prospect theory, outcomes are translated into gains and losses, relative to a subjective reference dependence (Barberis, 2013). In the study of risk, the value attached to various choices reflects change close to a neutral reference point, rather than states of welfare or wealth. Individuals seem to be more sensitive to the area below the reference point, where they experience losses (Kahneman *et al*., 1991).

In the following, the elements of prospect theory that are relevant for this thesis will be discussed in regard to decision making and consumption.

2.3.2 Implications for Decision Making

A decision maker chooses between different prospects, and the process includes the stages of editing and evaluation. In the editing stage, the outcomes and probabilities of the prospects are transformed and reorganised in a way that enables sufficient representations of these for the evaluation stage. Coascaling, coding, segregation, cancellation, and simplification are operations in the editing stage, in which an individual's process depends on different circumstances. For instance, the prospect formulation can influence an individual's reference point and the operation in the editing phase of coding the outcomes as gains or losses (Kahneman and Tversky, 1979).

The expected utility theory does not explore how different methods of communication and framing can influence decision makers. Tversky and Kahneman, however, demonstrate that the probability to choose risk increases when the choice set is negatively framed in the well-known study "Asian Disease problem" (1980). By giving people a choice between a certain or uncertain amount of people dying (negative framing) or surviving (positive framing), the result of the study supports that the S-shaped subjective value function commonly is concave in the gain domain and convex in the loss domain. The majority in the negative framing group chose the alternative with an uncertain number of people dying. Contrary, most people in the group with positively framed options preferred the certain outcome. This is referred to as the framing bias.

2.3.3 Loss Aversion

Loss theory demonstrates that the subjective weight of a loss is greater than the weight of a gain having an identical objective magnitude. Prospect theory states that perceived value is contingent on a subjective reference point (Kahneman and Tversky, 1979). In a consumer setting with focus on eco-friendliness, it can be assumed that for most people, the reference point is mainstream products rather than sustainable products. According to loss aversion, the willingness to avoid a loss of sustainable quality should be higher than the willingness to achieve sustainable quality. Tt implies that consumers will prefer eco-friendly products to a higher degree when the mainstream product is framed as lacking environmental-friendly attributes, compared to when the eco-friendly product is framed as having environmental-friendly attributes. Interestingly, Van Dam and De Jonge (2014) suggest that consumption labelling practices can explain why most people consider the mainstream

products as the reference point, as it is most common to label merely the eco-friendly products. Moreover, they affirm the existence of loss aversion in their in-between subjects experiment with 81 students, in which all of them were given a choice to purchase a hard drive, presented either with negative, positive, or neutral framed labelling.

2.3.4 Critique

Despite the findings of Kahneman and Tversky, and several studies supporting these, the existence of loss aversion has been questioned. First, a revision of the loss aversion phenomena is suggested by Mukherjee *et al.* (2017) in a study revealing that the value function is dependent on magnitude. Differences between gains and losses, reflecting loss aversion, were evident only at high magnitudes of money in the context of gambling. Secondly, Levy (1997) investigates implications of prospect theory related to internal and external validity, in addition to theoretical implications. The study questions the validity of the prospect theory's descriptive generalisation, as the experimental research is conducted within structured laboratory settings. Explicitly, it evaluates the extent to which the prospect theory can be applied in the choice problems that foreign policy leaders usually face.

A theoretical implication of prospect theory is that behavioural outcomes are based on assisting assumptions and thus, does not explain the intervening processes in which such choices are made. The theory deals with optimising fixed goals under fixed conditions and constraints rather than intervening with reasoning processes (Levy, 1997). Tversky and Thaler (1990, cited in Levy, 1997) find that instead of possessing a set of predefined preferences, people create preferences when making a judgement based on the context of choice and its related procedures. However, the authors conclude that this is not a fatal flaw nor a reason to reject the theory, highlighting that there are other aspects creating severe challenges in the application to international behaviour. They claim that the prospect theory, focusing on individuals, comes short in explaining foreign policy and strategic interaction within a collective decision-making body. Thus, the critique does not induce the prospect theory as inappropriate for investigating individuals' decisions in the market of wine.

Next to critics, numerous studies and replicas are supporting the prospect theory. First, a replication study by Ruggeri *et al.* (2020) rejects critics and previously failed replications

that the prospect theory has received since its publication. The original method is tested across 19 countries, with 4098 participants. The results are overall in accordance with the original experiment. Second, Gonzalez and Wu (1999), Abdellaoui (2000) and Bruhin *et al.* (2010) verify diminishing sensitivity features, loss aversion, and, particularly, the inverse S-shape of probability weighting. Lastly, having high relevance for the analysis in this paper, several studies have illustrated that individuals weigh losing an item more heavily than receiving the same item, supporting the prospect theory element of loss aversion (e.g., Amatulli *et al.*, 2019; Grankvist *et al.*, 2004). Moreover, Novemsky and Kahneman (2005), in an article illustrating limitations of loss aversion, elaborate how loss aversion has been identified in many contexts, also those vital for marketing managers and consumers: price changes; hesitancy to upgrade long-lasting items; risk behaviours of managers and consumers. For example, Hardie *et al.* (1993, cited in Novemsky and Kahneman, 2005) find that consumers are loss averse to the price and quality of orange juice. Clearly, with several shorter studies, in addition to the recent extensive replication, the prospect theory is well supported and remains vital and relevant in its field.

2.4 Regulatory Focus, Risk and Involvement

2.4.1 Regulatory Focus

Hoyer *et al.* define motivation as "an inner state of arousal", which stimulates energy pointed at achieving a goal (2014, p. 45). When consumers have low motivation, they devote minimal attention to information concerning the characteristics or attributes of the product they will purchase. Contrary, with high motivation, consumers tend to pay more attention to the information relevant to reach their goals. Motivational behaviour can either be to avoid a goal associated with negative emotions, such as sweatshops, or to achieve a goal associated with positive emotions, such as fair trade. Regulatory focus theory suggests that promotion focus is characterised by having gain versus non-gain as presence or absence of the positive outcome. The goal is presented as to fulfil the desire for accomplishment, growth, and nurturance. Contrary, in prevention focus, the need for safety, protection and security is in centre, and the presence or absence of a negative outcome is assessed in terms of loss versus non-loss (Van dam and De Jonge, 2014; Hoyer *et al.,* 2014).

It can be argued that sustainability is commonly associated with prevention rather than promotion. Despite that the end goal is to achieve a more sustainable society in terms of "peace and prosperity for people and the planet, now and into the future" (United Nations, 2021), the issue is most often communicated by highlighting the devastating consequences of not taking actions. For instance, through scientific reports by the "World Meteorological Organization" concerning the latest climate information or Gretha Thunberg's speech at the UN Climate Change Conference (United Nations, 2019). In view of this, it can be assumed that most people have a prevention focus concerning sustainability and environmental challenges, associating sustainable consumption with the aim of avoiding catastrophic outcomes.

Sustainable Motives

Regulatory fit occurs when the presentation of alternatives is in line with a consumer's motivational aim, which increases action engagement and the extent to which the action "feels right". For consumers with a strong prevention focus, the influence of negatively framed sustainability information on product attributes is greater compared to information with a positive communication approach, and consequently, regulatory fit may occur (Van dam and de Jonge, 2014; Avnet and Higgins, 2006). Norm activating models imply that personal norms can be activated towards environmental actions by sustainability labelling. Norm-based behaviour is more consistent with a prevention focus, and the effect may thus be more substantial with negatively framed labelling. When people believe that something they value is endangered, a personal normative obligation towards behaviour is triggered. The findings of Van dam and De Jonge (2014), in the mentioned study with hard drives, illustrate this.Their results showed that it was more effective to have labels pushing people away from non-sustainable alternatives than labels pulling consumers towards sustainable alternatives, as negative deviation from the reference point causes a general shift boosted by prevention focus. Seemingly, the importance of sustainable development is more evident for consumers when exposed to negative labelling rather than positive labelling because this is normally when regulatory fit occurs.

2.4.2 Perceived Risk

In purchasing situations, the perceived risk of a product or product category will influence the consumer decision-making process. In circumstances in which either negative

outcomes are likely or positive outcomes are unlikely, perceived risk is high. Consequently, the likelihood of consumers paying more attention to and carefully processing advertising communication is high. This is commonly the case when information is lacking, an offering is new, brands have different quality levels, confidence in evaluating the product or service is low, or opinions of others are important to the consumer (Hoyer *et al.,* 2014).

The types of risk that consumers may perceive can be split into six categories. First, performance risk concerns the uncertainty about the products' ability to perform in line with expectations. Second, social risk is associated with social expectations and potential harm to one's reputation arising from purchasing or consuming a product. Third, psychological risk refers to an individual's consideration concerning whether they can identify with the product or service. In addition, financial, safety, and time risk are also risks that a consumer can perceive (Hoyer *et al.*, 2014), although they may be considered less relevant for the general consumption of wine.

Some factors behind perceived risk in sustainable wine consumption are more evident than others. In their investigation on consumer barriers to sustainable products in retail, Gleim *et al.* found fear of poor quality to be an important hindrance for purchasing green products (2013). Respondents stated that they were hesitant to purchase a product of unknown quality.

Bruwer and Johnson (2010, cited in Bruwer *et al.*, 2013) stress that wine is related to a high level of perceived risk as the purchase situation includes an abundance of choices. Vinmonopolet has a variety of nearly 22.000 wine products to choose from on its website, which differ in brand, type, price, grape variety, vintage, and associated expert reviews (Vinmonopolet, 2021). This indicates a high perceived risk for Norwegian wine consumers.

Lastly, examining perceived risk in wine consumption, Mitchell and Greatorex (1988) found that the functional level of taste was that of the highest importance, followed by the risk related to social approval. Clearly, social and performance risks are typical risks that consumers perceive in purchasing processes concerning wine, amplified by numerous choice possibilities.

2.4.3 Perceived Quality

In this study, the aim is to understand how to nudge consumers most efficiently into choosing wine with sustainable packaging in favour of the traditional glass bottle. However, the risk related to taste is still relevant. Packaging, an extrinsic attribute to the product wine, has a direct impact on intrinsic cues, such as taste and wine quality. To illustrate, in a study among Italian wine drinkers, 91 per cent of participants expressed unwillingness to purchase wine other than those sold in a glass bottle. The main reason for this reluctance was the perception that the quality level of the wine would be lower in an alternative bottle (Ferrara and De Feo, 2020). It should be noted that the extent to which individuals have low quality perceptions may differ between Italian and Norwegian wine consumers.

Ignoring the possibility of people believing that sustainable packaging lacks the ability to preserve wine quality, there is still a question of whether the extrinsic attribute of packaging can impact Norwegian consumers' perception of intrinsic attributes of the product wine. In a study on strong versus gentle product categories, Skard *et al.* (2020) found that sustainability attributes have a negative effect on product performance perceptions for "strong products", regardless of the attribute being intrinsic or extrinsic. In contrast, for gentle products, in which intrinsic sustainability cues had a positive effect on perceived product performance, sustainability traits linked to extrinsic attributes had either no impact or a negative effect on the perceived quality of the core product. Based on this, without placing wine in a specific product category, it is reasonable to assume that sustainable packaging can, in some instances, lead to negative associations of the intrinsic cue of wine quality. Similarly, in the context of wine cork, it has been proved that attributes related to the extrinsic product of wine can impact perceived taste and wine quality (Duhan *et al.*, 2019; Reynolds *et al.*, 2018).

Sustainable packaging, an extrinsic cue, can also be discussed regarding social risks. On the one hand, choosing a sustainable alternative can be in line with social norms for individuals belonging to a social environment in which environmental concerns are present and important. In that case, it is a risk that people of importance may negatively judge the purchase of a wine bottle having a high environmental footprint (Salazar *et al.*, 2013; Lazaric *et al.*, 2019). On the other hand, some social environments may put a high value on exclusivity and traditions of wine and consider the heavy glass bottle an essential wine

aspect and an indication of wine quality (Piqueras-Fiszman and Spence, 2012). Either way, the sustainable packaging of wine can play an important role in an individual's social risk perception.

2.4.4 Involvement

Kapferer and Laurent (1993) argue that risk probability is causing some of the behaviours associated with high involvement, such as information collection, time spent to make a decision, and trust in advice. Next to risk probability, the determinants of involvement include personal interest, enjoyment and satisfaction obtained by the product, the degree to which the product expresses an individual's self, and the perceived significance of possible unfavourable outcomes associated with a wrong decision (Kapferer and Laurent, 1985).

Different purchase processes arise from different involvement levels (Bruwer and Huang, 2012). In this regard, Kapferer and Laurent found that champagne, which is comparable to the product wine, has many high-involved consumers. This implies that all or many of the listed determinants normally play a role in wine purchasing decisions (1985).

Wine Involvement

Roe and Bruwer (2017) investigate the level of influence that consumer self-concept and product involvement have on wine purchase decisions given anticipated consumption occasions. The decision-making process involves many theoretical constructs, often making it complicated. Elements that may impact the process are utilisation, self-concept, degree of involvement, and occasion. Their results suggest that irrespective of consumption occasion, many, if not most, consumers are generally concerned about the wine they purchase. This is in line with the findings of Kapferer and Laurent in the customer segment of the similar product champagne (1985).

Even though many wine consumers are considered to score high in involvement and give concern to their wine purchase, the degree to which individuals are involved and the specific factors individuals consider vary. A study on wine product involvement and "bring your own bottle" in South Australia illustrated that high-involved wine drinkers give more weight to taste risks. In contrast, low-involved wine drinkers give more weight to risks associated with social opinions and time of information search (Bruwer and Huang, 2012).

Furthermore, Nesselhauf *et al.* (2017) claim that attributes like price and bottle label receive higher importance by low-involved consumers. Their study finds that it is only for low-involved consumers that the communication effect of information is significant and in a beneficial way. It is assumed that low-involved consumers are more affected by information because they have less emotions and affection for wine than high-involved consumers. For high-involved consumers, they find that the information has no significant impact on acceptance. This may root in the status quo theory and the discussion regarding habitual processes. High-involved consumers might have more to lose, as they are more attached to previously purchased and consumed wines. Individuals frequently purchasing wine may be less prone to change behaviour when exposed to interventions aimed at changing intentions.

2.5   Closing the Intention-Behaviour Gap

2.5.1   Labelling as a Tool

In the early 2000s, the awareness of social and environmental issues was increasing, pushed by better information channels. Yet, inadequate information and communication of ethical issues were known as key barriers to ethical consumption (Harrison *et al.*, 2005). One tool that has been and is commonly implemented to influence consumers to make desired purchasing decisions is labelling. An eco-label exhibits information in some form to communicate the environmental impact related to the production, consumption, distribution and/or disposal of a product (Gallastegui, 2002). OECD (1997, cited in Gallastegui, 2002) defines three types of labels. One of them is the disclosure of environmental issues related to specific product attributes initiated by producers, importers, or distributors. The use of eco-labels to inform consumers about the environmental aspect of products is critical to achieve sustainable consumption since few consumers search for such information on their own initiative. Arousing awareness among consumers, facilitating the possibility to distinguish between products, and consequently encouraging manufacturers to take responsibility are potential benefits of eco-labelling. The mechanism of labels applied in the early 2000s was mainly confirmation of already established intentions, ideas, and decisions, rather than arousing subconsciousness, despite the presence of the intention-behaviour gap challenge (Harrison *et al.*, 2005).

Labels have frequently been applied in the area of sustainability. Grebitus *et al.* (2020) found that adding labels informing consumers about the recyclability of a plastic bottle increase the preference and willingness to pay for it. Yet, several studies in sustainability contexts suggest that information presented mainly in a descriptive manner is not alone sufficient to achieve environmental-friendly behaviour. For example, in a restaurant setting, Soregaroli *et al.* (2021) failed in manifesting carbon emission information as an effective tool to influence consumers to select eco-friendly packaged wine unless the price was lower. Besides, in the scenario in which it was underlined that the price premium of non-eco-friendly bottles reflected compensation for high carbon emissions, the sales of wine in non-eco-friendly bottles increased. This stresses the importance of choosing the correct way of framing in addition to what information to include.

2.5.2 Nudging

When information alone is not sufficient to influence consumers to make decisions according to their values and best interest, it is evident that further inducements from the supply side are necessary to develop sustainable behaviours. To succeed with this, businesses need to understand how to overcome cognitive limitations and behavioural biases, such as status quo bias. As illustrated, decision making is not always rational. Thaler and Sunstein introduce nudge as any facet in a decision-making setting that alters an individual's behaviour in an anticipated way, without any constraints or economic incentives (2008). Nudge is the effort to facilitate socially desirable decisions by influencing an individual's behaviour through adjustments in choice architecture, the way information and physical details of the decision environment is structured. Rather than changing people's value systems, nudges aim to enable behaviours and individual decisions that are advantageous for society and the individual in the long term. Framing, defaults, layout changes, reminders of choices (Lehner *et al*., 2015) and subconscious priming (Blumenthal-Barby and Burroughs, 2012) are examples of nudging tools. By utilising some of these nudging strategies, arousing subconsciousness can become a primary mechanism of the label, targeting the fast and intuitive system 1 in Kahneman's two systems of thinking.

Cadario and Chandon (2018) distinguish between three different categories of nudging intervention; cognitive, affectively oriented and behaviourally oriented nudges, in which

cognitive nudges will be further discussed. Corresponding to findings of other studies (e.g., Soregaroli *et al.*, 2021; Filimonau *et al.*, 2017; Olstad *et al.*, 2012; Thorndike *et al.,* 2012), in their meta-study concerning sales of healthy foods, descriptive labels within the category of cognitive nudges were revealed to be the least effective nudging type (Cadario and Chandon, 2018). The method they refer to as evaluative labelling, including colour coding or smileys, was most effective within the category of cognitive nudges. What they refer to as visibility enhancement, within cognitive nudges, was more influential than descriptive labels. This included efforts such as placing the healthy food option first on menus, within eye-level on shelves or nearby checkout.

2.5.2.1 Framing

Framing as a nudging tool acknowledges that people do not always make rational choices by seeking to influence people's response and following behaviour through how an issue is stated or exhibited. Based on the prospect theory, Levin *et al.* (1998) define three types of framing approaches: risky choice, attribute, and goal framing. The "Asian disease problem", discussed in the chapter of prospect theory, is categorised as "risky-choice" framing in which outcomes are framed as either loss or gain relative to a reference point. Furthermore, "attribute" framing is when an attribute is communicated by pointing out either the positive or the negative side, such as the percentage of meat being lean or the percentage being fat. "Goal" framing focuses on achieving either a positive outcome or avoiding a negative outcome. As an example for the latter, Grewal *et al.* (1994) examined how to most efficiently nudge consumers to take the risk of choosing a new unknown brand. They found negative framing to trigger a risk-taking behaviour. In other words, to present the established brand as inferior to the new brand was more efficient than to present the unknown brand as superior to the established brand.

The purpose of this study is to understand what type of framing is most efficient to influence people to choose a wine with eco-friendly packaging in favour of the traditional alternative, which also concerns how to overcome the risk of choosing an unfamiliar product. Thus, it may be argued that it is a study within "goal" framing. With gain versus loss framing, the goal will be to either reach the benefits of choosing the eco-friendly alternative or avoid the negative consequences of choosing the non-eco-friendly alternative.

2.5.2.2 Priming

Priming is a widely used nudging tool, defined as activating individuals' knowledge structures evoked by specific objects and events in the situational environment (Bargh *et al.*, 1996). Vlaev *et al.* (2016) imply that it is possible to change individuals' behaviours by exposing them to situational cues, such as certain words, graphics, or scents, prior to their actions. For instance, Wryobeck and Chen (2003, cited in Vlaev *et al.*, 2016) found that the exposure of words with associations to physical activity increased people's likelihood to use the stairs over the elevator. Further, as stated by Choi *et al.* (2019), research suggests that visual cues, such as colours, trigger people's associations and lead to altered behaviour.

In addition to having aesthetic functions, colours may activate subconscious associations. Therefore, they are used as primes to influence individuals' emotions, thinking, or motivation (Elliot *et al.*, 2007, cited in Choi *et al.*, 2019). Elliot *et al.* (2007) emphasise that colour associations are dependent on the situational context, meaning that a given colour may evoke opposite associations and implications for emotions and behaviours in different settings (cited in Choi *et al.*, 2019).

Gerend and Sias (2009) state that red colouring is a good communicator of possible health threats as it signals danger. For instance, in the domain of public health, warning labels are commonly accompanied by red to signal physical risk and danger (Gerend and Sias, 2009). However, red colouring may also be associated with sensuality in relational contexts (Elliot and Niesta, 2008, cited in Choi *et al.,* 2019), political views on a cultural level (Choi *et al.,* 2019), or the danger of failure in achievement settings (Elliot *et al.,* 2007, cited in Choi *et al.,* 2019). On the contrary, green is a colour commonly associated with nature by symbolising growth, harmony, and renewal (Singh and Srivastava, 2011), leading the way for the natural choice of green colour in marketing eco-friendly products (Barchiesi *et al.,* 2018). The interplay between green and eco-friendliness is also explored by Pancer *et al.* (2017). They emphasise that green truly evokes thoughts about the environment, both due to the colour's common association with nature and its widespread use in sustainable marketing.

Several experimental studies have investigated how distinct colours affect people in different ways. The related results imply that red is a far more influential colour than green

since red has a more significant effect on arousal, while green has a more calming effect (Elliot *et al.,* 2007). In this context, red has been proved effective in drawing and maintaining attention (Kuniecki *et al.,* 2015; Shen *et al.*, 2018). The colours of red and green are often viewed as contrasts. According to Elliot *et al.* (2007), this is a natural implication since the two colours are considered opposites in several colour models.

Combining Framing and Priming

Several studies assess the effect of labels that combine the two nudging types of framing and priming. Filimonau *et al.* (2017) found that to include the level of greenhouse gas emission related to a meal on a restaurant menu was considered positively by guests. Still, it did not change behaviour. However, using labels in the form of traffic lights or other visual presentations to indicate the level of nutrition of meals has proved to be more effective than simple descriptive information in both restaurants, sports facilities and hospital cafeterias (Filimonau *et al.,* 2017; Olstad *et al.*, 2012; Thorndike *et al.*, 2012). Moreover, one study illustrated that the use of red labels alone, functioning as a stop signal, might be more effective in reducing sales or consumption of a specific product than traffic lights (Genschow *et al.*, 2012). By choosing the most suitable way to frame information and implementing colour priming to boost the framing, changed behaviour may be easier to achieve.

To sum up, former studies have illustrated that labels can be effective in nudging consumers to purchase eco-friendly products. However, selecting the most suitable label approach may be critical for success. Whereas descriptive labels are essential to enable people to distinguish between products with different environmental impacts, further nudging tools may be needed to change behaviour. The objective of what Cadario and Chandon (2018) referred to as visibility enhancement may be transferable to the framing approach examined in this thesis. By shifting between having the environmental aspect visible on the eco-friendly bottle for one group and having the environmental aspect visible on the non-eco-friendly bottle for the other group, we frame the descriptive environmental label. This can also be seen as shifting between establishing the non-eco-friendly bottle as the reference point and establishing the eco-friendly bottle as the reference point. In addition, the use of colour priming to trigger associations and emotions equivalent to the

framing and attract focus may amplify the nudging effect, in which the colours red and green have different impacts.

2.6 Individual Differences

2.6.1 Demographic Sustainability Characteristics

Utilising gain and loss framing to inform about environmental attributes and spur eco-friendly choices will most likely play out differently on individuals. In addition, the degree to which individuals pay attention to sustainability challenges when considering their environmental behaviour options may vary between individuals and segments. Demographic variables, such as gender, education, and age, have historically been shown to explain individual differences. However, the result often depends more on cultural factors, the topic at hand, or other underlying factors related to the specific setting (Petty and Wegener, 1998).

In a sustainable consumption setting, gender is the demographic moderator most frequently assessed concerning the effect of framing. Van Dam and De Jonge (2015) tested for gender effects in their study on ethical product labelling in regard to loss and gain framing and did not find any significant differences. Chittaro (2016), however, investigating gender differences of loss- and gain-framed messages together with the use of colour priming in online sales of smoke alarms, revealed differences. Their findings imply that gain framing is more effective on women, whereas loss framing is more effective on men. However, the use of red, intended as a threat cue, compared to grey colour priming enhanced the effect in both cases. As there were no groups without colour priming, it is difficult to establish an apparent cause-effect relationship between framing and gender differences based on this study. However, as this study will implement colours to amplify the framing effect, although only having one colour for each framing, their findings may be applicable. Thus, gender may be an indicator of the framing effect, yet a vague one.

Age differences related to the effect of gain and loss framing have been given little or no attention in studies in the context of sustainable consumption. However, in the area of both health and safety measures, some studies have demonstrated age distinctions in this regard. Concerning COVID-19 vaccination, young adults have been found to be more prone to change behaviour when exposed to loss framing than gain framing. In contrast, older adults

demonstrated no specific difference between the two framing approaches (Reinhardt and Rossmann, 2021). However, it is important to note that the attitude towards vaccination and environmentally friendly behaviour may not be comparable, and the results are thus not necessarily applicable to this study. In contradiction to the findings of Reinhardt and Rossmann, positively framed messages have been found to be more effective than negatively framed messages to promote physical activity (Notthoff *et al.*, 2016) and long-term healthy behaviour change (Shamaskin *et al.*, 2010) in older adults. All over, this may indicate that loss framing will have a greater influence on younger adults compared to older adults, who will be more affected by gain framing.

There seem to be few studies examining the effect of education on gain and loss framing in sustainable consumption and in general. In advertisements of high-involved transformational consumer products, however, Smith (1996) investigated how the level of education moderates the effects of positive and negative framing. Findings reveal that highly educated individuals show aversion to and are sceptical of negative framing, whereas individuals with lower education perceive negatively framed ads as more persuasive and informative. Apart from this, few studies establish that education moderates gain and loss framing efforts.

Former research on loss and gain framing in sustainable or ethical consumption typically test for demographic differences regarding the likelihood to choose eco-friendly products or not. In the setting of food consumption, Gazdecki *et al.* (2021) segment consumers concerning their environmental consciousness, based on findings from 27 studies. The three most popular factors varying across the segments were age, gender, and educational level. The results indicate that women tend to be more sustainable than men, environmentally conscious individuals are on average 12 years younger than individuals hesitant to consume sustainably, and education level is, in general, lower for reluctant individuals.

2.6.2 Personality Traits

Consumer behaviour researchers have long been interested in the implications of personality, as personality factors are thought to influence individuals' conceptions and actions (Sojka and Giese, 2001). Theory about personality traits has shown to be promising for confirming the relationship between personality and consumer behaviour (Thompson

and Predergast, 2014; Zabkar *et al.*, 2017). Sojka and Giese (2001) emphasise that linking personality traits to distinguishable characteristics can contribute to elucidating and predicting consumer behaviour.

Environmental concern and pro-environmental behaviour have been widely examined from the ''Big Five'' classification of personality traits (McCrae and John, 1992). Several researchers (e.g., Hirsh and Dolderman, 2007; Hirsh, 2010; Milfont and Sibley, 2012; Markowitz *et al.*, 2012; Kvasova, 2015; Sun *et al.*, 2018) have explored how pro-environmental behavioural differences between individuals may be explained by variations in personality across the "Big Five" dimensions of Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience, developed by Goldberg (1990) and McCrae and John (1992). However, findings from research exploring the links between personality and environmental attitudes and behaviour are somewhat inconclusive, as correlations revealed by researchers vary both in terms of existence and degree of significance.

Variations in the "Big Five" personality traits may explain why individuals are differently affected by loss and gain framing. Findings from previous studies examining the relationship between personality traits and framing effects primarily link willingness to take risks in loss versus gain framing to an individual's score on Neuroticism (e.g., Lauriola and Levin, 2001; Awais *et al.*, 2020; Lauriola *et al.*, 2005; Irwin *et al.*, 2002). Further, openness to experience has been linked to willingness to take risks (e.g., Levin *et al.*, 2002; Lauriola and Levin, 2001). Based on former research, the personality traits of neuroticism and openness to experience are chosen for further discussion on their implications for the choice of eco-friendly wine within loss- and gain-framed wine selections.

2.6.2.1 Openness to Experience

Individuals with high scores on openness tend to have an aesthetic sensitivity, attentiveness to inner feelings, preference for variety and trying new things, as well as an intellectual curiosity (McCrae and John, 1992). Furthermore, a high score on openness is linked to the tendency to search for, discover, explore, and use information, as well as the urge to understand societal problems such as environmental change (Connelly *et al.*, 2014, cited in Moon *et al.*, 2016). Studies by Hirsh (2010), Markowitz *et al.* (2012), Milfont and Sibley

(2012), Sun *et al.* (2018) and Verain *et al.* (2013) all find that this trait promotes pro-environmental behaviour and consumption. Further, as stated above, Levin *et al.* (2002) and Lauriola and Levin (2001) found a positive relationship between openness to experience and the willingness to take risks. Thus, it is likely that individuals with high scores on openness will desire to test new products and thereby make green purchases.

2.6.2.2 Neuroticism

Neuroticism is related to sadness, anxiety (Lauriola *et al.*, 2005), and negative emotions like depression and anger (Hopwood *et al.*, 2021). Neuroticism can also easily be understood by considering its opposite characteristics; emotional stability, calmness, security, and self-satisfaction (Awais *et al.*, 2020). Hopwood *et al.* (2021) demonstrated that neuroticism could be linked to concerns about the environment and explained this with anxiousness about upcoming threats, specifically, those caused by climate change. Conversely, Hirsh (2010) could not find a relationship between environmentalism and neuroticism. However, in regard to negative information, neurotic individuals tend to be conscious (Awais *et al.*, 2020). In studies examining effect differences of loss and gain framing contingent on the Big Five, neurotic individuals demonstrated high willingness to take risks when exposed to loss framing (Lauriola *et al.*, 2005; Lauriola and Levin, 2001). In contrast, individuals scoring low on neuroticism were more willing to take risks in gain framing, illustrating an interesting two-folded role of neuroticism in this context.

2.6.3 Risk Attitude

As previously elaborated, the framing theory is closely related to risk-taking behaviour. However, some studies also investigate the moderating role of individual risk attitude on the framing effects on choice. Tabesh *et al.* (2019), examining loss and gain framing effects on medical interns and residents in regard to medical diagnosis, show that individuals with a high willingness to take risks are less vulnerable to framing effects. The results of Zickar and Highhouse (1998) suggest that only individuals with moderate risk attitudes will be affected by framing. Huangfu (2014, cited in Prayogo and Muniarti, 2018) shows that risk-averse individuals are more affected by framing compared to risk-takers, as risk-taking increases with negative framing. Risk-takers, however, pursue risk in both framing approaches. Hence, they are not subject to framing bias. All over, the results of former

studies point in the direction of which risk-averse individuals are more prone to framing effects.

3. Research Model and Hypotheses

Findings from the several studies on labelling elaborated in the literature review, in addition to the results from several former master theses in collaboration with Vinmonopolet regarding environmental labelling and communication (Gulliksen and Moh, 2021; Almås and Schøyen, 2020), support the nudging effect of eco-labelling and information on sustainable consumer behaviour. Based on these statistical inferences, we want to gain further insights concerning eco-labelling and consumer behaviour in response to different framing approaches.

3.1 Research Model

With the reviewed literature as a foundation, we present the overall conceptual research model. The model consists of framing type as the independent variable, choice as the main dependent variable, and emotions and perceived quality as mediating variables. This section will elaborate on the relationships between these variables, resulting in the expanded, complete research model.
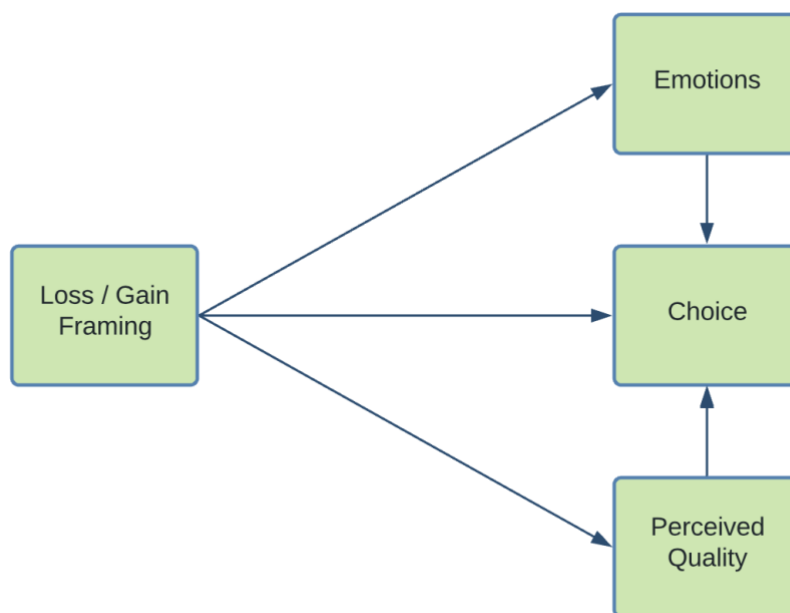
Figure 3: Research Model

3.2 Hypotheses

From the review of existing literature addressing sustainable consumer behaviour in general and in the case of wine, we have developed a set of hypotheses presented in the following.

3.2.1 Main Hypothesis

The obstacle to sustainable consumption has been explained by the status quo phenomenon, the uncertainty and quality perception related to eco-friendly products, and the fact that reference products for most people are the non-eco-friendly alternatives. Cadario and Chandon (2018) found cognitive labels using colour coding and other variants seeking to impact consumers' feelings or actions to effectively nudge consumers towards making more sustainable choices. In the review of the SHIFT framework, we learned how provoking negative emotions by highlighting the negative consequences of an action can be an effective tool to encourage sustainable behaviour in various settings. Based on this, we believe that people will demonstrate a higher willingness to take the risk of moving away from the status quo when being exposed to the possibility to avoid harming the environment, compared to the opportunity to help the environment. This is supported by the loss aversion theory, which argues that people are more willing to take risks to avoid negative outcomes than to achieve positive outcomes. In addition, Tversky and Kahneman, in their "Asian Disease" study, demonstrated that negative framing, as opposed to positive framing, will trigger risk-taking behaviour.

In conjunction with the above, we believe that consumers will be more likely to choose eco-friendly products when the reference product is framed as lacking eco-friendly attributes, accompanied with a red circle, than when the eco-friendly product is framed as having them, accompanied with a green circle, leading to the main hypothesis of this study:

H1: Loss framing will have a stronger effect on choice in nudging consumers towards eco-friendly wine products than gain framing.

Emotions

The main hypothesis of this thesis is partly based on the belief that people will be more willing to change behaviour to avoid negative feelings than to achieve positive feelings. As

discussed, positive emotions regarding sustainable behaviour can unfold in terms of pride, hope and the feeling of self-consciousness. We believe that gain framing can trigger positive emotions. Contrary, with loss framing, including the colour red, labels can provoke feelings such as fear, guilt, and shame associated with choosing the unsustainable alternative. Amatulli *et al.* (2019) found negative framing to be more effective than positive framing in four experiments in the field of environmental consumption due to provocation of the negative emotion anticipated shame. From this, we propose the following hypotheses:

H2a: Loss framing will to a larger extent than gain framing elicit negative feelings of guilt, fear and shame.

H2b: Gain framing will to a larger extent than loss framing elicit positive feelings of pride, hope and self-consciousness.

From H2a and H2b, and derived by H1, we propose the following hypothesis:

H2c: Emotions will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater positive effect for negative emotions compared to positive emotions.

Perceived Quality

As stated in the literature review, lower quality is a common concern associated with sustainable packaging for wine because the heavy glass bottle is believed by many to be most ideal for preserving wine quality. As previous studies have shown, the purpose of using labels in general in sustainable consumption settings is to influence people to purchase sustainable products by providing them with necessary information (Harrison *et al.*, 2005). A direct consequence of succeeding to inform consumers about sustainability differences between wine products is evoking the potential negative quality perception. Although, with loss framing, it is the non-eco-friendly attribute of glass bottles that is emphasised, whereas, with gain framing, it is the eco-friendly attribute of low-emission bottles that is emphasised. Hence, while the eco-friendly attribute of low-emission bottles is explicitly communicated in gain framing, it is only inexplicitly indicated in loss framing

through the absence of the non-eco-friendly label visible on the non-eco-friendly bottles. It is fair to assume that an implication of this may be that loss framing will to a larger extent than gain framing remind consumers about their potential negative quality perception associated with sustainability. Hence, it is hypothesised that:

H3a: Gain framing will to a larger extent than loss framing elicit a negative quality perception of the wines with eco-friendly bottles.

The potential reminder of perceived quality will amplify the status quo bias, and consequently, counteract the effect of the chosen solution of labelling as a nudging tool. In addition to the convenience of staying with the habitual wine alternative in favour of the sustainable alternative, there is an explicitly identified risk of quality loss associated with choosing the sustainable alternative. In other words, for consumers who associate eco-friendly bottles with inferior wine quality, their purchase decision is a trade-off between the risk of quality loss and the risk of purchasing a product that will harm the environment (loss framing) or a product that is not an eco-friendly alternative (gain framing). Consequently, individuals for whom the eco-label elicits negative considerations about perceived quality, compared to individuals for whom perceived sustainability quality is not an issue, will be more challenging to nudge into choosing eco-friendly bottles of wine. Based on H3a, this issue is believed to be more evident in gain framing compared to loss framing, leading to the following hypothesis:

H3b: Perceived quality will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater negative effect in gain framing than loss framing.

3.2.2 Moderating Effects

In the following, we will explore how external factors, so-called moderating variables, may influence participants' choice of sustainable wine and how these differ within the experimental groups.

Environmental Profile

The degree to which consumers are concerned for the environment and try to act environmentally friendly in their everyday lives has been shown to affect the extent to which they choose eco-friendly products. Individuals who explicitly search for information

about sustainability attributes and who have a habit of choosing mainly eco-friendly products will probably, to a lesser extent than others, be subject to the intention-behaviour gap. From this, it can be assumed that consumers with profound environmental concerns will choose sustainable products regardless of which framing they are exposed to.

H4: The higher the environmental concern, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by environmental concern.)

Risk Attitude

As stated by Hoyer *et al*. (2014), consumers can be anxious about a product's performance, the impact of purchase on their reputation and the degree to which they can identify with the purchase. The literature review highlights the tendency of loss framing to have a greater effect on risk-averse individuals compared to gain framing, whereas these framing approaches have equal impact on individuals with high levels of risk attitude (Tabesh *et al.*, 2019; Huangfu, 2014, cited in Pragyogo and Muniarti, 2018). Under the assumption that most consumers perceive any risk associated with purchasing an eco-friendly bottle of wine, it is plausible to assume that risk-averse individuals exposed to loss framing will to a greater extent than risk-averse individuals exposed to gain framing disregard such risks. Contrary, individuals with high levels of risk attitude will, presumably, consistently encounter such risks in both groups. Thus, the framing effect will be less pronounced. From this, we propose the following hypothesis:

H5: The higher the risk aversion, the more pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by risk aversion.)

Personality Traits

As discussed in the literature review, a high score on openness to experience implies variety-seeking behaviour, indicating low risk associations with new and unfamiliar products. Thus, it can be believed that open individuals will experience the status quo and intention-behaviour discrepancy to a lesser extent than others. Furthermore, the tendency of curiosity suggests that open individuals will be more likely to search for information and new products on their own initiative. In addition, former studies have demonstrated that

environmental concerns are positively correlated with openness (Hirsh, 2010; Hopwood *et al*., 2021). Based on these insights, we believe that information in itself will be enough to influence open individuals to choose eco-friendly products:

H6a: The higher the score on the personality trait Openness to Experience, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Openness to Experience.)

Moreover, findings from previous studies have demonstrated a two-folded role of neuroticism concerning risk-taking behaviour and different framing (Lauriola and Levin, 2001). Individuals scoring high on neuroticism tend to have a high willingness to take risks in loss framing, whereas individuals scoring low on this trait tend to have a higher willingness to take risks in gain framing. Therefore, we believe that level of neuroticism can indicate an individual´s willingness to choose wine with eco-friendly bottles depending on framing approach. From this, we propose the following hypothesis:

H6b: The higher the score on the personality trait Neuroticism, the more pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Neuroticism.)

Anticipated Regret

To measure participants' emotions after they have made their choices will provide a more nuanced understanding concerning participants' values and attitudes in regard to wine consumption and sustainability issues. If participants are left with negative feelings after a choice, they believe that they would have been better off choosing differently, which is the cognitive emotion of regret (Brewer *et al.*, 2017). Based on the theory of the self-other trade-off and the discussion concerning quality associations with packaging other than glass bottles, choosing an eco-friendly bottle can result in regret in which the participants fear that they have sacrificed quality in favour of sustainability. According to Elwyn *et al.* (2010), individuals feel anticipated regret primarily when they have difficulties deciding which of the options is most aligned with their goals. As the loss aversion theory infers, individuals will be more willing to avoid a loss than to achieve a gain. Thus, the consequences of not choosing eco-friendly may be of greater contrast to other goals in loss framing compared to gain framing. Moreover, Ferrer *et al.* (2012) have findings supporting

the framing bias and suggest that this may be because worry and anticipated regret are more often experienced naturally by individuals exposed to loss framing. Contrary, anticipated relief, a potential response to gain framing, occurs less spontaneously. From this reasoning, it is fair to assume that loss framing will have a stronger effect in causing anticipated regret compared to gain framing:

H7: Loss framing will to a larger extent than gain framing cause anticipated regret.

3.3 Complete Research Model

The expanded conceptual research model is presented in Model X. The model includes the external variables presumed to influence the causal effect of the independent framing variable on the likelihood of choosing eco-friendly packaged wine.
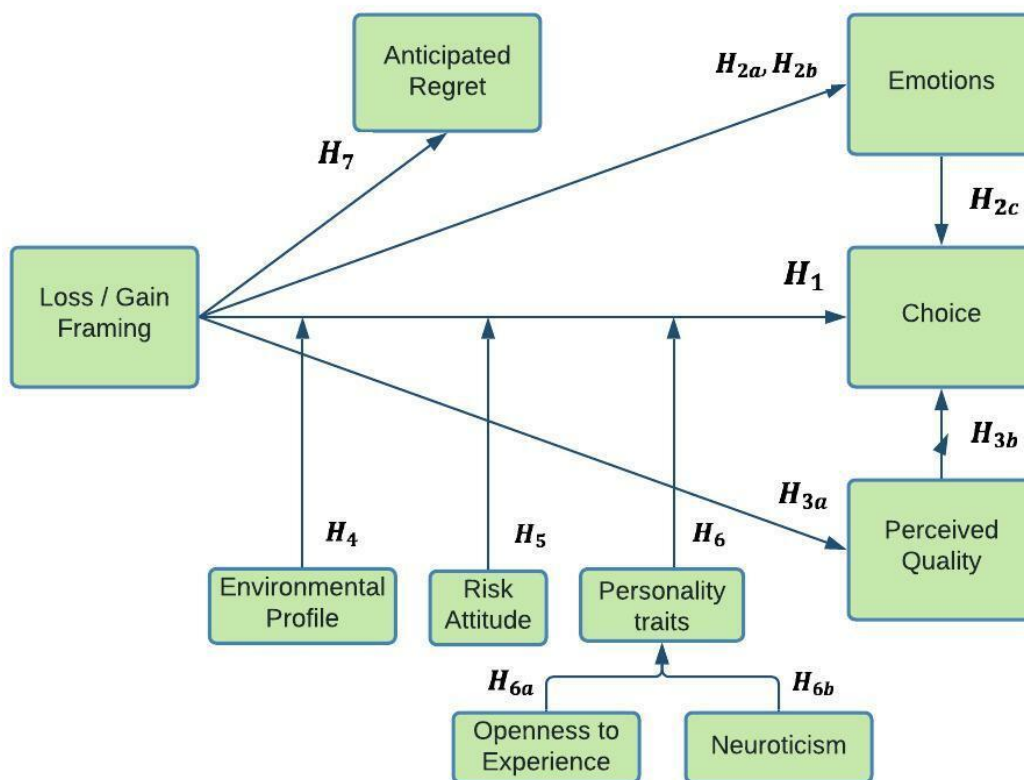
Figure 4: Complete Research Model

4. Method

This chapter will present the methodological approach used to analyse the developed hypotheses. This includes the study's research design, research strategy, study sample, experimental design, procedure for data collection, statistical inferences, and research ethics.

4.1 Research Design

A research design is defined as the general plan for how one will proceed to answer the research question (Saunders *et al.*, 2019). This study aims to explore whether there is a significant difference between the effect of loss and gain framing, accompanied by the colours red and green, respectively, in the choice of eco-friendly wine. Box *et al*. (1978) refer to an experiment with the aim to compare two treatments, such as two different interventions, as a simple comparative experiment.

As we are interested in establishing and explaining causal relationships between variables, an explanatory research design is employed. Moreover, the research design is quantitative and analytical, with a so-called deductive approach, as we have reviewed previous research and theories in the development of the hypotheses and use primary data to test existing theory (Saunders *et al.*, 2019). Finally, the experiment and survey are conducted only once per participant and over a short period, making it a cross-sectional study.

4.2 Research Strategy

An experimental research strategy was employed as the methodological approach for this study, as such strategies aim to demonstrate the cause-and-effect relationships between variables. The purpose of an experiment is to study the likelihood that a change in one or more independent variables will lead to a change in the dependent variable (Saunders *et al.*, 2019). Using a scenario-based research method, the experiment was conducted as a

discrete choice experiment, investigating consumers' decision making in a realistic, however hypothetical, context (Sammer and Wüstenhagen, 2006; Kim and Jang, 2014).

With this approach, participants were presented with a hypothetical scenario and asked to choose between a predefined set of alternatives. According to Kjær (2005), any discrepancies between actual consumer behaviour and hypothetical behaviour measured in a well-developed discrete choice experiment may be attributed to bias. The reliability and validity of the experiment will be discussed in Chapter 4.7.

As elaborated in the literature review, former research confirms a causal relationship between eco-labelling and eco-friendly consumer behaviour, in general, and specifically for Vinmonopolet. To expand the research conducted within eco-labelling for Vinmonopolet, we were only interested in the effect difference between the two framing approaches. Therefore, we could exclude a control group and concentrate solely on the framing effect. A benefit of this was that we could ensure a sufficient number of participants in each treatment group. Geuens and De Pelsmacker (2017) emphasise the importance of having a sample that is large enough to find statistical significance and scientific relevance.

Participants were evenly and randomly divided into either loss framing or gain framing, in which a planned manipulation was tested for each group. The experimental approach is thus an independent measures design, also called between-subjects. This approach, together with controlling for other possible effects that may explain differences between the groups, ensures a high degree of confidence that the causal relationship is not influenced by other factors (Saunders *et al.*, 2019).

Following the experiment, the participants were asked to answer a questionnaire. The questions were developed to give us deeper insights into the cognitive process leading up to the choice of wine. Geuens and De Pelsmacker (2017) highlighted that the relationship between an independent variable and a dependent variable is vulnerable to boundary conditions. Depending on the circumstances, a relationship can be both strong and positive or weak and negative. The answers from the questionnaire helped to reveal these

circumstances and test the hypotheses. The survey's design and content will be presented in detail in the following chapter.

4.3 Experimental Design

The platform Qualtrics was used for the discrete choice experiment and the following questionnaire. As the sample consists of Norwegian consumers, we created the questionnaire in Norwegian. The statements and questions in the following chapters are therefore translated versions of what the respondents viewed and can be seen in its entirety in Appendix A.

4.3.1 Population and Sample

The population for the research question is Norwegian wine consumers who purchase wine from Vinmonopolet. The study sample includes 500 wine consumers across Norway, limited to those above legal age for drinking in Norway (18 years old). Further, the assumption of a randomised sample from a well-defined population must hold to ensure that there does not exist clear patterns between respondents and that variations in the sample's characteristics stem solely from random individual differences (Geuens and De Pelsmacker, 2017).

Using quotations in Qualtrics, we guaranteed that all 500 respondents completed the questionnaire. Further, by utilising the "branch if" function, we ensured that the survey was ended for people who abstain from consuming alcohol.

4.3.2 The Experiment Setting

After a welcome page, including consent and information about the study being a master thesis in cooperation with Vinmonopolet, participants were introduced to the instruction of the experiment. They were asked to imagine a scenario in which they had invited ten friends to a dinner party and needed to purchase a maximum of 12 bottles of wine to serve together with Asian cuisine. By predetermining the setting, we limited the factors that respondents could take into account. By choosing a social context, we allowed the aspect of social

norms to potentially influence the choice, which the literature review highligted as a vital element of both wine and eco-friendly consumption. Moreover, choosing a dinner party rather than a regular party ensured that most respondents would consider quality as an essential factor.

By allowing respondents to purchase various types and several bottles, we could later make a fraction of their choice regarding eco-friendliness, the dependent variable. Furthermore, to ensure that most respondents acquired a sufficient impression of the product selection, we stated that they needed to spend at least 45 seconds in the purchase situation, which, according to Geuens and De Pelsmacker (2017), is a safeguard to reduce the number of unobservant participants who click through the survey as fast as possible. Through JavaScript, the "next" button was programmed to appear when 45 seconds had passed.

4.3.3 The Purchase Situation

Following the instructions, participants were allocated to one of the two experimental groups and exposed to the purchase situation. They could choose between 12 bottles of white wine, presented vertically, by writing the number of bottles they desired per wine product. At the bottom of the page, the total number of bottles chosen was exhibited, allowing respondents to easily keep track of the number of products in their simulated shopping cart. However, due to technical limitations, we did not have any actual constraint on the total sum of chosen bottles, only a constraint of 12 bottles per product. Thus, the restriction of maximum 12 bottles in total was based on trust.

4.3.3 The Product Selection

To have the experiment as realistic as possible, we chose to have a product selection of existing wine bottles from Vinmonopolet's product range. However, according to (Schneider and Cornwell, 2005, cited in Geuens and De Pelsmacker), this may lead to confounding effects, in which respondents have previous experience with a brand or product, resulting in a negative or positive weight added to their decision. Therefore, several selection criteria were implemented to avoid or reduce any factors causing (positive) discrimination of certain products, as this could potentially disturb the results and capability to isolate the effect of framing.

First, an important criterion was to clearly distinguish between eco-friendly and non-eco-friendly packaging, with a sample of only the two extremes, heavy glass and PET bottle. The reason for this was to isolate the framing effect from the compromise effect, which can arise when an alternative representing a middle option in a choice set is preferred in favour of the extreme alternatives (Kubalova, 2020).

Second, we wanted to have an equal number of 75 cl bottles of PET and glass from various countries, preferably as few countries as possible. To include only one country was not possible. Thus, we chose the two countries constituting the two largest categories of Vinmonopolet's white wine offering: France and Germany.

Third, as people maintain different purchasing power, we wanted to have bottles in the price range of both 100-150 NOK and 150-200 NOK. This was possible with a selection of 3 PET bottles from France and 3 PET bottles from Germany, with an equal number in each price range in the two packaging types.

A number of six PET bottles, and consequently 12 wine bottles in total, was the maximum amount possible to have, considering all the selection criteria. As another measure to isolate the effect of framing, the six chosen PET bottles were matched with similar products, in terms of price, design, region and grape, in heavy glass packaging. Without this matching process, one bias could be that many respondents chose a non-eco-friendly bottle due to their desire for a distinct design.

Another action in this regard, specifically to avoid the challenge of having one bottle that is particularly popular amongst customers, the product selection was sent to our contact in Vinmonopolet. Based on sales figures, he confirmed that this would not be an issue, even though the sale numbers were different between the products (Eriksen, 2021).

The proportion of 50 per cent PET bottles in the product sample is significantly higher than the proportion of 0.13 per cent PET bottles in the French and German white wine selection currently available at Vinmonopolet (Vinmonopolet, n.d.). However, as Vinmonopolet has a vision to increase the number of products in eco-friendly packaging, the experiment reflects a future consumer setting (Vinmonopolet, n.d.). The complete wine selection, with matching pairs in each row, can be seen in Appendix B.1.

4.3.4 The Labels

To ensure that the survey would be possible to complete on a smartphone, we needed to restrict the information on the product sheets. Therefore, we chose the view (product sheets) that consumers are exposed to when they look through the selection of wines on Vinmonopolet's website. Using Photoshop, we manipulated the product sheets of the wines with glass bottles for the loss framing group and the product sheets of wines with PET bottles for the gain framing group. Thus, both groups received the exact same selection of wines, illustrated in Appendix B.2. In both groups, the selection of wine was randomised to control for any order effect.

Gain framing: Product sheets of the wines with glass bottles were presented as they appear on Vinmonopolet's website. On the product sheets of the wines with plastic bottles, a label including a green circle and the information "eco-friendly packaging, plastic" was included below the country and district.

Loss framing: Product sheets of the wines with plastic bottles were presented as they appear on Vinmonopolet's website. On the product sheets of the wines with glass bottles, a label including a red circle and the information "not eco-friendly packaging, glass" was included below the country and district.

4.3.5 The Following Questionnaire

In several of the questions, we used the Likert scale as rating scale, which is frequently used to gather opinion data (Saunders *et al.*, 2019). Most of the moderators were tested using the Likert scale "to what extent do you agree/disagree with the following statements". A consideration we made when creating the Likert scale was the choice of wording. Wyatt and Meyers (1987, cited in Geuens and De Pelsmacker, 2017) proved that people commonly avoid very intense endpoints, such as strongly agree/disagree. We therefore chose a scale of "disagree - partly disagree - neither nor - partly agree - agree".

The listed statements, words, or questions were displayed in a random order, unless it was more meaningful to have them in a set order, such as for statements concerning personality traits and words reflecting emotions. The order of statements for these questions was instead randomly flipped.

The questionnaire included different blocks with various questions to test the concepts relevant to the analysis. The questions measuring the concepts of perceived quality (Q7/Q10), emotions (Q12), and anticipated regret (Q7/Q10), representing mediating and independent variables, were placed in the beginning. This was to ensure that the questions disclosing the importance of sustainability and environmental concerns would not have any leading effect on key variables.

Before measuring the concept of emotions, there was a question concerning which attributes were of most importance in the respondents' choice (Q11). To mix the factors of perceived quality and eco-friendliness with several other factors was with the intention to reveal a potential trend in preferences towards important concepts. The following blocks measured the concept of *social norms* (Q13), both concerning wine and the environment, *environmental concerns and behaviour* (Q14 and Q15)*, wine involvement* (Q16)*, wine expertise* (Q17)*, risk attitude* (Q22 and Q23)*, personality traits* (Q24) *and socio-demographics* (Q25-Q27).

In addition, we included a block to understand the extent to which the respondents consciously considered the eco-label. This included questions concerning whether they noticed the labels (Q18) and whether they were aware of the packaging type(s) they chose (Q19). In addition, we asked questions regarding the perceived quality of eco-friendly bottles in the product selection and the perceived quality of wine in packaging other than glass in general (Q20).

Finally, we asked whether the respondents ever consume white wine (Q28) and whether they had purchased wine at Vinmonopolet in the last six months (Q29). The last questions allowed us to adjust for a potential effect by the variable "does not consume white wine" and filter out respondents not in Vinmonopolet's customer group if desired.

All the concepts are based on the literature review. The concepts included in the hypotheses will be further elaborated in Section 4.5 Operationalisation.

4.3.6 Pilot Testing

Before the final experiment was sent to Norstat, it was tested on a small selection of chosen candidates of different demographics. Preferably the test group should include randomly chosen candidates in the target segment. Nevertheless, Fink (2016, cited in Saunders *et al.*,

2019) suggests that the experiment should be tested on ten individuals to detect potential ambiguities or deficiencies ignored, test the quality of questions, and ensure that every functionality is working (Saunders *et al.*, 2019). As it was more convenient and less time consuming, we concluded that it was adequate to conduct ten pilot tests on friends, family and fellow students who were not familiar with the research question.

One recurring feedback was that some uncertainty occurred in the personality questions concerning whether the setting was still wine. Consequently, we added "(generally)" after some questions to be more specific.

Another feedback was that people missed the characteristics of sweetness, freshness, and body, as they most often base their choices on these. Contrary, other comments were that the product sheets were rather small and that it was difficult to retrieve information from them and to notice the eco-label. The alternative view on Vinmonopolet's website, including more product-specific information, would result in proportionally smaller text and pictures. Also, to edit the three characteristics of sweetness, freshness and body onto the product sheets would require either very small text size or have them positioned in a place where they would draw attention away from the eco-label. Therefore, we concluded that it would not be convenient to change the product sheets.

4.4 Data Collection

The data was collected through Norstat Norge, a data solutions provider that offers collection of data for the research industry. Norstat was chosen for conducting the data collection, as the company has access to a far more heterogeneous pool of respondents in terms of socio-demographics than would be the case if we were to gather data through our student mail system and similar channels. The requirement to Norstat was to ensure a sample of 500 respondents above the legal drinking age in Norway (18 years) across Norway. Further, respondents abstaining from drinking alcohol were screened out of the survey, as they are not representative of Vinmonopolet's customers. We decided to keep respondents who had not purchased wine from Vinmonopolet the last six months based on the reasoning that other family members may usually be doing this for them or that they may be potential future customers.

4.5 Operationalisation

When a theoretical concept is abstract and, hence, difficult to measure directly, it is necessary to convert the concept into concrete indicators (Saunders *et al.*, 2019). The abstract concepts related to the hypotheses will be thoroughly operationalised in the following. A structured overview including the scale of measurement and reliability measurement can be seen in Appendix C.1 and C.3, respectively. The remaining concepts used in supplementary testing will not be accounted for in detail, only summarised in Appendix C.2.

4.5.1 Operationalisation of Perceived Quality (of Wine Selection)

The question "I consider the wine selection to be of good quality" was chosen as the indicator for the dependent and mediating variable "Perceived Quality", inspired by Aaker and Jacobsen (1994). This question was placed immediately after the selection of wine since we were interested in how the quality of the wine selection was perceived differently between the two groups, before other questions could impact this perception.

4.5.2 Operationalisation of Environmental Profile

For measurement of environmental profile, including concerns, intentions and behaviour, the questions "I am concerned about the effects of human-caused climate change" and "I try to make as many sustainable choices as possible in daily life", inspired by the environmental awareness measurement proposed by Thøgersen *et al.* (2010), were used. Additionally, the question instructing respondents to report "how many of their five latest purchases can with certainty be said to be eco-friendly" was included to capture pro-environmental behaviour. The choice of formulation was made to reveal respondents' actual eco-friendly behaviour, rather than solely their intentions, in line with Lange and Dewitte's (2019) proposal of self-report assessment as a tool to understand eco-friendly behaviour.

4.5.3 Operationalisation of Emotions

Inspired by Habib *et al.* (2021), shame, guilt and fear were selected as measurements for negative emotions, and hope was included as one of the positive ones. For measuring

positive emotions, also pride and self-consciousness were included, as suggested by White *et al.* (2019). Respondents were requested to answer to what extent they felt these emotions, from "not at all" to "to a very large extent", in the first set of questions following their wine choice. The average of the points given to the set of negative emotions and positive emotions was used as the indicator for the degree of emotional response.

4.5.4 Operationalisation of Risk Attitude

The chosen questions were derived from the risk tolerance assessment suggested by Grable and Lytton (2003) and "the general risk question" proposed by Dohmen *et al.* (2011). From the former, respondents were asked to pick the word that first comes to mind when they think of "risk", choosing between "loss", "uncertainty", "opportunity", and "thrill". The latter question, formulated as "Indicate your willingness to take risks (in general)", was chosen since findings by Dohmen *et al.* (2011) indicate that self-assessment of willingness to take risk and risk conception is strongly related.

4.5.5 Operationalisation of Personality Traits

We derived the questions used to measure neuroticism and openness to experience from John, Donahue and Kentle's Big Five Inventory (1991, cited in John and Srivastava, 1999) and Miklikowska (2012). Three items per personality trait were included, as typically, this represents the minimum amount to ensure precise estimation of Big Five factors (Gagné & Hancock, 2006, cited in Lang *et al.*, 2011; Marsh *et al.*, 1998, cited in Lang *et al.,* 2011).

4.5.6 Operationalisation of Anticipated Regret

The question "I am afraid I will regret my choice of wine" was used as the indicator for participants' degree of anticipated regret. Despite being in a different setting, the choice of formulation was inspired by the items used by Abraham and Sheeran (2003) and Ronan *et al.* (2012) to measure the concept.

4.6 Data Analysis

4.6.1 Data Measurement Scale

From the Likert-style questions with different scales, we retrieve ranked data, also referred to as ordinal data, reflecting respondents' relative position to the various concepts. However, when it is probable that the size gaps between the ordinal data values are of similar magnitude, researchers have argued that analyses conducted on numerical interval data may be applied (Blumberg *et al.*, 2014, cited in Saunders *et al.*, 2019). This induces that scale is consistent with the assumptions of continuous data, allowing us to perform a greater number of statistical analyses and use measures such as mean and standard deviation. Thus, the analyses will be performed as if ordinal data were numerical intervals. Nevertheless, we retained nominal and ordinal data formats for chosen variables such as gender and educational level.

4.6.2 Statistical methods

An overview of which statistical methods were conducted to test the hypotheses and gain insights into the sample can be seen in Appendix D. In all statistical analyses, besides descriptive statistics, a 5% significance level was used to either reject or accept the hypotheses. The results section reports the exact probability statistics (p), relevant test statistics, direction and effect sizes for the tests. The p-value of a test represents the probability that an effect may have occurred by chance, while an effect size tells us the strength of the causal effect (Levine and Hullett, 2002). While the p-value is calculated based on the size of the sample, the effect size is independent of the sample size. Eta squared (n^2) is an effect size widely used for ANOVA (Levine and Hullett, 2002), interpreted as the amount of variance in the outcome attributable to the predictor. Evaluation of Eta squared is based on the scale suggested by Krahmer and Thieman (1987, cited in MRC CBU, 2021), where an Eta squared of 0.14 is considered as large, 0.06 as moderate, and 0.01 as low.

4.6.2.1 Descriptive Analysis

Descriptive analyses are conducted to give a description of the data set and compare different variables. The distribution of the data values will help disclose the central tendency and the dispersion of the sample (Saunders *et al.*, 2019).

First, descriptive statistics were used to gain an overview of the sample across the demographics of age, gender, and educational level and decide whether it was a good representation of the Norwegian wine consumer segment.

In addition, to attain general knowledge about the experiment, we were interested in frequencies of eco-friendly choices, the degree of pro-environmental personal norms of respondents, and the share of respondents who noticed the labels across the two framing groups.

4.6.2.2 Ordinary Least Squares Regression

As several of the statistical methods used for hypothesis testing in this study, ANOVA, mediation, and moderation analysis, respectively, are founded on Ordinary Least Squares (OLS) regression (Hayes, 2013), we will go through the basics of this estimation technique.

Assumptions of OLS regression are linearity in parameters, random sampling, sample variation in the predictor, zero conditional mean and homoscedasticity (Hanck *et al.*, 2020). Under these assumptions, the OLS estimator is both unbiased and efficient. The simple linear regression model is used to study the relationship of two variables and is defined as follows:

$$\gamma = \beta_0 + \beta_1 x + \varepsilon$$

where β_0 and $\beta_1 x$ are the parameters we want to estimate, and the error term, ε, represents the unexplained variance in the outcome.

The focus in linear regression lies on the causal pathway between the independent and dependent variables. However, it is essential to keep in mind that variables outside of the estimated model may impact the causal relationship (Field-Fote, 2019). Figure 5 gives a representation of how different types of such third variables may influence the causality between the predictor and outcome:
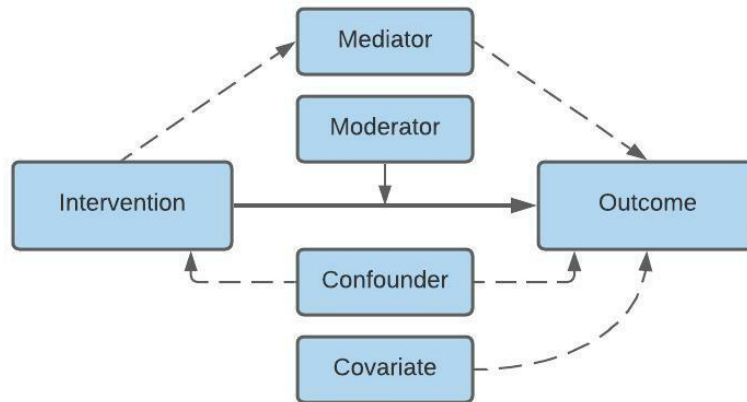
Figure 5: Causal Pathway with Third Variables

4.6.2.3 One-Way ANOVA

Analysis of Variance (ANOVA) is a parametric test that can assess whether two or more associated groups are different from each other. The One-way ANOVA is conducted to determine whether there are statistical differences between the means of two independent groups or interventions by comparing the variances through an F-test (Kim, 2017).

The test reports a high F-value if the variance within the groups is smaller than the variance between them. If followed by a sufficiently low p-value, the probability of the difference between the groups occurring merely by chance is low (Saunders *et al.*, 2019).

The One-Way ANOVA requires a categorical independent variable and continuous dependent variable. Assumptions that must hold when conducting a one-way ANOVA are independent observations and that data for each group are normally distributed and have equal variance (Saunders *et al.*, 2019). The null and alternative hypotheses of a one-tailed One-Way ANOVA with two groups are expressed as follows:

$$H0: \mu_1 > \mu_2$$

$$HA: \mu_1 \leq \mu_2$$

where μ_i is the population mean of group i (i = 1, 2)

The ANOVA may be expanded by including variables that are not part of the experimental treatment yet, affect the outcome. Including such variables, called covariates, allows for a more accurate evaluation of the treatment effect. This may help reduce the unexplained

error variance and thus increase the precision of estimates (Field, 2016). Moreover, variables that are known to affect both the predictor and the outcome and thus may confound the ANOVA results could be included in the analysis as covariates to remove confounding bias (Pourhoseingholi *et al.*, 2012). The extension of the ANOVA model to include covariates is called analysis of covariance (ANCOVA).

4.6.2.4 Mediation Analysis

The Simple Mediation Model is a method commonly used in research to help explain how a predictor, X, affects an outcome, Y (Hayes, 2013). In a simple mediation analysis, the independent variable is assumed to influence the dependent variable in two ways. Firstly, by the predictor's direct effect on the outcome variable, the pathway from X to Y, and secondly, from X to Y indirectly through the mediating variable denoted as M (Hayes, 2013).

Assumptions to the simple mediation model are that the relationship between the dependent and independent variable is causal and that the mediator variable is causally located between these two (Hayes, 2013).

Multiple Mediation follows the same logic, with two mediators, M1 and M2, operating in parallel on the effect of X on Y. When the existence of causality between the two mediators is uncertain, the model should allow the mediators to covary (Hayes, 2012).

4.6.2.5 Moderation Analysis

Moderation analyses reveal if a manipulation has different effects across treatment groups due to the presence of a third variable (W) modifying the relationship between the independent (X) and dependent variable (Y) (Farooq and Vij, 2017). Hayes (2012) suggests preparing a Johnson-Neyman moderator analysis when variables are continuous. The analysis provides the value of the moderator (W) at the point in which the effect of the independent variable (X) on the dependent variable (Y) goes from not significant to significant.

$$\gamma = i + c_1 x + c_2 W + c_3 XW + \epsilon$$

(Hayes, 2012)

4.6.2.6 Factor Analysis

A factor analysis reveals which variables have shared variance and thereby separates different constructs and concepts. To perform a factor analysis can confirm that the questions measuring a concept are related and that questions measuring different concepts are not related (Yong and Pearce, 2013)

4.6.2.7 Correlation Analysis

Correlation is present when the change in one variable is followed by a change in a second variable, without knowing which change occurs first. The strength of this relationship may be reflected in a quantitative correlation coefficient, taking the value between -1 and +1, revealing either a negative or positive correlation. A value of 0 means no correlation between the variables.

Assessing correlation coefficients between the various questions help evaluate how well the test measures capture what is intended (Saunders *et al.,* 2019). In absolute values, Taylor (1990) defines a correlation coefficient below and equal to 0.35 as weak and above 0.67 as high.

4.7 Quality of Research - Validity and Reliability

A study's validity is depending on how well one measures what is intended to measure, whilst its reliability revolves around the accuracy and consistency in results measured from time to time in repeated studies.

4.7.1 Reliability

The degree to which consistency is ensured during a study is called internal reliability. For measuring the relevant concepts for the hypotheses testing, existing questions from former studies have to a great extent been employed. The remaining questions are either directly based on theory or inspired by questions used in previous studies. Thus, the decisions to be made regarding relevant constructs has thoroughly been evaluated, increasing the internal reliability of the study (Saunders *et al.*, 2019). The most commonly used reliability estimate is Cronbach's Alpha, which objectively measures the internal consistency reliability

(Tavakol and Dennick, 2011). Cronbach's Alpha was carried out for each concept, presented in Appendix C.3.

External reliability concerns the degree by which the chosen analyses and data gathering techniques will give consistent results if repeated later in time or by other researchers. As the analytical procedures and data collecting approach of this study are transparently reported, it should be possible to replicate it (Saunders *et al.,* 2019). However, since the study is related to sustainability and environmental attitudes of Norwegian consumers, and the topic of sustainability receives substantial focus all over the world, the time-length of the replication reliability is difficult to determine.

Participant bias occurs when a false response is induced by any external factors present during the execution of the experiment (Saunders *et al.*, 2019). This can be exemplified by the fear of being overheard in the case of being interviewed in a public space. As the experiment and following questionnaire were performed online and anonymously, this is not relevant.

Participant error concerns the issue of any factor unfavourably altering the performance of respondents. For example, if the questionnaire is conducted in a hurry, the responses may be affected by stress. A limitation of conducting the experiment through an online platform is that we were unable to control external factors. Thus, it is not possible to reject the possibility that respondents were distracted by other people or activities. However, participants were free to choose the timing of completing the survey, limiting the participant error.

4.7.2 Validity

The extent to which consistency is guaranteed throughout the study and the degree of findings assignable to the manipulation of interest rather than to research design limitations is called internal validity (Saunders *et al.*, 2019). By randomising respondents into separate treatment groups, an experiment is the method that best solves the issue of internal validity (Zelditch, 2007). Also, performing a scenario-based experiment on an online platform ensures that besides the individual-specific surroundings, only the planned interventions separate the two treatment groups. This increases the internal validity, although having it online and not in a lab induce the possibility of disturbance.

Measurement validity is connected to the degree of chosen questions to adequately represent the truth of the concepts to be measured. The operationalisation of variables was carefully performed before the questionnaire was distributed to ensure measurement validity, including criterion validity, construct validity and content validity (Saunders *et al.*, 2019).

Criterion validity refers to the extent of questions asked being decent indicators of what they are meant to measure, and thereby, whether they enable accurate statistical conclusions to be made (Saunders *et al.,* 2019). We thoroughly assessed and discussed the questions measuring the different concepts for the analysis to guarantee criterion validity. In addition, the insights from observing the pilot test sample as they completed the survey and the feedback we received from these test candidates helped us ensure that questions were unambiguous. In this regard, we observed a trend to consider the questions about emotions as related to wine and not the environment. However, asking specifically about emotions concerning environmental challenges would be leading, so we decided to rather keep the observed trend in mind during the analysis and discussion.

Construct validity concerns whether questions evaluate what they were established to evaluate and whether it is possible to generalise the answers to the construct (Saunders *et al.*, 2019). A factor analysis was conducted to ensure that questions measuring the same concept were correlated. Furthermore, content validity is related to including enough and adequate questions that give sufficient coverage so that the research question can be feasibly answered. Most of the concepts in the study were based on more than one question.

External validity concerns whether the findings of the study can be generalised to other relevant settings (Saunders *et al.*, 2019). As the questionnaire was completed by 500 individuals across Norway, it can be assumed that the external validity regarding the population of Norway is high. However, by performing the experiment with a hypothetical situation, a potential drawback is the difficulty to measure actual behaviour instead of intentions, decreasing the extent to which results can be generalised to an actual purchase situation (Saunders *et al.*, 2019). Still, Zelditch (1969, cited in Zelditch, 2007) argue that such results are empirical support for the theoretical principles and exclude possible other explanations, useful for acknowledging facets of "real world" incidents. Also, to reduce this limitation and increase the internal validity, we sought to make the purchase setting as realistic as possible.

4.8 Ethical Aspects

Research ethics involves proper behaviour in relation to the rights of those affected in the research process (Saunders *et al.*, 2019). In this research project, possible ethical concerns primarily relate to processing participants' data, making the respondents' privacy a key priority. Privacy was ensured by the nature of the experiment being anonymous, and hence, that data generated by an individual could not be traced back to that person. Moreover, to participate in the experiment, all respondents had to give their consent to participate. Further, providing information about the survey being conducted as part of a master thesis at Norges Handelshøyskole in contribution with Vinmonopolet complied with the principle of informed consent.

The ethical aspect concerning alcoholic beverages was also taken into account by clearly stating that the age limit of the survey was 18 years and demanding that they consent to be of legal age to proceed to the experiment. Further, as the marketing of alcoholic beverages is illegal in Norway, apart from the eco-labelling, the products were presented precisely like they are displayed on Vinmonopolet's website. Moreover, participants were given the contact info of one of the researchers in case they had further questions.

5. Data analysis

5.1 Data Set

The dataset extracted from the Qualtrics Platform needed to be prepared for the statistical analyses in the statistical program SPSS. The 500 respondents were allocated almost equally into the two framing groups, with 252 in loss framing (Loss) and 248 in gain framing (Gain). As lethargic respondents may threaten the validity of the results (Geuens and De Pelsmacker, 2017), we excluded such respondents for further analysis. To do this, we created standardised values for the time used to complete the survey, in which five respondents had a z-score above 3. These respondents used several hours to complete the survey, and as the questions measuring the concepts might have been answered hours after the experiment, we decided to remove these. No respondents had a z-score below -3. However, six respondents spent less than four minutes completing the survey. As we estimated that it requires four minutes to read, grasp and answer all questions, these six respondents were removed. Further, we considered those who did not follow the instruction of choosing a maximum of 12 products or did not choose any bottles as insufficiently attentive, leading to the exclusion of 15 more respondents.

After excluding respondents who did not meet the mentioned criteria, the total number of observations used for analysis was 474, with 241 in Loss and 233 in Gain. However, the dataset included 47 respondents who do not drink white wine and 116 respondents who had not purchased wine at Vinmonopolet in six months. Under the assumption that these respondents have a relationship to wine, we decided to maintain these.

Arguments can be made for only respondents who noticed the eco-label to be included in the analyses. These are the respondents who we, for certain, know have been exposed to the experimental treatment. Roughly half of the sample passed the manipulation check, with 228 respondents reporting that they had noticed the eco-label. We created a subsample of these, of which 89 was in Gain and 139 was in Loss. However, as is the case in all nudging and choice architecture studies, to get a fair assessment of the real effect of the nudge in the field, one needs to consider all respondents, not just those who explicitly acknowledge having seen the nudge.

Hence, for getting a more nuanced understanding of the effect of eco-labelling, we perform two sets of analyses: The full sample of 474 respondents and the subsample of 228 respondents who report having noticed the eco-label.

5.2 Descriptive Statistics

Using frequency tables, we will first present the sample by socio-demographics (gender, age, education level). Then, we will exhibit the respondents' answers to the questions related to the importance of wine attributes, involvement, and environmental concern. Lastly, as the variable in interest is the choice of wine, we are interested in the number of eco-friendly and non-eco-friendly wine bottles purchased in the two framing groups.

5.2.1 Socio-Demographics

Table 1 illustrates the distribution of the sample across the dimensions of age, gender, and education, including both frequency and percentage of the total per framing group. Further illustrations can be seen in Appendix E.1. A thorough comparison of demographic distributions between the sample and the Norwegian population (Statistisk Sentralbyrå, 2021a, b) is included in Appendix E.2

	Education			Age			Gender		
Gain	Primary School	14	6,0 %	18 - 29	47	20,2 %	Female	118	50,6 %
	Secondary School	91	39,1 %	30 - 39	35	15,0 %	Male	114	48,9 %
	Bachelor	66	28,3 %	40 - 54	61	26,2 %	Other	1	0,4 %
	Master	59	25,3 %	55 - 69	49	21,0 %			
	PhD	3	1,3 %	70 and older	41	17,6 %			
Loss	Primary School	8	3,3 %	18 - 29	45	18,7 %	Female	123	51,0 %
	Secondary School	91	37,8 %	30 - 39	41	17,0 %	Male	118	49,0 %
	Bachelor	85	35,3 %	40 - 54	68	28,2 %	Other	0	0,0 %
	Master	54	22,4 %	55 - 69	53	22,0 %			
	PhD	3	1,2 %	70 and older	34	14,1 %			

Table 1: Distribution of Demographics

Table 1 illustrates that the distribution of gender is relatively equal, although females are slightly in the majority. The distribution of age is rather similar across framing groups, and the sample is a decent representation of the Norwegian population across age groups. Moreover, a small fraction of the sample has completed only primary school or have achieved a PhD. Secondary school is the education level that most respondents have completed, closely followed by a Bachelor's and Master's degree, respectively. The

sample's education level is higher than that of the Norwegian population (Statistisk Sentralbyrå, 2021b).

5.2.2 Wine Attributes
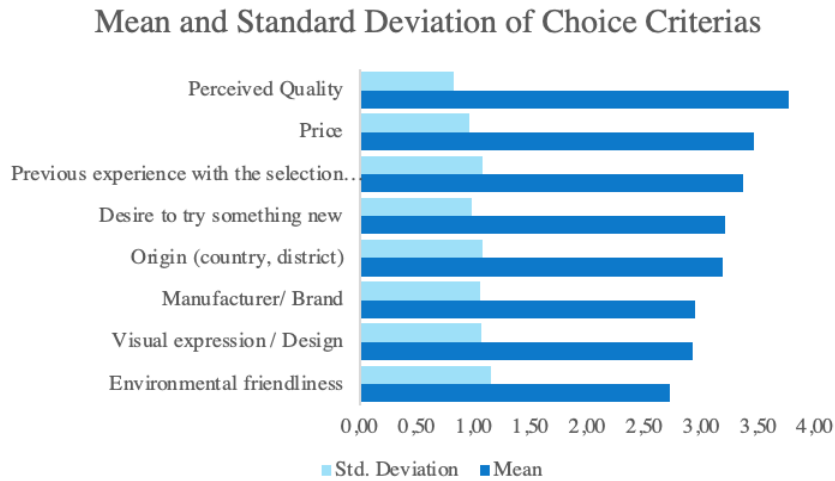
Figure 6: Choice Criteria

Figure 6 gives a representation of which attributes were of most importance to respondents. Perceived quality was most important, whereas environmental friendliness was least important. As all the criteria have a standard deviation of approximately 1.2, most respondents were somewhat close to the mean ranking of each choice criteria. An overview of the sample's level of wine expertise, level of wine involvement, and wine product preferences can be seen in Appendix E.3.

5.2.3 Eco-Friendly Choice Across Framing Groups

The purpose of this research was to understand whether loss and gain framing had different effects on nudging people to choose eco-friendly. Considering only respondents who consciously noticed the label, 16.2 per cent selected solely the non-eco-friendly bottles (glass), about 65 per cent of the sample selected more than half of their bottles in eco-friendly packaging, and 29 per cent chose solely eco-friendly bottles (plastic). A frequency table of choice relative to whether respondents noticed the label and their quality perceptions of eco-friendly wines in the experiment can be seen in Appendix E.4. Further, illustrations of respondents' choice fractions relative to individual differences are visible in Appendix E.6. The distribution of choice in the full sample can be seen in Figure 7:
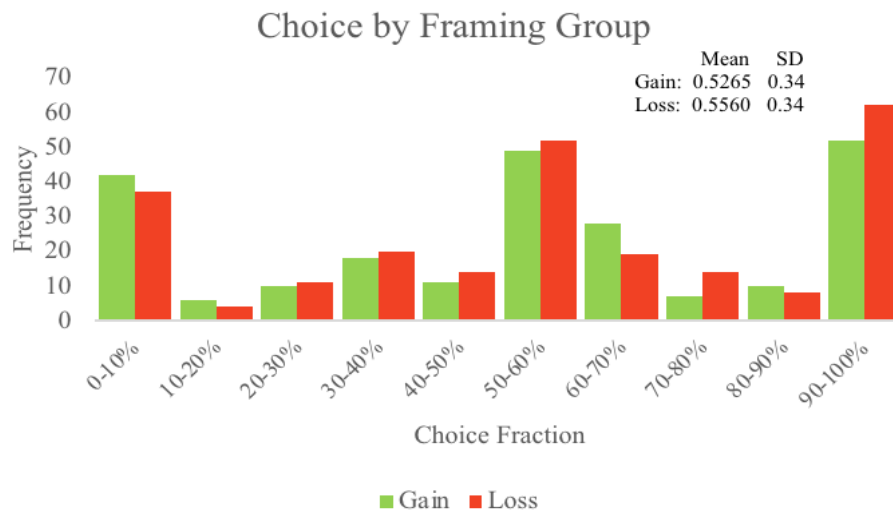
Figure 7: Choice by Framing Group

5.2.4 Questionnaire responses

Based on the self-assessment and number of eco-friendly purchases made recently, the distribution of respondents' environmental profiles can be seen in Figure 8. The mean and standard deviation is also stated. A more comprehensive illustration of differences between the two framing groups can be seen in Appendix E.7.
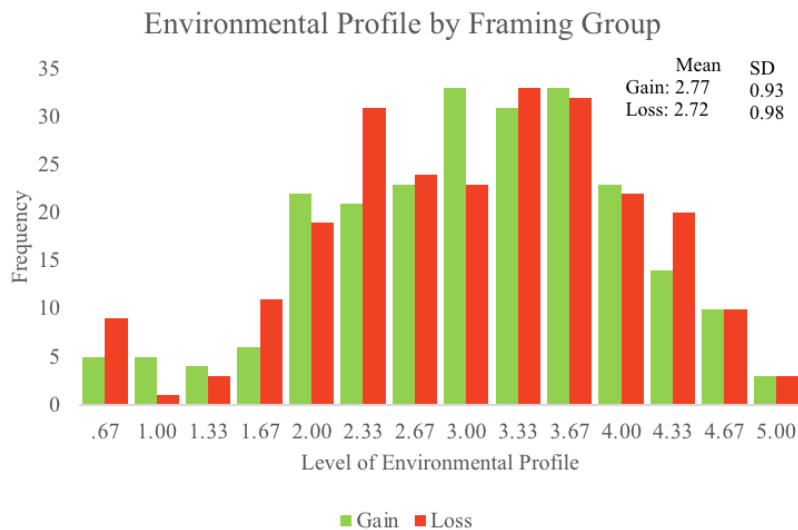
Figure 8: Environmental Profile by Framing Group

The level between 3 and 4 on environmental profile is the one in which most respondents are placed, with slightly more people in the Gain. A very small proportion of the sample is in the top level of 5 or the lowest level of 0.67. The distribution is rather normally distributed.

Respondents' levels of involvement in the two framing groups is exhibited in Table 2, reflected by the mean and standard deviation.

	Level of Involvement	N
Gain	1	17
	2	41
	3	87
	4	73
	5	15
Loss	1	18
	2	39
	3	76
	4	82
	5	26
Mean	2.8706	
St.D	0.99713	

Table 2: Level of Involvement by Framing Group

The descriptive statistics disclosed that the questions measuring negative emotions were not symmetrically distributed, with skewness between 1.88 and 2.41 in both groups. In addition, the distributions have heavy tails, especially the question concerning shame in the loss group, reflected by the kurtosis of 13.21, shown in Figure 9. As this violates the normality assumptions of general linear modelling, the results from the mediation analysis must be interpreted with caution.

		Whole Sample				Gain				Loss			
		Mean	Std. Deviation	Skewness	Kurtosis	Mean	Std. Deviation	Skewness	Kurtosis	Mean	Std. Deviation	Skewness	Kurtosis
Negative Emotions	Guilt	1,31	0,642	2,41	6,29	1,3	0,585	2,039	4,232	1,31	0,694	2,584	6,995
	Shame	1,25	0,605	2,81	8,637	1,28	0,626	2,375	5,258	1,22	0,584	3,335	13,21
	Fear	1,47	0,83	1,88	3,286	1,5	0,831	1,665	2,37	1,44	0,83	2,095	4,338

Figure 9: Excerpt of Normality Statistics

Mean, standard deviation, skewness, and kurtosis can be seen for the majority of the survey questions in Appendix E.8.

5.2.5 Notice of Label

As elaborated, about half of the sample passed the manipulation check, in which a substantially larger part was in Loss than in Gain, shown in figure 10:
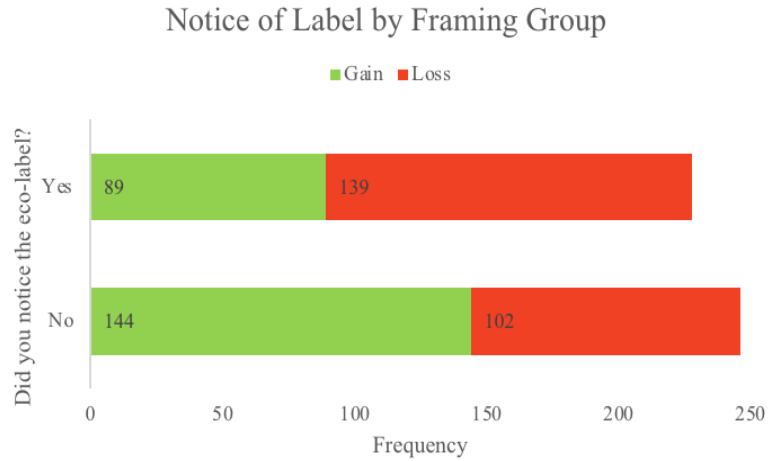
Figure 10: Notice of Label by Framing Group

As the difference in respondents' notice of the label between the two framing groups seemed quite distinct, we conducted a regression and one-way ANOVA with Framing as the predictor and Notice of label as the outcome. As can be seen from the output of the analyses below, both tests were significant ($p < .01$), with a low to medium effect size ($n^2 = 0.038$).

Regression Output	Result
Coefficient	.195
p-value	**<0.001*****

ANOVA Output	Result
F-statistic	18.638
p-value (one-tailed)	**<0.001*****
Eta Squared	.038

Table 3: Regression and ANOVA - Notice of Label

Further, we included environmental profile as a covariate. This revealed that it is environmental profile that has a main effect on notice of label ($p < .01$), and not the framing ($p > 0.05$), seen in Table 4. However, a relatively equal distribution of environmental profile between the two framing groups, and the fact that 60 per cent of the respondents noticing the label were in Loss, suggests that more people will notice the label when exposed to loss framing. The complete analysis can be seen in Appendix E.9.

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	.351	1	.351	1.553	.213	.003
Framing	.004	1	.004	.017	.896	.000
PEP	7.033	1	7.033	31.114	**<.001*****	.062
Framing * PEP	.368	1	.368	1.627	.203	.003

Table 4: ANCOVA - Notice of Label including Environmental Profile

5.2.6 Correlation and Factor Analysis

To ensure that we had convergent validity of the study's main measures, we performed a Dimension Reduction Factor analysis in SPSS. From the analysis, the questions measuring the concepts of negative emotions, positive emotions, openness to experience, neuroticism and risk attitude met the criteria for convergent validity. However, discriminant validity was established for the questions measuring social environmental norms and environmental profile. This is in line with the literature review emphasising that subjective norms, being considerations of how individuals are perceived by their social group, may influence personal norms. Nevertheless, personal and social norms are conceptually different and have distinct roles in the analysis and discussion of this study. Further, involvement and expertise were also placed in one factor. Still, since these constructs are not part of the hypotheses and only for the purpose of the discussion, the distinction was retained. The last questions for which discriminant validity was revealed was concerning anticipated regret and negative perceived quality. As poor quality can be a driver to anticipated regret, it is not surprising that low quality perception is related to anticipated regret. However, we chose to maintain these as separate concepts since they are conceptually different. The factor analysis can be seen in Appendix E.10.

We also conducted a correlation analysis, showing correlation mainly for those questions measuring the same concepts. The correlation table can be seen in Appendix E.11.

5.3 Hypotheses Testing

In this section, we will go through the analysis of our hypotheses in both the full sample and the subsample. The latter only includes respondents we know for certain were exposed to the framing manipulation. The hypotheses were tested by conducting the statistical techniques presented in section 4.6.2 - Statistical Methods, using SPSS. Regression was applied for establishing causal relationships, while the comparison of group means was assessed through one-way ANOVA. The PROCESS add-in for SPSS was applied to analyse mediating and moderating effects. All relevant outputs from these tests are included in Appendix F.

5.3.1 Main Hypothesis

H1: Loss framing will have a stronger effect on choice in nudging consumers towards eco-friendly wine products than gain framing.

Full Sample

The main hypothesis was tested by running a regression and a one-way ANOVA, with the "Choice fraction" as the dependent variable and "Framing" as the independent variable. The literature review provides great support that loss framing is more effective than gain framing to achieve changed behaviour, resulting in a directional hypothesis for which standard textbooks advise using a one-tailed p-value (Cho and Abe, 2013). The measure of statistical significance retrieved from an ANOVA in SPSS is a "right-sided" two-tailed p-value and dividing this by two provides the one-tailed p-value (Ghauri and Grønhaug, 2010).

These two analyses provided the following values:

Regression Output	Result
Coefficient	.030
p-value	.349

ANOVA Output	Result
F-statistic	.879
p-value (one-tailed)	.175
Eta Squared	.002

Table 5: Regression and ANOVA - Hypothesis 1, Full Sample

The coefficient ($b = 0.03$) suggests that the mean fraction of eco-friendly choice of the total is 3%-point greater for respondents in Loss compared to Gain. From the test, we know that the mean fraction in Gain is 0.5286, whereas the mean fraction in Loss is 0.5482. However, we are unable to claim that the mean difference is not due to coincidence ($F = 0.879$, p one-tailed > 0.05, $n^2 = 0.002$). Thus, H1 is not supported.

Subsample

The descriptive statistics showed that the difference in mean fraction between Loss and Gain was greater for the subsample (0.5086 and 0.5964, respectively). The results change when performing the regression and one-way ANOVA on the subsample. There is a statistically significant main effect of framing on choice ($F = 3.451$, p one-tailed $= 0.032$). However, the model's practical significance and explanatory power is quite low ($n^2 = 0.015$, $adj. R^2 = 0.011$).

Regression Output	Result
Coefficient	.088
p-value	.065*

ANOVA Output	Result
F-statistic	3.451
p-value (one-tailed)	.032**
Eta Squared	.015

Table 6: Regression and ANOVA - Hypothesis 1, Subsample

To ensure that omitted variables do not bias the results from the regression and ANOVA, we test whether any of the demographic variables have a moderating effect on the causal pathway of framing on choice. Tests of framing on each demographic variable reveal no statistically significant results, meaning the relationship between framing and demographics is similar for the two groups. However, the ANOVA of framing on choice is close to reaching significance at the 10% level ($F = 2.508$, $p = 0.115$). Further, tests of framing on choice including the demographics as covariates show no interaction effect of framing with neither gender, age, nor education, shown in Appendix F. Subsequently, an ANCOVA including the demographic variables as covariates is conducted to test whether any of the demographic variables has a main effect on choice, providing the following output:

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.594	4	.398	3.387	.010	.057
Intercept	9.744	1	9.744	82.829	<.001	.271
Educat	.472	1	.472	4.015	.046**	.018
Age	.536	1	.536	4.556	.034**	.020
Gender	.001	1	.001	.009	.923	.000
Framing	.290	1	.290	2.466	.118	.011
Error	26.234	223	.118			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .057 (Adjusted R Squared = .040)

Table 7: ANCOVA - Hypothesis 1 Including Demographics, Subsample

The main effects of age ($F = 4.556$, $p = 0.034$) and educational level ($F = 4.015$, $p = 0.046$) on choice significantly adjust the association between framing and choice when included in the model, represented by the decreased F statistic ($F = 2.466 < F = 3.451$) and increased p-value ($p = 0.118 > p = 0.065$). Including these variables increases the explanatory power of the model ($adj. R^2 = 0.04$). From the hierarchical regression, shown in Appendix F, we see that both education ($b = -0.05$) and age ($b = -0.03$) have a significant negative effect on choice.

Nevertheless, the hypothesis tested is still directional, supporting the use of the one-tailed p-value (Cho and Abe, 2013), attained by dividing the p-value reported from the ANCOVA by two (Ghauri and Grønhaug, 2010). The effect of framing on choice is thus significant at the 10%-level (p one-tailed = 0.059), with a coefficient of 0.073, retrieved from the hierarchical regression including covariates seen in Appendix F. The results from the conducted analyses provide a <u>clear indication that framing influences choice, and the main hypothesis is partly supported for the subsample.</u>

5.3.2 Mediators

5.3.2.1 Emotions

H2a: Loss framing will to a larger extent than gain framing elicit negative feelings of guilt, fear and shame.

Full Sample

We performed a regression and a one-way ANOVA to test this hypothesis, with the average score resulting from the three measures of negative emotions as the outcome and the framing as the predictor. From these two analyses, we retrieved the following output values:

Regression Output	Result
Coefficient	-.034
p-value	.525

ANOVA Output	Result
F-statistic	.404
p-value	.525
Eta Squared	.001

Table 8: Regression and ANOVA - Hypothesis H2a, Full sample

The effect of framing on negative emotions is -0.34, which contradicts the hypothesis that loss framing will to a greater extent than gain framing trigger negative emotions. Yet, the difference is not significant (F = 0.404, $p > 0.05$). <u>Hypothesis H2a is not supported.</u>

Subsample

Regression Output	Result
Coefficient	.029
p-value	.733

ANOVA Output	Result
F-statistic	.116
p-value	.733
Eta Squared	.001

Table 9: Regression and ANOVA - Hypothesis H2a, Subsample

From the analyses' outputs for the subsample ($p > 0.05$), hypothesis H2a is not supported for the subsample either.

H2b: Gain framing will to a larger extent than loss framing elicit positive feelings of pride, hope and self-consciousness.

Full Sample

To test this hypothesis, we followed the same procedure as for negative emotions, which provided the following outputs:

Regression Output	Result
Coefficient	-.029
p-value	.707

ANOVA Output	Result
F-statistic	.142
p-value	.707
Eta Squared	.000

Table 10: Regression and ANOVA - Hypothesis H2b, Full Sample

Interpreting the coefficient, positive feelings are 0.029 lower, on the scale from 1 to 5, in Loss compared to Gain, which is in the direction we hypothesised. Nevertheless, the difference is relatively low and not significant (F = 0.142, $p > 0.05$). Thus, H2b is not supported.

Subsample

Regression Output	Result
Coefficient	-.085
p-value	.463

ANOVA Output	Result
F-statistic	.540
p-value	.463
Eta Squared	.002

Table 11: Regression and ANOVA - Hypothesis H2b, Subsample

The result from performing the analysis on the subsample is not significant ($p > 0.05$). Thus, H2b is not supported.

H2c: Emotions will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater positive effect in loss framing compared to gain framing.

Full Sample

To test this hypothesis, we first conducted mediation analyses for negative and positive emotions separately, then a multiple mediation analysis including both negative and positive emotions.
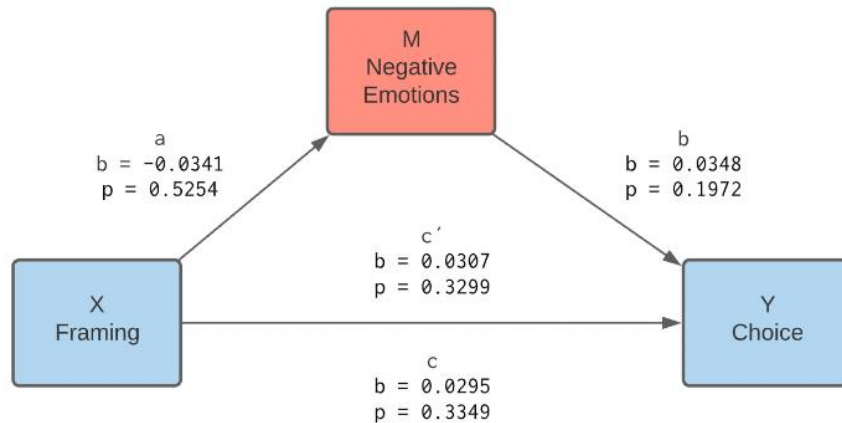
Figure 11: Conceptual Mediation Model - H2c Negative Emotions, Full Sample

When controlled for mediation of negative emotions, the framing effect is more prominent (0.0307 > 0.0295), yet not significant. The direction is not in line with the hypothesis because the indicated effect of loss framing on choice is greater when controlling for negative emotions. Further, paths a and b are not significant.
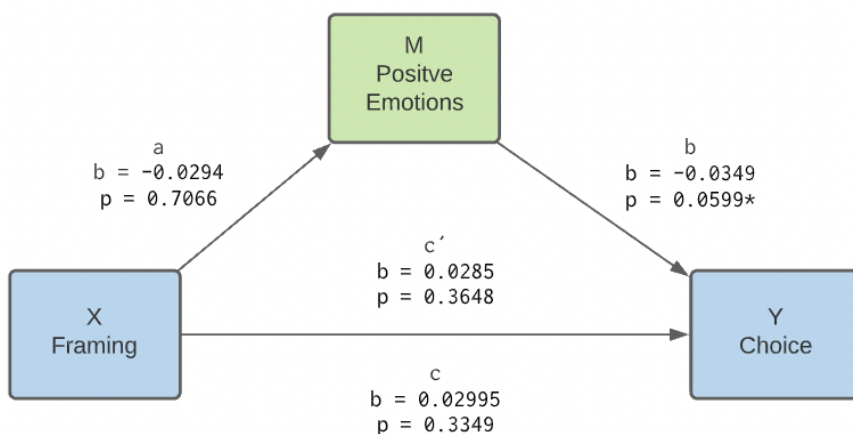
Figure 12: Conceptual Mediation Model - H2c Positive Emotions, Full Sample

The effect is smaller when controlling for positive emotions (0.0285 < 0.0295), although not significant. The suggested direction aligns with the hypothesis as the effect of loss framing on choice is partly mediated by positive emotions. However, path a is not

significant ($p > 0.05$), and path b is in the opposite direction of what we expected (b = -0.349, $p = 0.0599$).
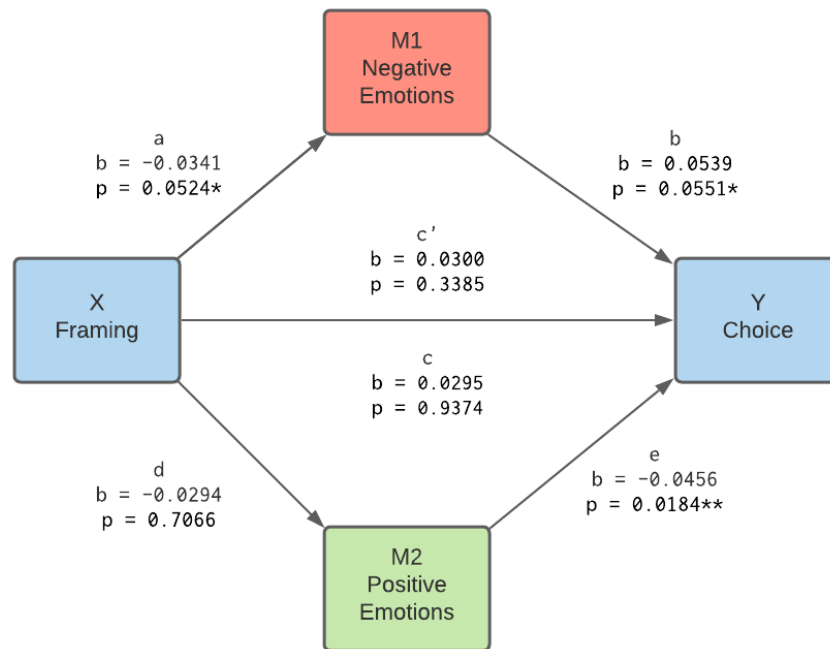
Figure 13: Conceptual Multiple Mediation Model - H2c Negative and Positive Emotions, Full Sample

When running a multiple mediation, including both types of emotions, the direct effect of framing on choice of wine is slightly higher than the total effect (0.03 > 0.0295), yet, not significant ($p > 0.05$). The effect of framing on negative emotions is negative (b = -0.0341, $p = 0.0524$), which further has a positive influence on choice (b = 0.0539, $p = 0.0551$) at the 10% level. Thus, the mediating effect reduces the effect postulated in hypothesis 1. Contrary, although not a mediator to the relationship between framing and choice, positive emotions have a small negative effect on choice (b = -0.0456, $p = 0.0184$). The positive effect of negative emotions on choice is almost reversed by the negative effect of positive emotions, resulting in path c' to a lesser extent being greater than path c.

Based on the above, <u>Hypothesis H3c is not supported.</u>

Subsample

When performing the mediation analysis on the subsample, the effect of framing on choice is smaller when controlled for negative emotions (0.0866 < 0.0878), at the 10%

significance level. This is in the direction we hypothesised, however, neither path a
nor path b is significant.
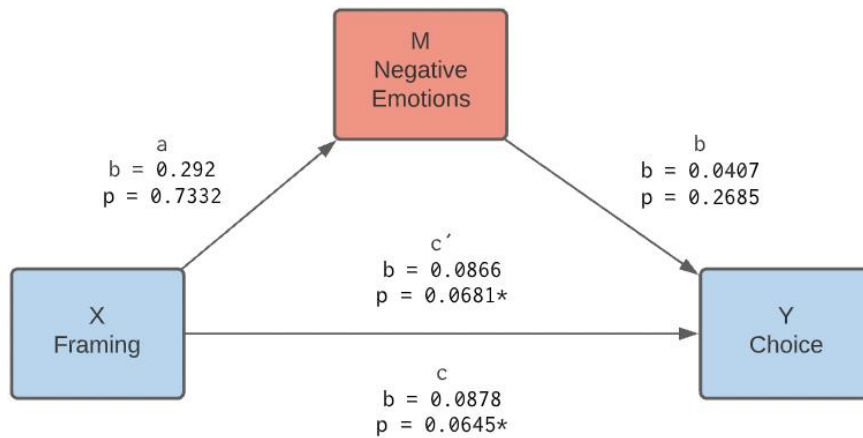
Figure 14: Conceptual Mediation Model - H2c Negative Emotions, Subsample

For positive emotions, the results did not change much from that of the full sample.
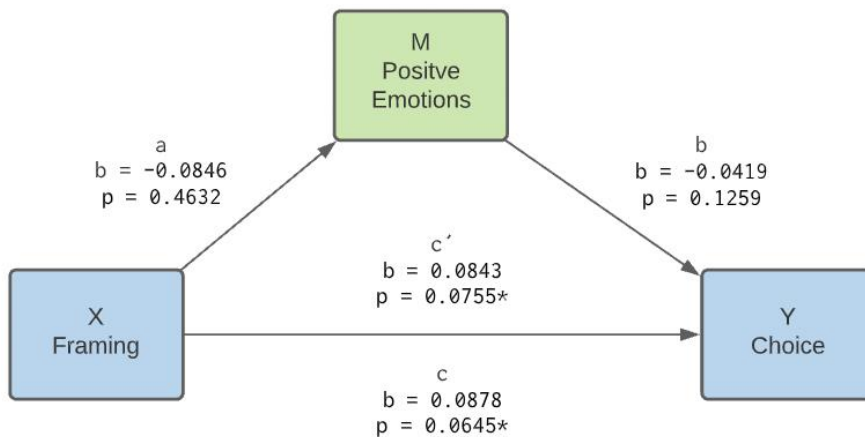
Figure 15: Conceptual Mediation Model - H2c Positive Emotions, Subsample

The multiple mediation discloses that when controlling for positive and negative emotions,
the effect of framing on choice decreases (0.0878 > 0.0816). However, the p-value is
increased from 0.0645 to 0.0844. Path b is not significant ($p > 0.05$), whereas path e is
significant at the 10% level ($p = 0.0599$). However, with non-significant paths a and d ($p > 0.05$), <u>H2c is not supported.</u>
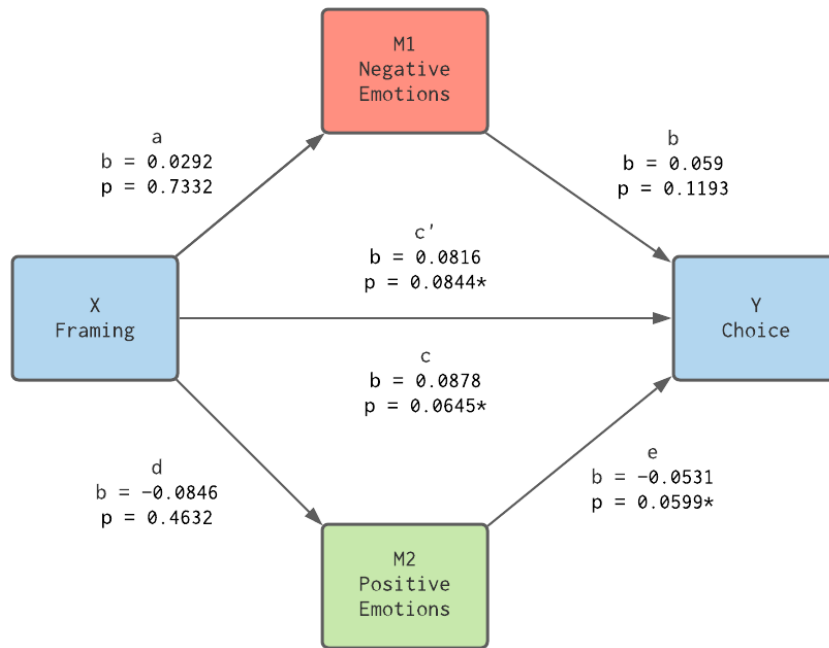
*Figure 16: Conceptual Multiple Mediation Model - H2c Negative and Positive
Emotions, Subsample*

5.3.2.2 Perceived Quality

*H3a: Gain framing will to a larger extent than loss framing elicit a negative quality
perception of the wines with eco-friendly bottles.*

Full Sample

To test this hypothesis, we ran a regression and a one-way ANOVA, with perceived quality
as the dependent variable and framing as the independent variable. From these two
analyses, we retrieved the following output values:

Regression Output	Result
Coefficient	-.042
p-value	.608

ANOVA Output	Result
F-statistic	.264
p-value	.608
Eta Squared	.001

Table 12: Regression and Anova - H3a Perceived Quality, Full Sample

With an F-statistic of 0.264 and a p-value of 0.608, H3a is not supported.

Subsample

Regression Output	Result
Coefficient	-0.96
p-value	.418

ANOVA Output	Result
F-statistic	.660
p-value	.418
Eta Squared	.003

Table 13: Regression and Anova - H3a Perceived Quality, Subsample

The results are not significant in the subsample either (F = 0.660, $p > 0.05$). Thus, <u>H3a is not supported.</u>

H3b: Perceived quality will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater negative effect in gain framing compared to loss framing.

Full Sample
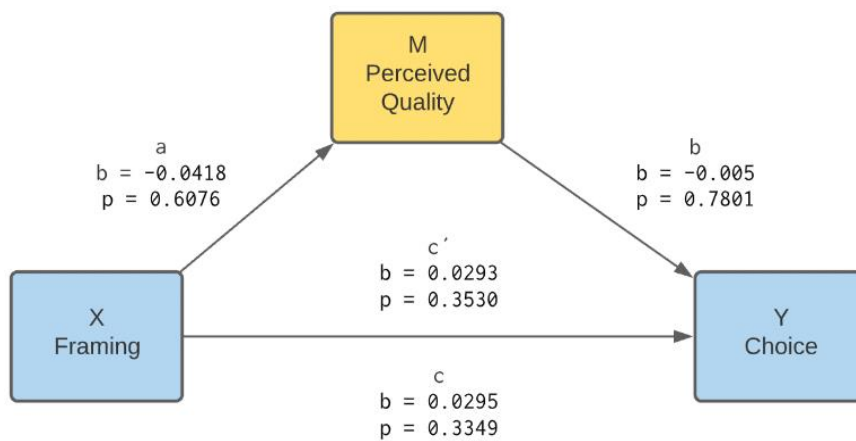
Figure 17: Conceptual Mediaton Model - H3b Perceived Quality, Full Sample

The mediation is not statistically significant ($p > 0.05$), nor is path a and b ($p > 0.05$). Thus, <u>H3b is not supported.</u>
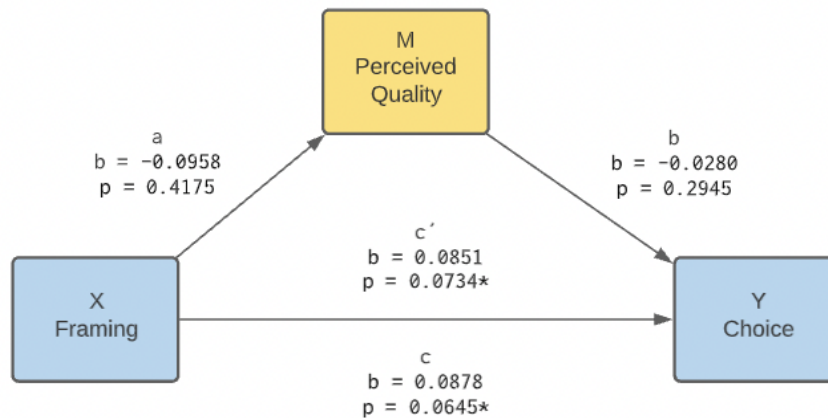
Subsample

Figure 18: Conceptual Mediaton Model - H3b Perceived Quality, Subsample

When controlled for the mediator perceived quality, the effect of framing is reduced (0.0851 < 0.0878). This is in line with the hypothesis, although the p-value is increased. However, it can not with statistical significance be proved that framing has a positive effect on perceived quality (p for path a > 0.05), nor that perceived quality has a positive effect on choice (p for path b > 0.05). H3b is thus not supported.

5.3.3 Moderators

5.3.3.1 Environmental Profile

H4: The higher the level of environmental profile, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by environmental concern.)

Full Sample

The result from the moderator analysis is illustrated in Figure 19:
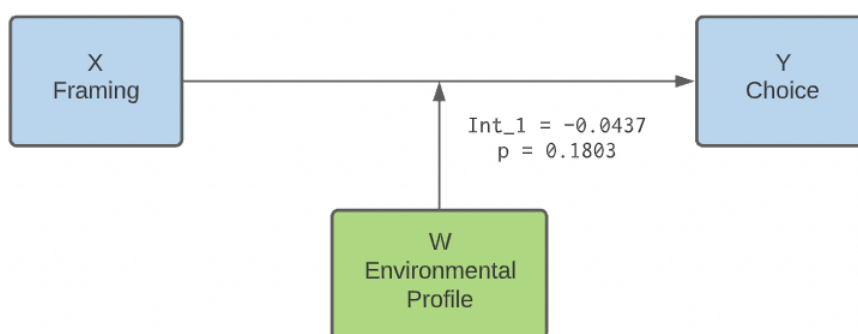
Figure 19: Conceptual Moderator Model - H4 Environmental Profile, Full Sample

The interaction effect of framing multiplied with the moderator environmental profile was -0.0437 ($p = 0.1803$). To understand whether the degree of environmental profile reduced the effect of framing, we analysed the Johnson-Neyman output. At no value of environmental profile does the effect of framing transition into statistical significance. Hence, <u>H4 is not supported.</u>

Subsample

The interaction effect was -0.0946 ($p = 0.0775$), suggesting that the effect of framing decreases as the level of environmental profile increases.
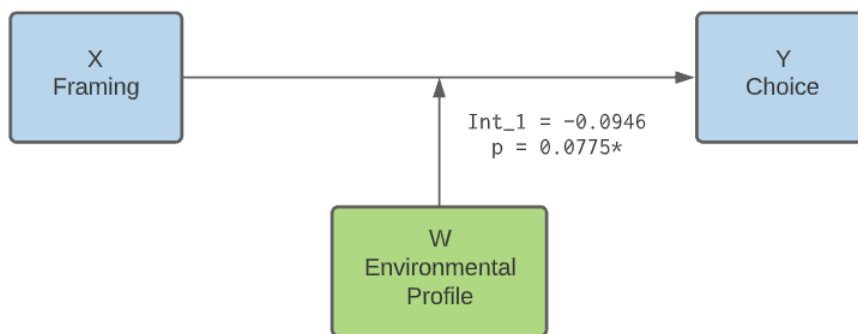
Figure 20: Conceptual Moderator Model - H4 Environmental Profile, Subsample

The Johnson-Neyman output shows that the conditional effect of framing on choice is statistically significant ($p < 0.05$) at all values of environmental profile less than 3.2526, representing 58.33 per cent of the subsample. This is illustrated in graph X:
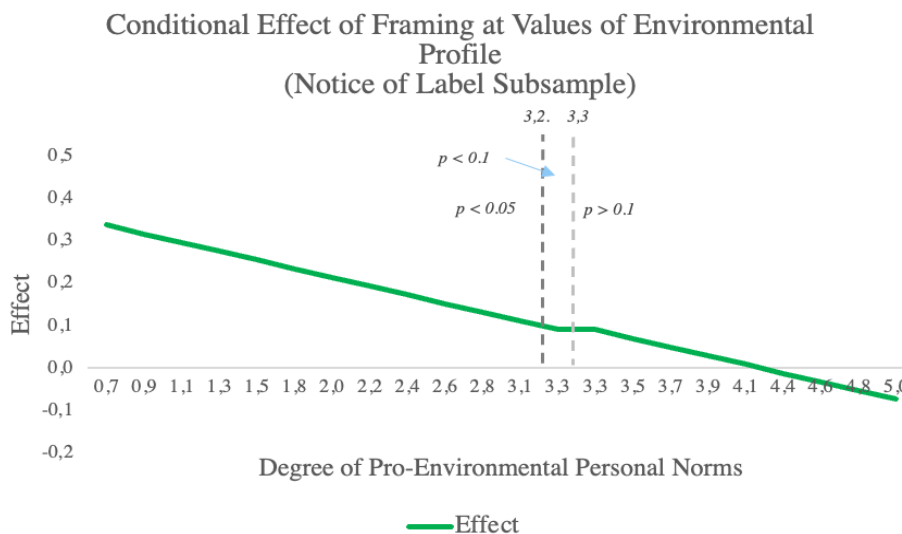
Figure 21: Conditional Effect of Framing at Values of Environmental Profile, Subsample

The effect of framing on the choice fraction is 0.3366 at the lowest level of environmental profile and is steadily decreasing with an increase in environmental profile level. The framing bias is thus present for lower degrees of environmental profile, and its presence and effect on choice decreases as the level of environmental profile increases. Although not statistically significant, the conditional effect is negative from level 4.35 ($p > 0.05$). A detailed table and graph can be seen in Appendix F. From this, we can state that we find support for H4 in the subsample.

5.3.3.2 Risk Attitude

H5: The higher the risk aversion, the more pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by perceived risk.)

Full Sample
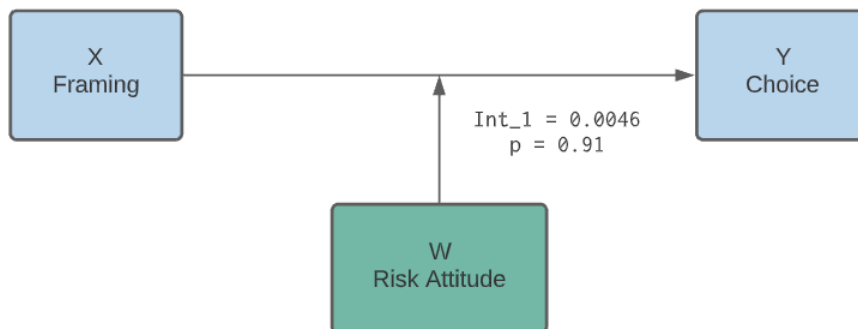
Figure 22: Conceptual Moderator Model - H5 Risk Attitude, Full Sample

Risk attitude was found to not moderate the framing effect on choice (Int_1 = 0.0046, $p > 0.05$). Thus, H5 is not supported.

Subsample
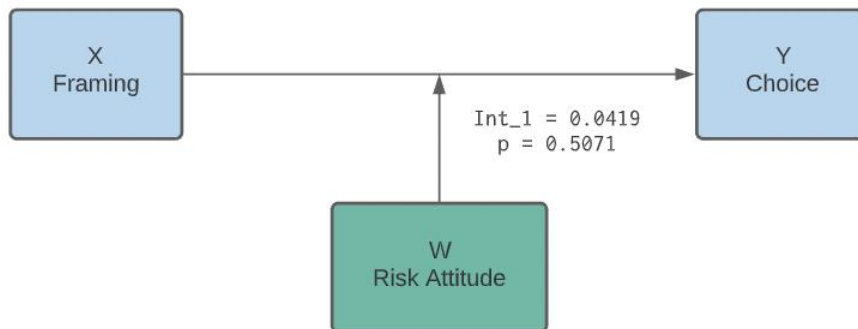
Figure 23: Conceptual Moderator Model - H5 Risk Attitude, Subsample

In the subsample, despite a lower p-value than for the full sample, we find no statistical significance of risk attitude to moderate the effect of framing on choice ($Int\_1 = 0.0419$, $p > 0.05$). Hence, H5 is not supported.

5.3.3.3 Personality Traits

H6a: The higher the score on the personality trait Openness to Experience, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Openness to Experience.)
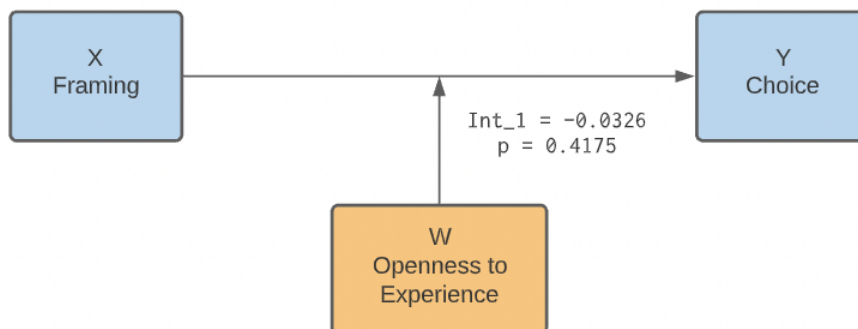
Full Sample

Figure 24: Conceptual Moderator Model – H6a Openness to Experience, Full Sample

The results from the analysis suggest a small negative interaction between the variables ($Int\_1 = -0.0326$), in line with the hypothesis. However, we are unable to claim that the framing effect will be different for individuals with different scores on openness to experience ($p > 0.05$). By this, H6a is not supported.

Subsample

The moderating effect of openness is not statistically significant for the subsample either ($p > 0.05$). Thus, <u>H6a is not supported.</u>
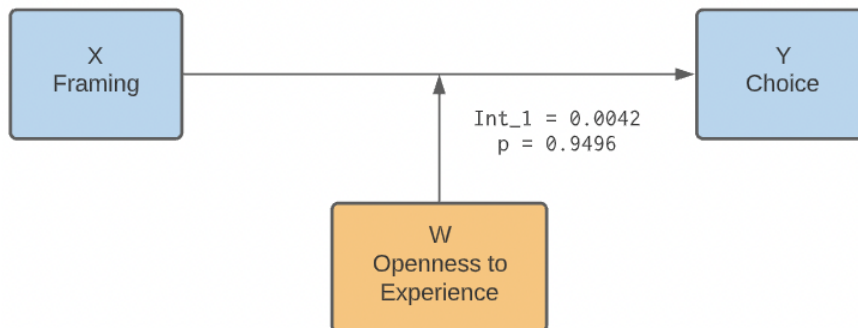
Figure 25: Conceptual Moderator Model - H6b Openness to Experience, Subsample

H6b: The higher the score on the personality trait Neuroticism, the more pronounced

will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Neuroticism.)

Full Sample

The moderator analysis provided the following outputs:
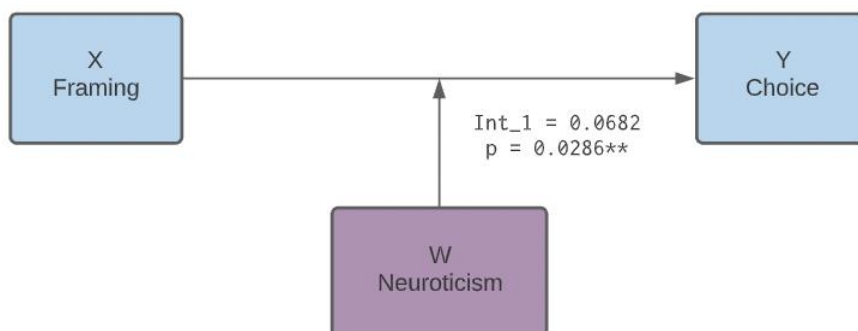
Figure 26: Conceptual Moderator Model - H6b Neuroticism, Full Sample

Neuroticism has a statistically significant moderating effect on choice (Int_1 = 0.0682, $p = 0.0286$). The Johnson-Neyman output shows that the conditional effect of framing on choice is statistically significant ($p < 0.05$) at all values of neuroticism higher than 3.1962, representing 28.5 per cent of the full sample. The effect is illustrated in Figure 27:
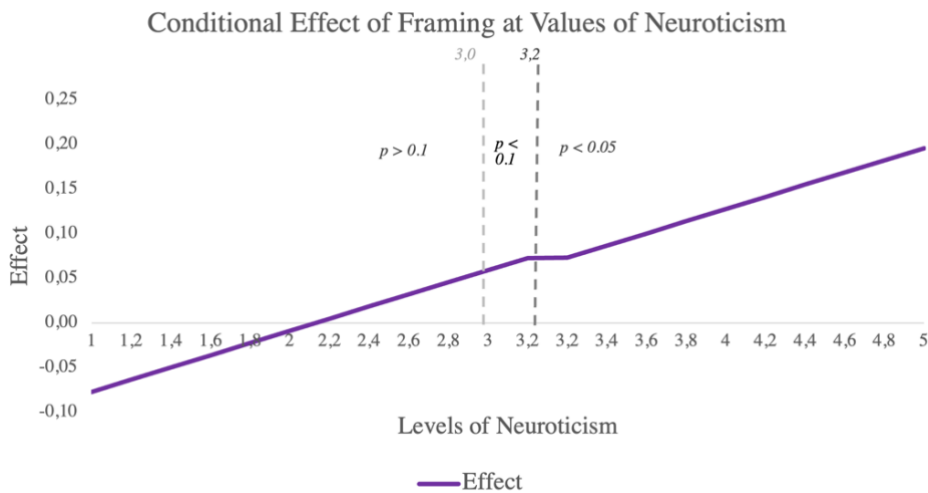
Figure 27: Conditional Effect of Framing at Values of Neuroticism, Full Sample

At neuroticism-scores below 3.196, the difference between Loss and Gain is non-significant ($p > 0.05$). The sample consists of fewer respondents scoring above the level of 3.1962, in which significance is achieved, than below, illustrated in Appendix F. Therefore, no significance at lower levels of neuroticism suggests no effect. From this, we can conclude that <u>H6b is supported.</u>

Subsample

We could not statistically prove that neuroticism has a moderating effect on choice ($Int\_1 = 0.0629$, $p > 0.05$) for the subsample.
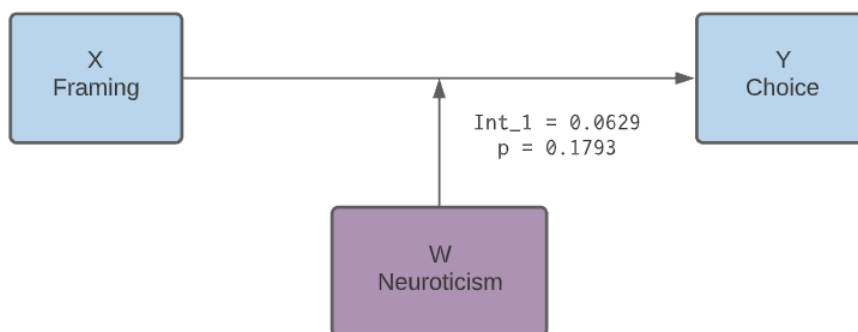
Figure 28: Conceptual Moderator Model - H6b Neuroticism, Subsample

Conducting the moderator analysis on the subsample resulted in similar findings. However, the moderating effect changes from non-significant to significant at a lower level of neuroticism, at 2.7159, and returns to significant at 10%-level at score 4.635. The subsample consists of only ten respondents with a score higher than 4.635, which may explain why the effect is not statistically significant at the 5%-level. This suggests that the

hypothesis is also supported in the subsample. However, <u>we are not able to make any statistical inference.</u>
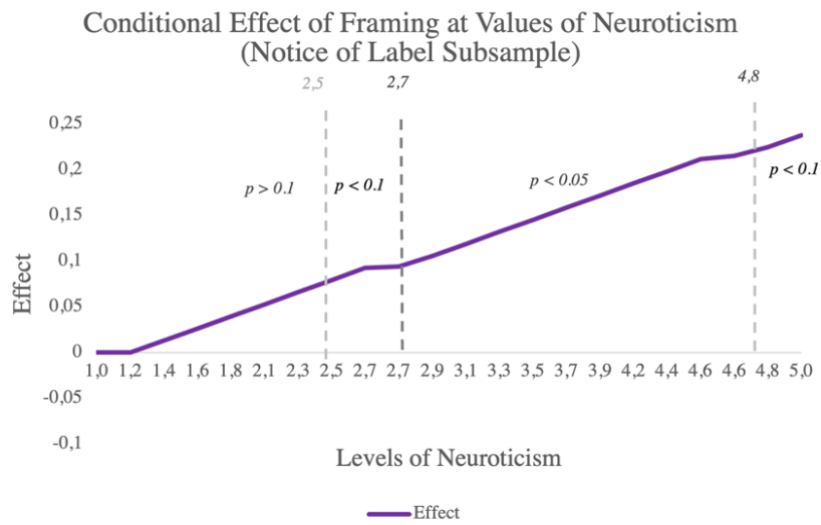
Figure 29: Conditional Effect of Framing at Values of Neuroticism, Subsample

5.3.3.4 Anticipated Regret

H7: Loss framing will to a larger extent than gain framing cause anticipated regret.

Full Sample

The results from the linear regression and One-Way ANOVA of the effect of framing on anticipated regret show no statistical significance (F = 0.002, $p > 0.05$). <u>Hence, H7 is not supported.</u>

Regression Output	Result
Coefficient	.005
p-value	.965

ANOVA Output	Result
F-statistic	.002
p-value	.965
Eta Squared	.000

Table 14: Regression and ANOVA - H7 Anticipated Regret, Full Sample

Subsample

Regression Output	Result
Coefficient	-.041
p-value	.791

ANOVA Output	Result
F-statistic	.070
p-value	.791
Eta Squared	.000

Table 15: Regression and ANOVA - H7 Anticipated Regret, Subsample

In the subsample, the coefficient is negative, although not statistically significant ($p > 0.05$). Thus, H7 is not supported for the subsample either.

5.3.4 Summary of Results

| Hypothesis	Results Full Sample	Results Sub Sample
Hypothesis 1: *Loss framing will have a stronger effect on choice in nudging consumers towards eco-friendly wine products than gain framing.*	Not Supported	**Partly Supported**
Hypothesis 2: **H2a:** *Loss framing will to a larger extent than gain framing elicit negative feelings of guilt, fear and shame.* **H2b**: *Gain framing will to a larger extent than loss framing elicit positive feelings of pride, hope and self-consciousness.* **H2c:** *Emotions will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater positive effect in loss framing compared to gain framing.*	Not Supported	Not Supported
Hypothesis 3: **H3a:** *Gain framing will to a larger extent than loss framing elicit a negative quality perception of the wines with eco-friendly bottles.* **H3b:** *Perceived quality will mediate the nudging effect that framing has on participants' choice of eco-friendly wine, with a greater negative effect in gain framing compared to loss framing.*	Not Supported	Not Supported
Hypothesis 4: *The higher the environmental concern, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by environmental concern.)*	Not Supported	**Supported**
Hypothesis 5: *The higher the perceived risk, the more pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by perceived risk.)*	Not Supported	Not Supported
Hypothesis 6: **H6a:** *The higher the score on the personality trait Openness to Experience, the less pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Openness to Experience.)* **H6b:** *The higher the score on the personality trait Neuroticism, the more pronounced will the effect differences between loss and gain framing be. (Hence, the effect postulated in H1 will be moderated by Neuroticism.)*	H6a: Not Supported H6b: **Supported**	H6a: Not Supported H6b: Not Supported
Hypothesis 7: *Loss framing will to a larger extent than gain framing cause anticipated regret.*	Not supported	Not Supported

6. Discussion

In this chapter, the results from the analyses conducted will be elaborated and the findings of our research study will be stated.

6.1 Framing Effect

The results of this study show that for the full sample, in which more than half of the respondents may not have been exposed to the manipulation, neither gain nor loss framing is superior to closing the intention-behaviour gap. This implies that the extent to which consumers choose eco-friendly wine is not contingent on whether the label is positively framed with green marking or negatively framed with red marking. However, for the subsample, solely including respondents we for certain know have been exposed to the manipulation, the results suggest that loss framing has a small effect on eco-friendly choice compared to gain framing.

At the 10% significance level for the subsample, when controlling for demographics, the effect difference between gain and loss framing is 0.073. This can be interpreted as an increase in the choice fraction of 0.073 for loss framing compared to gain framing, in which 1 reflects solely eco-friendly wine bottles and 0 reflects solely non-eco-friendly wine bottles. Figure 30 gives a visual presentation of the effect difference caused by the type of framing, for the subsample.
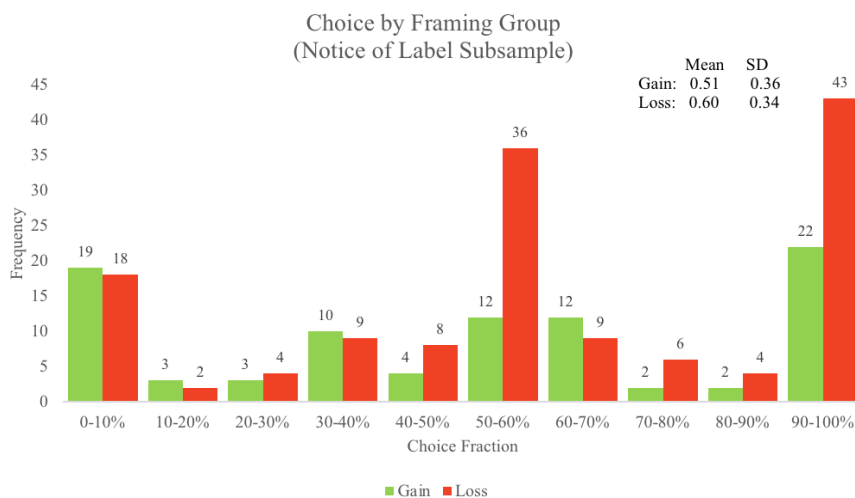
Figure 30: Choice by Framing Group, Subsample

The effect suggests that loss framing is slightly more persuasive than gain framing

in regard to nudging people towards choosing eco-friendly packaged wine, although not as prominent as expected. Also, the findings seem contingent on consumers consciously noticing the eco-label. The indication that some individuals have a higher willingness to avoid a loss than to achieve a gain, is in line with the loss aversion theory presented by Tversky and Kahneman (1979). Further, that Norwegian wine consumers seem slightly prone to the framing bias, may suggest that they have a prevention focus rather than a promotion focus. This entails that the idea of purchasing the non-eco-friendly product is somewhat more deterrent than the idea of not purchasing the eco-friendly product. Next to concern for the environment, consideration of social appearance, self-view and conscience can be explanations to the suggested small effect of loss framing. It should be stated that if we had been more conservative and used the two-tailed p-value (p = 0.118), the interpretation of the results would be different. The results would suggest merely a direction that loss framing is more effective than gain framing, with a significance slightly above the 10%-level.

That the framing bias was only evident to a low degree may be due to the chosen framing approach of simple communication, with "eco-friendly" or "not eco-friendly" labels. We could not observe the desired mediating effects of emotions. This indicates that we were not able to trigger the forceful mechanism that Habib *et al.* (2021) suggest negative emotions can initiate, further elaborated in Chapter 6.5. Moreover, the critics of prospect theory can also help explain the small effects achieved. Mukherjee *et al.* (2017) disclosed that the value function and the loss aversion bias is contingent on the magnitude of a choice. In their gamble experiment, loss aversion is present for higher amounts, whereas, for lower amounts, the joy of a positive occurrence looms either larger or equal to the suffering of a loss. Magnitudes in this study can be considered in terms of either overall harm or gains to the environment, or wine purchases as compared to other consumption decisions. The former can be discussed concerning the collective action requirement, as individuals often consider the effects of their own eco-friendly efforts to be of low magnitude, due to the dependency on others' eco-friendly actions to achieve real impacts. However, we know from the descriptive statistics that the number of respondents subject to this conception is rather low, seen in Appendix E.7. Considering the latter, the importance of choosing eco-friendly wine may be considered inferior compared to for example purchasing an electrical

vehicle. This gives rise to the licensing effect, in which acting sustainable on one occasion may reduce the likelihood of acting sustainable on an occasion later in time (White *et al.*, 2019). If loss aversion bias is dependent on magnitude, this can help explain why loss framing was not to a greater extent more effective than gain framing.

Regulatory focus theory may help to further explain the results. With an average score on environmental profile of 3.3, and the distribution of environmental profile being negatively skewed, the majority of individuals in the subsample have fairly high environmental concerns. Implications of this will be further elaborated in Chapter 6.4.

Lastly, the results may also indicate that loss framing is not to a great extent more effective than gain framing to close the intention-behaviour gap. In this case, there is not a significant amount of people more willing to leave status quo when exposed to loss framing compared to gain framing.

6.2 Age and Educational Level

As elaborated in the literature review, previous studies have found that the effect of framing may be explained by socio-demographics. However, no statistically significant interaction effects with framing were found for neither gender, age, nor educational level. This indicates that, all else equal, Norwegian wine consumers are uniformly subject to the framing bias, despite variations in age, gender, and educational background. These findings suggest that the framing effect will be rather equivalent for an 18-year-old boy in secondary school, as for a 50-year-old woman holding a PhD, or for an 88-year-old man with vocational background, all else being equal.

When controlling for the socio-demographics in the test of hypothesis 1 for the subsample, we found that both age and educational level have a main effect on eco-friendly choice in wine purchase decision making. As a consequence of including these in the test of framings' effect on choice, the main effect of framing loses its significance. The model with framing as predictor and demographics as covariates explains a larger amount of the variation in eco-friendly choice than the model solely including framing. However, the explanatory power and practical significance are rather low, as is also the case for the framing effect.

Age was found to be a significant predictor for eco-friendly choice, which corresponds with the findings by Gazdecki *et al.* (2021), suggesting that younger adults tend to behave more environmentally conscious than older adults. Further, we found that the mean difference in age between the framing groups were not that far from significant ($p = 0.115$), with many elderly people randomized into the gain framing group in the subsample. As a consequence of the unequal distribution of age in the two groups, age is a potential confounding variable on the effect of framing for the subsample. Thus, the results from testing solely framing on choice overstate the explanatory power and significance of framing.

Regarding educational level, Gazdecki *et al.* (2021) suggest that this variable is positively correlated with environmental consciousness. However, we find support for the opposite ($p < 0.05$), with results indicating that the likelihood of choosing eco-friendly wine decreases as an individual's educational level increases. The difference in mean of education between the two framing groups was non-significant, making education a covariate rather than a confounder. Interestingly, given implications from former research suggesting that women tend to be more environmentally conscious than men (Gazdecki *et al.,* 2021), the implementation of gender as a covariate in the analysis did not reveal any effects.

To conclude, the results indicate that loss framing may have a small main effect on the choice of eco-friendly wine for Norwegian wine consumers, contingent on noticing the label. However, the statistical power of the effect weakens when controlled for age and level of education, as these variables contribute to explaining the variation in eco-friendly wine choice.

6.3 Emotions

The findings imply that negative emotions slightly mediate the relationship between framing and choice, although not in favour of loss framing as hypothesised. Performing a multiple mediation with both positive and negative emotions indicated that loss framing triggers negative emotions to a lesser extent than gain framing, at the 10% significance level. Further, the results imply that negative emotions may have a positive effect on eco-friendly choice, also at the 10% significance level. Under the assumption that this is true for the population, negative emotions weaken individuals' presupposed framing bias.

However, we know from the descriptive statistics that the questions constituting the construct of negative emotions was relatively right-skewed, with high kurtosis values. Most troubling were the questions for loss framing, illustrated in Appendix E.8. From this, interpreting the results from the mediation analysis should be done with great care.

One possible explanation could be that gain framing triggers negative emotions in regard to the quality of the products and that these negative emotions persisted as the individual chose the eco-friendly alternative. However, with very few respondents reporting anticipated regret, discussed in Chapter 6.5, this seems unlikely. Further, the possibility that emotions experienced by respondents are not related to environmental concerns may not be excluded. This was a trend observed when conducting pilot tests. Habib *et al.* (2021) argue that to achieve eco-friendly behaviour, it may be very effective to provoke emotions such as guilt and shame through negatively framed communication. The likelihood that the chosen framing was not sufficient to trigger the desired emotions is present, as mentioned in Chapter 6.1. There are communication alternatives that might be more powerful to trigger emotions like guilt, shame, and fear, such as stating the negative consequences of not achieving a sustainable consumption transformation. Former studies focusing on loss and gain framing have commonly had a more persuasive communication in both framing groups (e.g., Grewal *et al.*, 1994; Goldstein *et al.*, 2008, cited in White *et al.*, 2019; Van Dam and De Jonge 2014), than was exploited in this study. In addition, Cadario and Chandon (2019) found cognitively oriented nudges, in which our approach is within, to be less effective than affectively oriented nudges, involving more detailed communication labels aimed at changing consumers' emotions. This is a possible explanation as to why a higher statistical significance on the framings' effect on choice was not achieved.

6.4 Environmental Profile

We found the framing bias to be true for individuals with lower levels of environmental profile, and that the higher the level of environmental profile, the less pronounced is the framing effect, as expected. These results can be discussed in light of regulatory focus.

That individuals with low environmental concerns have a higher probability of choosing eco-friendly products in loss framing with prevention focus, compared to gain framing with promotion focus, supports findings of former research (Newman *et al.*, 2015). Our results suggest that individuals for whom environmental concern is not evident, and who thereby

do not have it as their aim to contribute to sustainable development, will be more influenced by loss framing than gain framing. As elaborated in the literature review, the overexposure of negatively framed sustainability communication by the media may have established a prevention focus with many individuals. If individuals with low levels of environmental profile have any goals associated with eco-friendly products, it is conceivable that this would be to avoid negative consequences either on the environment, their conscience or reputation. When the positive outcome is to avoid harm rather than achieve benefits, theory suggests that regulatory fit is easier achieved with negative framing (Van dam and De Jonge, 2014; Avnet and Higgins, 2006).

Furthermore, the framing effect is weaker for individuals with higher concerns for the environment, corresponding with results achieved by Newman *et al.* (2015). In this regard, regulatory focus theory implies that individuals with high motivation tend to pay more attention to relevant information to reach their goals. The results from the moderation analysis suggest that the stronger an individual's pro-environmental personal norms, the more vigilance they show to environmental information, hence, the type of framing may be of less importance for their choice.

Interestingly, although not significant, the effect changed sign for the highest levels of environmental profile (> 4.35), suggesting that gain framing may be more effective for highly conscious individuals. One possible explanation for this relationship could be that environmentalists tend to deliberately search for "green" labels in consumption decision-making to achieve their goals, making them less attentive to alternative types of eco-labelling. With loss framing, regulatory fit may not occur for consumers with high environmental concerns, due to their inherent promotion focus (Van dam and De Jonge, 2014; Avnet and Higgins, 2006). The indicated direction of our analysis is in line with the findings of Okada and Mais (2010), in which positive framing proved more effective for individuals with high levels of environmental consciousness, than negatively framed messages.

With only 19 respondents having an environmental profile score higher than 4.35, statistical significance for the negative effect differences between loss and gain framing at this level may have been out of reach. Although highly environmentally conscious consumers may be more affected by gain framing, it is fair to assume that they also will aim to avoid purchasing a non-eco-friendly product when exposed to loss framing.

Moreover, individuals with a score higher than 4.35 may not be considered as the most vital segment to reach, as they already make many eco-friendly choices and are a minority compared to individuals with lower levels of environmental profile.

6.5 Perceived Quality

We could not find that perceived quality mediates the effect of framing on choice nor that perceived quality is lower for individuals exposed to gain framing as presumed. This is also revealed by the descriptive statistics, in which very few respondents reported that they disagreed with the statement "I consider the wine selection to be of good quality". Further, many respondents selected the "neither nor" option for the statement "The eco-label had a negative impact on my quality perception of the wines without (loss)/with (gain) labelling", suggesting that they had no clear opinion concerning the quality difference of wine based on the packaging type. Most people reported their perceived quality of the wine with eco-friendly packaging as high. However, we considered respondents' answers to this question relative to the answers to whether they noticed the label and what type of packaging their chosen wine bottles had, seen in Appendix E.5. A substantial number of the respondents reporting high-quality perceptions of eco-friendly bottles in this question also reported not to have noticed the label and to have chosen solely glass bottles. This suggests that they were not consciously aware of the two distinct packaging types in the sample selection. Thus, we decided to interpret this question with cautiousness. Nevertheless, the distribution from the question "I am generally concerned that other types of packaging than glass will have a negative effect on the quality of the wine", is a better reflection of findings from former studies, as it suggests a common perception of glass bottles being more suitable for preserving wine quality than alternative packaging.
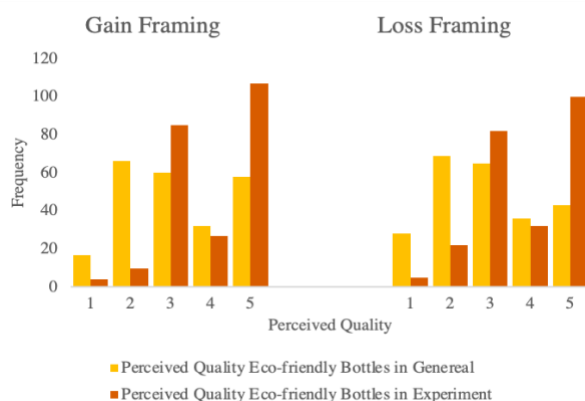
Figure 31: Perceived Quality Eco-friendly Bottles in General vs. in Experiment

The 38 per cent of the sample who agreed or partly agreed with this statement is, however, considerably lower than the 91 per cent of participants being reluctant to purchase wine other than those in glass bottles in the study by Ferrara and De Feo (2020). Though not possible based on the investigation scope of this study, it would be interesting to understand whether this is due to a lower misconception of wine quality in eco-friendly bottles or due to Norwegian consumers not yet associating wine purchase with environmental efforts and have thereby not considered the related implications. Furthermore, it may be due to different wine traditions between Italian and Norwegian wine consumers. Vinmonopolet reported Bag-in-Box to account for more than 50 per cent of the total wine sale in 2020 (Vinmonopolet, 2021), whereas Bag-in-Box sale in Italy was about 3.2 per cent of total wine sale in 2019 (Statista, 2021). Despite that sales of Bag-in-Box in Italy increased by 42.6 per cent in 2020, while sales of bottled wine decreased by 6 per cent (Gerini *et al.*, 2021), the relative sales of wine packaged in Bag-in-Box is significantly higher in Norway. With lower exclusivity and quality association of Bag-in-Box compared to glass bottles, this indicates that Norwegian consumers are not as sensitive to these connotations, supporting the stated differences between the results of Ferrara and De Feo (2020) and the results of this study.

The analyses show that anticipated regret was not influenced by framing. The distribution of anticipated regret is slightly skewed to the left, with more people who "disagree" or "partly disagree" that they will regret their choice than people who "agree" or "partly agree" with the statement. This is in line with the low proportion of people who consider the wine selection and the eco-friendly bottles to be of low quality. It can be assumed that most individuals aim for taste and quality to meet their expectations when purchasing wine for a dinner party. As Elwyn *et al.* (2010) state, it is when a decision involves a trade-off between different goals that individuals might feel anticipated regret.
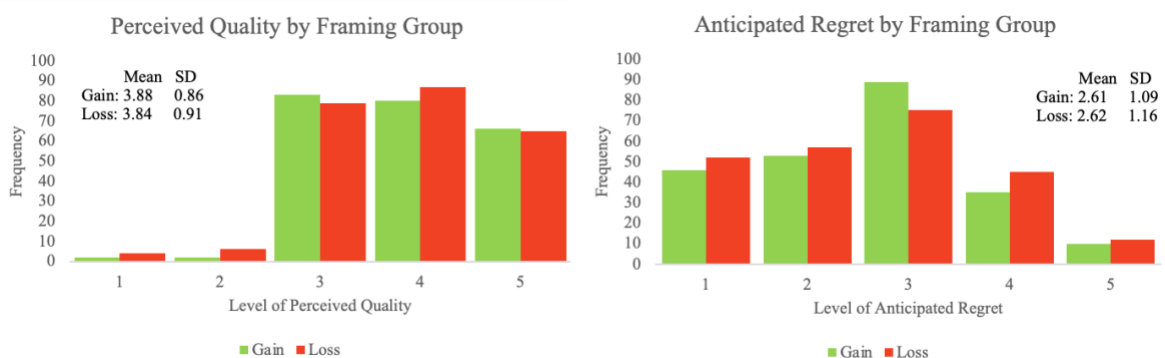
Figure 32: Perceived Quality and Anticipated Regret by Framing Group

That perceived quality did not mediate the effect of framing on choice, and that low quality perception of eco-friendly bottles does not seem to be as prominent as former research suggests, may be interesting to consider in the discussion of risk attitude. A main obstacle to achieving eco-friendly consumption is the trade-off between functionality or quality and eco-friendliness (Luchs and Kumar, 2017, cited in Skard *et al.*, 2019). A so-called liability effect occurs when individuals favour less eco-friendly products due to their ability to perform better compared to eco-friendly alternatives.

6.6 Risk attitude

The conception that risk-averse individuals would be more prone to the framing bias than individuals with a high risk tolerance was denied, as we were not able to make any inference based on the sample results. The hypothesis builds on previous research showing that risk-averse individuals demonstrate a higher willingness to take risks when exposed to loss framing (Huangfu, 2014, cited in Prayogo and Muniarti, 2018) and conversely, that risk-takers pursue risks regardless of framing (Tabesh *et al.*, 2019). The hypothesis presupposed that an individual associates the purchase situation with any risk. The literature review presented several risk factors that may be associated with a purchase decision, in which performance risk, social risk and psychological risk were highlighted as most relevant for this study (Hoyer *et al.*, 2014). In addition, findings by Mitchell and Greatorex (1988) illustrate that risk related to taste and social approval were most prominent in wine consumption. Moreover, it can be assumed that as for anticipated regret (Elwyn *et al.*, 2010), the issue with perceived risk increases when there are different goals pulling an individual in various directions. Based on this, as an effort to debate potential reasons why risk attitude did not moderate the effect of framing on choice, the trade-offs between social risk and psychological risk and psychological risk and performance risk will be elaborated. It is important to state that this discussion is simplified.

From the descriptive statistics we know that roughly 50 per cent of respondents were equally distributed in the risk attitude level of 2.25 and 2.75, and about 20 per cent from 1.75 and below. In this regard, Kang and Moreno (2019) found, in the context of sustainable consumption, that individuals with low risk aversion are more likely to act on their personal norms and go against social norms. Conversely, highly risk-averse individuals are more affected by social norms, and thereby, tend to avoid the initial risk of green purchases until

social norms reflect the benefits of this. Trade-offs between social and personal norms will thus be most relevant for individuals with neutral to low risk preference and will therefore be illustrated for respondents with a score on risk attitude up to 2.75.

First, there is a social risk in the context of purchasing a bottle of wine with eco-friendly packaging, in which the relevant others are particularly interested in wine and thereby may be concerned about the bottle's ability to preserve quality (Piqueras-Fiszman and Spence, 2012). If the individual has a strong environmental profile, there is also a psychological risk that the purchase will not be in line with their identity. The two lines in Figure 33 are respondents who agreed or partly agreed with the statement "People in my social circle are interested in wine" at levels of environmental profile. The graph shows that there are few respondents both being subject to high wine interests of relevant others and having a high level of environmental profile. Considering only levels of environmental profile from 4 and above, they account for 7.6 per cent of the full sample.
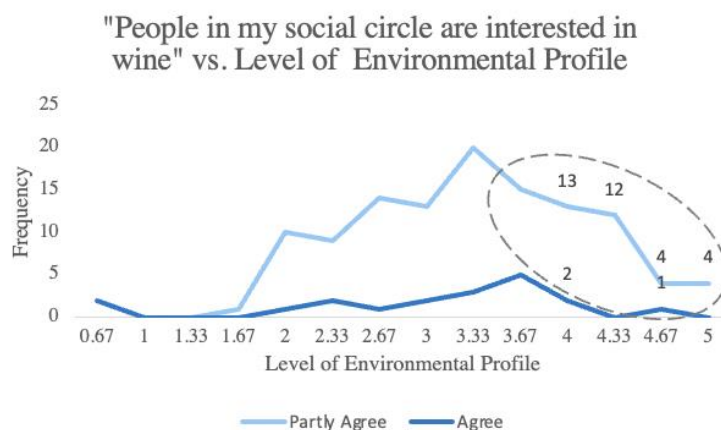
Figure 33: Trade-off between Social Wine Pressure and Personal Environmental Concerns

Second, social risk may also occur when relevant others have substantially high eco-friendly values, whereby an individual might be afraid to be judged due to the purchase of a heavy glass bottle (Salazar *et al.*, 2013; Lazaric *et al.*, 2019). Giving high importance to the heavy glass bottle may act as a pull in the opposite direction, which can be assumed to be more likely for those with high levels of wine involvement. In support of this, Bruwer and Huang (2012) state that high-involved wine consumers give great importance to taste risks. Illustrating the trade-off in this regard, Figure 34 shows that the number of respondents both being subject to high environmental concerns in their social circle and who potentially favour wine in glass bottles is small.
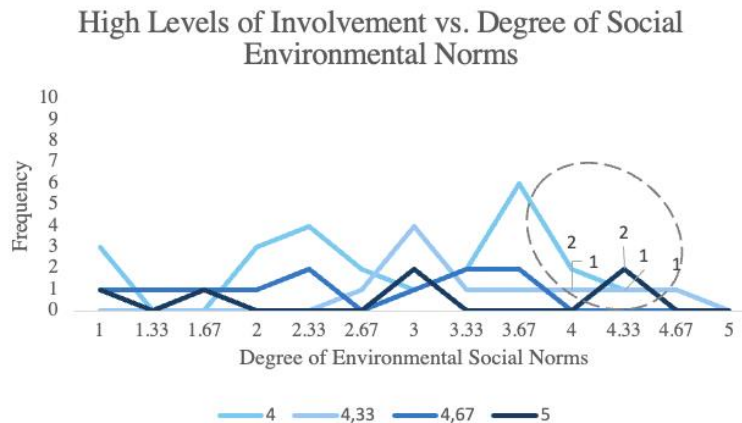
Figure 34: Trade-off between Wine Involvement and Social Environmental Norms

Third, a trade-off between psychological risk and performance risk may occur. Some individuals may on the one hand be concerned with environmental challenges, and on the other hand question the ability of bottles other than glass to preserve wine quality. In Figure 35, since this is a trade-off in which the individual is in conflict with themself, respondents with all levels of risk attitude are included. Respondents who potentially experience this trade-off account for 7.6 per cent of the full sample.
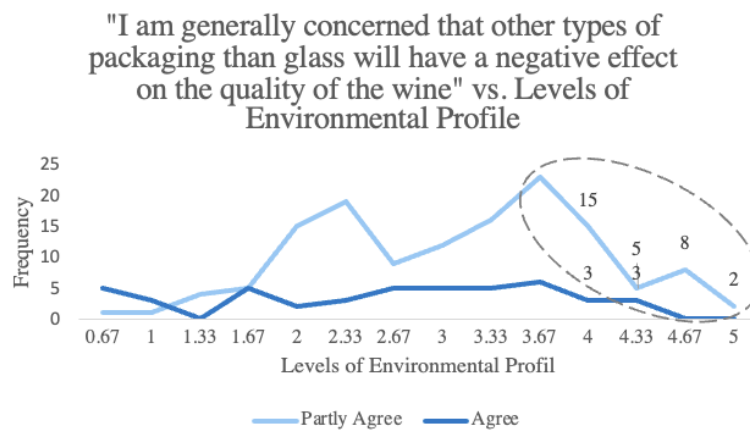
Figure 35: Trade-off Between Personal Wine Interest and Environmental Profile

As Figure 33, 34 and 35 show, there are few respondents who experience any of the abovementioned trade-offs, accounting for about 16 per cent of the full sample. What these graphs fail to demonstrate is the overlap between the three trade-off examples. For example, individuals who are part of a social circle in which environmental concern is important, are likely to also score high on environmental profile, as Wang and Chou (2019) state that subjective norms influence personal norms. This is in line with the factor analysis performed on the survey questions, showing correlation between social and personal

environmental norms, which can be seen in Appendix E.10. These individuals may also be in a social environment in which wine is important. Thus, this discussion provides a simplified indication of how many respondents were subject to high perceived risk. Although, it is important to state that an individual's perceived risk is contingent on context and depends on an individual's perception of how likely a negative outcome is or how unlikely a positive outcome is (Hoyer *et al.*, 2014).

We can not exclude the possibility that the trade-off risks and potential other risks experienced in the experiment are less prominent than those that individuals experience in a real purchase situation. This is elaborated in Chapter 8. Limitations.

6.7 Neuroticism

We find that the personality trait neuroticism moderates the framing effect on choice of eco-friendly wine, as postulated in hypothesis 6b. This hypothesis was supported at the 5% significance level for the full sample, yet we did not attain substantial support for the effect in the subsample. As the framing effect was not statistically significant for the full sample, the discussion below should be interpreted with care.

The findings for the full sample are in line with the results of Lauriola *et al.* (2005) and Lauriola and Levin (2001), showing that individuals scoring high on neuroticism demonstrate a higher risk willingness in loss framing, than in gain framing. To help understand the underlying sources for this effect, we may look to the results of Awais *et al.* (2020), stating that individuals scoring high on neuroticism tend to be conscious when presented with negatively framed information. Furthermore, the proneness of worrying and experiencing negative emotions present with neurotic individuals may lead to a tendency of linking eco-friendly consumption to the goal of avoiding damage rather than achieving positive outcomes. Thus, neurotic people may have a stronger prevention focus concerning sustainable consumption than those with low to moderate scores. Therefore, they may be more affected by negatively framed environmental information than others.

In addition to the effect found for neurotic individuals in this study, former research (Lauriola *et al.*, 2005; Lauriola and Levin, 2001) have shown that individuals with sufficiently low scores on neuroticism, in other words, emotionally stable individuals, demonstrate higher risk willingness in gain framing than in loss framing. As the framing

effect was negative for scores equal to or less than 2, our results may provide an indication for this two-folded role of neuroticism. However, as we are unable to conclude with this being the case ($p > 0.05$), it should be further investigated in future research.

6.8 Openness to Experience

Analysing whether the personality trait openness to experience moderates the effect of framing on choice did not yield striking results for neither the full sample nor the subsample. This indicates that the result for the main hypothesis may be applicable regardless of an individual's level of openness to experience, all else being equal.

6.9 Notice of Label

The results of this study indicate that loss framing may be slightly more effective in attracting attention than gain framing. However, the level of environmental profile is a better explanation of why an individual notices the label. Still, with the level of environmental profile being relatively equally distributed in the two groups, the difference between the framing groups implies that loss framing is easier to notice. This is in accordance with the discussion in the literature review, as the colour red was found to be an effective tool to attain and sustain attention (Kuniecki *et al.*, 2015; Shen *et al.,* 2018). Other former research studies suggest that the significant difference in the notice of labels can be explained by framing. Lin and Yang (2014), tracking eye movement on an online shopping portal, proved that loss-framed messages induce fixations to a greater extent and with a longer duration compared to gain framing. Zubair *et al.* (2020) have corresponding results in the context of green marketing, in which they stated either eco-friendly attributes or non-eco-friendly attributes. Further, Kuvaas and Selart (2004) found that thorough information processing was more stimulated by negative framing than positive framing. That more people noticed the label in the loss framing group might also be discussed in the context of subjective reference points, as few people consider this to be eco-friendly products (Van dam and De Jonge, 2014). It may be that loss framing elicits a more thorough information process because it is less common to see labels with statements that a product is not eco-friendly compared to statements of eco-friendliness.

We could not identify a clear pattern of emotions to mediate the relationship between framing and choice. Despite that colours do not seem to induce emotions as we presumed, our results suggest that they slightly influence the extent to which individuals notice the label. However, without separating framing from colour priming, it can not be stated with certainty what tool is most effective in drawing attention. Consequently, we can only imply that the combination of framing and colour priming in this setting seem to slightly attract and maintain awareness.

7. Conclusion

Sustainable packaging of consumer goods is crucial for reducing the ecological footprint of the production and distribution of goods. However, it is not alone sufficient for reaching the SDGs concerning usage of resources. Consumers have a decisive responsibility to reduce their ecological footprint from consumption and thereby boost sustainable production. In this regard, some consumers need persuasive communication to take environmental considerations into account when purchasing wine, partly due to the intention-behaviour gap. Vinmonopolet has implemented efforts to reduce their emissions, in which informing consumers of the products' sustainability is a matter of focus.

How to nudge consumers most efficiently into eco-friendly behaviour in their wine consumption is a complicated issue. In the decision-making process of wine purchase, the degree of eco-friendliness represents yet another factor to consider among a complex variety of information cues. This makes it difficult for consumers to choose in line with their intentions. Hence, the purpose of this study was to understand which labelling strategies Vinmonopolet should implement to impact their consumers' subconsciousness and nudge them towards more sustainable consumption decisions.

We find a small framing bias in Norwegian wine consumers' choice of eco-friendly packaged wine. This bias is contingent on whether an individual notices the eco-label, although, an individual's age and level of education may be better predictors of eco-friendly wine choice than the type of framing. Furthermore, we find that the framing effect is dependent on an individual's environmental profile and score on the personality trait neuroticism.

When being noticed, loss-framed labelling appears to have a small positive effect on eco-friendly choice as compared to gain-framed labelling. By this, consumers' willingness to avoid harming the environment is shown to be higher than their willingness to achieve environmental gains. This indicates that many Norwegian wine consumers may possess a prevention focus regarding environmental concerns. More importantly, loss-framed labelling, as opposed to gain-framed, is a more effective nudging tool for consumers who do not have inherent environmental concerns. Having a low likelihood to choose an eco-friendly wine rather than the traditional alternative, these consumers are vital to nudge to achieve a more sustainable pattern in wine consumption.

A loss-framed message marked with red appears to attract attention to a slightly greater extent than a gain-framed message marked with green. If taking this into account in their marketing strategy, Vinmonopolet can succeed in having more people paying attention to their efforts within the focus area of sustainability, and hopefully achieve a transformation in consumers' environmental attitudes and behaviours with time.

Overall, our findings show that framing may not have an exceptionally distinct effect on wine consumers' degree of environmental choice. The chosen framing manipulation did not trigger the desired emotions, nor did it influence perceived quality. However, the results suggest that loss framing may be slightly more effective in nudging consumers towards the purchase of eco-friendly wine bottles than gain framing. Therefore, we recommend implementing labels with a more persuasive loss-framed communication than investigated in this study in Vinmonopolet's retail stores for further testing.

The degree to which Norwegian wine consumers behave environmentally conscious when noticing the eco-label is promising for Vinmonopolet's journey towards achieving a more sustainable business. Also, the results from this study regarding quality perception and anticipated regret of eco-friendly packaged wine products are uplifting. The trade-off between quality and eco-friendliness seems to be less prominent than what is implied by former research. This should motivate Vinmonopolet to continue with its dedicated efforts to sustainable development.

8. Limitations

8.1 Artificial Purchase Situation

One of the major limitations of this study is that the purchase situation is hypothetical and quite different from that of an actual purchase situation at Vinmonopolet, both in its physical stores and on its website. The product selection consisted of only 12 bottles, solely of white wine from two countries, and the wine characteristics that most people make use of in their decision making were missing. The main reason for the absence of wine characteristics was to reduce information overload since this could result in an unreasonably high estimated time to complete the survey. Also, we feared that to include more information would require significantly larger eco-labels to ensure that respondents would notice them, making the manipulation obvious. Consequently, in the experiment, some respondents were perhaps not able to go through their habitual process for selecting wine.

A consequence of the web-based nature of the experiment is that the respondents could not touch and feel the bottles. The exclusiveness of a heavy wine bottle compared to that of a PET bottle may not be distinct in an online survey. Consequently, the perceived quality of the eco-friendly bottles may have been overrated by respondents compared to that in a physical purchase setting in a Vinmonopolet store. From the sample of respondents reporting not to have noticed the label, 124 of them reported choosing wine bottles in glass, seen in Appendix E.5. However, the exact number of participants choosing solely wine with glass bottles was 47, considerably lower, illustrated in Appendix E.4. This highlights the limitation of not being able to touch and feel the bottles as one would do in Vinmonopolet's stores.

The hypothetical purchase situation, with respondents not noticing that some of the bottles were of plastic, further implicates the level of perceived risk. The liability effect might influence the choice to a greater extent when the wine is actually supposed to be consumed and served to relevant others. Also, time risk may be present in a real purchase decision, as individuals in a hurry may not have the time to fully apprehend the differences between various alternatives.

Considering that 11 per cent of respondents reported that they never drink white wine, conducting the experiment with red wine instead could have increased the degree to which respondents were able to relate to the situation, as litres of red wine sold at Vinmonopolet in 2020 was 54 million compared to 27 million litres of white wine (Vinmonopolet, 2021). With the current offerings at Vinmonopolet, this may be difficult to conduct with existing products at the time being. However, to have a product sample with fictional wine bottles could also be an alternative.

8.2 Intended vs. Actual behaviour

The purpose of the experiment was to detect whether framing is effective in closing the intention-behaviour gap commonly observed in sustainable consumption. By asking respondents to imagine a potential real-life purchase situation and select wine with this in mind, we aimed to measure behaviour to the extent possible through an online survey. However, the findings are not directly applicable to an actual purchase situation. Based on their study results, Kim and Jang (2014) suggest that an individual asked to imagine a scenario may take the perspective of an observer rather than a consumer being directly involved. Consequently, the respondent may neglect to give emotional emphasis to the outcome. This implies that the level of risk perception, degree of concern about quality, the extent to which social norms are considered, the role of emotions, and the effect of framing may not be as prominent in the experiment as in an actual purchase situation. Hence, it is important to note that the scenario-based experiment of this study provides only an indication of actual wine consumer behaviour. Therefore, the findings should be carefully used when interpreting wine consumers' behaviour in Vinmonopolet's stores.

8.3 Framing vs. Priming

Colour priming was implemented to amplify the framing effect, as in the setting of environmental-friendly consumption, the colour green is associated with growth and renewal. In contrast, red is a contrasting colour often linked to danger or harm. However, with only two experimental groups receiving either gain framing accompanied with green or loss framing accompanied with red, the possibility to conclude in regard to which nudging tool was most effective is limited.

8.4 Absence of Control Group

Not including a control group may have increased the validity of the research due to a greater number of respondents in each treatment group; however, it excludes the possibility to see the distinct effect of the two framing types compared to a situation with no label. In addition, having a product sample of wine bottles included in Vinmonopolet's product range may be a source of noise that is difficult to detect. Whether one or some bottles were particularly popular due to a factor ignored when carefully choosing the wine selection was not possible to examine without choices made by a control group to compare with. Considering the popularity rank of products shown in Appendix E.3, with relatively equal distributions, this does not seem to be a vital issue.

As a concluding statement, in retrospect, we see that it could have been wiser to exploit even more compelling communication of loss and gain framing. The effects were not as evident as postulated in the hypotheses, with particularly poor results in the mediation analyses. As emotions may be a vital mediator to the relationship between framing and choice, it is conceivable that the failure to trigger negative or positive emotions might have limited the possibility to achieve higher significance and effect size.

9. Implications

9.1 Theoretical Implications

9.1.1 Perceived Quality in Scenario vs. Reality

A common critique of scenario-based experiments is that individuals' behaviours in hypothetical settings does not reflect actual behaviour in natural situations (Kim and Jang, 2014). The results from this study indicate that the liability effect of eco-friendly wine packaging is not as evident as presumed by former research. As elaborated in the previous section, the results from this study may differ from that of an actual purchase situation. In a physical Vinmonopolet store, negative quality cues may be triggered to a greater extent with the possibility to touch and feel the bottles. Furthermore, it is plausible that this shortcoming may have manifested in unrealistic low risk perception and anticipated regret with respondents. This can be expected to be more prominent in an actual purchase situation where the quality signals are more conspicuous.

As previous research has found support for the existence of liability effects in regard to alternative extrinsic wine attributes (Duhan *et al*., 2019; Reynolds *et al*., 2018; Ferrara and De Feo, 2020). We therefore suggest to further investigate the potential liability effect of sustainable wine packaging in naturalistic settings, by conducting field studies in Vinmonopolet's physical stores. Through field experiments, it is possible for Vinmonopolet to observe individuals' behaviours in their choice of wine.

9.1.2 Negative and Positive Emotions

The postulated effect of loss framing to trigger negative emotions and gain framing to trigger positive emotions was statistically disproved. Consequently, it was not possible to determine whether positive and negative emotions have different impacts on the nudging effect of framing. Based on the literature review, it was the use of colour that was presumed to trigger emotions and thereby influence the degree to which the framing approaches were effective. The framing in itself, by stating whether a product was eco-friendly or not eco-friendly is rather informative and might not have been sufficient to trigger emotions. To illustrate a more comprehensive framing communication, Goldstein *al.* (2008, cited in White *et al.*, 2019) found that to state other hotel guests' contributions to conserve energy

usage, exploiting individuals' norms, is more effective than using conventional environmental labels. As another example, Van Dam and De Jonge (2015) were able to prove loss aversion by implementing labels communicating more (less) energy use than the industry average, non-recyclable (fully recyclable), and not made (made) from recycled materials in their loss (gain) manipulation. Thus, it is possible that emotions would mediate the effect of framing if loss and gain framing for instance more explicitly demonstrated the negative and positive consequences of purchasing a glass or plastic bottle, respectively. For example, stating the higher (lower) emissions caused by heavy glass (plastic) bottles in production and transportation in loss (gain) framing. If such communication appears to trigger emotions to a greater extent, the framing effect may be more evident. Moreover, the amendment of the framed communication may also result in a more distinct attraction effect of loss framing, which would align with results from former research (e.g., Lin and Yang, 2014; Zubair *et al.*, 2020; Kuvaas and Selart, 2004). Therefore, we suggest this as an implication relevant for further investigation in future studies.

9.1.2 Neuroticism

In this study, the moderator analysis on neuroticism indicates that emotionally stable individuals are more affected by gain framing than loss framing, although not significant. As 40 per cent of the sample had a level of neuroticism lower than 2, this is an issue that should be further investigated. As discussed above, respondents' quality perceptions appear to not be as distinct as former research suggest. The potential inaccurate concern of perceived quality and of other risk factors may have reduced the perceived risk, which is a central part of framing and loss aversion theory. Lauriola and Levin (2001) propose that individuals with low scores on neuroticism may be more prone to obtain negative consequences in loss framing, rather than take the risk of other consequences. Transferring this reasoning to our study, emotionally stable individuals may accept the environmental harm to avoid other risks associated with eco-friendly products. In a field-based experiment, the fundamental factors of perceived risk will be present, and the moderation of neuroticism can be assumed to unfold differently than in this experiment. If the two-folded role of neuroticism indicated from our analysis is statistically significant for a larger sample, this may influence the overall effect of framing. If true, this will have implications for marketers' decision to implement framing as a nudging tool. Therefore, the moderating

role of neuroticism is a relevant topic to further investigate in an in-field experiment with a larger sample size.

9.1.3 Involvement

Elaborated in the literature review, the level of involvement may have an impact on the extent to which a consumer chooses eco-friendly products. Communication has shown to not impact high-involved consumers (Nesselhauf *et al.*, 2017). We suggested that this could stem from the status quo bias, in which high-involved consumers may be more attached to previously purchased wine. Therefore, they may be considered to have more to lose by purchasing wine with eco-friendly packaging and the associated unknown wine quality. The scope of our study did not include the investigation of wine involvement. However, from the measure of involvement, we performed a linear regression and ANOVA on the effect of involvement on choice in the subsample. The results provide strong indications of involvement to negatively influence the choice of eco-friendly wine (F-statistic = 10.01, p < 0.01. Further, we performed an ANCOVA on framings' effect on choice, controlling for age, education, and involvement. The output showed an increase in the effect of framing on choice (F-statistic = 3.889, p = 0.05). However, due to limited time and involvement not being a key focus of this thesis, the effect and implications of this was not investigated nor discussed to a greater extent. Therefore, we suggest that further research on how to spur sustainable wine choice should include involvement as one of the main focus areas.

9.2 Practical Implications

The purpose of this research study was to understand whether loss framing, changing consumers' subjective reference points, would be more effective in spurring eco-friendly consumption compared to gain framing. We were not able to prove that loss framing is significantly more effective than gain framing, as the demographics of age and education were better predictors of eco-friendly choice than framing. The main effect of age, however, implies that with years, the number of Norwegian consumers who will desire to purchase wine in eco-friendly bottles is likely to increase, being beneficial for Vinmonopolet's transition towards a more sustainable business.

A reason for our research question was to gain insights into how Vinmonopolet most efficiently may close the intention-behaviour gap of eco-friendly wine consumption. Our

results suggest that the difference between gain and loss framing in this regard might not be as prominent as hypothesised. However, another important part of the transition to a more sustainable business is to also nudge individuals who lack the intention to purchase eco-friendly products. In this regard, we illustrated that loss framing was more effective on people with low levels of environmental profile than gain framing. This finding insinuates that loss framing may have a greater effect overall.

Despite not being part of the research question and hypothesis, an indication of our analysis is that loss framing is somewhat more effective in attracting attention than is gain framing. It is uncertain whether this is because people are more attentive to the colour red, or because people are more affected by the message of a product being non-eco-friendly. The possibility that the label was to a greater extent noticed in the loss framing group was also discussed regarding consumers common reference point. If it is true that more people paid attention to the "not eco-friendly" label because it is an extremely rare marketing strategy in consumption as of today, this can imply that if implemented, the attraction effect may decrease with time. However, as the use of loss-framed labelling may also support the change of an individual's subjective reference point towards the eco-friendly product, it can still have a positive effect. If it is effective when first implemented, it may change consumers' status quo behaviour and wine purchasing habits, especially for consumers that do not pay attention to eco-labelling yet.

The misconception that eco-friendly packaging has inferior functionality compared to the traditional glass bottle seems to not be as evident as presumed. If this is transferable to a real purchase situation, it indicates that increasing the product selection of bottles in eco-friendly packaging will not have a great negative impact on sales figures of those products.

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Appendix

A: Complete Survey

Master Thesis Vinmonopolet

Start of Block: Consent

Q1 This survey is related to a **study at the Norwegian School of Economics, in collaboration with Vinmonopolet.** The survey is anonymous and will only be used in connection with the study. If you have questions regarding the survey, please contact Sofie Nyfløt on +47 452 30 990.

You will first be presented with a purchase situation. Then we want you to answer questions related to the situation and you as a person.

Estimated time: 9 min.

Q2 Consent

◯ **Click here** to agree to voluntarily participate in this survey and confirm that you are over 18 years of age. (1)

Q3 Do you drink alcohol? (generally)

◯ Yes (1)

◯ No (2)

End of Block: Consent

JS

Q4 **Welcome!**

We want you to familiarize yourself with the following scenario:
On Saturday, you have invited **10 friends** to dinner, and you will serve food from the **Asian cuisine**. You are now looking through the shelves at Vinmonopolet to find white wine to serve with your food.

On the next page you will be presented with the selection you see on the shelves. You are free to choose several types of wine and several of the same wine, but a **maximum of** 12 wine bottles. Note that you must spend **at least** 45 seconds in the purchase situation.

JS ⤨

Q5 (Gain) Select the wine you want to buy by entering the number of bottles in the box next to the wine. At the bottom you can see how many wine bottles you have chosen in total. Remember that you must choose a maximum of 12 wine bottles, for 10 friends, which will go with Asian food.

Image: Glass 1: _____ (5)
Image: Glass 2: _____ (6)
Image: Glass 3: _____ (49)
Image: Glass 4: _____ (51)
Image: Glass 5: _____ (52)
Image: Glass 6: _____ (53)
Image: Plastic 1: _____ (54)
Image: Plastic 2: _____ (55)
Image: Plastic 3: _____ (56)
Image: Plastic 4: _____ (57)
Image: Plastic 5: _____ (58)
Image: Plastic 6: _____ (59)

Total: _____

Q6 (Gain) Thank you for purchasing ${Q5/TotalSum} wine bottles!

You chose:
${Q5/ChoiceGroup/SelectedChoices}

Q7 (Gain) To what extent do you agree/disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I consider the wine selection to be of good quality (9)	○	○	○	○	○
I'm afraid I'll regret my choice of wine (4)	○	○	○	○	○

End of Block: Experiment – Gain Framing

Start of Block: Experiment – Loss Framing

Q8 (Loss) Select the wine you want to buy by entering the number of bottles in the box next to the wine. At the bottom you can see how many wine bottles you have chosen in total. Remember that you must choose a **maximum of 12 wine bottles, for 10 friends,** which will go with Asian food.

Image: Glass1: _____ (21)
Image: Glass 2: _____ (22)
Image: Glass 3: _____ (23)
Image: Glass 4: _____ (24)
Image: Glass 5: _____ (25)
Image: Glass 6: _____ (26)
Image: Plastic 1: _____ (27)
Image: Plastic 2: _____ (28)
Image: Plastic 3: _____ (29)
Image: Plastic 4: _____ (30)
Image: Plastic 5: _____ (31)
Image: Plastic 6: _____ (32)

Total: _____

Q9 (Loss) Thank you for your purchase of ${Q8/TotalSum} bottles of wine!

You selected:
${Q8/ChoiceGroup/SelectedChoices}

Q10 (Loss) To what extent do you agree/disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I consider the wine selection to be of good quality (6)	○	○	○	○	○
I am afraid I will regret my choice of wine (4)	○	○	○	○	○

End of Block: Experiment – Loss Framing

Start of Block: Choice of Wine

Q11 How important / unimportant were the following criteria for your choice of wine?

	Not important (1)	Little important (2)	Neutral (3)	Pretty important (4)	Important (6)
Perceived quality (1)	○	○	○	○	○
Visual expression / Design (2)	○	○	○	○	○
Price (3)	○	○	○	○	○
Manufacturer / Brand (4)	○	○	○	○	○
Desire to try something new (5)	○	○	○	○	○
Origin (country, district) 6)	○	○	○	○	○
Previous experience with the selection options (7)	○	○	○	○	○
Eco-friendliness (8)	○	○	○	○	○

End of Block: Choice of Wine

Start of Block: Emotions

Q12 In the choice setting, to what extent did you feel the following emotions?

	Not at all (1)	To a small extent (2)	To a certain extent (3)	To a large extent (4)	To a very large extent (5)
Pride (1)	○	○	○	○	○
Hope (2)	○	○	○	○	○
Self-awareness (3)	○	○	○	○	○
Guilt (4)	○	○	○	○	○
Shame (5)	○	○	○	○	○
Fear (6)	○	○	○	○	○

End of Block: Emotions

Start of Block: Social Norms: Influence / Pro-environmental

Q13 To what extent do you agree / disagree with the following statements? (generally)

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
People in my social circle are worried about climate change (1)	○	○	○	○	○
People in my social circle deem purchase of eco-friendly products as important (2)	○	○	○	○	○
I feel a social pressure to purchase eco-friendly products (3)	○	○	○	○	○
It is important for me to not stand out in my social circle (4)	○	○	○	○	○
People in my social circle are interested in wine (5)	○	○	○	○	○

End of Block: Social Norms: Influence / Pro-environmental

Start of Block: Environmental Profile / Pro-Environmental Personal norms

Q14 To what extent do you agree/disagree with the following statements? (generally)

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I try to make as many sustainable choices as possible in daily life (1)	○	○	○	○	○
My contribution of choosing sustainable is pointless, if others do not do the same (2)	○	○	○	○	○
I am concerned of the effects of human caused climate change (3)	○	○	○	○	○
I consider eco-friendly products to be of poorer quality than other products (4)	○	○	○	○	○
I feel I have to sacrifice my own interests by choosing sustainable products (5)	○	○	○	○	○

Q15 Think about the last five purchases you made (in general). In how many of them can you say with certainty that you made a sustainable choice?

○ 0 (1)

○ 1 (2)

○ 2 (3)

○ 3 (4)

○ 4 (5)

○ 5 (6)

End of Block: Environmental Profile / Pro-Environmental Personal norms

Start of Block: Involvement

Q16 To what extent do you agree/disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I like to recommend wine to others (1)	○	○	○	○	○
I usually spend a lot of time searching for information before buying a new wine (2)	○	○	○	○	○
I appreciate enjoying a glass of wine in peace and quiet (3)	○	○	○	○	○

Q17 To what extent do you agree / disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I taste the difference of wine with distinct characteristics (1)	○	○	○	○	○
I consider myself a wine expert (2)	○	○	○	○	○
I give greater importance to quality than price when purchasing wine (3)	○	○	○	○	○

Q18 Did you notice the eco-label in the presentation of the wines?

○ Yes (1)

○ No (2)

Q19 What type of packaging did the wine bottle(s) you chose have?

○ Glass (1)

○ Plastic (2)

○ Glass and plastic (3)

○ Do not know (4)

Page Break

Q20 To what extent do you agree/disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (6)
The eco-label had a negative impact on my quality perception of the eco-friendly wines (1)	○	○	○	○	○
I am generally concerned that other types of packaging than glass will have a negative effect on the quality of the wine (2)	○	○	○	○	○
My quality perception of the different wines greatly influenced which wine(s) I chose (3)	○	○	○	○	○

Q21 To what extent do you agree/disagree with the following statements?

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (6)
The eco-label had a negative impact on my quality perception of the wines without eco-labelling (1)	○	○	○	○	○
I am generally concerned that other types of packaging than glass will have a negative effect on the quality of the wine (2)	○	○	○	○	○
My quality perception of the different wines greatly influenced which wine(s) I chose (3)	○	○	○	○	○

Q22 When you think of the word «risk», which of the following words comes to mind first? (generally)

○ Loss (1.25)

○ Uncertainty (2.5)

○ Opportunity (3.75)

○ Thrill (5)

Q23 Indicate your willingness to take risks (in general):

○ Very low (1)

○ Low (2)

○ Neutral (3)

○ High (4)

○ Very high (5)

Q24 To what extent do you agree / disagree with the following statements? (generally)

	Disagree (1)	Partly disagree (2)	Neither nor (3)	Partly agree (4)	Agree (5)
I prefer variation to routine (1)	○	○	○	○	○
I am curious by nature (2)	○	○	○	○	○
I like to try new things (3)	○	○	○	○	○
I worry a lot (4)	○	○	○	○	○
I get nervous easily (5)	○	○	○	○	○
I remain calm in tense situations (6)	○	○	○	○	○

End of Block: Personality Traits

Start of Block: Socio-Demographics

Q25 What is you gender?

○ Female (1)

○ Male (2)

○ Other (3)

⤨ X→

Q26 How old are you?

▼ 18 (18) ... 99 (99)

⤨ X→

Q27 What is the highest level of education you have completed?

○ Primary school (1)

○ Secondary education (2)

○ Bachelor's degree (3)

○ Master's degree (4)

○ Doctorate (PhD) (5)

End of Block: Socio-Demographics

Start of Block: Customer

Q28 Do you ever drink white wine?

○ Yes (1)

○ No (2)

Q29 Have you purchased wine from Vinmonopolet in the last six months?

○ Yes (1)

○ No (2)

End of Block: Customer

B – Complete Wine Selection

B.1 – PET matched with Glass
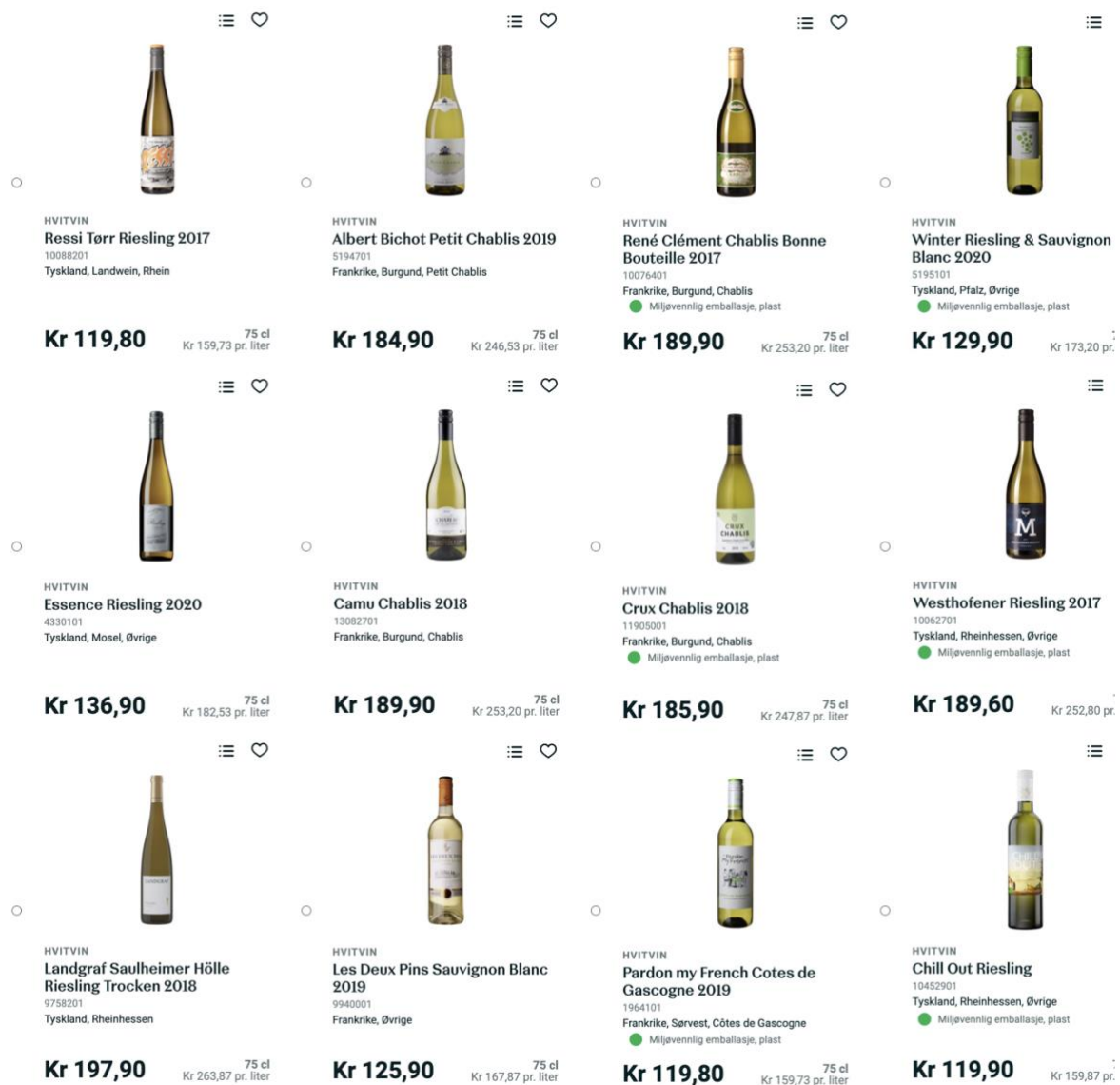
PET (Plastic)		Glass (Heavy glass)	
Product	**Price**	**Product**	**Price**
France			
René Clément Chablis Bonne Bouteille 2017	189,90 NOK	Camu Chablis 2018	189,90 NOK
Pardon my French Cotes de Gascogne 2019	119,90 NOK	Les Deux Pins Sauvignon Blanc 2019	125,90 NOK
Crux Chablis 2018	185,90 NOK	Albert Bichot Petit Chablis 2019	184,90 NOK
Germany			
Winter Riesling & Sauvignon Blanc 2020	129,90 NOK	Essence Riesling 2020	136,90 NOK
Chill Out Riesling	119,90 NOK	Ressi Tørr Riesling 2017	119,80 NOK

	Westhofener Riesling 2017	189,60		Landgraf Saulheimer Hölle Riesling Trocken 2019	197,90 NOK

B.2 - By Framing Group

Note that in the experiment, the products were exhibited vertical and randomly presented.

Gain Framing

HVITVIN
Ressi Tørr Riesling 2017
10088201
Tyskland, Landwein, Rhein

Kr 119,80 Kr 159,73 pr. liter 75 cl

HVITVIN
Albert Bichot Petit Chablis 2019
5194701
Frankrike, Burgund, Petit Chablis

Kr 184,90 Kr 246,53 pr. liter 75 cl

HVITVIN
René Clément Chablis Bonne Bouteille 2017
10076401
Frankrike, Burgund, Chablis
● Miljøvennlig emballasje, plast

Kr 189,90 Kr 253,20 pr. liter 75 cl

HVITVIN
Winter Riesling & Sauvignon Blanc 2020
5195101
Tyskland, Pfalz, Øvrige
● Miljøvennlig emballasje, plast

Kr 129,90 Kr 173,20 pr. 75 cl

HVITVIN
Essence Riesling 2020
4330101
Tyskland, Mosel, Øvrige

Kr 136,90 Kr 182,53 pr. liter 75 cl

HVITVIN
Camu Chablis 2018
13082701
Frankrike, Burgund, Chablis

Kr 189,90 Kr 253,20 pr. liter 75 cl

HVITVIN
Crux Chablis 2018
11905001
Frankrike, Burgund, Chablis
● Miljøvennlig emballasje, plast

Kr 185,90 Kr 247,87 pr. liter 75 cl

HVITVIN
Westhofener Riesling 2017
10062701
Tyskland, Rheinhessen, Øvrige
● Miljøvennlig emballasje, plast

Kr 189,60 Kr 252,80 pr. 75 cl

HVITVIN
Landgraf Saulheimer Hölle Riesling Trocken 2018
9758201
Tyskland, Rheinhessen

Kr 197,90 Kr 263,87 pr. liter 75 cl

HVITVIN
Les Deux Pins Sauvignon Blanc 2019
9940001
Frankrike, Øvrige

Kr 125,90 Kr 167,87 pr. liter 75 cl

HVITVIN
Pardon my French Cotes de Gascogne 2019
1964101
Frankrike, Sørvest, Côtes de Gascogne
● Miljøvennlig emballasje, plast

Kr 119,80 Kr 159,73 pr. liter 75 cl

HVITVIN
Chill Out Riesling
10452901
Tyskland, Rheinhessen, Øvrige
● Miljøvennlig emballasje, plast

Kr 119,90 Kr 159,87 pr. 75 cl

Loss Framing

HVITVIN
Ressi Tørr Riesling 2017
10088201
Tyskland, Landwein, Rhein
🔴 Ikke miljøvennlig emballasje, glass

Kr 119,80 75 cl
Kr 159,73 pr. liter

HVITVIN
Albert Bichot Petit Chablis 2019
5194701
Frankrike, Burgund, Petit Chablis
🔴 Ikke miljøvennlig emballasje, glass

Kr 184,90 75 cl
Kr 246,53 pr. liter

HVITVIN
René Clément Chablis Bonne Bouteille 2017
10076401
Frankrike, Burgund, Chablis

Kr 189,90 75 cl
Kr 253,20 pr. liter

HVITVIN
Winter Riesling & Sauvignon Blanc 2020
5195101
Tyskland, Pfalz, Øvrige

Kr 129,90 Kr 173,20 pr.

HVITVIN
Essence Riesling 2020
4330101
Tyskland, Mosel, Øvrige
🔴 Ikke miljøvennlig emballasje, glass

Kr 136,90 75 cl
Kr 182,53 pr. liter

HVITVIN
Camu Chablis 2018
13082701
Frankrike, Burgund, Chablis
🔴 Ikke miljøvennlig emballasje, glass

Kr 189,90 75 cl
Kr 253,20 pr. liter

HVITVIN
Crux Chablis 2018
11905001
Frankrike, Burgund, Chablis

Kr 185,90 75 cl
Kr 247,87 pr. liter

HVITVIN
Westhofener Riesling 2017
10062701
Tyskland, Rheinhessen, Øvrige

Kr 189,60 Kr 252,80 pr.

HVITVIN
Landgraf Saulheimer Hölle Riesling Trocken 2018
9758201
Tyskland, Rheinhessen
🔴 Ikke miljøvennlig emballasje, glass

Kr 197,90 75 cl
Kr 263,87 pr. liter

HVITVIN
Les Deux Pins Sauvignon Blanc 2019
9940001
Frankrike, Øvrige
🔴 Ikke miljøvennlig emballasje, glass

Kr 125,90 75 cl
Kr 167,87 pr. liter

HVITVIN
Pardon my French Cotes de Gascogne 2019
1964101
Frankrike, Sørvest, Côtes de Gascogne

Kr 119,80 75 cl
Kr 159,73 pr. liter

HVITVIN
Chill Out Riesling
10452901
Tyskland, Rheinhessen, Øvrige

Kr 119,90 Kr 159,87 pr.

C: Operationalisation Overview

C.1 – Core Concepts

Concept	Question(s)	Based on	Concept Indicator (calculation based on questions)
Perceived Quality	A. I consider the wine selection to be of good quality (1-5)	A: Aaker and Jacobsen (1994)	A
Environmental Profile	A. I try to make as many sustainable choices as possible in daily life. (1-5) B. I am concerned about the effects of human-caused climate change. (1-5) C. Think about the last five purchases you made (in general). In how many of them can you say with certainty that you made a sustainable choice? (0-5)	A and B: Thøgersen *et al.* (2010)	[(A+B+C)/3
Emotions	In the choice setting, to what extent did you feel the following emotions? (1-5) Positive Emotions: Pride (A), Hope (B), Self-Consciousness (C) Negative Emotions: Guilt (D), Shame (E), Fear (F)	A and C: White *et al.* (2019) B and D-F: Habib *et al.* (2021)	Positive: (A+B+C)/3 Negative: (D+E+F)/3
Risk Attitude	A. When you think of the word «risk», which of the following words comes to mind first? *(Loss, Uncertainty, Opportunity, Thrill)* (1.25;2.5;3.75;5) B. Indicate your willingness to take risks (in general) (1-5)	A. Grable and Lytton (2003) B. Dohmen *et al.* (2011)	(A+B)/2
Personality Traits	To what extent do you agree / disagree with the following statements? (generally) *Neuroticism* A. I worry a lot. B. I get nervous easily. C. I remain calm in tense situations. (1-5) *Openness to Experience* D. I prefer variation to routine E. I am curious by nature. F. I like to try new things. (1-5)	A-E: (John, Donahue and Kentle, 1991, cited in John and Srivastava, 1999) F: Miklikowska (2012)	Neuroticism: (A+B+C)/3 (Question C recoded) Openness: (D+E+F)/3

| Anticipated Regret | To what extent do you agree / disagree with the following statements? (generally)

    A. I am afraid I will regret my choice of wine. | Abraham and Sheeran (2003) and

Ronan *et al.* (2012) | A |

C.2 – Remaining Concepts

Concept	Indicator(s)	Based on	Concept Indicator (calculation based on questions)
Involvement	A. I like to recommend wine to others. B. I usually spend a lot of time searching for information before buying a new wine. C. I appreciate enjoying a glass of wine in peace and quiet. (1-5)	A, B and C: Brunner and Siegrist (2011) and Lockshin and Corsi (2012) C: Hirche and Bruwer (2014)	(A+B+C)/3
Expertise	A. I taste the difference of wine with distinct characteristics. B. I consider myself a wine expert. C. I give greater importance to quality than price when purchasing wine. (1-5)	A, B and C Brunner and Siegrist (2011) C: Eguaras *et al.* (2010) and Jaeger *et al.* (2009)	A+B+C)/3
Social Norms	A. People in my social circle are worried about climate change. (1-5) B. People in my social circle deem purchase of eco-friendly products as important. (1-5) C. I feel a social pressure to purchase eco-friendly products (1-5)	A and B: White *et al.* (2019) and Mackie and Moneti (2014)	(A+B+C)/3

Perceived Quality eco-friendly bottle in experiment	To what extent do you agree / disagree with the following statements?
	    Gain framing: The eco-label had a negative impact on my quality perception of the eco-friendly wines"
	
	    Loss framing: The eco-label had a negative impact on my quality perception of the wines without eco-labelling
	    (1-5)
			Recoded, so that 5 = disagree, reflecting high quality perception

| Perceived Quality eco-friendly bottle in general | To what extent do you agree / disagree with the following statements?

I am generally concerned that other types of packaging than glass will have a negative effect on the quality of the wine

(1-5) | | Recoded, so that 5 = disagree, reflecting high quality perception |

C.3 – Cronbach's Alpha

Concept	Indicator(s) questions	Cronbach's Alpha
Social Norms	People in my social circle are worried about climate change	0.754
	People in my social circle deem purchase of eco-friendly products as	
	I feel a social pressure to purchase eco-friendly products.	
Environmental Profile	I try to make as many sustainable choices as possible in daily life.	0.663
	I am concerned about the effects of human-caused climate change.	
	Think about the last five purchases you made (in general). In how many of them can you say with certainty that you made a sustainable choice?	
Positive Emotions	Pride	0.738
	Hope	
	Self-Consciousness	
Negative Emotions	Guilt	0.782
	Fear	
	Shame	
Neuroticism	I worry a lot.	0.765
	I get nervous easily.	
	I remain calm in tense situations (values recoded).	

Openness to Experience	I prefer variation to routine.	0.707
	I am curious by nature.	
	I like to try new things.	
Risk Attitude	When you think of the word «risk», which of the following words comes to mind first? *(Loss, Uncertainty, Opportunity, Thrill)*	0.613
	Indicate your willingness to take risks (in general)	
Involvement	I like to recommend wine to others.	0.621
	I usually spend a lot of time searching for information before buying a new	
	I appreciate enjoying a glass of wine in peace and quiet.	
Expertise	I taste the difference of wine with distinct characteristics.	0.658
	I consider myself a wine expert.	
	I give greater importance to quality than price when purchasing wine.	

D: Statistical Methods Overview

Statistical Methods	Statistical Method	Concepts
4.6.2.1 Descriptive Analysis	Frequencies	Demographics (age, gender, education) Attributes preferences/importance Involvement and Expertise
	Frequencies Cross Table, Framing Groups compared	Environmental Profile Notice of the labels Choice Emotions Perceived Quality Anticipated Regret
	Mean choice based on…	Demographics Emotions (binned) Risk attitude (binned) Environmental profile (binned) Involvement and Expertise (binned) Collective Action Requirement Self-other Trade-off Quality perception of eco-friendly products in general
	Distribution and Central Tendency	Sample across age, gender and education
	Mean, Standard deviation, Kurtosis	On all questions measuring concepts
4.6.2.2 Linear Regression 4.6.2.3 One-way ANOVA	Linear Regression One-way Analysis of Variance	Framing (x) Choice (y) *H1* Framing (x) Negative Emotions (y) *H2a* Framing (x) Positive Emotions (y) *H2b* Framing (x) Quality Perception (y) *H3a* Framing (x) Anticipated Regret (y) *H7*

	Analysis of Covariance (ANCOVA)	Framing (x) Age (y) / Framing (x) Educational Level (y) / Framing (x) Gender (y)
		Framing (x) Age (c) Choice (y) / Framing (x) Educational Level (c) Choice (y) / Framing (x) Gender (c) Choice (y)
		Framing (x) Age (c1) Educational Level (c2) Gender (c3) Choice (y)
	Hierarchical Regression	Model 1: Age (c1) Educational Level (c2) Choice (y) Model 2: Framing (x) Age (c1) Educational Level (c2) Choice (y)
4.6.2.4 Mediation Analysis	PROCESS BY HAYES Model 4: Simple Mediation	Framing (x) Choice (y) Perceived Quality (M) *H3b*
	PROCESS BY HAYES Model 4: Multiple Mediation	Framing (x) Choice (y) Positive Emotions M1 Negative Emotions (M2) *H2c*
4.6.2.5 Moderation Analysis	PROCESS BY HAYES model 1: (Johnson-Neyman output)	Framing (x) Choice (y) Environmental Concern (w) *H4* Framing (x) Choice (y) Risk Attitude(w) *H5* Framing (x) Choice (y) Neuroticism(w) *H6a* Framing (x) Choice (y) Openness to Experience (w)
4.6.2.6 Factor Analysis	Factor analysis	Variables measuring concepts
4.6.2.7 Correlation Analysis	Correlate Bivariate	Independent Variables across Concepts Independent Variables within Concepts

E: Sample Descriptives

E.1 – Socio-Demographics & Individual Differences

Education Level

- Primary School
- Secondary School
- Bachelor's Degree
- Master's Degree
- Doctorate (PhD)

1,3% 4,6%
23,8%
38,4%
31,9%

Gender

- Female
- Male
- Other

0,2%
48,9%
50,8%

Age

Risk Attitude

Openness to Experience

Neuroticism

Environmental Profile

Environmental Social Norms
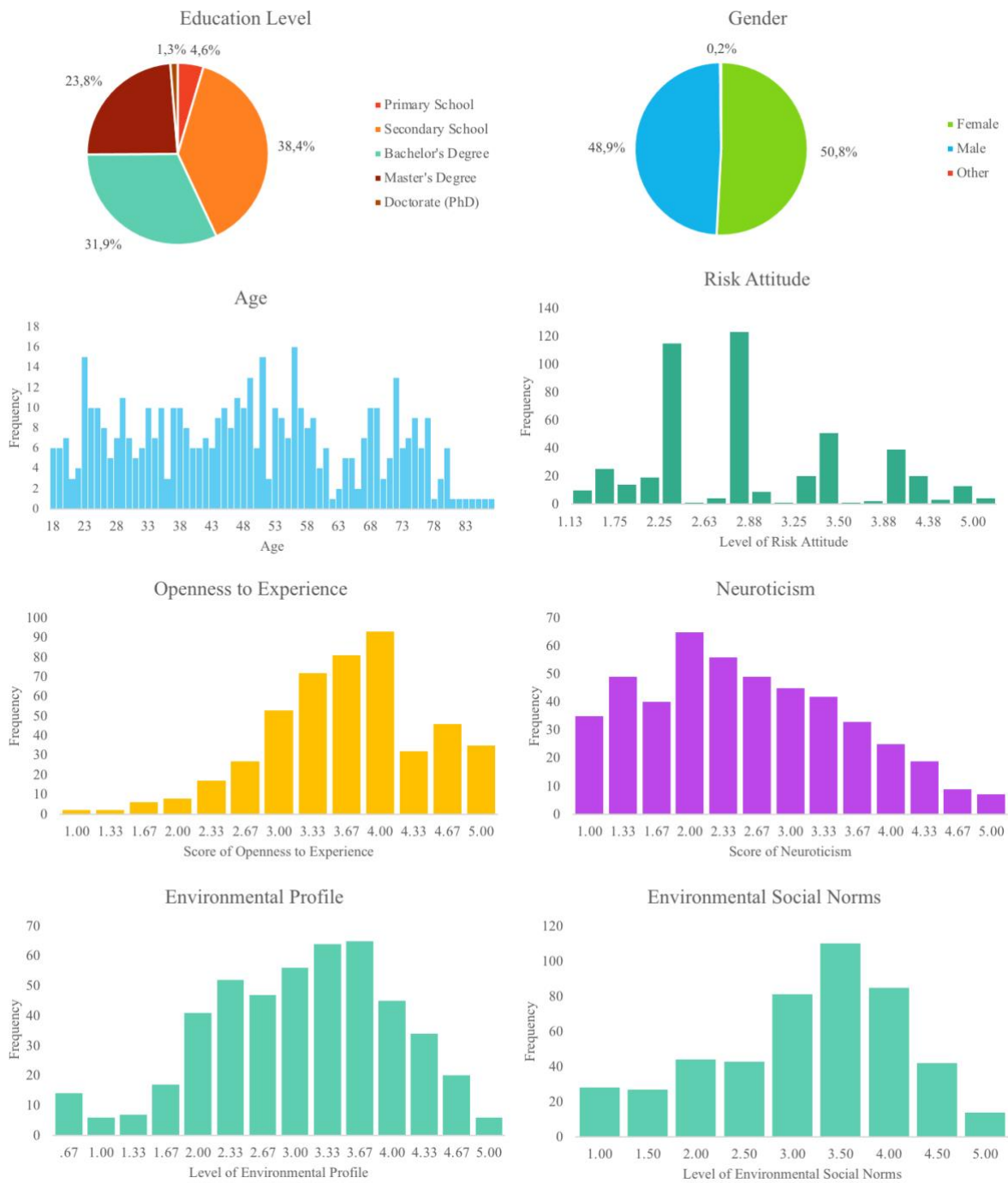
E.2 Demographics: Sample vs. the Norwegian Population

Age Distribution
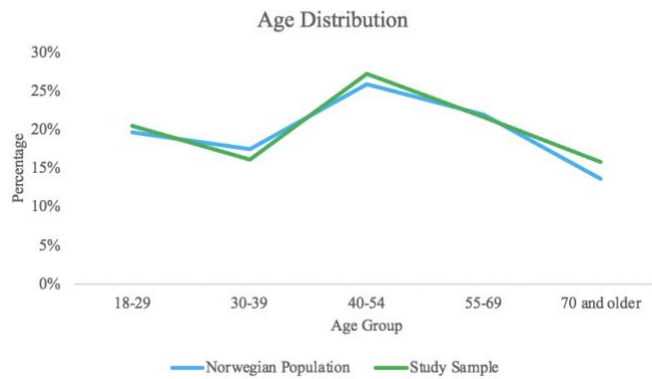
Age Group	Norwegian Population	Study Sample
18-29	19.70%	20.50%
30-39	17.50%	16.10%
40-54	25.90%	27.30%
55-69	22.00%	21.60%
70 and older	13.70%	15.80%
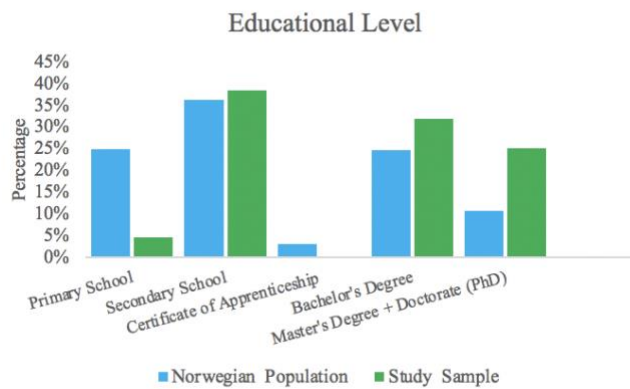
Educational Level

Educational Level	Norwegian Population	Study Sample
Primary School	24.82%	4.60%
Secondary School	36.19%	38.40%
Certificate of Apprenticeship	3.03%	-
Bachelor's Degree	24.74%	31.90%
Master's Degree + Doctorate (PhD)	10.64%	25.10%
Total	99.42%	100.00%

Gender Distribution
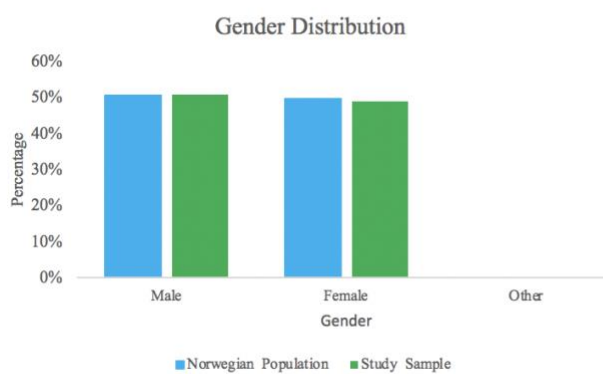
Gender	Norwegian Population	Study Sample
Male	50.46%	50.8%
Female	49.54%	48.9%
Other	-	0.2%
Total	100.00%	99.90%

E.3 – Wine Preferences

Mean and Standard Deviation of Choice Criterias
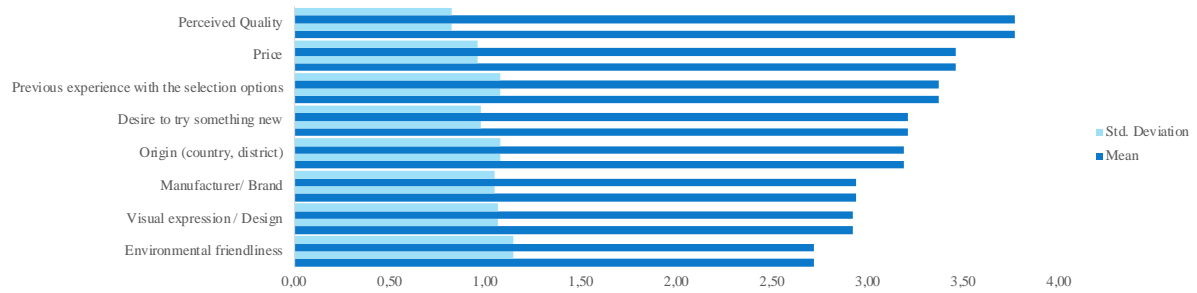
Frequency Wine Involvement
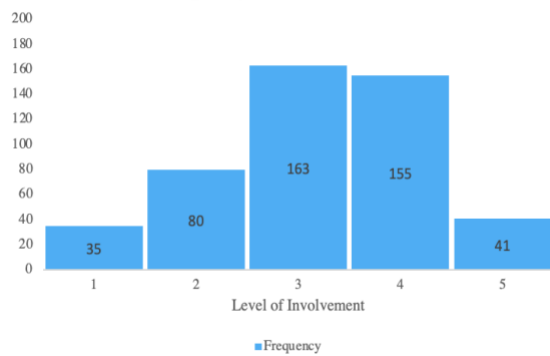
Choice of Wine by Product

- Ressi Tørr Riesling 2017
- Essence Riesling 2020
- Landgraf Saulheimer Hölle Riesling Trocken 2018
- Albert Bichot Petit Chablis 2019
- Camu Chablis 2018
- Les Deux Pins Sauvignon Blanc 2019
- René Clément Chablis Bonne Bouteille 2017
- Crux Chablis 2018
- Pardon my French Cotes de Gascogne 2019
- Winter Riesling & Sauvignon Blanc 2020
- Westhofener Riesling 2017
- Chillout Riesling

Frequency Wine Expertice
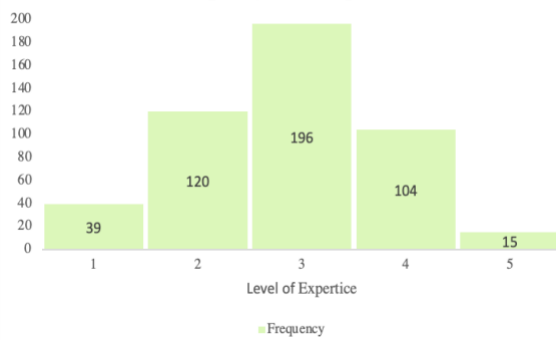
E.4 Reported vs. Actual Packaging Type of Choice in Experiment

(Correct answers in green, wrong answers in red)

Choice	What packaging did the bottle(s) you chose have?				Total
	Glass	Plastic	Glass & Plastic	Don't know	
.00	47	1	7	23	78
.08	0	0	0	1	1
.17	4	0	4	2	10
.20	3	0	0	2	5
.25	5	0	4	4	13
.27	0	0	1	0	1
.29	1	1	0	0	2
.30	1	0	1	1	3
.33	15	2	5	11	33
.38	0	0	1	1	2
.40	6	1	2	2	11
.42	4	0	2	2	8
.43	2	0	1	0	3
.44	1	0	0	0	1
.45	0	0	0	2	2
.50	46	1	15	21	83
.55	0	0	1	0	1
.56	1	0	0	1	2
.57	1	0	0	1	2
.58	6	0	3	4	13
.60	3	0	4	5	12
.63	0	0	0	1	1
.64	0	0	0	2	2
.67	9	2	8	13	32
.70	1	0	1	0	2
.71	1	0	0	1	2
.73	2	0	0	0	2
.75	7	0	5	3	15
.80	0	0	2	0	2
.83	9	0	1	5	15
.86	1	0	0	0	1
1.00	40	15	9	50	114
Total	**216**	**23**	**77**	**158**	**474**

E.5 Notice of Label, Packaging Type and Quality Perception of

Eco-Friendly Wines in Experiment

Did you notice the eco-label?	PQ_EL	Packaging Type	Quality perception of the eco-friendly wines in the experiment (Frequencies)				
			1.00	2.00	3.00	4.00	5.00
No	What type of packaging did the wine bottle(s) you chose have?	Glass	3	6	54	15	46
		Plastic	0	0	1	0	0
		Glass and Plastic	0	2	9	4	7
		Don't know	0	2	48	7	42
	Total		3	10	112	26	95
Yes	What type of packaging did the wine bottle(s) you chose have?	Glass	4	10	26	7	45
		Plastic	0	2	2	6	12
		Glass and Plastic	0	5	12	11	27
		Don't know	2	5	15	9	28
	Total		6	22	55	33	112
Total	What type of packaging did the wine bottle(s) you chose have?	Glass	7	16	80	22	91
		Plastic	0	2	3	6	12
		Glass and Plastic	0	7	21	15	34
		Don't know	2	7	63	16	70

			9	32	167	59	207
Total			9	32	167	59	207

E.6 – Choice by Demographics and Concepts

Choice by Education Level by Framing Group

Choice by Age Group by Framing Group

Choice by Gender by Framing Group

Choice by Anticipated Reget by Framing

Choice by Level of Neuroticism by Framing Group

Choice by Level of Openness by Framing Group

Choice by Level of Risk Attitude by Framing Group

Choice by Level of Environmental Profile by Framing Group

Choice by Involvement by Framing

Choice by Expertise by Framing

Choice by Self-Other Trade-Off by Framing Group

Choice by Collective Action Requirement by Framing Group

Choice by Framing Group
(Notice of Label Subsample)

E.7 – Differences between Framing Groups

Environmental Profile by Framing Group

	Mean	SD
Gain:	2.77	0.93
Loss:	2.72	0.98

Choice by Framing Group

Notice of Label by Framing Group

Negative Emotions by Framing Group

	Mean	SD
Gain:	1.36	0.59
Loss:	1.33	0.58

Positive Emotions by Framing Group

	Mean	SD
Gain:	2.21	0.84
Loss:	2.19	0.86

Perceived Quality by Framing Group

	Mean	SD
Gain:	3.88	0.86
Loss:	3.84	0.91

Anticipated Regret by Framing Group

	Mean	SD
Gain:	2.61	1.09
Loss:	2.62	1.16

E.8 – Normality Statistics: Mean, Standard Deviation, Skewness and Kurtosis

		Whole Sample				Gain				Loss			
		Mean	Std. Deviation	Skewness	Kurtosis	Mean	Std. Deviation	Skewness	Kurtosis	Mean	Std. Deviation	Skewness	Kurtosis
Perceived Quality	consider the wine selection					3,88	0,861	-0,183	-0,487	3,84	0,908	-0,423	0,017
Anticipated Regret	afraid I'll regret my					2,61	1,093	0,095	-0,639	2,62	1,16	0,138	-0,874
Positive Emotions	Pride	1,94	0,97	0,70	-0,347	1,94	0,988	0,708	-0,39	1,94	0,956	0,694	-0,287
	Hope	2,31	1,093	0,22	-1,052	2,36	1,086	0,139	-1,045	2,26	1,1	0,299	-1,033
	Self-awareness	2,36	1,075	0,24	-0,85	2,35	1,028	0,068	-1,073	2,37	1,122	0,368	-0,727
Negative Emotions	Guilt	1,31	0,642	2,41	6,29	1,3	0,585	2,039	4,232	1,31	0,694	2,584	6,995
	Shame	1,25	0,605	2,81	8,637	1,28	0,626	2,375	5,258	1,22	0,584	3,335	13,21
	Fear	1,47	0,83	1,88	3,286	1,5	0,831	1,665	2,37	1,44	0,83	2,095	4,338
Environmental Social Norms	my social circle are	3,39	1,163	-0,57	-0,49	3,44	1,159	-0,587	-0,402	3,35	1,167	-0,55	-0,557
	my social circle	2,9	1,04	-0,35	-0,54	2,89	1,047	-0,284	-0,598	2,9	1,036	-0,411	-0,467
	social pressure to	2,21	1,153	0,43	-1,009	2,15	1,14	0,546	-0,816	2,27	1,165	0,322	-1,149
Environmental Profile	make as many sustainab	3,69	1,057	-0,79	0,189	3,72	1,027	-0,79	0,341	3,67	1,087	-0,782	0,069
	concerned of the effects of	3,84	1,226	-1,02	0,106	3,91	1,178	-1,044	0,275	3,78	1,269	-0,992	-0,05
	purchases you made. In	1,65	1,426	0,38	-0,764	1,59	1,409	0,416	-0,779	1,71	1,442	0,352	-0,744
Collective Action Requirement	contribution of choosing	2,79	1,303	0,08	-1,165	2,88	1,339	-0,058	-1,257	2,69	1,264	0,208	-1,011
Self-Other Trade-Off	have to sacrifice my own	2,29	1,105	0,43	-0,661	2,29	1,086	0,384	-0,748	2,29	1,126	0,478	-0,585
Involvement	recommend wine to others	2,5	1,335	0,27	-1,227	2,39	1,322	0,367	-1,214	2,61	1,341	0,187	-1,218
	spend a lot of time	2,38	1,257	0,44	-0,997	2,29	1,242	0,491	-1,012	2,46	1,268	0,402	-0,982
	appreciate enjoying	3,74	1,373	-0,82	-0,614	3,72	1,389	-0,806	-0,642	3,76	1,361	-0,838	-0,575
Wine Expert	the difference of wine	3,06	1,295	-0,32	-1,115	3,09	1,251	-0,412	-0,991	3,03	1,338	-0,24	-1,213
	consider myself as a wine	1,54	0,872	1,51	1,362	1,45	0,793	1,616	1,556	1,62	0,937	1,382	1,025
	greater importance to	3,04	1,227	-0,18	-0,912	3,06	1,197	-0,215	-0,871	3,02	1,258	-0,148	-0,948
Quality Perception Label	label had a negative					2,04	1,074	0,462	-0,876	2,17	1,133	0,389	-0,979
Quality Perception General Wine	Concerned that other					2,79	1,293	-0,105	-1,212	3,01	1,273	-0,207	-1,012
Risk Attitude	associated with «risk»	1,02	0,97043	0,58	0,141	2,8165	0,985	0,638	0,195	2,832	0,95812	0,515	0,113
	your willingness to take	2,77	0,85	0,10	-0,122	2,73	0,837	0,109	-0,429	2,82	0,861	0,085	0,16
Opennes to Experience	variation to routine	3,17	1,143	-0,13	-0,856	3,08	1,144	-0,021	-0,786	3,26	1,137	-0,236	-0,871
	curious by nature	3,99	0,9	-0,90	0,714	3,93	0,937	-0,773	0,263	4,06	0,859	-1,026	1,339
	I like to try new things	3,84	0,911	-0,77	0,516	3,8	0,912	-0,802	0,71	3,87	0,911	-0,744	0,357
Neuroticism	I worry a lot	2,8	1,345	0,10	-1,206	2,78	1,343	0,199	-1,153	2,82	1,35	0,001	-1,245
	I get nervous easily	2,54	1,276	0,36	-1,025	2,56	1,262	0,352	-1,026	2,51	1,291	0,375	-1,021
	calm in tense situations	2,35	1,029	0,74	0,049	2,33	1,029	0,679	-0,032	2,36	1,031	0,803	0,147

E.9: Regression and One-Way ANOVA – Notice of Label

X = Framing, Y = Notice of Label, sample size: 474

Regression

Coefficients						
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**			
	B	**Std. Error**	**Beta**	**t**	**Sig.**	
(Constant)	.382	.032		11.873	<.001	
Framing	.195	.045	.195	4.317	<.001	

One-way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.495	1	4.495	18.638	<0.001***
Within Groups	113.834	472	.241		
Total	118.329	473			

R Squared = .038 (Adjusted R Squared = .036)

ANCOVA, including Environmental Profile

X = Framing, Y = Notice of label, Covariate = PEP (Environmental Profile)

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12.089	3	4.030	17.827	<.001	.102
Intercept	.351	1	.351	1.553	.213	.003
Framing	.004	1	.004	.017	.896	.000
PEP	7.033	1	7.033	31.114	<.001***	.062
Framing * PEP	.368	1	.368	1.627	.203	.003
Error	106.240	470	.226			
Total	228.000	474				
Corrected Total	118.329	473				

a R Squared = .102 (Adjusted R Squared = .096)

E.10: Factor Analysis Output

Questions	Component							
	1	2	3	4	5	6	7	8
I prefer variation to routine							-.688	
I am curious by nature							-.809	
I like to try new things							-.802	
I worry a lot					.835			
I get nervous easily					.888			
I remain calm in tense situations					.683			
Pride								-.787
Hope								-.788
Self-awareness								-.770
Guilt		.882						
Shame		.898						
Fear		.674						
People in my social circle are worried about climate change			-.855					
People in my social circle deem purchase of eco-friendly products as important			-.807					
I feel a social pressure to purchase eco-friendly products			-.578					
I try to make as many sustainable choices as possible in daily life			-.730					
I am concerned of the effects of human caused climate change			-.719					
Last five purchases you made. In how many of them did you made a sustainable choice?			-.551					
I like to recommend wine to others	.738							
I usually spend a lot of time searching for information before buying a new wine	.621							
I appreciate enjoying a glass of wine in peace and quiet	.645							
I taste the difference of wine with distinct characteristics	.714							
I consider myself as a wine expert	.639							
I give greater importance to quality than price when purchasing wine	.718							
Words associated with «risk»					.853			
Indicate your willingness to take risks (in general):					.699			
I consider the wine selection to be of good quality						-.619		
I'm afraid I'll regret my choice of wine						.827		

E.11: Correlation Analysis output

	PQ	AR	PE1	PE2	PE3	NE1	NE2	NE3	SN1	SN2	SN3	EP1	EP2	EP3	EP4	EP5	IN1	IN2	IN3	EX1	EX2	EX3	R1	R2	O1	O2	O3	N1	N2	N3
PQ	1.000	-.288**	.222**	.132**	.163**	-.067	-.074	-.036	.081	.137**	.08	.120**	-.071	.072	.168**	.008	.148**	.117*	.189**	.212**	.164**	.155**	.006	-.061	.124**	.172**	.166**	0.000	.003	.022
AR	-.288**	1.000	-.066	.009	-.109*	.138**	.139**	.255**	-.014	-.028	-.016	-.044	.055	-.025	.007	-.02	-.186**	-.067	-.227**	-.145**	-.110*	-.067	-.002	-.043	-.04	-.098*	-.042	.156**	.163**	.009
PE1	.222**	-.066	1.000	.553**	.461**	.184**	.176**	.125**	-.008	-.012	.086	-.003	.052	-.059	.106*	.079	.327**	.253**	.185**	.203**	.358**	.183**	.095*	.084	.112*	.100*	.007	-.001	-.008	-.082
PE2	.132**	.009	.553**	1.000	.448**	.210**	.218**	.226**	.039	.07	.124**	.053	.018	-.008	.125**	.055	.195**	.180**	.170**	.221**	.199**	.115*	.077	.076	.075	.08	.047	-.021	.003	-.082
PE3	.163**	-.109*	.461**	.448**	1.000	.192**	.225**	.213**	-.022	.022	.068	.052	0.000	.044	.043	.143**	.217**	.202**	.083	.150**	.245**	.076	-.026	.02	.099*	.09	.083	.07	.054	-.082
NE1	-.067	.138**	.184**	.210**	.192**	1.000	.698**	.457**	.01	.029	.143**	.058	.015	.04	.143**	.088	.01	-.013	-.092*	-.03	-.017	-.107*	0.000	-.011	-.047	-.041	-.07	.118*	.139**	.075
NE2	-.074	.139**	.176**	.218**	.225**	.698**	1.000	.564**	-.012	0.000	.157**	.024	.049	.047	.102*	.086	-.041	.104*	-.088	-.063	-.028	-.085	-.013	-.041	-.075	.009	-.067	.187**	.225**	.057
NE3	-.036	.255**	.125**	.226**	.213**	.457**	.564**	1.000	.027	.059	.174**	.073	.036	.07	.094*	.108*	-.077	.043	-.069	-.041	-.052	-.048	-.111*	-.090*	-.122**	-.064	-.038	.249**	.262**	.128**
SN1	.081	-.014	-.008	.039	-.022	.01	-.012	.027	1.000	.674**	.432**	.452**	-.147**	.392**	.356**	.102*	.083	.166**	.083	.096*	.064	.154**	.015	.019	.095*	.085	.128**	-.036	-.089	-.042
SN2	.137**	-.028	-.012	.07	.022	.029	0.000	.059	.674**	1.000	.424**	.477**	-.186**	.625**	.329**	.08	.108*	.128**	.073	.151**	.053	.119**	.041	-.001	.052	.091*	.180**	.056	-.013	.001
SN3	.080	-.016	.086	.124**	.068	.143**	.157**	.174**	.432**	.424**	1.000	.332**	-.042	.261**	.142**	.270**	.059	.101*	.037	.068	.055	.043	.012	-.018	.027	.039	.036	.131**	.051	.068
EP1	.120**	-.044	-.003	.053	.052	.058	.024	.073	.452**	.477**	.332**	1.000	-.205**	.531**	.431**	.053	.037	.093*	.054	.068	.023	.067	-.011	-.021	.144**	.146**	.194**	.058	-.004	.035
EP2	-.071	.055	.052	.018	0.000	.015	.049	.036	-.147**	-.186**	-.042	-.205**	1.000	-.215**	-.200**	.161**	-.012	-.072	.03	-.021	-.029	-.025	.013	.004	.012	.026	-.032	.054	.038	.058
EP3	.072	-.025	-.059	-.008	.044	.04	.047	.07	.392**	.625**	.261**	.531**	-.215**	1.000	.289**	.048	.016	.127**	.052	.119**	.025	.017	-.082	-.111*	.003	.038	.118*	.163**	.154**	.103*
EP4	.168**	.007	.106*	.125**	.043	.143**	.102*	.094*	.356**	.329**	.142**	.431**	-.200**	.289**	1.000	.034	.112*	.155**	.019	.110*	.059	.079	.068	.076	.042	.083	.110*	-.031	-.038	-.042
EP5	.008	-.02	.079	.055	.143**	.088	.086	.108*	.102*	.08	.270**	.053	.161**	.048	.034	1.000	.119**	.076	.067	.069	.131**	.033	.052	.078	.071	.043	.059	.088	.041	.008
IN1	.148**	-.186**	.327**	.195**	.217**	.01	-.041	-.077	.083	.108*	.059	.037	-.012	.016	.112*	.119**	1.000	.449**	.386**	.439**	.537**	.421**	.091*	.181**	.155**	.196**	.066	-.061	-.093*	-.135**
IN2	.117*	-.067	.253**	.180**	.202**	-.013	.104*	.043	.166**	.128**	.101*	.093*	-.072	.127**	.155**	.076	.449**	1.000	.227**	.331**	.365**	.327**	.069	.031	.058	.129**	.058	.05	.058	-.037
IN3	.189**	-.227**	.185**	.170**	.083	-.092*	-.088	-.069	.083	.073	.037	.054	.03	.052	.019	.067	.386**	.227**	1.000	.460**	.274**	.351**	-.009	.005	.121**	.126**	.007	-.038	-.141**	-.076
EX1	.212**	-.145**	.203**	.221**	.150**	-.03	-.063	-.041	.096*	.151**	.068	.068	-.021	.119**	.110*	.069	.439**	.331**	.460**	1.000	.435**	.395**	.094*	.091*	.164**	.184**	.115*	-.032	-.056	-.094*
EX2	.164**	-.110*	.358**	.199**	.245**	-.017	-.028	-.052	.064	.053	.055	.023	-.029	.025	.059	.131**	.537**	.365**	.274**	.435**	1.000	.393**	.109*	.152**	.203**	.137**	.107*	-.075	-.125**	-.109*
EX3	.155**	-.067	.183**	.115*	.076	-.107*	-.085	-.048	.154**	.119**	.043	.067	-.025	.017	.079	.033	.421**	.327**	.351**	.395**	.393**	1.000	.08	.114*	.171**	.102*	.117*	-.139**	-.151**	-.125**
R1	.006	-.002	.095*	.077	-.026	0.000	-.013	-.111*	.015	.041	.012	-.011	.013	-.082	.068	.052	.091*	.069	-.009	.094*	.109*	.08	1.000	.446**	.219**	.167**	.129**	-.175**	-.139**	-.144**
R2	-.061	-.043	.084	.076	.02	-.011	-.041	-.090*	.019	-.001	-.018	-.021	.004	-.111*	.076	.078	.181**	.031	.005	.091*	.152**	.114*	.446**	1.000	.317**	.313**	.194**	-.192**	-.236**	-.265**
O1	.124**	-.04	.112*	.075	.099*	-.047	-.075	-.122**	.095*	.052	.027	.144**	.012	.003	.042	.071	.155**	.058	.121**	.164**	.203**	.171**	.219**	.317**	1.000	.484**	.388**	-.125**	-.114*	-.125**
O2	.172**	-.098*	.100*	.08	.09	-.041	.009	-.064	.085	.091*	.039	.146**	.026	.038	.083	.043	.196**	.129**	.126**	.184**	.137**	.102*	.167**	.313**	.484**	1.000	.502**	-.078	-.005	-.143**
O3	.166**	-.042	.007	.047	.083	-.07	-.067	-.038	.128**	.180**	.036	.194**	-.032	.118*	.110*	.059	.066	.058	.007	.115*	.107*	.117*	.129**	.194**	.388**	.502**	1.000	-.01	-.017	-.132**
N1	.000	.156**	-.001	-.021	.07	.118*	.187**	.249**	-.036	.056	.131**	.058	.054	.163**	-.031	.088	-.061	.05	-.038	-.032	-.075	-.139**	-.175**	-.192**	-.125**	-.078	-.01	1.000	.719**	.360**
N2	.003	.163**	-.008	.003	.054	.139**	.225**	.262**	-.089	-.013	.051	-.004	.038	.154**	-.038	.041	-.093*	.058	-.141**	-.056	-.125**	-.151**	-.139**	-.236**	-.114*	-.005	-.017	.719**	1.000	.461**
N3	.022	.009	-.082	-.082	-.082	.075	.057	.128**	-.042	.001	.068	.035	.058	.103*	-.042	.008	-.135**	-.037	-.076	-.094*	-.109*	-.125**	-.144**	-.265**	-.125**	-.143**	-.132**	.360**	.461**	1.000

F: Hypothesis Testing - Approach and SPSS Outputs

H1: Regression and One-way ANOVA – Framing Effect

Full Sample

X = Framing, Y = Choice, sample size: 474

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.526	.022		23.461	<.001
Framing	.030	.031	.043	.937	.349

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig. (two-tailed)**	**Sig. (one-tailed)**
Between Groups	.103	1	.103	.879	.349	.175
Within Groups	55.385	472	.117			
Total	55.488	473				

R Squared = .002 (Adjusted R Squared = .000)

Subsample: Notice of Label

X = Framing, Y = Choice, sample size: 228

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.509	.037		13.777	<.001
Framing	.088	.047	.123	1.858	.065*

One-Way ANOVA

	Sum of Squares	df	Mean Square	F	Sig. (two-tailed)	Sig. (one-tailed)
Between Groups	.419	1	.419	3.451	.065*	.032**
Within Groups	27.410	226	.121			
Total	27.828	227				

R Squared = .015 (Adjusted R Squared = .011)

One-Way ANOVA including Demographic Covariates

ANOVA

X = Framing, Y = Age, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	812.704	1	812.704	2.508	.115	.011
Intercept	495558.757	1	495558.757	1529.005	<.001	.871
Framing	812.704	1	812.704	2.508	.115	.011
Error	73247.805	226	324.105			
Total	585450.000	228				
Corrected Total	74060.509	227				

R Squared = .011 (Adjusted R Squared = .007)

X = Framing, Y = Education, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.325	1	.325	.362	.548	.002
Intercept	1845.939	1	1845.939	2057.709	<.001	.901
Framing	.325	1	.325	.362	.548	.002
Error	202.741	226	.897			
Total	2131.000	228				
Corrected Total	203.066	227				

R Squared = .002 (Adjusted R Squared = -.003)

X = Framing, Y = Gender, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.265	1	.265	1.030	.311	.005
Intercept	45.809	1	45.809	177.872	<.001	.440
Framing	.265	1	.265	1.030	.311	.005
Error	58.204	226	.258			
Total	105.000	228				
Corrected Total	58.469	227				

R Squared = .005 (Adjusted R Squared = .000)

ANCOVA

X = Framing, Y = Choice, C = Age, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.145	3	.382	3.203	.024	.041
Intercept	13.309	1	13.309	111.725	<.001	.333
Framing	.003	1	.003	.023	.880	.000
Age	.726	1	.726	6.095	**.014****	.026
Framing * Age	.024	1	.024	.197	.657	.001
Error	26.684	224	.119			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .041 (Adjusted R Squared = .028)

X = Framing, Y = Choice, C = Educational Level, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.056	3	.352	2.945	.034	.038
Intercept	10.818	1	10.818	90.511	<.001	.288
Framing	.073	1	.073	.608	.436	.003
Educat	.613	1	.613	5.131	**.024****	.022
Framing * Educat	.007	1	.007	.055	.815	.000
Error	26.772	224	.120			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .038 (Adjusted R Squared = .025)

X = Framing, Y = Choice, C = Gender, sample size: 228

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.451	3	.150	1.230	.300	.016
Intercept	37.342	1	37.342	305.533	<.001	.577
Framing	.146	1	.146	1.199	.275	.005
Gender	.020	1	.020	.168	.683	.001
Framing * Gender	.017	1	.017	.142	.706	.001
Error	27.377	224	.122			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .016 (Adjusted R Squared = .003)

ANCOVA

Y = Choice, X = Framing, C1 = Age, C2 = Educational Level, C3 = Gender

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.594	4	.398	3.387	.010	.057
Intercept	9.744	1	9.744	82.829	<.001	.271
Educat	.472	1	.472	4.015	**.046**	.018
Age	.536	1	.536	4.556	**.034**	.020
Gender	.001	1	.001	.009	.923	.000
Framing	.290	1	.290	2.466	.118	.011
Error	26.234	223	.118			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .057 (Adjusted R Squared = .040)

Hierarchical Regression including Covariates

Model 1: Y = Choice, C1 = Age, C2 = Educational Level

Model 2: Y = Choice, X = Framing, C1 = Age, C2 = Educational Level

Model		Unstandardized Coeff.		Standardized Coeff.		
		Beta	Std. Error	Beta	t	Sig.
1	(Constant)	.846	.089		9.476	<.001
	Age	-.003	.001	-.152	-2.316	**.021**
	Education	-.050	.024	-.134	-2.042	**.042**
2	(Constant)	.789	.096		8.207	<.001
	Age	-.003	.001	-.142	-2.154	**.032**
	Education	-.049	.024	-.132	-2.007	**.046**
	Framing	.073	.047	.103	1.571	.118

H2a: Regression and One-Way ANOVA - Negative Emotions

Full Sample

X = Framing, Y = Negative Emotions, sample size: 474

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.361	.038		35.566	<.001
Framing	-.034	.054	-.029	-.636	.525

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.138	1	.138	.404	.525
Within Groups	160.927	472	.341		
Total	161.065	473			

R Squared = .001 (Adjusted R Squared = -.001)

Subsample: Notice of Label

X = Framing, Y = Negative Emotions, sample size: 228

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.352	.067		20.215	<.001
Framing	.029	.086	.023	.341	.733

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.046	1	.046	.116	.733
Within Groups	89.982	226	.398		
Total	90.029	227			

R Squared = .001 (Adjusted R Squared = -.004)

H2b: Regression and One-way ANOVA - Positive Emotions

Full Sample

X = Framing, Y = Positive Emotions, sample size: 474

Regression

		Coefficients				
Model 1	**Unstandardized Coefficients**			**Standardized Coefficients**		
	B	**Std. Error**		**Beta**	**t**	**Sig.**
(Constant)	2.219	.056			39.870	<.001
Framing	-.029	.078		-.017	-.377	.707

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.102	1	.102	.142	.707
Within Groups	340.628	472	.722		
Total	340.730	473			

R Squared = .000 (Adjusted R Squared = -.002)

Subsample: Notice of Label

X = Framing, Y = Positive Emotions, sample size: 228

Regression

		Coefficients				
Model 1	**Unstandardized Coefficients**			**Standardized Coefficients**		
	B	**Std. Error**		**Beta**	**t**	**Sig.**
(Constant)	2.288	.090			25.469	<.001
Framing	-.085	.115		-.049	-.735	.463

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.388	1	.388	.540	.463
Within Groups	162.378	226	.718		
Total	162.766	227			

R Squared = .002 (Adjusted R Squared = -.002)

H2c: PROCESS BY HAYES Model 4 Multiple Mediation - Negative and Positive Emotions

Full Sample

Total Effect Model

	coeff	se	t	p	LLCI	ULCI
constant	0.5265	0.0224	23.4613	0	0.4824	0.5706
Framing	0.0295	0.0315	0.9374	0.349	−0.0323	0.0913

X = Framing, M = Negative Emotions, Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.4791	.0430	11.1368	.0000	.3946	.5636
Framing	.0307	.0315	.9754	.3299	-.0311	.0925
NEG_EM	.0348	.0270	1.2913	.1972	-.0182	.0879

Indirect effect of X on Y

	Effect	BootSE	BootLLCI	BootULCI
NEG_EM	-.0012	.0025	-.0074	.0029

X = Framing, M = Positive Emotions, Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.6040	.0468	12.9124	.0000	.5121	.6959
Framing	.0285	.0314	.9071	.3648	-.0332	.0902
POS_EM	-.0349	.0185	-1.8861	.0599	-.0713	.0015

Indirect effect of X on Y

	Effect	BootSE	BootLLCI	BootULCI
POS_EM	.0010	.0031	-.0055	.0077

Multiple Mediation

Path A:

	coeff	se	t	p	LLCI	ULCI
constant	1.3605	.0383	35.5662	0	1.2853	1.4357
Framing	−.0341	.0536	−.6356	.5254	−.1395	.0713

X = Framing, Y = Negative Emotions

Path D:

	coeff	se	t	p	LLCI	ULCI
constant	2.2189	.0557	39.8697	.0000	2.1095	2.3282
Framing	−.0294	.078	−.3766	.7066	−.1828	.124

X = Framing, Y = Positive Emotions

Path C', B, E:

	coeff	se	t	p	LLCI	ULCI
constant	.5543	.0533	10.3949	.0000	.4495	.659
Framing	.03	.0313	.9581	.3385	−.0315	.0915
NEG_EM	.0539	.028	1.9232	.0551*	−.0012	.109
POS_EM	−.0456	.0193	−2.3649	**.0184****	−.0834	−.0077

X = Framing, M1 = Negative Emotions, M2 = Positive Emotions, Y = Choice

Total effect of X on Y:

Effect	se	t	p	LLCI	ULCI	c_ps
.0295	.0315	.9374	.349	−.0323	.0913	.0861

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	−.0005	.0044	−.0099	.0083
NEG_EM	−.0018	.0033	−.0096	.0039
POS_EM	.0013	.0039	−.0068	.0095

X = Framing, M1 = Negative Emotions, M2 = Positive Emotions, Y = Choice,
sample size: 474

Subsample: Notice of Label

```
Total Effect Model
```

	coeff	se	t	p	LLCI	ULCI
constant	.5086	.0369	13.7775	.0000	.4359	.5813
Framing	.0878	.0473	2438361	.0645	-.0053	.1810

```
X = Framing, M = Negative Emotions, Y = Choice, sample size: 228
```

	coeff	se	t	p	LLCI	ULCI
constant	.4536	.0618	7.3359	.0000	.3317	.5754
Framing	.0866	.0473	1.8329	.0681*	-.0065	.1798
NEG_EM	.0407	.0367	1.1093	.2685	-.0316	.1130

```
Indirect effect of X on Y:
```

	Effect	BootSE	BootLLCI	BootULCI
NEG_EM	.0012	.0044	-.0091	.0097

```
X = Framing, M = Positive Emotions, Y = Choice, sample size: 228
```

	coeff	se	t	p	LLCI	ULCI
constant	.6044	.0724	8.3472	.0000	.4617	.7471
Framing	.0843	.0472	1.7860	.0755*	-.0087	.1773
POS_EM	-.0419	.0272	-1.5362	.1259	-.0956	.0118

```
Indirect effect of X on Y:
```

	Effect	BootSE	BootLLCI	BootULCI
POS_EM	.0035	.0057	-.0074	.0160

```
X = Framing, M1 = Negative emotions, M2 = Positive emotions, Y = Choice
```

Multiple Mediation

```
Path A:
```

	coeff	se	t	p	LLCI	ULCI
constant	1.3521	.0669	20.2147	.0000	1.2203	1.4839
Framing	.0292	.0857	.3413	.7332	−.1396	.1980

```
X = Framing, Y = Negative Emotions
```

```
Path D:
```

	coeff	se	t	p	LLCI	ULCI
constant	2.2884	.0898	25.4692	.0000	2.1113	2.4654
Framing	−.0846	.1151	−.7348	.4632	−.3113	.1422

```
X = Framing, Y = Positive Emotions
```

```
Path C', B and E:
```

	coeff	se	t	p	LLCI	ULCI
constant	.5504	.08	6.8794	0	.3927	.7081
Framing	.0816	.0471	1.7336	.0844	−.0112	.1744
NEG_EM	.059	.0378	1.5638	.1193	−.0154	.1334
POS_EM	−.0531	.0281	−1.8911	.0599*	−.1085	.0022

```
X = Framing, M1 = Negative Emotions, M2 = Positive Emotions, Y = Choice
```

```
Path C: Total effect of X on Y:
```

Effect	se	t	p	LLCI	ULCI	c_ps
.0878	.0473	1.8576	.0645*	−.0053	.181	.2508

```
Path C - C': Indirect effect(s) of X on Y:
```

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.0062	.0082	-.0106	.0230
NEG_EM	.0017	.0056	-.0106	.0128
POS_EM	.0045	.0070	-.0099	.0196

```
X = Framing, M1 = Negative Emotions, M2 = Positive Emotions, Y = Choice
```

H3a: Regression and One-way ANOVA - Perceived Quality

Full Sample

X = Framing, Y = Perceived Quality, sample size: 474

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	3.884	.058		66.975	<.001
Framing	-.042	.081	-.024	-.514	.608

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.207	1	.207	.264	.608
Within Groups	369.880	472	.784		
Total	370.086	473			

R Squared = .001 (Adjusted R Squared = -.002)

Subsample: Notice of Label

X = Framing, Y = Perceived Quality, sample size: 228

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	3.966	0.92		43.071	<.001
Framing	-0.96	.118	-0.54	-.812	.418

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.498	1	.498	.660	.418
Within Groups	170.568	226	.755		
Total	171.066	227			

R Squared = .003 (Adjusted R Squared = -.002)

H3b: PROCESS BY HAYES Model 4 Simple Mediation - Quality Perception

Full Sample

X = Framing, M = Perceived Quality (PQ), Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.5458	.0728	7.4978	.0000	.4028	.6889
Framing	.0293	.0315	.9296	.3530	-.0326	.0912
PQ	-.0050	.0178	-.2794	.7801	-.0400	.0301

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
PQ	.0002	.0017	-.0037	.0037

Subsample: Notice of Label

X = Framing, M = Perceived Quality (PQ), Y = Choice, sample size: 228

	coeff	se	t	p	LLCI	ULCI
constant	.6197	.1120	5.5334	.0000	.3990	.8404
Framing	.0851	.0473	1.7986	.0734*	-.0081	.1784
PQ	-.0280	.0267	-1.0508	.2945	-.0805	.0245

Indirect effect of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
PQ	.0027	.0051	-.0079	.0136

H4: PROCESS BY HAYES model 1 (Johnson-Neyman output) - Environmental Profile

Full Sample

X = Framing, W = Environmental Profile (PEP), Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.3325	.0759	4.3786	.0000	.1833	.4817
Framing	.1641	.1046	1.5688	.1174	-.0414	.3695
PEP	.0632	.0236	2.6721	**.0078**	.0167	.1096
Int_1	-.0437	.0326	-1.3419	.1803	-.1077	.0203

Int_1 = Framing x Environmental Profile (PEP)
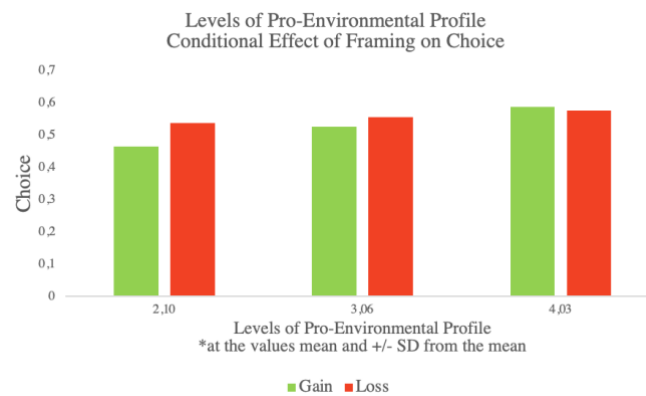
Subsample: Notice of label

X = Framing, W = Environmental Profile (PEP), Y = Choice, sample size: 228

	coeff	se	t	p	LLCI	ULCI
constant	.1062	.1419	.7486	.4549	-.1734	.3858
Framing	.3997	.1824	2.1915	**.0294****	.0403	.7591
PEP	.1219	.0416	2.9339	**.0037*****	.0400	.2039
Int_1	-.0946	.0533	-1.7738	.0775*	-.1998	.0105

Int_1 = Framing x Environmental Profile (PEP)

Moderator value(s) defining Johnson-Neyman significance region(s):

Value	% below	% above
3.2526	41.6667	58.3333

Johnson-Neyman Technique:
Conditional effect of X on Y at values of the moderator (M)
Notice of Label (subsample)

PEP	Effect (X on Y)	SE	t-value	p-value	LLCI	ULCI
0.667	.3366	.1483	2.2702	.0241**	.0444	.6288
0.883	.3161	.1373	2.3015	.0223**	.0454	.5867
1.100	.2956	.1265	2.3362	.0204**	.0463	.5449
1.317	.2751	.1159	2.3744	.0184**	.0468	.5034
1.533	.2546	.1054	2.4160	.0165**	.0469	.4622
1.750	.2341	.0951	2.4604	.0146**	.0466	.4215
1.967	.2136	.0852	2.5055	.0129**	.0456	.3815
2.183	.1931	.0758	2.5464	.0116**	.0437	.3425
2.400	.1726	.0671	2.5728	.0107**	.0404	.3047
2.617	.1521	.0593	2.5646	.0110**	.0352	.2689
2.833	.1316	.0529	2.4862	.0136**	.0273	.2358
3.050	.1110	.0485	2.2902	.0229**	.0155	.2066
3.253	.0919	.0466	1.9706	.0500**	.0000	.1837
3.267	.0905	.0466	1.9438	.0532*	-.0012	.1823
3.483	.0700	.0475	1.4747	.1417	-.0236	.1636
3.700	.0495	.0511	.9699	.3332	-.0511	.1502
3.917	.0290	.0568	.5110	.6099	-.0829	.1410
4.133	.0085	.0642	.1330	.8943	-.1179	.1350
4.350	-.0120	.0726	-.1649	.8692	-.1550	.1311
4.567	-.0325	.0818	-.3969	.6918	-.1937	.1288
4.783	-.0530	.0916	-.5786	.5634	-.2334	.1274
5.000	-.0735	.1017	-.7226	.4707	-.2739	.1269

```
X = Framing, W = Environmental Profile (PEP), Y = Choice, sample size:
228
```


Conditional Effect of Framing at Values of Pro-Environmental Personal Norms (Notice of Label Subsample)

Levels of Pro-Environmental Profile Conditional Effect of Framing on Choice (Notice of Label Subsample)
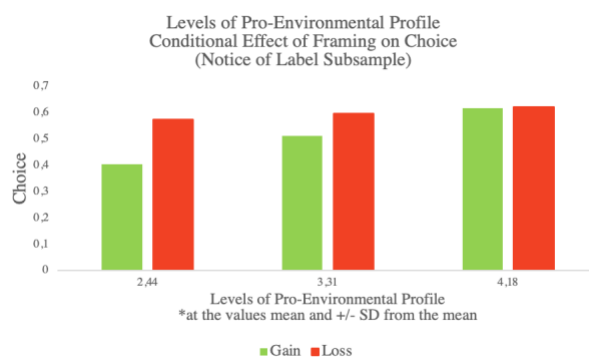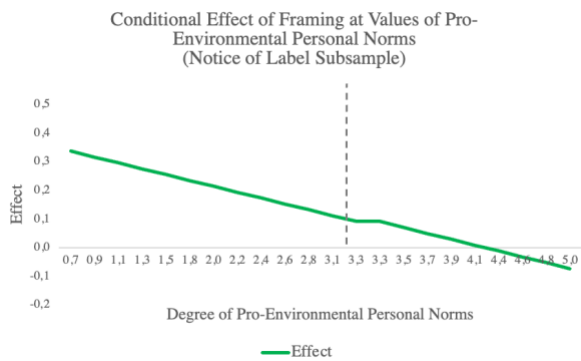
H5: PROCESS BY HAYES model 1 (Johnson-Neyman output) - Risk Attitude

Full Sample

X = Framing, W = Risk Attitude (Risk), Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.6332	.0832	7.6147	.0000	.4698	.7966
Framing	.0186	.1180	.1574	.8750	-.2133	.2505
Risk	-.0385	.0289	-1.3328	.1832	-.0953	.0183
Int_1	.0046	.0407	.1132	.9100	-.0753	.0845

Levels of Risk Attitude
Conditional Effect of Framing on Choice
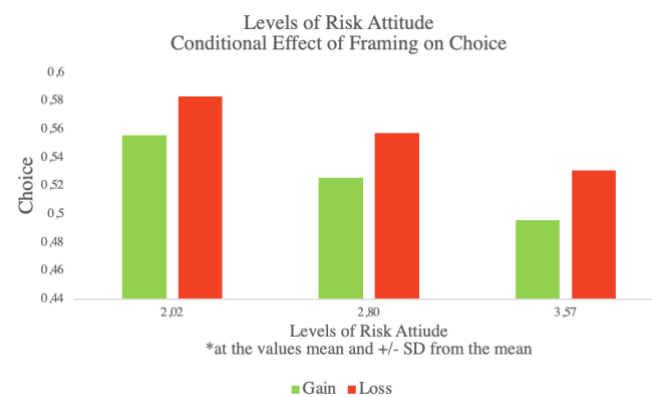
Subsample: Notice of Label

X = Framing, W = Risk Attitude (Risk), Y = Choice, sample size: 228

	coeff	se	t	p	LLCI	ULCI
constant	.7196	.1407	5.1154	.0000	.4424	.9968
Framing	-.0256	.1814	-.1409	.8880	-.3830	.3319
Risk	-.0767	.0493	-1.5543	.1215	-.1739	.0205
Int_1	.0419	.0631	.6644	.5071	-.0824	.1663

Moderator value(s) defining Johnson-Neyman significance region(s):

Value	% below	% above
3.2719	72.8070	27.1930
2.8346	65.3509	34.6491

Johnson-Neyman Technique:
Conditional effect of X on Y at values of the moderator (M)
Notice of Label (subsample)

RISK	Effect (X on Y)	SE	t-value	p-value	LLCI	ULCI
1.125	0.0216	0.1143	12.1899	0.8503	−0.2037	0.2469
1.329	0.0302	0.1028	12.1899	0.7695	−0.1723	0.2327
1.533	0.0387	0.0915	12.1899	0.6728	−0.1416	0.2191
1.737	0.0473	0.0808	12.1899	0.5591	−0.1119	0.2064
1.941	0.0558	0.0707	12.1899	0.4309	−0.0836	0.1952
2.145	0.0644	0.0617	12.1899	0.2983	−0.0573	0.186
2.349	0.0729	0.0543	12.1899	0.181	−0.0342	0.18
2.553	0.0815	0.0492	12.1899	0.0995*	−0.0156	0.1785
2.757	0.09	0.0472	12.1899	0.0578*	−0.003	0.183
2.835	0.0933	0.0473	12.1899	**0.0500****	0	0.1866
2.961	0.0986	0.0486	1.1900	**0.0438****	0.0028	0.1944
3.165	0.1071	0.0532	1.1900	**0.0452****	0.0023	0.2119
3.272	0.1116	0.0566	12.1899	**0.0500****	0	0.2232
3.368	0.1157	0.0602	12.1899	0.0561*	−0.003	0.2343
3.572	0.1242	0.069	12.1899	0.073*	−0.0117	0.2601
3.776	0.1328	0.0788	1.684	0.0936*	−0.0226	0.2881
3.980	0.1413	0.0895	1.5793	0.1157	−0.035	0.3176
4.184	0.1499	0.1006	1.489	0.1379	−0.0485	0.3482
4.388	0.1584	0.1122	1.4122	0.1593	−0.0626	0.3795
4.592	0.167	0.124	1.3468	0.1794	−0.0773	0.4113
4.796	0.1755	0.136	1.291	0.198	−0.0924	0.4434
5.000	0.1841	0.1481	1.2429	0.2152	−0.1078	0.4759

`X = Framing, W = Risk Attitude (Risk), Y = Choice, sample size: 228`

Conditional Effect of Framing at Levels of Risk Attitude (Notice of Label Subsample)

Levels of Risk Attitude Conditional Effect of Framing on Choice (Notice of Label Subsample)
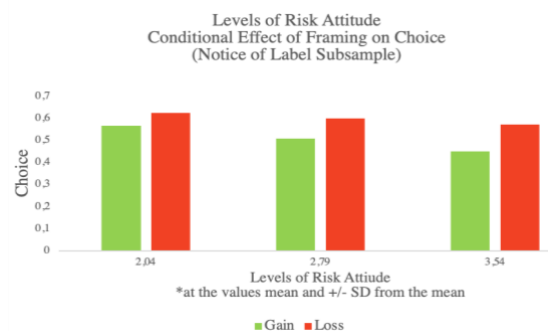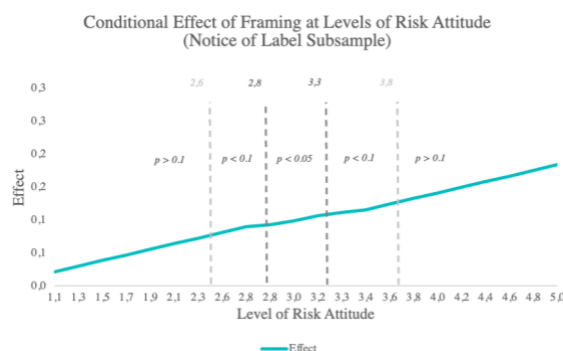
H6a: PROCESS BY HAYES model 1 (Johnson-Neyman output) - Openness to Experience

Full Sample

X = Framing, W = Openness to Experience (Openness), Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	0.4618	0.1048	1.1900	0	0.2558	0.6678
Framing	0.149	0.1508	12.1899	0.3239	−0.1474	0.4454
Openness	0.0179	0.0284	0.6315	0.528	−0.0379	0.0738
Int_1	−0.0326	0.0402	−0.8114	0.4175	−0.1117	0.0464

Int_1 = Framing x Openness

Levels of Openness to Experience
Conditional Effect of Framing on Choice
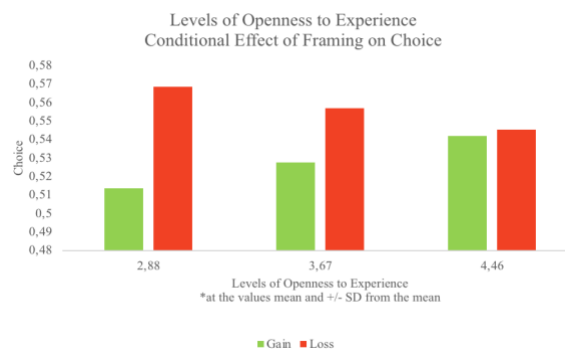
Subsample:

X = Framing, W = Openness to Experience (Openness), Y = Choice, sample size: 228

	coeff	se	t	p	LLCI	ULCI
constant	0.6934	0.1965	1.1900	0.0005	0.3062	1.0806
Framing	0.08	0.2515	12.1899	0.7507	−0.4156	0.5756
Openness	−0.0505	0.0527	−0.9577	0.3393	−0.1545	0.0534
Int_1	0.0042	0.0664	0.0633	0.9496	−0.1266	0.135

Int_1 = Framing x Openness

Moderator value(s) defining Johnson-Neyman significance region(s):

Value	% below	% above
3.8919	52.193	47.807
3.594	35.0877	64.9123

Johnson-Neyman Technique:
Conditional effect of X on Y at values of the moderator (M)
Notice of Label (subsample)

Openness	Effect (X on Y)	SE	t-value	p-value	LLCI	ULCI
1.333	0.0856	0.1654	12.1899	0.6052	−0.2403	0.4116
1.526	0.0864	0.1532	12.1899	0.5732	−0.2154	0.3883
1.719	0.0872	0.141	12.1899	0.5369	−0.1907	0.3652
1.912	0.088	0.1291	12.1899	0.4958	−0.1663	0.3424
2.105	0.0889	0.1172	12.1899	0.4493	−0.1422	0.3199
2.298	0.0897	0.1057	12.1899	0.397	−0.1185	0.2979
2.491	0.0905	0.0944	12.1899	0.3388	−0.0955	0.2765
2.684	0.0913	0.0836	12.1899	0.2758	−0.0734	0.256
2.877	0.0921	0.0734	12.1899	0.2108	−0.0525	0.2367
3.070	0.0929	0.0642	12.1899	0.1491	−0.0335	0.2194
3.263	0.0937	0.0564	12.1899	0.0978*	−0.0174	0.2048
3.456	0.0945	0.0507	12.1899	0.0633*	−0.0053	0.1944
3.594	0.0951	0.0483	12.1899	**0.0500****	0	0.1902
3.649	0.0953	0.0478	12.1899	**0.0472****	0.0012	0.1895
3.842	0.0962	0.0482	12.1899	**0.0474****	0.0011	0.1912
3.892	0.0964	0.0489	1.9706	**0.0500****	0	0.1927
4.035	0.097	0.052	12.1899	0.0633*	−0.0054	0.1994
4.228	0.0978	0.0583	1.6768	0.095*	−0.0171	0.2127
4.421	0.0986	0.0666	12.1899	0.1399	−0.0326	0.2298
4.614	0.0994	0.0761	12.1899	0.1927	−0.0505	0.2493
4.807	0.1002	0.0865	1.1592	0.2476	−0.0702	0.2706
5.000	0.101	0.0974	12.1899	0.3008	−0.0909	0.293

```
X = Framing, W = Openness to Experience (Openness), Y = Choice, sample
size: 228
```


Conditional Effect of Framing at Values of Openness to Experience (Notice of Label Subsample)

Level of Openness to Experience Conditional Effect of Framing on Choice (Notice of Label Subsample)
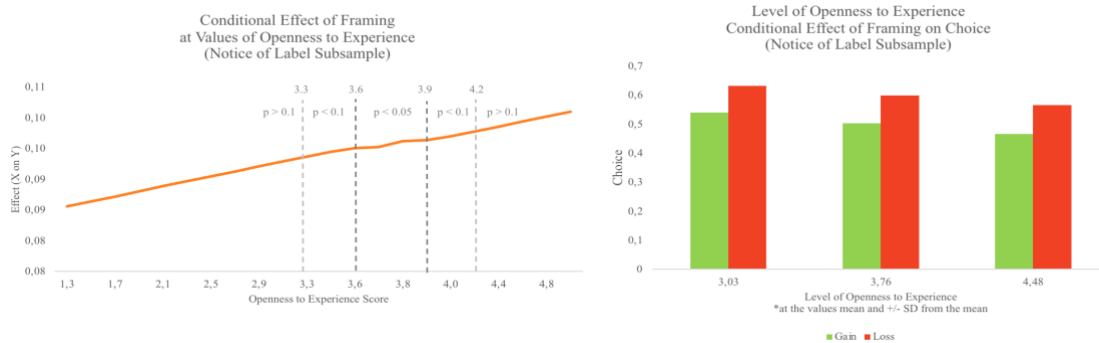
H6b: PROCESS BY HAYES model 1 (Johnson-Neyman output) - Neuroticism

Full Sample

X = Framing, W = Neuroticism (Neuro), Y = Choice, sample size: 474

	coeff	se	t	p	LLCI	ULCI
constant	.5648	.0613	9.2114	.0000	.4443	.6853
Framing	-.1452	.0855	-1.6987	.0900*	-.3132	.0228
Neuro	-.0150	.0223	-.6704	.5030	-.0588	.0289
Int_1	.0682	.0311	2.1952	.0286**	.0072	.1293

Int_1 = Framing x Neuroticism (Neuro)

Moderator value(s) defining Johnson-Neyman significance region(s):

Value	% below	% above
3.1962	71.5190	28.4810

Johnson-Neyman Technique:
Conditional effect of X on Y at values of the moderator (M)
Full Sample

Neuro	Effect (X on Y)	SE	t-value	p-value	LLCI	ULCI
1.000	−0.077	0.0577	12.1899	0.1827	−0.1904	0.0364
1.200	−0.0634	0.0526	12.1899	0.2289	−0.1668	0.04
1.400	−0.0497	0.0478	12.1899	0.2982	−0.1436	0.0441
1.600	−0.0361	0.0433	12.1899	0.4044	−0.1211	0.0489
1.800	−0.0225	0.0392	12.1899	0.5673	−0.0996	0.0546
2.000	−0.0088	0.0358	12.1899	0.8057	−0.0792	0.0616
2.200	0.0048	0.0333	12.1899	0.8848	−0.0605	0.0702
2.400	0.0185	0.0317	12.1899	0.5607	−0.0439	0.0808
2.600	0.0321	0.0313	12.1899	0.3063	−0.0295	0.0937
2.800	0.0457	0.0322	12.1899	0.156	−0.0175	0.109
3.000	0.0594	0.0342	12.1899	0.0829*	−0.0078	0.1265
3.196	0.0728	0.037	12.1899	**0.05****	0	0.1455
3.200	0.073	0.0371	12.1899	**0.0496****	0.0001	0.1459
3.400	0.0867	0.0408	1.1900	**0.034****	0.0066	0.1668
3.600	0.1003	0.045	1.1900	**0.0263****	0.0119	0.1887
3.800	0.114	0.0496	1.1900	**0.0222****	0.0164	0.2115
4.000	0.1276	0.0546	1.1900	**0.0199****	0.0203	0.2349
4.200	0.1412	0.0598	1.1900	**0.0186****	0.0237	0.2587
4.400	0.1549	0.0652	1.1900	**0.0179****	0.0268	0.283
4.600	0.1685	0.0707	1.1900	**0.0175****	0.0296	0.3074
4.800	0.1822	0.0763	1.1900	**0.0174****	0.0322	0.3321
5.000	0.1958	0.082	1.1900	**0.0174****	0.0346	0.357

```
X = Framing, W = Neuroticism (Neuro), Y = Choice, sample size: 474
```


Conditional Effect of Framing at Values of Neuroticism

Levels of Neuroticism
Conditional Effect of Framing on Choice
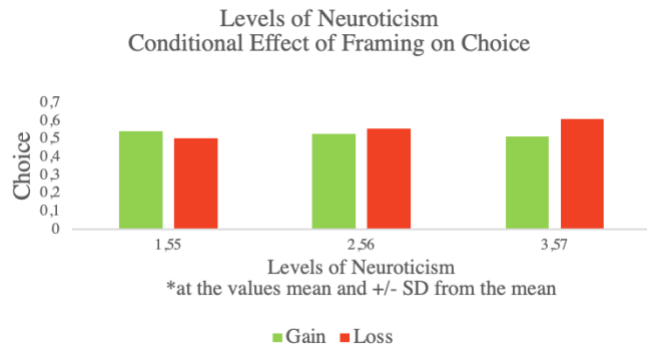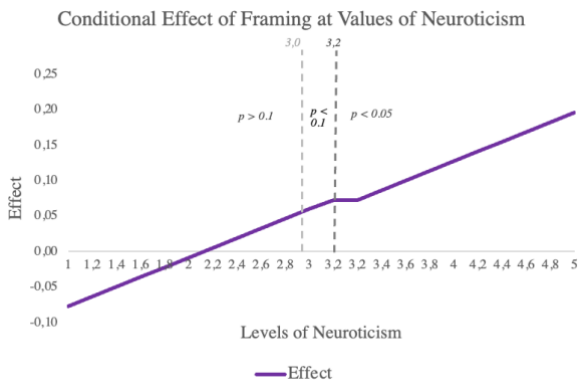
Subsample: Notice of Label

`X = Framing, W = Neuroticism (Neuro), Y = Choice, sample size: 228`

	coeff	se	t	p	LLCI	ULCI
constant	.5190	.0996	5.2101	.0000	.3227	.7152
Framing	-.0762	.1269	-.6006	.5487	-.3262	.1738
Neuro	-.0042	.0375	-.1119	.9110	-.0780	.0696
Int_1	.0629	.0467	1.3472	.1793	-.0291	.1548

`Int_1 = Framing x Neuroticism (Neuro)`

Moderator value(s) defining Johnson-Neyman significance region(s):

Value	% below	% above
4.6350	95.6140	4.3860
2.7159	63.1579	36.8421

Johnson-Neyman Technique:
Conditional effect of X on Y at values of the moderator (M)
Notice of Label (subsample)

Neuro	Effect (X on Y)	SE	t-value	p-value	LLCI	ULCI
1.000	−0.0133	0.0853	12.1899	0.876	−0.1815	0.1548
1.211	−0.0001	0.0773	12.1899	0.999	−0.1525	0.1523
1.421	0.0131	0.0698	12.1899	0.8509	−0.1244	0.1507
1.632	0.0264	0.0629	12.1899	0.6754	−0.0976	0.1503
1.842	0.0396	0.0569	12.1899	0.4869	−0.0725	0.1517
2.053	0.0528	0.052	12.1899	0.3108	−0.0497	0.1554
2.263	0.0661	0.0487	12.1899	0.176	−0.0299	0.162
2.474	0.0793	0.0472	12.1899	0.0942*	−0.0137	0.1723
2.684	0.0926	0.0477	12.1899	0.0537*	−0.0015	0.1866
2.716	0.0945	0.048	12.1899	**0.05****	0	0.1891
2.895	0.1058	0.0502	1.1900	**0.0362****	0.0068	0.2047
3.105	0.119	0.0544	1.1900	**0.0296****	0.0119	0.2262
3.316	0.1323	0.0599	1.1900	**0.0282****	0.0142	0.2503
3.526	0.1455	0.0664	1.1900	**0.0295****	0.0146	0.2764
3.737	0.1587	0.0737	1.1900	**0.0322****	0.0136	0.3039
3.947	0.172	0.0814	1.1900	**0.0358****	0.0115	0.3325
4.158	0.1852	0.0896	1.1900	**0.04****	0.0086	0.3619
4.368	0.1985	0.0981	1.1900	**0.0443****	0.0051	0.3918
4.579	0.2117	0.1069	12.1899	**0.0488****	0.0011	0.4223
4.635	0.2152	0.1092	12.1899	**0.05****	0	0.4304
4.790	0.2249	0.1158	12.1899	0.0533*	−0.0032	0.453
5.000	0.2382	0.1248	12.1899	0.0576*	−0.0078	0.4841

`X = Framing, W = Neuroticism (Neuro), Y = Choice, sample size: 228`

Conditional Effect of Framing at Values of Neuroticism (Notice of Label Subsample)

Levels of Neuroticism Conditional Effect of Framing on Choice (Notice of Label Subsample)
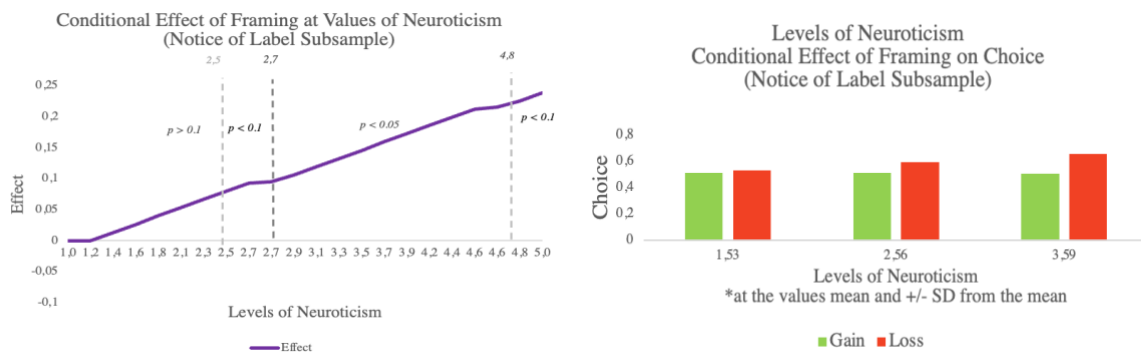
H7: Regression and One-way ANOVA - Anticipated Regret

Full Sample

X = Framing, Y = Anticipated Regret, sample size: 474

Regression

Model 1	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	2.614	.074		35.383	<.001
Framing	.005	.104	.002	.044	.965

Coefficients

One-Way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	1	.002	.002	.965
Within Groups	600.116	472	1.271		
Total	600.118	473			

R Squared = .000 (Adjusted R Squared = -.002)

Subsample: Notice of Label

```
X = Framing, Y = Anticipated Regret, sample size: 228
```

Regression

	Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**			
	B	**Std. Error**	**Beta**	**t**	**Sig.**	
(Constant)	2.674	.121		22.125	<.001	
Framing	-.041	.155	-.018	-.265	.791	

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	.091	1	.091	.070	.791
Within Groups	293.838	226	1.300		
Total	293.930	227			

R Squared = .000 (Adjusted R Squared = -.004)

G: Additional Testing - Approach and SPSS Outputs

Regression and One-Way ANOVA – Wine Involvement

```
X = Involvement, Y = Choice, sample size: 474
```

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.684	.048		14.380	<.001
Involve	-.049	.016	-.144	-3.164	**.002***

One-Way ANOVA

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	1.152	1	1.152	10.010	**.002***
Within Groups	54.335	472	.115		
Total	55.488	473			

ANCOVA – Including Wine Involvement and Demographics as Covariates

```
X = Framing, C1 = Age, C2 = Education, C3 = Involvement, Y = Choice,
sample size: 228
```

Regression

Coefficients					
Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	0.869	0.105		8.31	<.001
Involve	-0.046	0.025	-0.128	-1.887	0.06*
Age	-0.002	0.001	-0.127	-1.932	0.055*
Educat	-0.039	0.025	-0.105	-1.582	0.115
Framing	0.094	0.048	0.131	1.972	**0.05****

ANCOVA

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.005	4	0.501	4.329	0.002	0.072
Intercept	9.441	1	9.441	81.529	<.001	0.268
Educat	0.29	1	0.29	2.504	0.115	0.011
Involve	0.412	1	0.412	3.561	0.06*	0.016
Age	0.432	1	0.432	3.734	0.055*	0.016
Framing	0.45	1	0.45	3.889	**0.05****	0.017
Error	25.823	223	0.116			
Total	99.876	228				
Corrected Total	27.828	227				

R Squared = .072 (Adjusted R Squared = .055)