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Final Thesis

## **The Role of Overconfidence Bias and Personality Traits in Shaping Decision-Making and Willingness to Pay for Sustainable Wine: An Empirical Investigation**

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## **Abstract**

This paper focuses on exploring the impact of biases on individuals' willingness to pay, taking into account variations in personality types. Through an extensive review of academic literature, various theories and frameworks are examined, along with surveys conducted to delve into consumer behavior. The literature review encompasses diverse topics such as willingness to pay, sustainable practices, wine preferences, and cognitive biases, providing a comprehensive understanding of the subject matter.

As the entire world is currently facing a strong environmental problem, this paper specifically addresses sustainable solutions for wine consumers and wine producers within Europe and the international market. This study then introduces the concept of Five Personality Traits and defines the crucial connection of the cognitive biases with consumer's behavior.

In this context, a survey is conducted with wine consumers to obtain primary data on the willingness to pay, overconfidence bias and different traits of personality. The data from the survey are analyzed with SmartPLS 4. Based on this study, recommendations for wine consumers and producers and future research to improve the decisional process are provided.



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# **I. Introduction**

## **1.1 Willingness to pay**

Willingness to pay (WTP) is a concept in economics and consumer behavior that refers to the maximum amount of money a consumer is willing to pay for a particular good or service. WTP is an important construct that is studied in fields such as economics, marketing, and psychology, as it helps to understand how consumers make purchasing decisions and how much they value certain products or services.

Measuring WTP is typically done through surveys or experiments in which consumers are asked to indicate the highest price they would be willing to pay for a product or service. This information is valuable to businesses, policymakers, and researchers because it provides insight into consumers' preferences, how much they are willing to spend on specific products or services, and the demand for these products or services.

For businesses, understanding WTP is crucial in pricing products and services. By knowing how much consumers are willing to pay, businesses can determine the optimal price point that maximizes revenue and profit. For policymakers, WTP can inform decisions on taxes and subsidies that can influence consumer behavior. For researchers, WTP can help to better understand consumer behavior, decision-making processes, and the role of preferences in the economy.

Overall, WTP is an essential concept for understanding consumer behavior, market demand, and the pricing strategies of businesses. It is studied in various fields, including economics, marketing, and psychology, and is important for businesses, policymakers, and researchers to make informed decisions.

## **1.2 Cognitive biases**

An important factor to consider in developing a strategic approach in every industry is cognitive biases. Cognitive biases refer to systematic errors in thinking that can affect judgments and decision-making processes. These biases can be related to various factors, including emotions, social influence, and cognitive limitations. When it comes to consumer behavior, cognitive biases can impact consumers' willingness to pay for products and services, leading to over- or underestimation of their value.

The wine industry is not immune to these cognitive biases and can be affected by them in various ways. For example, consumers may overvalue a wine simply because it has a higher price tag or because it is associated with a prestigious brand, even if the quality is not actually superior. On the other hand, consumers may undervalue a wine simply because it is unfamiliar or has a lower price point.

To overcome these biases, wine companies need to be aware of how they can influence consumer behavior and decision-making. One approach is to use objective measures of wine quality, to provide consumers with an unbiased evaluation of a wine's quality. Additionally, companies can use education and information to help consumers make more informed decisions about wine, such as providing information about grape varieties, regions, and production methods.

In conclusion, cognitive biases can have a significant impact on consumer behavior in the wine industry. To succeed in this competitive market, wine companies need to be aware of these biases and take steps to overcome them by providing objective information and educating consumers about the factors that contribute to wine quality.

## **1.3 Overconfidence Bias**

This study is going to focus on one particular bias, the overconfidence bias, and how it can impact decision-making in sustainable wine production. The overconfidence bias

refers to the tendency of individuals to overestimate their knowledge and abilities, leading to a false sense of confidence in their judgments and predictions.

Sustainable wine production involves considering the environmental, social, and economic impacts of winemaking practices. It is a complex process that requires careful evaluation of the impacts of various decisions. However, the overconfidence bias can lead individuals to overestimate their understanding of sustainable practices and make decisions that are not actually sustainable. For example, a winemaker who believes they have a deep understanding of sustainable practices may make decisions without seeking out expert advice or conducting thorough research. This can result in practices that are not sustainable, such as using excessive amounts of water or failing to properly manage vineyard waste.

The overconfidence bias can also impact consumer behavior. Consumers who are overly confident in their ability to identify sustainable wines may be more likely to purchase wines that are marketed as sustainable, without conducting proper research to verify the claims. This can lead to a false sense of sustainability and may not promote sustainable wine production.

To mitigate the overconfidence bias in sustainable wine production, individuals need to seek out expert advice, conduct thorough research, and engage in critical thinking. Winemakers should seek out sustainability certifications and participate in sustainable wine associations to gain a better understanding of sustainable practices. Consumers should also research the credibility of sustainability claims and seek out third-party certifications to ensure they are making informed purchasing decisions.

Overall, the overconfidence bias can have significant impacts on sustainable wine production, from decision-making to consumer behavior. By recognizing this bias and taking steps to mitigate it, individuals can promote more sustainable practices in the wine industry.

## 1.4 Five Personality Traits

The Big Five Personality Traits, also known as the Five-Factor Model, is a widely used framework for understanding personality in psychology. It was initially proposed by several independent research teams in the 1980s and 1990s, including Lewis Goldberg, Warren Norman, and Robert McCrae. These researchers conducted factor analyses of personality traits and identified the five core dimensions that make up the model. Since then, the Big Five Personality Traits have been extensively studied by many researchers in the fields of psychology, sociology, and organizational behavior to understand how individual differences in personality influence behavior and outcomes. It consists of five core dimensions of personality, including Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (also known as Emotional Stability).

The first dimension of the Big Five Personality Traits is Openness, which refers to a person's level of creativity, imagination, and openness to new experiences. Individuals who score high on this dimension tend to be curious, adventurous, and have a broad range of interests. They are often open-minded and willing to explore new ideas and perspectives. In contrast, individuals who score low on this dimension tend to be more traditional, practical, and prefer routine and familiarity.

The second dimension is Conscientiousness, which refers to a person's level of organization, responsibility, and self-discipline. Individuals who score high on this dimension tend to be dependable, goal-oriented, and hard-working. They are often well-organized, reliable, and have strong attention to detail. On the other hand, individuals who score low on this dimension tend to be more impulsive, disorganized, and less reliable.

The third dimension is Extraversion, which refers to a person's level of social engagement, energy, and assertiveness. Individuals who score high on this dimension tend to be outgoing, sociable, and enjoy being around others. They often have high levels of energy and are assertive in their interactions with others. In contrast, individuals who score low

on this dimension tend to be more introverted, reserved, and prefer to spend time alone or in small groups.

The fourth dimension is Agreeableness, which refers to a person's level of compassion, cooperation, and empathy. Individuals who score high on this dimension tend to be friendly, kind, and considerate of others' feelings. They are often cooperative and seek to maintain harmonious relationships with others. In contrast, individuals who score low on this dimension tend to be more competitive, skeptical, and less empathetic.

The final dimension is Neuroticism (or Emotional Stability), which refers to a person's level of emotional reactivity and stability. Individuals who score high on this dimension tend to experience more negative emotions, such as anxiety, stress, and sadness. They may be more reactive to stressful situations and have a tendency to worry. In contrast, individuals who score low on this dimension tend to be more emotionally stable and resilient to stress.

The Big Five Personality Traits have been studied extensively in psychology, sociology, and organizational behavior. In psychology, the Big Five Personality Traits have been linked to various psychological outcomes, including mental health, well-being, and life satisfaction. In sociology, they have been studied to understand how personality influences social behavior, such as interpersonal relationships, social networks, and group dynamics. In organizational behavior, the Big Five Personality Traits have been studied to understand how personality influences job performance, leadership, and team dynamics.

Overall, they provide a comprehensive framework for understanding personality differences in individuals. By understanding the Big Five Personality Traits, researchers, practitioners, and individuals can gain insight into individual differences in personality and how they can impact various aspects of life.

## **1.5 Wine industry: a brief overview**

The history of wine dates back to ancient times, with the earliest evidence of wine production dating back to 6,000 BC in what is now Georgia. The Greeks and Romans played a significant role in advancing the art of winemaking and viticulture, introducing new techniques and grape varieties. The Middle Ages saw the rise of monasteries as centers of winemaking, while the Renaissance saw a renewed interest in wine, with the emergence of wine trade and the development of new grape varieties. The 20th century saw the globalization of the wine industry, with wine being produced in over 70 countries worldwide.

Wine has played a significant role in shaping cultural traditions and social norms throughout history. Wine has been used in religious ceremonies, celebrations, and social gatherings, and has been associated with luxury, sophistication, and status. Today, wine consumption is increasing rapidly in emerging markets such as China and India, reflecting the changing role of wine in society.

The global wine industry is a complex and dynamic industry, with a diverse range of players and competitive dynamics. The industry faces numerous challenges, including changing consumer preferences, increasing competition, and climate change. At the same time, the industry presents significant opportunities, such as the growth of emerging markets and the development of new technology and production methods. To succeed in this dynamic industry, wine companies need to adopt a strategic approach, focusing on innovation, differentiation, and sustainability.

The 21st century has brought about significant changes in the wine industry, with globalization, changing consumer preferences, and technological advancements shaping the industry's future. Technological advancements have played a crucial role in shaping the wine industry's future, with innovations in production methods, packaging, and marketing offering new opportunities for growth and development. However, these advancements also pose significant challenges, such as the risk of homogenization and

loss of authenticity in wine production. Climate change is another major challenge facing the wine industry in the 21st century, with rising temperatures and changing weather patterns affecting grape yields and quality.

The marketing of wine has evolved significantly over the centuries, with new technologies and consumer trends shaping the industry's marketing strategies. The rise of social media and e-commerce has transformed the wine industry's marketing landscape, with consumers having greater access to information and a wider range of wine products. Wine producers need to adopt a multi-channel marketing approach, incorporating traditional marketing methods, such as advertising and events, with digital marketing strategies, such as social media and e-commerce, to reach a broader audience.

In conclusion, the wine industry presents significant opportunities for growth and development, such as the emergence of new markets and the development of new wine products and experiences. However, the industry also faces significant challenges, such as changing consumer preferences, increasing competition, and climate change. Wine companies need to adopt a strategic approach, focusing on innovation, differentiation, and sustainability to succeed in this dynamic and evolving industry.

### **1.6 What do we mean by “sustainable wine”**

Sustainability in the wine industry involves producing wine while striving to conserve natural resources for future generations and researching the best methods to reduce the impact on the environment. This approach is also known as "integrated viticulture" because it combines the best practices from different fields, such as biological and non-biological struggle, agronomic systems, and vineyard ecology. It is a continuous process that blends tradition with innovation.

Organic wine has gained increasing popularity among consumers worldwide, and the demand for it is on the rise. According to market experts, the number of cooperatives that produce organic wine is also increasing in Italy.

Sustainability has become a primary concern for consumers in recent years, and the wine industry has responded with initiatives to promote sustainability. The first significant project was the "Pest Management Program" implemented in California in 1992. The United States, Australia, and New Zealand were among the first countries to join important sustainability initiatives.

In Europe, interesting initiatives include the French "*Vignerons en Développement Durable*" and the Italian "*V.i.v.a- Sustainable Wine*," a detailed program developed by the Ministry of the Environment and the Protection of the Territory and the Sea. The program is based on four indicators: air, water, vineyard, and territory. The program evaluates the environmental, economic, and social sustainability performance of wineries and their products. A QR code on the label enables consumers to evaluate the results of the company with respect to the four specific indicators relating to the product itself.

Sustainability programs are accompanied by certification schemes that use "labels" or logos affixed to products or promotional materials to communicate the commitment of the producer in each sustainability initiative and/or the achievement of certain performances. Labels are a powerful communication tool that can influence consumer purchasing decisions and promote responsible consumption models. However, it is important to remember that sustainability claims are associated with other characteristics of the product, such as price, brand, region of origin, and grape variety. These additional pieces of information, given on the labels, can help guide consumer choices.

The Carbon Footprint (GHG Emissions) Indicator measures the total greenhouse gas emissions associated with the entire life cycle of a 0.75 L bottle of wine, expressed in grams of CO<sub>2</sub> equivalent. The emissions are divided into categories such as vineyard management, grape transformation, and bottling (cellar), bottle distribution (distribution), and refrigeration and glass disposal (consumption). Energy-saving is a cornerstone of sustainability, and the wine industry can reduce CO<sub>2</sub> emissions through a range of



measures, including ecological cellars, reducing interventions in the vineyard, using low-energy technology and machinery, and energy-efficient lighting.

The Water Footprint Indicator expresses the virtual volume of fresh water used to produce a glass of wine, divided into consumption of rainwater (green water), water drawn from water bodies (blue water), and contamination of water bodies from vineyard and cellar management (gray water). Sustainable water management is essential, and while vineyards are not very water-demanding if cultivated in the right environment, cellar work involves high water consumption for cleaning and hygiene. Rainwater collection and recycling systems can help contain consumption, and aquifer quality must be monitored constantly, with purifiers installed for cellar wastewater.

The Environmental Impact Indicator measures the environmental impact of agronomic management practices, including crop protection product use and its impact on air, water, and soil, soil management, biodiversity, and fertility. Ecology is crucial for vineyard management as a complex ecosystem, and correct management favors achieving a stable balance over time. Biodiversity is also essential, improving the balance of the vineyard and its resistance to parasites and diseases. Soil quality is fundamental for the vitality and health of vines, and well-managed coverage and high biodiversity improve the balance of the vineyard over time. Low-impact and monitored interventions protect the soil from pollutants.

The Territory Marker evaluates the company's commitment to protecting biodiversity, the landscape, and society, including the local community, workers, and consumers. The economic impact of the activity on the territory and community is also assessed. Sustainable management reduces the vineyard's impact on the landscape, making it a green corridor that can be traversed by small animals, while also protecting it from potentially harmful animals. The landscape is further protected by measures such as underground cellars, low extension of vineyards, and alternation with woods, hedges, and other crops. The cultivation of vines is crucial to the Italian agriculture landscape, and sustainability practices help to ensure its protection.

## **1.7 Purpose of the study**

The objective of this research is to investigate how cognitive biases influence the willingness to pay (WTP) of consumers with different personality characteristics for sustainable wine. The study will focus on identifying the overconfidence bias in the context of sustainable wine and how it impacts the WTP estimates of consumers with different personality traits.

To achieve this, the study will employ a research method such as a survey. The findings of this study will provide insights into the decision-making processes of consumers when it comes to sustainable wine and the overconfidence bias that may affect their perceptions of the value of these products.

This study has significant implications for both researchers and practitioners in the wine industry. By identifying the cognitive biases that impact consumers' WTP for sustainable wine, this study can help researchers better understand how these biases affect consumer behavior in the context of sustainability. For practitioners, this study can provide insights into how they can market sustainable wine to consumers and price it accordingly.

## **II. Literature Review**

The literature review section of this study provides an overview of the relevant research on different factors that influence consumers' behavior, as well as previous studies on the effect of cognitive biases on willingness to pay for sustainable products. Additionally, this section includes an overview of sustainable wine production and its market potential, a review of previous studies on willingness to pay for sustainable wine, and a summary of gaps in the literature and research questions.

### **2.1 Willingness to pay for sustainable wine production**

In recent years, there has been a notable surge in the market potential for sustainable wine. This upswing can be attributed to the rising consumer demand for environmentally friendly products and the wine industry's growing acknowledgment of the significance of sustainability (G. Gallenti et al., 2019). Sustainable wine production entails the adoption of environmentally conscious farming practices to cultivate high-quality wine while minimizing the ecological impact. Nevertheless, consumers' inclination to pay a premium for sustainable wine may be subject to the influence of cognitive biases. The escalating concern for environmental issues has spurred a heightened interest in sustainable wine production, consequently prompting numerous studies aimed at comprehending consumers' willingness to pay for wines that align with environmentally friendly practices.

This trend towards sustainability has also led to the emergence of sustainable products, such as "natural wine", a new market segment that satisfies the needs of health and environmentally conscious consumers. According to a study by Galati et al. (2019), consumers who are aware of the social and environmental impact of their consumption choices pay more attention to the information displayed on the label as a tool to reduce the risk associated with their purchase. The study aims to identify which consumers are willing to pay for natural wine and understand what information on the label influences their choice. It is one of the first in wine research to analyze consumers of "natural" wine, strictly correlated to the sustainable focus of this research. The study found that consumers are

willing to pay a premium price for "natural" wine, and this choice is positively affected by the importance attributed to information on the ingredient content, production method, and sensory characteristics included on the wine label. Moreover, millennial consumers are more likely to pay a high premium price for "natural" wine. Therefore, understanding the cognitive biases that influence consumers' willingness to pay for sustainable and natural wine, particularly among different personality traits, is crucial for sustainable wine producers to effectively target and engage with their potential customers.

As already mentioned, environmental practices and consumers' willingness to pay for sustainable products, such as sustainable wine, have garnered significant attention from researchers in various contexts. Numerous studies have examined these concepts, exploring different aspects and perspectives, yet all share a common goal of promoting a greener vision. The focus has been on understanding the relationship between environmental practices and consumers' preferences, as well as the economic implications of sustainability in the wine market. By investigating these factors, researchers aim to shed light on the growing demand for environmentally friendly products and how businesses can align their practices to meet these expectations. Some studies highlight the interconnectedness of environmental practices, willingness to pay for sustainable wine, and the broader goal of fostering a greener future.

One of these studies by A. L. Roggeveen et al. (2015), based on vividness theory, examines the impact of utilizing dynamic visual presentations on consumer preferences and willingness to pay for hedonic options. The authors propose that presenting products and services in a dynamic visual format enhances consumer engagement, creating an experience that mimics the actual product encounter. This heightened engagement leads to a stronger preference for hedonic options and an increased willingness to pay for them. These findings have broader implications and can be adapted to various activities, such as the market of sustainable wine. By incorporating dynamic presentations and engaging experiences, stakeholders in the sustainable wine industry can potentially improve consumer perception and valuation of sustainable wine offerings. This approach allows for a more immersive and captivating presentation of the unique attributes and benefits of sustainable wine, which may positively

influence consumer decision-making and willingness to pay a premium for these environmentally friendly options. Implementing dynamic visual strategies could thus help in effectively communicating the value proposition of sustainable wine to consumers, fostering greater acceptance and demand for these products.

Connecting to the focus on willingness to pay for sustainable wine, the study conducted by J. Habel et al. (2016) sheds light on the influence of corporate social responsibility (CSR) engagement on consumers' willingness to pay. Although the study may not specifically address sustainable wine, it reveals important insights into the relationship between CSR and consumers' purchasing behavior. The findings demonstrate that while CSR initiatives can enhance consumers' perception of a company and increase their willingness to pay, consumers remain cognizant of potential price markups associated with socially responsible products. The study emphasizes the significance of consumer attributions and suggests effective communication strategies to optimize perceived price fairness, which can be valuable when promoting sustainable wine in the market. Furthermore, the broader applicability of these findings extends beyond CSR, providing valuable insights for industries seeking to enhance consumer perception, loyalty, and willingness to pay for products and services across different contexts.

The study by E. Jeong et al. (2019) focuses specifically on premium price levels for organic menu items at restaurants in the United States, its findings and insights can be valuable for understanding consumer behavior and acceptable premium prices in other contexts as well. For instance, the factors examined in the study, such as health consciousness, gender, and age, can also influence consumers' willingness to pay for sustainable wine. By applying similar methodologies and considering the specific characteristics of the target market, this study's insights can be adapted to the wine industry to determine acceptable premium price levels and inform pricing strategies for sustainable wine products. This would aid producers and marketers in effectively positioning and justifying the premium prices of sustainable wine to their target consumers.

Regarding sustainability-focused products, the study by A. Niedermeier et al. (2021) examines consumer segments and their preferences for green all-purpose adhesives in Germany, shedding light on the factors that distinguish these segments. By conducting an online survey and choice experiment, the research identifies six distinct consumer segments and highlights the importance of factors such as Green Consumer Value, Perceived Consumer Effectiveness, and Trust in differentiating eco-friendly consumers. The insights gained from this study have broader implications beyond the adhesive market, as the methodology and findings can be applied to other fast-moving consumer goods. By understanding consumer preferences and segmenting the market, businesses in various industries can develop targeted business and marketing strategies to meet the demands of eco-conscious consumers. This study provides a foundation for more effective and tailored approaches to sustainability-focused product development and marketing across different consumer contexts.

Similarly, the paper by S. M. Tully, and R. S. Winer (2014) investigates factors influencing willingness to pay for socially responsible products across various product categories. Through a meta-analysis of over 80 research papers, the study examines the impact of the beneficiary of social responsibility programs (humans, animals, or the environment) on willingness to pay. The analysis considers two dependent variables: the percentage premium individuals are willing to pay and the proportion of respondents willing to pay a positive premium. The findings reveal an average percentage premium of 16.8% and a 60% willingness to pay a positive premium. Importantly, the study demonstrates that willingness to pay is higher for products benefiting humans (e.g., labor practices) compared to those benefiting the environment. These findings have implications for retailers, manufacturers, and future research in understanding consumer behavior towards socially responsible products. Moreover, the insights gained from this study can be extended to other research topics exploring the influence of beneficiary factors on consumer behavior and willingness to pay in various contexts beyond socially responsible products.

Overall, these studies highlight the importance of consumers' willingness to pay for environmentally friendly wine. The findings suggest that providing consumers with

information on the environmental attributes of wine can increase their willingness to pay and that taste perception and consumption habits play a significant role in consumers' willingness to pay for wine. Factors such as the perceived quality, taste experience, and personal preferences are intertwined with consumers' decision-making processes and their willingness to pay for environmentally friendly wine.

## **2.2 Influence on decision: external and internal variables**

The increasing interest in sustainable products has prompted researchers to investigate the factors that influence consumers' willingness to pay for such environmentally friendly options. Prior studies have explored the impact of external factors, including environmental sustainability and product attributes, and the role of internal factors, specifically personality traits and biases, in shaping consumers' purchasing decisions. This chapter will focus on examining existing research that has explored the effect of external and internal factors on consumers' willingness to pay for sustainable products. External factors encompass broader contextual elements related to sustainability, while internal factors delve into individual characteristics, attitudes, and biases that influence consumer behavior. By scrutinizing existing literature, we can gain a deeper understanding of how these factors interact with consumers' willingness to pay for sustainable products.

The influence of internal and external factors on decision-making regarding sustainable wine is a critical area of study. While existing literature on the subject lacks a clear consensus and often presents conflicting results, it is crucial to analyze both types of factors to gain a comprehensive understanding. The research by M. D. Lopez-Gamero and J. F. Molina-Azorín (2016) focuses on the joint analysis of external factors, such as voluntary norms and stakeholders, and internal factors, such as firm resources, in relation to proactive environmental management. By examining how these factors impact decision-making in the context of sustainable wine, they aim to determine if firms that embrace sustainability practices gain competitive advantages in terms of cost reduction and product differentiation. Through this analysis, the authors fill gaps in the existing literature by integrating external and internal aspects, providing insights into the wider influencing

factors that shape environmental management decisions. This study combines institutional theory and the resource-based view, recognizing the complementary nature of these theories. The findings offer valuable guidance to managers in the wine industry, helping them make informed decisions that contribute to their firms' competitive advantage in the sustainable wine market.

The article by R.C. Ford et al. (1994) critically examines the variables that influence ethical beliefs and decision-making, considering both external and internal factors. The review categorizes these variables into two main groups: individual-level factors and situational factors. Individual-level variables, such as nationality, religion, sex, age, education, employment, and personality, are explored to understand how they shape ethical decision-making. These factors highlight the internal characteristics and attributes of decision-makers that can influence their ethical beliefs and behaviors. Situational variables, including referent groups, rewards and sanctions, codes of conduct, type of ethical conflict, organization effects, industry, and business competitiveness, are examined to assess the contextual influences on ethical decision-making. These factors shed light on the external environment and situational factors that can impact ethical beliefs and decision-making processes. By reviewing the empirical evidence on these variables, this study contributes to understanding the determinants of ethical decision behavior. It provides valuable insights into the existing knowledge base while also highlighting areas where further research is needed. These insights are also relevant for comprehending ethical decision-making in various contexts. This study can be used to investigate the influence of these variables on ethical behavior and decision-making across different domains.

### *2.2.1 The Effect of External Factors on Willingness to Pay for Sustainable Products*

The wine industry is facing increased attention to sustainability and environmentally friendly practices as consumers become more aware of environmental issues. Consumers are seeking out sustainable wine options, but promoting sustainable wine consumption can be challenging because it involves changing consumer behavior and attitudes towards wine attributes.



To understand consumer perceptions and preferences towards sustainability in wine production, studies have been conducted. The studies mentioned in the previous chapter have found that a considerable number of consumers across different countries had positive perceptions regarding different production methods such as sustainable, environmental-friendly, organic, or local and reported a willingness-to-pay a premium for wine with characteristics of sustainable production. However, on average, consumers' awareness of the broad concept of sustainability regarding wine seemed low in some European countries and North America. Moreover, organic and sustainability labels were often perceived as quality indicators.

They focused mostly on the environmental aspects of sustainability; until this point, social and economic aspects were only minimally examined. To promote sustainable wine consumption, marketers, retailers, and producers should develop information campaigns with a focus not only on environmental but also on social and economic aspects that are going to be analyzed by the next studies.

For this purpose, S. Gomes et al. (2023) examined the influence of external factors on Generation Z consumers' willingness to pay more for green products. It found that environmental concerns positively affected their willingness to pay, indicating their increasing awareness of environmental conservation. Additionally, the perception of a green future and positive experiences with green products were identified as influential factors. However, the perceived benefits of green products had a greater negative impact on their willingness to pay. These findings suggest that external factors, such as environmental concerns and future estimations, play a significant role in shaping Generation Z consumers' willingness to invest in green products.

K. Grunert et al. (2014) conducted an analysis on the relationship between consumer motivation, understanding, and use of sustainability labels on food products. Consumers demonstrated better comprehension of specific sustainability labels that were clear and associated with environmental protection and ethical considerations. The study also

revealed that consumer motivation, understanding, and label use were influenced by external factors, such as consumers' life values. Country differences were observed, indicating varying levels of concern, understanding, and use of sustainability labels across different regions. These differences may be influenced by external factors such as cultural norms, policy initiatives, and the prominence of sustainability issues on the public agenda. It is important to note that the study highlighted the current limited use and the need for further research to investigate country-specific variations and factors that influence consumer adoption of these labels. These external factors should be taken into consideration when designing strategies to promote the use of sustainability labels and encourage more sustainable consumer choices.

The reviewed article by K. Govindan et al. (2015) on green supplier selection provides insights into criteria and approaches used in choosing environmentally responsible suppliers. This information can be linked to your thesis on the influence of external factors on willingness to pay for sustainable wine by guiding the selection process of suppliers aligned with environmental principles. The article highlights common selection approaches and popular criteria like "environmental management systems." It also identifies gaps in the current literature, offering opportunities for improvement in the green supplier selection process. Overall, this research contributes to informed decision-making in the sustainable wine industry and promotes the development of environmentally friendly practices.

The study of Nicholas J. Ashill (2013) examines the influence of external factors on consumers by investigating the relationships between environmental characteristics, perceived uncertainty, and marketing decision-makers' locus of control. The findings reveal that both instability of change and environmental complexity contribute to decision-makers' uncertainty, with instability having a stronger effect. The study also shows that locus of control moderates the relationships between environmental characteristics and uncertainty. These findings have implications for theory, managerial practice, and research methodology in understanding and navigating uncertain marketing environments.

W. N. Ahmad et al. (2017) examine the influence of external factors on consumer behavior and willingness to pay (WTP) in the context of environmentally friendly and sustainable wine. Although the specific focus of the study is on sustainable supply chain management (SSCM) practices in the oil and gas industry, the findings provide valuable insights that can be applied to other industries and topics, including the wine industry. The research emphasizes the significance of economic and political stability as external factors that influence consumers' attitudes and behaviors towards sustainable products. It suggests that consumers are more likely to engage with and support environmentally friendly practices when economic and political conditions are stable and conducive to sustainability initiatives. Interestingly, the study also reveals the comparatively lower importance of energy transition in shaping consumers' behavior and WTP. This finding highlights the need to consider a broader range of external factors beyond energy-related concerns when designing strategies to promote environmentally friendly products, such as sustainable wine. The study underscores the importance of contextual factors specific to SSCM practices for effective strategy design. It implies that understanding the external forces that shape consumers' perceptions and behaviors is essential for developing successful sustainable supply chain strategies. These insights can be applied to other industries, including the wine industry, guiding the development of sustainable supply chain strategies and influencing consumer behavior and WTP for environmentally friendly and sustainable wine options.

The article by Dara O'Rourke et al. (2015) focuses on the influence of sustainability information on consumer purchase intentions when choosing green products. The study analyzes over 40,000 online purchase interactions from GoodGuide.com and explores how the impact of sustainability information varies across issues (health, environment, and social responsibility), product categories, consumer types, and types of information. The findings reveal that certain types of sustainability information have a significant impact on purchase intentions, with health ratings showing the strongest effects. Direct users, who actively seek sustainability information, are most influenced by such information, leading to increased purchase intentions. However, sustainability information has limited impact on nondirect users, suggesting that simply providing more or better information may not significantly change mainstream consumer behavior. The study highlights the importance

of designing sustainability information to align with existing decision-making processes in order to effectively influence consumer behavior. These insights can be applied to other studies and assist in developing targeted strategies for promoting green products based on specific consumer segments, issues, and product categories.

After analyzing numerous external factors that can influence consumers' willingness to pay (WTP) also for environmentally friendly wine production, it is crucial to shift our focus towards examining the internal factors.

### *2.2.2 The Effect of Internal Factors on Willingness to Pay for Sustainable Products*

Understanding the internal factors that drive consumers' preferences and behaviors is essential for developing effective strategies to promote environmentally friendly wine and enhance WTP. By exploring psychological factors, such as attitudes, beliefs, values, and personal motivations, we can gain deeper insights into how individuals make decisions related to eco-friendly wine consumption. This internal perspective complements the understanding of external factors and provides a more comprehensive understanding of the determinants of WTP for eco-friendly wine production.

These various internal factors such as personality traits and cognitive biases can influence their decision-making process, particularly when it comes to their decision and consequences of the latest. To promote sustainable choices effectively, businesses should address cognitive biases through education and information, while also considering the various norms that influence consumer behavior.

More specifically, W. Chu et al. (2012) investigate the impact of overconfidence bias on investment behavior, with a specific focus on the effects of biases. The overconfidence bias refers to individuals' tendency to have an inflated sense of their own abilities and knowledge, leading them to overestimate their chances of success and underestimate risks. In the context of this study, different from the one of sustainability for environmentally friendly wine, the overconfidence bias is important because it influences investment

decisions and outcomes. The authors' findings reveal that overconfident investors exhibit certain behavioral patterns. They tend to trade larger volumes, indicating a higher level of activity in the market. Moreover, they demonstrate a stronger disposition effect, which refers to the tendency to hold onto losing investments while quickly realizing gains. This effect is influenced not only by factors like loss aversion and lack of self-control but also by emotions such as pride and shame. For overconfident investors, the desire for pride motivates them to realize gains quickly, seeking validation and a sense of accomplishment. On the other hand, the fear of experiencing shame prevents them from admitting losses and prompts them to hold onto losing stocks. Additionally, overconfident investors exhibit an "illusion of control," believing they have more influence over market outcomes than they do. Understanding the influence of overconfidence bias on decision-making is crucial, not only in the realm of investments but also in consumer behavior, particularly when it comes to the willingness to pay for sustainable wine. The presence of overconfidence bias can impact individuals' assessments of the value and benefits associated with eco-friendly production practices. Recognizing and addressing this bias is important for marketers and policymakers who seek to promote sustainable choices and meet the growing demand for environmentally responsible products. By mitigating the effects of overconfidence bias, stakeholders can encourage more informed decision-making, enhance consumer satisfaction, and contribute to positive environmental outcomes.

Similarly, in the context of sustainable wine and consumers' willingness to pay, understanding the influence of internal factors becomes crucial. The study by J. Mahajan (1992) delves into the internal factor of overconfidence bias and its impact on estimating the likelihood of future events in marketing management decisions. While the study focuses on strategic marketing predictions, its findings have broader implications. Research consistently demonstrates that individuals tend to exhibit overconfidence in their probability assessments. By investigating the effects of evaluative feedback, counterfactual reasoning, and expertise, the study provides valuable insights into the underlying reasons for overconfidence and its relationship with prediction accuracy. The findings highlight the importance of receiving constructive feedback, as "humbling" feedback can increase prediction accuracy and reduce overconfidence. Additionally, the study reveals that engaging in counterfactual reasoning can

help mitigate overconfidence when faced with unexpected outcomes. Moreover, the study suggests that experts with richer mental representations tend to exhibit higher levels of overconfidence. Applying these insights to the context of sustainable wine and willingness to pay, recognizing the impact of feedback, counterfactual reasoning, and expertise on overconfidence can inform decision-making processes in marketing management. By understanding these dynamics, marketers can improve the accuracy of predictions and mitigate the potential pitfalls of overconfidence in strategic marketing decisions related to sustainable wine. This knowledge contributes to more informed and effective strategies for promoting sustainable wine consumption and catering to consumers' preferences in environmentally conscious choices.

The study of E. Jorge et al. (2020) investigates the factors influencing consumers' willingness to pay for organic wine and specifically examines the role of tolerance of ambiguity for consumers. During the decision-making process, ambiguity may produce discomfort, doubt, or other specific issues related to individual judgments (Ghosh and Ray, 1997). The findings reveal that the positive impact of consumers' healthy attitude on their willingness to pay for organic wine is weakened among individuals with lower tolerance for ambiguity. However, no significant effects were observed between tolerance of ambiguity and the relationship between tasty or eco-friendly attitudes and willingness to pay. These results underscore the importance of considering consumer tolerance of ambiguity when analyzing organic wine purchase behavior. The study provides valuable insights for winery managers to develop effective marketing strategies that can potentially enhance consumer willingness to pay for organic wine.

P. Maniatis (2016) explores the factors influencing consumers' decision-making process when selecting green products, specifically focusing on their knowledge, commitment, and general awareness. The findings provide valuable insights into the complexities of consumer behavior and decision-making in the context of green products. The constructed model, which highlights the interactions between different indicators and consumers' green consciousness, offers a framework that can be applied in various research studies. By understanding the influence of knowledge, commitment, and awareness on consumers'

decision-making, researchers in different fields can utilize this model to examine similar phenomena or extend the understanding of consumer behavior in relation to other sustainable or environmentally conscious products. This study not only contributes to the existing knowledge base but also paves the way for future research endeavors in diverse contexts that seek to explore the influence of these factors on consumer decision-making and sustainable consumption patterns. After analyzing cognitive biases, this research shifts its focus towards exploring the influence of personality traits, which is another crucial aspect. Understanding how personality traits can shape decision-making processes is essential, particularly in the context of consumer behavior and the willingness to pay for sustainable wine. Certain personality traits, such as openness to experience, conscientiousness, and environmental consciousness, have been found to significantly impact individuals' preferences and choices regarding environmentally friendly products. By considering the role of personality traits, marketers and policymakers can develop tailored strategies that resonate with consumers' unique characteristics, effectively promoting sustainable choices and fostering a positive impact on the environment.

A. Basic-Sontic et al. (2017) study how personality traits influence decision-making in energy efficiency investments within the residential sector. By analyzing data from the Understanding Society UK survey, they utilize structural equation modeling to explore the role of the Big Five personality traits. The results show that personality traits indirectly impact high-cost investments through environmental attitudes and risk preferences. However, low-cost pro-environmental habits are solely influenced by environmental attitudes. These findings suggest that personality traits can hinder energy consumption reduction, emphasizing the need for targeted products and policies.

This study of T. Mahlamäki et al. (2019) explores the effects of different personality traits on key account manager job performance in the context of Key Account Management (KAM) in business-to-business (B2B) markets. The research develops and tests a structural equation model that incorporates personality, motivation, and job performance. The findings highlight the significant role of learning orientation and performance orientation as motivational factors influencing key account manager performance.

Additionally, the study reveals the relationships between personality traits (such as extraversion, agreeableness, conscientiousness, and emotional stability) and motivational constructs. Specifically, extraversion and conscientiousness are associated with both learning and performance orientations. These results have theoretical and managerial implications for understanding the influence of personality and motivation on job performance. Moreover, the study's approach and findings can be applied to other topics beyond key account management, broadening its relevance to different fields of research.

Finally, the data presented in this study by Raymond L. Horton (1979) provides evidence supporting the hypothesis that personality traits, specifically anxiety and self-confidence, influence consumer choice behavior. Through post hoc analyses, the researchers identified six personality factors that are meaningfully linked to consumers' decision making in a simulated shopping environment. These findings suggest a systematic and plausible relationship between personality variables and consumers' choice behavior, highlighting the importance of individual traits in shaping consumer decisions. This study contributes to our understanding of the influence of personality on consumer behavior and provides valuable insights for marketers and decision-makers seeking to better understand and target specific consumer segments based on their personality traits.

### **3. Summary of Gaps in the Literature and Research Questions**

While there has been a growing interest in sustainable wine production and its market potential, there has been little focus in the previous literature on how individual cognitive biases may influence consumers' willingness to pay for sustainable wine. Cognitive dissonance has been shown to have an impact on consumers' willingness to pay for sustainable and organic products, but no empirical study has specifically investigated the potential relationship between cognitive dissonance and WTP for sustainable wines.

This significant gap in the literature highlights the need for further analysis on how individual cognitive biases, such as overconfidence bias, may influence consumers' decision-making regarding WTP for sustainable wines for different types of personalities.



Understanding this potential influence can provide valuable insights for sustainable wine producers and marketers in developing effective strategies to increase consumer demand for sustainable wines.

Therefore, this study aims to address this gap by answering the following research hypothesis:

- Consumers are willing to pay a premium price for sustainable wines compared to conventional wines with similar characteristics.
- Individuals are overconfident. Overconfidence bias influences consumers' decisions.
- There is a connection between individuals' personalities and their decision-making process when it comes to wine preferences.

Overall, the findings of this study highlight the importance of understanding cognitive biases, with a particular focus on the overconfidence bias, and demographic and psychographic factors in promoting sustainable consumption. By identifying the barriers to willingness to pay for sustainable wine, this study provides insights for businesses to develop strategies that promote sustainable consumption.



### **III. Methodology**

This chapter provides a comprehensive description of the entire research process, ensuring transparency in the conducted study. It begins by outlining the research approach, method, and research design employed. Furthermore, it offers detailed insights into the data collection process and its subsequent analysis. The chapter concludes by evaluating and justifying the quality of the paper. By presenting a thorough account of the research process, the aim is to enhance the credibility and rigor of the study.

#### **3.1 Research Approach**

The field of research addresses willingness to pay for sustainable wine, particularly referring to different types of consumers with different personality traits, traits that can be influenced by the overconfidence bias. The current research in this field attempts to explain this phenomenon in the contextual background.

To provide a comprehensive understanding of the research process and its methodology, this chapter delves into the description of the entire research process. This detailed explanation is particularly valuable as it helps elucidate the structure and framework of the methodology. Research approaches can be categorized into three distinct forms: deductive, inductive, and abductive. This categorization holds significance not only in describing the chosen approach but also in influencing the research design and the overall reasoning behind the study. By exploring these aspects, this chapter aims to enhance clarity and comprehension of the research methodology employed.

Deductive research is a commonly used approach where conclusions are drawn from existing theories and hypotheses are formulated. Researchers begin with established theories or models and develop specific hypotheses that can be tested through data collection. The goal is to systematically gather evidence to either confirm or reject these hypotheses. Deductive research is driven by observations and aims to provide empirical support for existing theories or contribute to theory-building.

Inductive research, also known as the bottom-up approach, starts with the observation of an interesting pattern or phenomenon. Researchers gather data through various methods, such as interviews, surveys, or observations, to explore the observed phenomenon in detail. Through a process of analysis and categorization, they identify recurring themes or patterns that emerge from the data. From these patterns, researchers formulate hypotheses or general principles that explain the observed phenomena. Inductive research aims to generate new theories or concepts based on empirical evidence.

Abductive research combines elements of deductive and inductive approaches. It begins with an intriguing observation of a phenomenon that lacks sufficient existing literature to explain it. Researchers start by exploring various theories or frameworks that might shed light on the observed phenomenon. They carefully examine these theories to draw connections and insights that can explain the observation. The goal is to develop plausible explanations or hypotheses that bridge the gap between theory and observation. Abductive research involves an iterative process of exploring and refining potential explanations to arrive at a comprehensive understanding of the observed phenomenon. It provides a framework for drawing conclusions, modifying existing theories, or proposing new theoretical perspectives for future research.

In this research, the deductive approach is the most suitable reasoning method for investigating the phenomenon at hand. The aim is to test specific hypotheses by collecting data through a designed survey that is divided into different parts, each focusing on distinct aspects. The survey encompasses questions related to the general knowledge of the sustainable wine market, various inquiries exploring different personality traits, and specific questions aimed at assessing the confidence levels of each participant. By employing the deductive approach, this research seeks to gather empirical evidence to support or refute the formulated hypotheses, thereby contributing to a deeper understanding of the phenomenon under investigation.

### **3.2 Research Method**

When considering the research design, two distinct approaches emerge: quantitative and qualitative research. These approaches diverge in terms of their data collection and analysis methodologies. Quantitative research seeks to gather a substantial volume of data, often employing questionnaires and utilizing statistical metrics to assess the validity of formulated hypotheses. In line with the central limit theorem, a sample size of at least 30 respondents per group is typically required to assume a normal distribution of data. This approach aligns well with deductive research methods, which commonly utilize quantitative studies.

On the other hand, qualitative research emphasizes obtaining detailed information and insights through methods such as interviews, observations, or case studies. While quantitative research focuses on generalizability, according to Miles and Huberman (1994), qualitative research is distinguished by its emphasis on intensive and/or extended engagement with the research field. Each approach offers unique advantages and contributes to a comprehensive understanding of the research topic. The selection of the most appropriate approach depends on the nature of the research questions, the desired level of detail, and the overall research objectives.

Given that this research adopts a deductive approach and aims to examine specific hypotheses within an observed phenomenon while establishing connections with existing theory, it appears that quantitative studies would be more suitable for conducting a detailed analysis of this phenomenon. Quantitative research methods provide the tools necessary to gather and analyze numerical data, enabling a systematic examination of variables, relationships, and patterns. By employing statistical analysis techniques, such as hypothesis testing and regression analysis, the study can derive objective insights and draw meaningful conclusions.

The use of quantitative studies in this research will contribute to a rigorous investigation of the research topic, facilitating the evaluation of hypotheses and enhancing the overall validity and reliability of the findings.

### **3.3 Research Design**

The research design in this study serves the purpose of establishing a systematic framework for addressing the proposed hypotheses. Building upon the defined hypotheses in the previous chapter, it is essential to determine the nature and strategy of the research. By carefully selecting an appropriate research nature and strategy, the study can ensure a focused and purposeful approach towards investigating the research questions. This will enable the research design to effectively guide the data collection, analysis, and interpretation processes, ultimately facilitating the achievement of the research objectives and providing meaningful insights into the topic under investigation.

In terms of research nature, there are three primary types to consider: exploratory, descriptive, and explanatory. A descriptive study is suitable for situations where the goal is to depict patterns or phenomena. An explanatory study, on the other hand, delves into investigating and explaining the cause-and-effect relationships of a specific phenomenon. Lastly, an exploratory study is conducted when there is limited or no prior research available on a particular phenomenon, aiming to expand the existing literature. By understanding the distinctions among these research natures, researchers can align their study design with the specific objectives and requirements of their research topic.

The existing literature on the relationship between willingness to pay, cognitive biases, personality types, and sustainability in the context of wine consumption is limited. There is a research gap in understanding how different personality types are influenced by specific biases and how this affects decision-making regarding sustainability, specifically in the context of wine consumption. Given the need to expand the existing literature and explore this uncharted territory, an exploratory research approach is well-suited to shed light on these dynamics and contribute to the knowledge in this field.

### 3.4 Data collection

Data collection is an important part of any research study. It involves gathering information from a variety of sources, both primary and secondary, to answer a research question. For this study, the primary focus of data collection will be on gathering primary data using surveys. The aim is to obtain firsthand information directly from the participants to address the research question. Secondary data sources, such as published reports, databases, or previous interviews, will not be utilized in this study. By focusing primarily on primary data, the study aims to obtain specific and relevant information directly from the source, ensuring the integrity and accuracy of the collected data.

In quantitative studies, primary data collection is often used to gain an in-depth understanding of a particular topic. This type of data can be gathered through surveys, allowing researchers to explore the perspectives and experiences of individuals in detail. By focusing solely on primary data, researchers can directly capture the specific information needed to address their research questions and provide valuable insights into the topic under investigation.

Primary data refers to information that is directly collected from the source, leading to the generation of new data. In quantitative research, questionnaires and interviews are commonly employed methods for collecting primary data. In the case of this study, which has a descriptive research design, questionnaires are particularly suitable.

For this study, secondary data is gathered to provide a complete literature review and having insights of experts in the field through articles from specific databases such as *SAGE*, *Business Source*, *Wiley*, *ScienceDirect* and *Springler*, published in journals listed in the ABS AJG 2021 ranking. On the other hand, primary data offers an in-depth look into the consumer decision path. Combining these two types of data allows for a greater understanding of the research question and helps draw more meaningful practical and theoretical conclusions from the findings. In the following the whole process of the

data collection is described in detail and is separated into five subchapters, namely sampling, primary data, and secondary data.

### **3.5 Sampling**

To ensure the relevance of the collected data in addressing the research question or hypothesis, it is crucial to have a representative sample that accurately reflects the phenomena being studied. The quality of the data analysis and the resulting conclusions heavily rely on the defined sample. As this paper adopts a quantitative research approach, the sample will be defined in line with the structured survey. However, since the study focuses on a specific industry and addresses a particular problem, a purposive sampling method has been selected to obtain a representative sample that effectively captures the essence of the topic under investigation.

The survey is designed specifically for wine consumers who regularly face choices between different bottles of wine. This target group is chosen due to their firsthand experience and insights, which can greatly contribute to understanding the causes and effects of the phenomena under investigation, as well as identifying effective strategies to address them. To ensure the selection of highly relevant participants, specific criteria were established to narrow down the pool of candidates. This criterion focuses on active consumers with expertise in the field of interest. The primary objective of the study is to analyze the decision-making patterns of wine consumers, considering various influences such as the overconfidence bias and different types of personalities. By examining these factors, the study aims to gain a comprehensive understanding of the decision-making process in the context of wine consumption.

In the subsequent subchapter, the survey structure that best aligns with the study objectives will be presented. Specifically, constructs and items from existing literature and scientific sources have been identified. For further details on the constructs, items, and their sources, please refer to Appendix A.



### **3.6 Primary Data**

The survey structure provides a framework for collecting primary data from respondents, which can be used to analyze trends, patterns, and relationships among variables. One of the most common survey structures is the cross-sectional design, which involves collecting data at a single point in time. This type of survey structure is useful for obtaining a snapshot of a population's characteristics or behaviors. Another structure is the longitudinal design, which involves collecting data at multiple points in time. This type of survey structure is useful for examining changes in variables over time and identifying the causal relationships between variables. A third survey structure is a retrospective design, which involves collecting data from respondents about past events or experiences. This type of survey structure is useful for studying long-term effects and can be especially valuable when studying behaviors or outcomes that may take years to manifest. Other important survey structures include the randomized control trial, which is commonly used in medical research to test the effectiveness of treatments or interventions, and the case-control study, which is used to identify risk factors for diseases or other outcomes.

In addition to selecting the cross-sectional design as the appropriate survey structure for this study, it is necessary to consider various other aspects of survey design. This includes choosing an effective sampling strategy, ensuring clear and concise question wording, and providing appropriate response options for participants to choose from. These considerations are essential for obtaining reliable and meaningful data to address the research objectives effectively. Careful attention to survey structure and design can help ensure that the data collected is reliable, valid, and useful for addressing research questions and making informed decisions.

This study examines the Willingness to Pay for natural wine among 126 Italian consumers in a hypothetical setting. The primary objective is to profile sustainable wine consumers and investigate the impact of personality traits and overconfidence bias on their purchasing decisions. The data collection took place in April 2023, utilizing an online survey. The recruitment of participants was carried out through various channels, including social

networks such as Twitter, Facebook, and WhatsApp, as well as email invitations. Snowball sampling was employed, leveraging interpersonal connections to expand the participant pool. All participants were encouraged to share the survey with their friends and acquaintances, further broadening the reach. While this recruitment method does not ensure a fully representative sample, the online survey approach was chosen due to its efficiency in gathering diverse and comprehensive information within a relatively short timeframe (McCullough, 1998).

As already mentioned, a total of 126 individuals completed the questionnaire for this study. Out of these respondents, 110 were identified as wine consumers, and their questionnaires were considered valid for analysis. The remaining questionnaires with erratic responses were removed from the dataset. Therefore, the final sample size consisted of 99 valid questionnaires from wine consumers.

Among the wine consumer participants, only a small percentage reported working in the wine sector. This indicates that most respondents do not have professional involvement in the wine industry. Additionally, an even smaller proportion of consumers demonstrated knowledge about sustainable practices that are applicable to the wine sector. These findings suggest a limited awareness and understanding of sustainability practices among the wine consumer population in this study.

### **3.7 Survey Structure**

As already mentioned before, the study's target population was wine consumers. For this reason, some filter questions were organized to filter the participants of the survey. Prior to the commencement of the survey, instructions were provided to guide respondents on how to answer the questions effectively. The survey consisted of two types of closed-ended questions: general knowledge questions and affirmations related to personality traits. For the general knowledge questions, participants were presented with three options to choose from as their response. Since there are these three alternative answers and only one of them is correct, everyone has a 33% chance of giving a correct answer. After each

general knowledge question, it is asked to assign a probability of the previous answer being correct and this decision reflects the range of uncertainty.

The section pertaining to the overconfidence bias in this study was structured based on the scale used by J. Mahajan (1992) in his research titled "The Overconfidence Effect in Marketing Management Predictions." In Mahajan's study, each item was presented in the form of a two-alternative, half-range question. Participants were required to select one alternative and assign a probability ranging from 0.5 to 1.0, indicating the level of certainty associated with their choice. A response of 0.5 indicated high uncertainty, while a response of 1.0 represented high certainty, following Mahajan's scale (1992).

However, for this study, the scale was modified to a Likert scale ranging from 1 to 7 to maintain a logical and continuous valuation scale throughout the survey. Specifically, a rating of 1 corresponds to "not confident at all," a rating of 4 represents a "neutral" stance, and a rating of 7 signifies being "very confident."

The section focusing on the construct of willingness to pay (WTP) is comprised of two types of items: open-ended questions and affirmation-based questions. The open-ended question inquired about customers' willingness to pay for a bottle of sustainable wine. Respondents were asked to indicate their desired price using a slider scale, which ranged from 0 to 150 euros. The average response to this question was 20 euros, suggesting a relatively low willingness to pay a premium price for a bottle of wine. Considering that expensive bottles are typically associated with higher prices, this result indicates a limited inclination among respondents to pay a higher price for sustainable wine. It is worth noting that the average price for a bottle of wine in Italy is approximately 17 euros. Given this context, the response range aligns with the existing market prices for wine in the country.

The affirmation-based questions consist of three items, each rated on a Likert scale ranging from 1 to 7. On this scale, a rating of 1 corresponds to "disagree," a rating of 4 represents a "neutral" stance, and a rating of 7 signifies "agree". The scale used for these items was adapted from the studies of J. Habel. et al. (2016) and C. Homburg et al. (2005).

Modifications were made to ensure the coherence of these scales with the specific research topic of this study.

The section dedicated to the Five Personality Traits consists of 20 items sourced from Goldberg (1999) and Mahlamaki (2010). The Five Factor Model (FFM) is the widely adopted theory for trait-based personality research. According to the FFM, personality can be understood through five broad dimensions or factors: agreeableness, conscientiousness, extraversion, emotional stability (or neuroticism), and openness to experience (Saucier & Goldberg, 2002). The FFM originated in the early 1980s when Lewis Goldberg's lexical research identified these five individual factors of personality (Goldberg, 1981). Costa and McCrae further developed the FFM by incorporating the agreeableness and conscientiousness factors into their research (Costa, McCrae, & Jonsson, 2002).

While the HEXACO model, which includes Honesty-Humility as an additional factor, has emerged as a competing model in recent years (Bourdage et al. 2018; Strouts et al. 2017), the FFM model remains the predominant approach for measuring personality traits. Therefore, for the present study, the FFM model was selected as the framework to assess personality traits due to its extensive usage and acceptance in the field of personality research (Goldberg, 1999; Goldberg et al., 2006).

The questionnaire includes specific filter questions designed to target wine consumer respondents and tailor the study to their specific interests and experiences. Additionally, control questions have been included to assess the validity of each response and ensure that respondents paid careful attention during the survey completion process. Furthermore, the questionnaire also includes questions focused on gathering information about consumers' demographics, such as age, income, educational background, and other relevant details, which will contribute to a comprehensive understanding of the participants' characteristics.

### **3.8 Data Analysis**

To facilitate the forthcoming data analysis discussion, the chosen methodology for analyzing the collected data is the Partial Least Squares (PLS) method. This method is particularly well-suited for the analysis of data obtained through questionnaires as it does not necessitate strict adherence to assumptions of data normality. It allows for optimizing the relationships among the collected items, as well as between latent variables (Ringle et al., 2020).

To assess the construct reliability and validity, three measures recommended by Hair et al. (2019) are commonly used: Cronbach's Alpha ( $C\alpha > 0.70$ ), Composite Reliability ( $CR > 0.70$ ), and Average Variance Extracted ( $AVE > 0.50$ ). Discriminant validity is typically tested using the Fornell-Larcker criterion, Cross Loadings and HTMT.

The effectiveness of the structural model is evaluated by examining the R-square values of the endogenous latent variables and assessing the hypothesis. A comprehensive analysis of these measures will be presented in the subsequent chapter.

### **3.9 Quality of Research**

Research studies exhibit significant variability in terms of their structure, encompassing various aspects such as the chosen approach, method, and design employed to investigate specific phenomena. While each decision may be justified based on specific considerations, maintaining a high level of research quality is of utmost importance. The quality of a study directly impacts the significance of its findings and is thus indispensable in any research endeavor. Variations in planning, data collection, data analysis, and data interpretation can significantly influence the overall quality and reliability of the research outcomes.

In the realm of quantitative research, ensuring research quality involves crucial aspects such as validity and reliability. These concepts play a vital role in guaranteeing the accuracy and consistency of the obtained results. When dealing with semi-structured interviews, which inherently possess dynamic characteristics, maintaining quality becomes even more crucial.

Fortunately, similar concepts for maintaining research quality, including validity and reliability, exist in the realm of qualitative studies as well. Adhering to these principles enables researchers to uphold a high standard of research quality, enhancing the credibility and robustness of their findings.

Moreover, it is noteworthy that all the foundations of this research are based on articles published in journals listed in the ABS AJG 2021 ranking. This meticulous selection criterion ensures that the included articles meet stringent standards of quality and contribute significantly to the scholarly discourse within the field. By drawing from reputable sources, this research benefits from the inherent rigor and credibility associated with publications in these esteemed journals, further bolstering the overall quality and reliability of the study's findings.

### **3.10 Research Ethics**

The research study adhered to strict ethical guidelines to ensure the protection and rights of the participants involved. Prior to conducting the survey, all respondents were provided with detailed information regarding the purpose and objectives of the research. They were made fully aware of their rights as participants, including their right to withdraw from the study at any point without penalty.

Informed consent was obtained from all participants, indicating their voluntary agreement to participate in the survey. They were explicitly informed that their responses would be transcribed and used for analysis, and they provided their consent regarding the accuracy and integrity of the data they provided. Additionally, respondents were given the option to remain anonymous, with the assurance that their personal information would be kept confidential and used solely for the purposes of this study.

By ensuring transparency, informed consent, and the protection of participant confidentiality, the research study upheld ethical standards to safeguard the well-being and rights of the individuals involved. These ethical considerations are paramount in maintaining the trust and integrity of the research process and its outcomes.





## IV. Empirical Findings

### 4.1 Introduction

In this chapter, we provide a comprehensive analysis of a study that investigates the impact of overconfidence biases and personality traits on consumers' willingness to pay (WTP) for sustainable wine. The analysis includes a thorough examination of the collected data and presents the results in detail. The analysis employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, which involves assessing both the Measurement Model and the Structural Model. The Measurement Model evaluates the reliability and validity of the constructs, while the Structural Model determines the significance of the hypothesized relationships. Multiple hypotheses were formulated to examine the influence of the predictors on the outcome variable. The aim of this analysis is to gain a deeper understanding of the relationships between overconfidence biases, personality traits, and consumers' willingness to pay for sustainable wine.

The gap of this study is represented in the following research hypothesis:

- Consumers are willing to pay a premium price for sustainable wines compared to conventional wines with similar characteristics.
- Individuals are overconfident and Overconfidence Bias influences consumers' decisions.
- There is a connection between individuals' personalities and their decision-making process when it comes to wine preferences.

The original set of hypotheses has been restructured into a set of more specific and focused hypotheses as follows:

H1: there is a significantly positive impact of Agreeableness on Overconfidence Bias.

H2: there is a significantly positive impact of Conscientiousness on Overconfidence Bias.

H3: there is a significantly positive impact of Extraversion on Overconfidence Bias.

H4: there is a significantly positive impact of Emotional Stability on Overconfidence Bias.

H5: there is a significantly positive impact of Openness to Experience on Overconfidence Bias.

H6: there is a significantly positive impact of Overconfidence Bias on Willingness to Pay.

The analysis employed multivariate techniques, which involve the simultaneous examination of multiple variables. Primary data were collected through surveys and observations to gather relevant information.

The passage below describes two types of analysis techniques: first-generation methods and second-generation techniques.

First-generation methods, such as multiple regression, logistic regression, and analysis of variance, are used to confirm established theories or identify patterns and relationships in data. They can be confirmatory, testing existing hypotheses, or exploratory, exploring data patterns with limited prior knowledge. However, these methods are not suitable for the analysis being discussed.

To overcome the limitations of first-generation methods, second-generation techniques like structural equation modeling (SEM) are employed. SEM allows researchers to incorporate unobservable variables by using indicator variables and considers measurement errors in observed variables. There are two types of SEM that can be used: covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM), also known as PLS path modeling.

In the analysis being conducted, PLS-SEM is particularly suitable for exploratory research. It focuses on explaining the variance in dependent variables within the examined model. The objective of this analysis is to provide insights into the relationships between overconfidence biases, personality traits, and consumers' willingness to pay for sustainable wine.

A composite variable, also known as a variate, is a construct formed by combining carefully selected variables to address a specific research problem. The process involves assigning

weights to each individual variable, reflecting their relative importance. These weights are then multiplied by the corresponding data observations for each variable and summed together to create the composite variable.

Mathematically, the process can be represented as:

$$\text{Composite value} = w_1 \cdot x_1 + w_2 \cdot x_2 + \dots + w_n \cdot x_n$$

Where  $w$  represents the weights and  $x$  denotes the variables. This calculation integrates information from the selected variables, enabling a comprehensive analysis and interpretation of the underlying phenomenon. It is crucial to choose variables and determine weights based on theoretical and empirical justifications. This ensures that the resulting composite variable accurately represents the intended construct and aligns with the research objectives.

Proxy variables or indicators are valuable tools for measuring complex or abstract concepts. They serve as substitutes, capturing specific aspects or dimensions of the concept to ensure a more accurate measurement. For example, for the concept “Extraversion” the proxy variables that are used to measure it are the following:

*E1 In unclear situations, I usually take control of things.*

*E2 It is easy for me to get to know other people.*

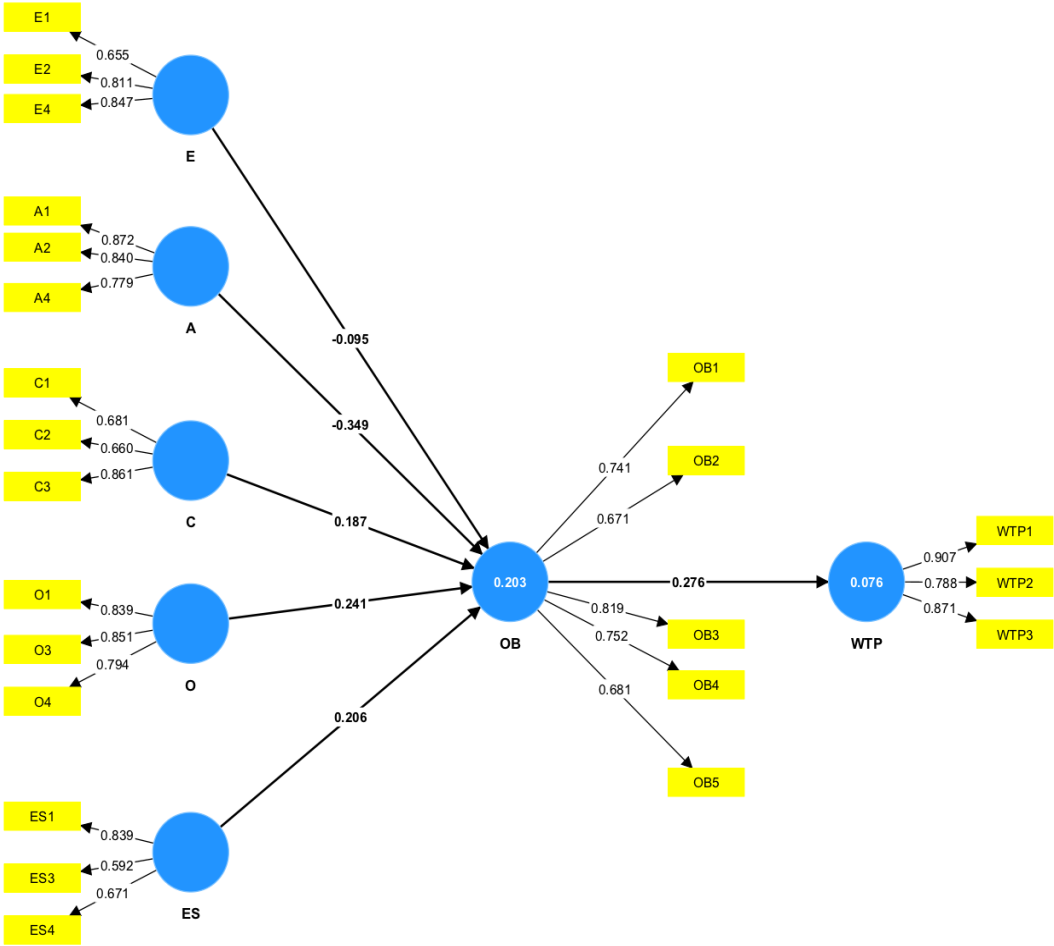
*E3 I usually let others make the decisions. (Reverse coded item)*

*E4 Can talk others into doing things.*

A key objective in research is reducing measurement error, particularly when dealing with variables measured on an ordinal scale within the context of structural equation modeling (SEM). It is important to carefully consider equidistance coding for ordinal scales, such as Likert scales commonly used in SEM, ensuring symmetry, and clearly defined linguistic qualifiers. Path models are utilized in SEM to visually represent the relationships between variables and hypotheses. These models provide a diagrammatic representation of the structural and measurement models within a Partial Least Squares (PLS) path modeling

framework. In a PLS path model, error terms are connected to constructs (endogenous) and measured variables (reflectively) using single-headed arrows, illustrating the relationships among different components of the model.

Image 1: Graphical Output



The evaluation of PLS-SEM involves key metrics for both the measurement model and the structural model. For the measurement model, reliability, convergent validity, and discriminant validity are important metrics. The structural model is evaluated based on metrics such as R square and the size and significance of path coefficients.

Measurement error includes random error ( $\epsilon_r$ ) and systematic error ( $\epsilon_s$ ). Reflective measurement models are assessed using internal consistency reliability, composite reliability,

convergent validity, and discriminant validity. Formative measures focus on content validity and are evaluated based on convergent validity, indicator weights, and collinearity.

Once construct reliability and validity are established, the structural model is examined using R square values and path coefficients. These metrics provide insights into the quality and significance of PLS-SEM estimations.

## **4.2 Measurement model**

Quality of the construct in the study is assessed based on the evaluation of the measurement model. The assessment of the quality criteria starts with the evaluation of the factor loadings which is followed by establishing the construct reliability and construct validity.

### *4.2.1 Factors Loadings*

Factor loading is a measure of how strongly each item in a correlation matrix correlates with a given principal component. It ranges from -1.0 to +1.0, with higher absolute values indicating a stronger correlation with the underlying factor. In this study, some items had factor loadings below the recommended threshold of 0.5 and were therefore removed. The factor loadings can be found in Table 1.

For formative indicators, the outer weight is an important criterion to assess their contribution and relevance. This weight is obtained through multiple regression analysis, where the latent variable scores are the dependent variable, and the formative indicators are the independent variables. In formative measurement models, the outer weights are often smaller compared to the outer loadings of reflective indicators.

The key question is whether the formative indicators genuinely contribute to the formation of the construct. To determine this, it is necessary to test the statistical significance of the outer weights in formative measurement models, which can be done using the bootstrapping procedure.

Table 1. *Outer Loadings*

	A	C	E	ES	O	OB	WTP
A1	0.872						
A2	0.840						
A4	0.779						
C1		0.681					
C2		0.660					
C3		0.861					
E1			0.655				
E2			0.811				
E4			0.847				
ES1				0.839			
ES3				0.592			
ES4				0.671			
O1					0.839		
O3					0.851		
O4					0.794		
OB1						0.741	
OB2						0.671	
OB3						0.819	
OB4						0.752	
OB5						0.681	
WTP1							0.907
WTP2							0.788
WTP3							0.871

#### 4.2.2 *Indicator Multicollinearity*

Variance Inflation Factor (VIF) statistic is utilized to assess multicollinearity in the indicators (Fornell & Bookstein, 1982). According to Hair et al (2016) multicollinearity is not a serious issue if the value for VIF is below 5. Table 2 presents the VIF values for

the indicators in the study and reveals that VIF for each of the indicators is below the recommended threshold.

Table 2. *Multicollinearity Statistics (VIF) for indicators*

	VIF
A1	1.964
A2	1.508
A4	1.633
C1	1.230
C2	1.150
C3	1.247
E1	1.456
E2	1.276
E4	1.442
ES1	1.153
ES3	1.561
ES4	1.391
O1	2.087
O3	1.674
O4	1.500
OB1	1.468
OB2	1.676
OB3	1.783
OB4	1.636
OB5	1.507
WTP1	2.107
WTP2	1.647
WTP3	1.938

Source: *SmartPLS4*

Collinearity, or excessive correlation between formative indicators, can create challenges in methodology and interpretation. Multicollinearity refers to this situation when more than two indicators are involved.

High collinearity among formative indicators affects the estimation of weights and their statistical significance. It inflates standard errors, making it harder to establish the significance of estimated weights, and it can lead to inaccurate estimation and even reverse signs.

In the context of PLS-SEM, potential collinearity issues can be identified based on certain threshold values. A tolerance value of 0.20 or lower and a VIF value of 5 or higher indicate the presence of collinearity. Additionally, bivariate correlations exceeding 0.60 can also suggest collinearity problems. To address exceptionally high levels of collinearity, it is advisable to consider removing one of the corresponding indicators.

In the current study, Table 2 displays the VIF values, which range from 2.107 to 1.230. These values indicate that collinearity is not a significant concern in the analysis, as they fall within an acceptable range.

#### *4.2.3 Reliability Analysis*

Following the examination of outer loadings and multicollinearity, the next step in the analysis involves assessing the reliability of the measuring instrument. Reliability refers to the stability and consistency of the measurement. Two commonly employed methods for evaluating reliability are Cronbach's Alpha and Composite Reliability (CR).

In this chapter, the results for both Cronbach's Alpha and Composite Reliability are presented. These reliability statistics exceed the recommended threshold of 0.7, as suggested by Hair et al. (2011). Therefore, the reliability of the constructs in the study has been established.



#### 4.2.4 Internal Consistency Reliability

The first criterion to evaluate is internal consistency reliability, which is traditionally measured using Cronbach's alpha. Cronbach's alpha provides an estimate of reliability by considering the intercorrelations among the observed indicator variables. It is calculated as follows:

Formula 1: *Cronbach's Alpha*

$$\text{Cronbach's } \alpha = \left( \frac{M}{M-1} \right) \left( 1 - \frac{\sum_{i=1}^M s_i^2}{s_t^2} \right)$$

Source: Hair, J. et al. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed.)*.

The Formula 1 provided represents the calculation of Cronbach's alpha, where  $s_i^2$  denotes the variance of indicator variable  $i$  for a specific construct with  $M$  indicators ( $i = 1, \dots, M$ ), and  $s_t^2$  represents the variance of the sum of all  $M$  indicators for that construct. Cronbach's alpha assumes equal reliability for all indicators, assuming they have equal outer loadings on the construct. However, in PLS-SEM, indicators are prioritized based on their individual reliability, deviating from the equal weighting assumption of Cronbach's alpha. Additionally, Cronbach's alpha is sensitive to the number of items in the scale and may underestimate internal consistency reliability.

To overcome these limitations, a more appropriate measure of internal consistency reliability in PLS-SEM is composite reliability. This measure considers the varying outer loadings of the indicator variables and can be calculated using the following formula:

Formula 2: *Composite Reliability*

$$\rho_c = \frac{\left(\sum_{i=1}^M l_i\right)^2}{\left(\sum_{i=1}^M l_i\right)^2 + \sum_{i=1}^M \text{var}(e_i)},$$

Source: Hair, J. et al. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed.)*.

In the given Formula 2,  $l_i$  represents the standardized outer loading of indicator variable  $i$  for a specific construct with  $M$  indicators. The variable  $e_i$  represents the measurement error of indicator variable  $i$ , and  $\text{var}(e_i)$  denotes the variance of the measurement error, which is defined as  $1 - l_i$ .

The composite reliability is a measure that ranges between 0 and 1, with higher values indicating greater reliability. Its interpretation is like Cronbach's alpha. In exploratory research, composite reliability values of 0.60 to 0.70 are considered acceptable, while in more advanced stages of research, values between 0.70 and 0.90 are regarded as satisfactory. Values exceeding 0.90 (and particularly above 0.95) are not desirable because they suggest that all indicator variables measure the same phenomenon, thus lacking construct validity. Conversely, composite reliability values below 0.60 indicate inadequate internal consistency reliability.

During the analysis and assessment of internal consistency reliability, the true reliability typically falls between the lower bound represented by Cronbach's alpha and the upper bound represented by the composite reliability.

Composite reliability is a measure of internal consistency reliability. In our analysis, the composite reliability values were found to be greater than 0.70, indicating good reliability, as reported at Table 3. In the same section, a subsection dedicated to the measurement model establishes the reliability and validity of the measures. It is mentioned that the composite reliabilities (CRs) were all higher or close to 0.50 and 0.70, which confirms convergent

validity. This indicates that the measures are reliable and converge to measure the intended construct.

Table 3: *Construct Reliability Analysis (Cronbach Alpha and Composite Reliability)*

	Cronbach's alpha	Composite reliability
A	0.779	0.870
C	0.701	0.799
E	0.703	0.818
ES	0.719	0.797
O	0.777	0.867
OB	0.792	0.854
WTP	0.821	0.892

Source: *SmartPLS 4*

#### 4.2.5 Validity analysis

Validity accuracy is another important aspect to consider. Convergent validity and discriminant validity are two types of validity, and the construct validity is established where both are established. To assess convergent validity, we examine the average variance extracted (AVE). The AVE provides a measure of how much variance is captured by the construct compared to measurement error.

Discriminant validity, which examines the distinctiveness of different constructs, can be assessed using other methods, such as the Fornell-Larcker criterion or examining cross-loadings and heterotrait-monotrait (HTMT) ratio of correlations.

#### 4.2.6 Convergent Validity

Convergent validity assesses the degree to which a measure correlates positively with other measures of the same construct. In the evaluation of reflective constructs, researchers

examine the outer loadings of the indicators and calculate the average variance extracted (AVE). The AVE represents the average amount of variance explained by the construct and is determined using the following Formula 3:

Formula 3: *Average Variance Extracted (AVE)*

$$AVE = \left( \frac{\sum_{i=1}^M l_i^2}{M} \right).$$

Source: Hair, J. et al. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.).

The outer loadings of the indicators, also known as indicator reliability, should be statistically significant. It is generally recommended that standardized outer loadings be 0.700 or higher, indicating a strong relationship between the indicators and the construct. The AVE, on the other hand, should be 0.500 or higher, indicating that the construct explains more than half of the variance in its indicators. A lower AVE suggests that there is more variance due to measurement error than variance explained by the construct.

Table 4: *Average variance extracted (AVE)*

	Average variance extracted (AVE)
A	0.691
C	0.547
E	0.602
ES	0.501
O	0.686
OB	0.540
WTP	0.734

Source: *SmartPLS 4*

Using this study as an example, when the Average Variance Extracted (AVE) is above 0.5, such as in this specific case, it signifies that the items (E1, E2, E3, E4) effectively converge and measure the construct of Extraversion. In this study, the AVE for each construct exceeds 0.5 as reported in Table 4, indicating that the items successfully come together to capture and represent the construct with a satisfactory level of convergence.

In summary, convergent validity is assessed using the AVE, which measures the extent to which the items converge to measure the construct. The outer loadings indicate the strength of the relationship between each item and the construct, with higher values suggesting better representation.

#### *4.2.7 Discriminant validity*

Discriminant validity refers to the degree of differentiation between constructs. It determines the extent to which a construct is genuinely unique and distinct from other constructs based on empirical evidence. It is crucial to ensure that the constructs are not only conceptually distinct but also statistically different, maintaining their individual identity. There are three methods commonly employed to assess discriminant validity:

The first approach, known as the Fornell-Larcker criterion, compares the square root of the Average Variance Extracted (AVE) with the correlations among latent variables. Specifically, for each construct, the square root of its AVE should exceed the highest correlation it has with any other construct. This criterion demonstrates that the construct accounts for more variance in its indicators than the shared variance with other constructs, reinforcing its distinctiveness.

By employing these methods, researchers can evaluate the extent to which a construct is discernible from others, ensuring they possess discriminant validity. Establishing such differentiation is essential to avoid overlap and preserve the individuality of each construct.

Using this specific case as an example, in Table 5, we can establish the presence of discriminant validity for the constructs by applying the Fornell & Larcker Criterion. Specifically, for the construct of Agreeableness (A), the square root of its variance, which is 0.691, equals 0.831. This value is higher than the correlation between the construct of Conscientiousness (C) and Agreeableness (A), as shown below. According to the criterion, the square root of A should exceed the correlation value between A and other constructs. This condition is satisfied for all constructs in this study.

Table 5. *Discriminant Validity - Fornell & Larcker Criterion*

	A	C	E	ES	O	OB	WTP
A	<b>0.831</b>						
C	0.220	<b>0.740</b>					
E	0.169	0.417	<b>0.776</b>				
ES	0.117	0.254	0.361	<b>0.708</b>			
O	0.156	0.248	0.500	0.073	<b>0.828</b>		
OB	-0.263	0.182	0.119	0.196	0.200	<b>0.735</b>	
WTP	-0.090	0.106	0.149	-0.054	0.271	0.276	<b>0.857</b>

Note: *Bold represents the Square-root of AVE*

Source: *SmartPLS 4*

The Fornell-Larcker criterion, while still relatively weak overall, performs better in detecting discriminant validity issues when indicator loadings exhibit stronger variation (Voorhees, Brady, Calantone, & Ramirez, 2016).

To address this, Henseler et al. (2015) propose using the heterotrait-monotrait ratio (HTMT) of correlations. HTMT is calculated as the ratio of between-trait correlations to within-trait correlations. It represents the average correlation of indicators across constructs measuring different constructs relative to the geometric mean of the average correlations of indicators measuring the same construct.

Technically, the HTMT approach estimates the true correlation between two constructs if they were perfectly measured, known as the disattenuated correlation. An HTMT value exceeding 0.90 indicates a lack of discriminant validity, making HTMT a useful basis for conducting statistical tests of discriminant validity.

Table 6. *Discriminant Validity - HTMT*

	A	C	E	ES	O	OB	WTP
A							
C	0.385						
E	0.251	0.716					
ES	0.302	0.353	0.441				
O	0.226	0.386	0.625	0.494			
OB	0.347	0.301	0.226	0.312	0.271		
WTP	0.136	0.185	0.179	0.219	0.375	0.333	

Source: *SmartPLS 4*

In Table 6, we can observe that the condition for discriminant validity is upheld, as measured by the Heterotrait-Monotrait (HTMT) ratio. The HTMT values for the constructs do not surpass 0.9, indicating that the constructs are distinct from each other and exhibit discriminant validity.

However, due to PLS-SEM not relying on distributional assumptions, standard parametric significance tests cannot be used to determine whether the HTMT statistic significantly differs from 1. Instead, researchers employ a procedure called bootstrapping to generate a distribution of the HTMT statistic.

Although cross-loadings and the Fornell-Larcker criterion provide some evidence for discriminant validity, it is important to note that they are not entirely reliable in detecting such issues. Therefore, it is recommended to employ a more dependable criterion, namely

HTMT. The Discriminant Validity section of the results report presents the Heterotrait-Monotrait Ratio (HTMT) values for all pairs of constructs in a matrix format. The subsequent tab also displays these HTMT values in bar charts, using 0.85 as the relevant threshold level.

Additionally, apart from examining the HTMT ratios, it is crucial to test whether the HTMT values significantly deviate from 1. This necessitates computing bootstrap confidence intervals through the bootstrapping option.

Cross-loadings, which are another approach for assessing discriminant validity of indicators, are frequently utilized when there are concerns regarding discriminant validity in the research.

The constructs are represented on the horizontal lines of Table 7, while each item is placed in a separate row. The first four items, A1, A2 and A4, measure construct A, which is their parent construct. It is expected that these items exhibit stronger loadings on their respective parent construct. If this holds true, it indicates the presence of discriminant validity. However, if there is evidence to the contrary, suggesting a lack of discriminant validity, the discrepancy should exceed a minimum threshold of 0.10. In such cases, problematic indicators should be identified and removed.

In situations where certain values deviate from the expected pattern (The difference is less than 0.10 or the indicators exhibit good performance on two or more factors), but they do not pose a problem in terms of discriminant validity, it is advisable to retain them.

Moving on to the structural model, the goal is to assess the relationships between variables. To achieve this, a procedure called bootstrapping is employed, which involves generating multiple samples to amplify the existing data. In this analysis, a sample size of 5000 is commonly used and it is going to be specified in the analysis of the structural model.



Table 7. *Discriminant Validity - Cross Loadings*

	A	C	E	ES	O	OB	WTP
A1	<b>0.872</b>	0.172	0.121	0.119	0.159	-0.217	-0.004
A2	<b>0.840</b>	0.124	0.087	0.016	0.051	-0.251	-0.185
A4	<b>0.779</b>	0.281	0.241	0.187	0.206	-0.176	-0.006
C1	0.363	<b>0.681</b>	0.287	0.280	0.201	0.096	0.094
C2	0.079	<b>0.660</b>	0.392	0.215	0.213	0.109	0.142
C3	0.115	<b>0.861</b>	0.287	0.133	0.167	0.179	0.036
E1	0.108	0.412	<b>0.655</b>	0.319	0.274	0.030	0.105
E2	0.252	0.363	<b>0.811</b>	0.305	0.407	0.102	0.108
E4	0.036	0.292	<b>0.847</b>	0.273	0.437	0.109	0.135
ES1	0.201	0.312	0.383	<b>0.839</b>	0.332	0.175	0.074
ES3	-0.189	0.015	0.092	<b>0.592</b>	-0.157	0.011	-0.072
ES4	-0.044	0.043	0.141	<b>0.671</b>	-0.312	0.125	-0.198
O1	0.111	0.191	0.351	0.131	<b>0.839</b>	0.105	0.239
O3	0.027	0.124	0.352	-0.082	<b>0.851</b>	0.196	0.149
O4	0.258	0.309	0.524	0.183	<b>0.794</b>	0.169	0.303
OB1	-0.213	0.328	0.254	0.322	0.191	<b>0.741</b>	0.092
OB2	-0.258	-0.003	-0.131	-0.123	-0.036	<b>0.671</b>	0.155
OB3	-0.127	0.084	0.042	0.174	0.258	<b>0.819</b>	0.348
OB4	-0.169	0.147	0.099	0.215	0.001	<b>0.752</b>	0.167
OB5	-0.249	0.021	0.050	-0.029	0.189	<b>0.681</b>	0.229
WTP1	-0.087	0.169	0.204	-0.021	0.339	0.278	<b>0.907</b>
WTP2	-0.001	-0.006	0.060	-0.129	0.332	0.176	<b>0.788</b>
WTP3	-0.124	0.073	0.091	-0.015	0.040	0.239	<b>0.871</b>

Note: *Bold represents the items on their respective parent construct*

Source: *SmartPLS 4*

### 4.3 Structural Model - Bootstrap Procedure

In PLS-SEM, the assumption of normality for data distribution is not required, and traditional parametric significance tests cannot be used. Instead, PLS-SEM relies on a nonparametric bootstrap procedure to assess the significance of coefficients.

During bootstrapping, a large number of bootstrap samples are generated by randomly drawing observations from the original sample with replacement. It is recommended to create 5,000 bootstrap samples for reliable results. The estimated coefficients from these samples form a bootstrap distribution, which approximates the sampling distribution.

Using the bootstrap distribution, the standard error and standard deviation of the estimated coefficients can be calculated. The bootstrap standard error ( $se^*$ ) describes the precision of the coefficients. The bootstrap method allows for statistical testing, such as testing if an outer weight is significantly different from zero using a student's t-test.

The test statistic is calculated as the weight divided by the bootstrap standard error. The resulting t-value follows a t-distribution with degrees of freedom determined by the number of observations minus the number of indicators in the formative measurement model minus 1. Critical t-values for significance testing can be determined using normal quantiles.

In Smart PLS 4, p-values are also reported, representing the probability of observing an empirical t-value as extreme as the one observed, assuming the null hypothesis is true. A significance level of 0.05 is commonly used, requiring the p-value to be smaller than 0.05 for statistical significance.

Including the bootstrap confidence interval provides insights into the stability of a coefficient estimate. The confidence interval represents the range within which the true population parameter is likely to lie, given a specific level of confidence (e.g., 95%).

### 4.3.1 Assessing R square significance

Once the reliability and validity of the construct measures have been confirmed (measurement model), the next step involves evaluating the results of the structural model. This step focuses on assessing the predictive capabilities of the model and examining the relationships between the constructs. The structural model reflects the path hypothesized in the research framework. A structural model is assessed based on the R2 significance of paths.

The Goodness of the model is determined by the strength of each structural path determined by R square value for the dependent variable (Briones et al. 2018), the value for R2 should be equal or over 0.1 (Falk & Miller, 1992). Table 8 reports the results indicating the influence of Personality Traits variables on Overconfidence Bias. The coefficient of determination (R2) is 0.203, which suggests that the Personality Traits variables account for approximately 20.3% of the variance in Overconfidence Bias. This indicates a significant influence and establishes the predictive capability of these variables. Regarding Willingness to Pay (WTP), the coefficient of determination (R2) is 0.076. This value is below 0.1, indicating that the influence of Overconfidence Bias on WTP is not statistically significant. The results suggest that only 7.6% of the variance in WTP can be explained by Overconfidence Bias.

Table 8. *R-square - Mean, STDEV, T values, P values.*

	Original sample (O)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
<b>OB</b>	<b>0.203</b>	<b>0.065</b>	<b>3.149</b>	<b>0.002</b>
WTP	0.076	0.052	1.452	0.147

Note: Bold represents significant influence

Source: *SmartPLS 4*

### 4.3.2 Hypothesis evaluation

To further evaluate the goodness of fit hypothesis, additional tests were conducted to determine the significance of the relationships. Specifically, the assessment focused on the structural path coefficients, which represent the relationships among the constructs in the study, and their statistical significance on the following hypothesis. The results are reported in Table 9.

H1: there is a significantly positive impact of Agreeableness on Overconfidence Bias.

H2: there is a significantly positive impact of Conscientiousness on Overconfidence Bias.

H3: there is a significantly positive impact of Extraversion on Overconfidence Bias.

H4: there is a significantly positive impact of Emotional Stability on Overconfidence Bias.

H5: there is a significantly positive impact of Openness to Experience on Overconfidence Bias.

H6: there is a significantly positive impact of Overconfidence Bias on Willingness to Pay.

The hypothesis evaluates the existence of a relationship between individuals' personality traits and their decision-making, and the individuals' tendency towards overconfidence that can influence this decision-making process and consumers.

Hypothesis 1 evaluates whether Agreeableness has a significant and positive impact on Overconfidence Bias ( $B = -0.0349$ ,  $t = 3.614$ ,  $p = 0.000$ ). Hence, hypothesis 1 was supported.

Hypothesis 2 evaluates whether Conscientiousness has a significant and positive impact on Overconfidence Bias. The results revealed that Conscientiousness has an insignificant impact on Overconfidence Bias ( $B = 0.187$ ,  $t = 1.359$ ,  $p = 0.174$ ). Hence, hypothesis 2 was not supported.

Hypothesis 3 evaluates whether Extraversion has a significant and positive impact on Overconfidence Bias. The results revealed that Extraversion has an insignificant impact on

Overconfidence Bias (B= -0.095, t= 0.641, p= 0.522). Hence, hypothesis 3 was not supported.

Hypothesis 4 evaluates whether Emotional Stability has a significant and positive impact on Overconfidence Bias. The results revealed that Emotional Stability has an insignificant impact on Overconfidence Bias (B= 0.206, t= 1.133, p= 0.257). Hence, hypothesis 3 was not supported.

Hypothesis 5 evaluates whether Openness to Experience has a significant and positive impact on Overconfidence Bias (B= 0.241, t= 1.982, p= 0.048). Hence, hypothesis 5 was supported.

Hypothesis 6 evaluates whether Overconfidence Bias has a significant and positive impact on Willingness to Pay (B= 0.276, t= 3.111, p= 0.002). Hence, hypothesis 6 was supported.

Table 9. Path Coefficients - Mean, STDEV, T values, P values.

	Original sample (O)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values	2.5%	97.5%
<b>A -&gt; OB</b>	<b>-0.349</b>	<b>0.097</b>	<b>3.614</b>	<b>0.000</b>	<b>-0.500</b>	<b>-0.092</b>
C -> OB	0.187	0.137	1.359	0.174	-0.183	0.396
E -> OB	-0.095	0.148	0.641	0.522	-0.428	0.134
ES -> OB	0.206	0.182	1.133	0.257	-0.276	0.420
<b>O -&gt; OB</b>	<b>0.241</b>	<b>0.121</b>	<b>1.982</b>	<b>0.048</b>	<b>0.022</b>	<b>0.463</b>
<b>OB -&gt; WTP</b>	<b>0.276</b>	<b>0.089</b>	<b>3.111</b>	<b>0.002</b>	<b>0.058</b>	<b>0.413</b>

Note: Bold highlights significant hypothesis

Source: *SmartPLS 4*

#### 4.4 Moderator and Mediator Analysis

Two important extensions in the analysis of relationships between constructs are mediation and moderation. Mediation occurs when a mediator variable comes between two related constructs, where changes in the exogenous construct led to changes in the mediator variable, which then affect the endogenous construct. On the other hand, moderation refers to situations where the strength or direction of a relationship between two constructs depends on a third variable. In other words, the nature of the relationship varies based on the values of the third variable. For example, the relationship between two constructs may differ for customers based on their income levels, highlighting the importance of considering moderation to account for heterogeneity in the data.

While mediation and moderation both involve the influence of a third variable on the relationship between constructs, they differ in terms of their theoretical foundation, modeling approach, and interpretation. In this chapter, we provide an explanation of mediation and moderation, highlighting their distinctions, and demonstrate their application using the corporate reputation PLS path model.

Mediation analysis was conducted to examine the mediating role of Overconfidence Bias. The results, presented in Table 10, indicated significant mediating effects of Overconfidence Bias on Agreeableness (H1:  $B = -0.096$ ,  $t = 2.274$ ,  $p = 0.023$ ). However, Overconfidence Bias did not mediate the relationship between Conscientiousness and Willingness to Pay (H2:  $B = 0.052$ ,  $t = 1.122$ ,  $p = 0.262$ ).

The significance values calculated for the mediating role of Overconfidence Bias on the other constructs, including Extraversion, Openness to Experience, and Emotional Stability, indicated no significant mediation, as indicated in the table.

Table 10. *Specific Indirect Effect - Mean, STDEV, T values, P values.*

	Original sample (O)	T statistics ( O/STDEV )	P values
C -> OB -> WTP	0.052	1.122	0.262
<b>A -&gt; OB -&gt; WTP</b>	<b>-0.096</b>	<b>2.274</b>	<b>0.023</b>
E -> OB -> WTP	-0.026	0.547	0.584
O -> OB -> WTP	0.066	1.567	0.117
ES -> OB -> WTP	0.057	1.014	0.311

Note: Bold indicates significance

In this study, no evidence of moderation effects was found. The analysis did not reveal any significant moderating variables that influence the relationship between the study constructs. Therefore, it can be concluded that moderation effects were not present in this research.





## V. Discussion

In the discussion section, this study presents comprehensive research findings from the empirical analysis. Focusing on the relationships between personality traits and willingness to pay for sustainable wine, it provides valuable insights into consumer behavior and decision-making processes within the context of sustainable wine consumption.

The significance of this research lies in its contribution to the specific market of sustainable wine and the broader field of consumer behavior. Understanding the interplay between these factors can guide wine producers, marketers, and sellers in effectively targeting and engaging consumers. Additionally, the analysis emphasizes the importance of considering these factors when studying consumer behavior in the context of sustainable wine, filling gaps in the literature and expanding the understanding of consumer decision-making processes.

### 5.1 Interpretation of Results

#### *5.1.1 Measurement Model*

The results of the measurement model analysis provide important insights into the reliability, convergent validity, and discriminant validity of the measures used in the study.

First, the composite reliability values indicate that the measures are reliable and consistently measure the constructs under investigation. With values greater than 0.70, the measures demonstrate a high degree of internal consistency and produce reliable results. This finding instills confidence in the quality of the measures and the accuracy of the data collected.

Second, the confirmation of convergent validity further supports the reliability and validity of the measures. The average variance extracted (AVE) values exceeding 0.5 indicate a satisfactory level of convergence, indicating that the items reliably converge to measure the intended construct. Additionally, higher outer loading values suggest better representation of the construct by the items. These findings affirm the consistency and coherence in the measurement of the constructs.

Lastly, the analysis confirms the presence of discriminant validity among the constructs. The square root of the variance of each construct exceeds the correlations with other constructs, indicating that each construct measures a unique concept. As a consequence, this strengthens the reliability and validity of the study's findings and at the same time, ensures accurate interpretation of the results. The HTMT ratios also support discriminant validity by showing that the constructs are distinct from each other, as they do not exceed the threshold of 0.9. The cross loadings further reinforce the distinctiveness of the items within each construct, reinforcing the presence of discriminant validity.

Overall, the results provide confidence in the quality and robustness of the measurement model used in this study. The measures are reliable, converge to measure the intended constructs, and demonstrate discriminant validity. Researchers can trust the reliability of the measures and have assurance in the validity of their findings, ensuring accurate interpretation and meaningful conclusions from the study.

### *5.1.2 Structural Model*

The results of the structural model analysis provide insights into the influence of variables, hypothesis testing, and the mediating role of Overconfidence Bias. Here is a summary of the findings:

The R squared values indicate the predictive capability of the variables in the model. For Overconfidence Bias, approximately 20.3% of the variance can be explained by Personality Traits variables, suggesting a significant influence. However, for Willingness to Pay (WTP), only 7.6% of the variance can be explained by Overconfidence Bias, indicating a relatively limited impact. Other factors beyond Overconfidence Bias likely contribute to individuals' WTP for sustainable wine.

The main findings, considering the hypotheses mentioned in the previous chapters, are as follows:

Agreeableness shows a significant and positive impact on Overconfidence Bias, indicating that individuals with higher levels of Agreeableness exhibit a greater tendency towards overconfidence. This suggests that agreeable individuals may have a heightened belief in their knowledge or abilities when making decisions related to sustainable wine.

Conscientiousness, Extraversion, and Emotional Stability do not show a significant relationship with Overconfidence Bias. This suggests that these personality traits do not strongly influence overconfidence bias in the context of sustainable wine.

Openness to Experience demonstrates a significant and positive impact on Overconfidence Bias. Individuals with higher levels of Openness to Experience are more likely to exhibit overconfidence. This implies that individuals who are open to new experiences and ideas may be more inclined to overestimate their knowledge or abilities when making decisions about sustainable wine.

Overconfidence Bias has a significant positive impact on individuals' Willingness to Pay for sustainable wine. This indicates that individuals with higher levels of overconfidence bias are more willing to pay a premium for sustainable wine products. Their overconfidence may lead them to perceive the value of sustainable wine more positively and be more inclined to invest in such products.

Overconfidence Bias acts as a mediator in the relationship between Agreeableness and the outcome variable. Agreeableness influences the outcome variable through its impact on Overconfidence Bias. However, Overconfidence Bias does not mediate the relationship between Conscientiousness or other constructs and the outcome variable. This suggests that the influence of conscientiousness or other personality traits on the outcome variable is not mediated by overconfidence bias.

Practically, these findings suggest that individuals with higher levels of Agreeableness may exhibit a greater tendency towards overconfidence, leading to increased willingness to pay

for sustainable wine. However, the influence of Overconfidence Bias on Willingness to Pay is relatively limited, indicating the involvement of other factors.

## **5.2 Unexpected or contradictory results**

Unexpected or contradictory results in research findings are not uncommon and can provide valuable insights for further investigation. In the context of the given summary, there are a few unexpected or contradictory results that warrant discussion:

- **Contradictory Result:** The finding that individuals with higher levels of Agreeableness exhibit a greater tendency towards overconfidence in their decision-making processes is contradictory to conventional understanding. Agreeableness is typically associated with traits such as cooperation, empathy, and consideration for others, which might suggest a lower likelihood of overconfidence. However, the analysis suggests the opposite relationship.

**Possible Explanation:** One possible explanation for this unexpected result could be the specific context of sustainable wine decision-making. It is possible that individuals high in Agreeableness may have a strong desire to maintain positive social relationships and may exhibit overconfidence to project a positive self-image or to align with others' expectations. Further research could explore the underlying mechanisms that contribute to this contradictory relationship.

- **Unexpected Result:** The lack of a significant relationship between Conscientiousness, Extraversion, Emotional Stability, and Overconfidence Bias is unexpected. These personality traits are often associated with different aspects of decision-making and behavior, and one might expect them to have some influence on overconfidence.

**Possible Explanation:** One possible explanation for this unexpected result is that the influence of these personality traits on overconfidence bias might be context specific. While they may play a role in decision-making processes in general, their impact may be attenuated or

overridden in the specific context of sustainable wine decision-making. Other factors, such as individuals' knowledge about sustainable practices or their personal experiences with sustainable products, may have a stronger influence on overconfidence bias in this context.

- **Contradictory Result:** The finding that Overconfidence Bias significantly influences individuals' willingness to pay for sustainable wine, despite explaining only a small percentage of the variance (7.6%), appears contradictory. One might expect a stronger relationship between overconfidence and willingness to pay, given the significant impact on decision-making.

**Possible Explanation:** One possible explanation for this contradictory result is the presence of additional factors beyond overconfidence bias that influence individuals' willingness to pay for sustainable wine. Consumer preferences, perceived value, product attributes, and marketing strategies are some examples of factors that could contribute to the decision to pay a premium for sustainable wine. These factors might have a more substantial impact on willingness to pay than overconfidence bias alone. Further research could investigate the interplay of these factors and their relative importance in shaping consumers' valuation of sustainable wine.

It is important to note that these explanations are hypothetical, and further empirical research is needed to validate and provide more definitive explanations for these unexpected or contradictory results. Nonetheless, these unexpected findings can guide future investigations, highlight the complexity of consumer behavior, and contribute to a deeper understanding of the factors that influence decision-making processes in the context of sustainable wine.

### **5.3 Comparison to Existing Literature**

The discussion of the study and the existing literature highlights the connection between the research findings and previous studies on consumers' willingness to pay for sustainable wine. The existing literature supports the notion that there is a growing market potential for sustainable wine, driven by consumer demand for environmentally friendly products and the

wine industry's recognition of sustainability's significance. Several studies have explored consumers' willingness to pay a premium for sustainable and natural wine, emphasizing the role of consumer characteristics, knowledge, socio-demographic factors, sensory attributes, and perceived product quality.

By exploring this cognitive bias, the research expands the understanding of how it shapes consumers' decision-making processes in the context of sustainable wine consumption.

Moreover, the summary references other studies that have investigated similar topics, such as consumers' willingness to pay for sustainable wine, the influence of consumer characteristics and knowledge, and the role of taste perception and information cues. These studies provide support and contextualize the findings of the discussed study, highlighting the relevance and practical implications of understanding consumer behavior in the context of sustainable wine.

Overall, the discussion of the study aligns with the existing literature by addressing the growing interest in sustainable wine, consumers' willingness to pay for environmentally friendly options, and the influence of external and internal factors on consumer behavior. It underscores the importance of considering consumer preferences, knowledge, personality traits, and cognitive biases when designing marketing strategies and promoting sustainable wine products.

### *5.3.1 Willingness to pay for sustainable wine production*

The surge in the market potential for sustainable wine is driven by consumer demand for environmentally friendly products and the wine industry's recognition of sustainability. Consumers are willing to pay a premium for sustainable and natural wine, with millennial consumers showing a higher inclination. These factors have been analyzed also in this study, in fact 73% of people under 35 years old confirmed that they are willing to pay a premium price for sustainable wine as already confirmed by the study of S. Gomes et al. (2023).

Factors like label information, ingredient content, production method, and sensory characteristics influence consumers' choices. Understanding cognitive biases and targeting specific consumer segments is crucial for sustainable wine producers and it is an important focus in this study as much as in the paper by K. Grunert et al. (2014).

Dynamic visual presentations and corporate social responsibility engagement can enhance consumer engagement and willingness to pay. Insights from other industries and research on organic menu items and green all-purpose adhesives can inform strategies for sustainable wine. Consumers' willingness to pay for socially responsible products varies based on the beneficiary, with higher willingness for products benefiting humans rather than the environment. Taste perception, personal preferences, and environmental information are key factors influencing consumers' decisions and willingness to pay for environmentally friendly wine.

### *5.3.2 Influence on decision: external and internal variables*

Previous studies have explored the impact of external factors, as was already discussed in the second chapter “Literature Review”, such as environmental sustainability and product attributes, as well as internal factors like personality traits and biases, on consumers' purchasing decisions.

In terms of internal factors, as in the article by Chu (2012), this study similarly discovered that overconfidence bias has a significant impact on the disposition effect in consumer investment behavior. These findings contribute to our understanding of the psychological factors influencing investment decision-making and emphasize the importance of considering emotions and cognitive biases in analyzing consumer investment behavior. In the context of sustainable wine, it can be inferred that overconfidence bias may similarly influence individuals' evaluations of the value and benefits associated with eco-friendly production practices. Addressing this bias becomes crucial for promoting sustainable choices among consumers.

Other internal factors, such as personality traits like openness to experience, conscientiousness, and environmental consciousness, also influence consumers' willingness to pay for sustainable wine. The positive impact of healthy attitudes on willingness to pay for organic wine is weakened among individuals with lower tolerance for ambiguity. Knowledge, commitment, and general awareness of green products also influence consumers' decision-making processes.

In this study, significant connections were considered only between Agreeableness and Overconfidence Bias, as well as between Openness to Experience and Overconfidence Bias. However, Conscientiousness, Extraversion, and Emotional Stability were not found to have a significant relationship with Overconfidence Bias in the context of sustainable wine. This differs from a separate study mentioned in the literature review (chapter 2) conducted by T. Mahlamäki et al. (2019), which examined the relationships between personality traits, motivational constructs, and job performance among key account managers.

The findings of the T. Mahlamäki et al. (2019) study revealed that certain personality traits, specifically extraversion and conscientiousness, directly influenced job performance, with mediating effects playing a role. This study contributed to the existing literature by shedding light on the mechanisms through which personality traits shape motivation and impact job performance in the context of key account management.

Drawing upon the insights from the T. Mahlamäki et al. (2019) study, one suggested area for future research was to test different personality models and their effectiveness in explaining changes in motivational constructs. This suggestion was applied to the current study, which focused on the context of sustainability and wine, specifically investigating the mediating effect of overconfidence bias. By examining a different sample of individuals and operating in a different background, this research contributes to a deeper understanding of how various personality traits interact with specific contexts and influence decision-making processes related to sustainability and wine.



Overall, the T. Mahlamäki et al. (2019) study provides valuable insights into the connections between personality, motivation, and job performance among key account managers. By extending these findings to the field of sustainability and wine, this research contributes to the existing literature by expanding our understanding of the underlying mechanisms and contextual factors that shape decision-making processes and outcomes.

Understanding the interaction between external and internal factors is crucial for comprehending consumers' willingness to pay for sustainable products, including sustainable wine. By considering these factors, marketers and policymakers can develop tailored strategies to promote sustainable choices and enhance consumer satisfaction.

While the article by A. Basic-Sontic et al. (2017) does not explicitly address the specific personality traits of Agreeableness, Openness to Experience, or Overconfidence Bias, the hypothesis provided in this study aligns with the findings of the second study by Raymond L. Horton (1979) regarding the influence of personality traits on decision-making.

In the study by Raymond L. Horton, the researchers explore the relationship between personality traits and consumer choice behavior. Although the study does not specifically focus on sustainable wine, it provides valuable insights into how personality traits can shape decision-making in a simulated shopping environment. This study supports the notion that personality traits, including Agreeableness, Openness to Experience, and overconfidence, can have an impact on individuals' decision-making behavior supporting the results of this research.

The hypothesis presented in this study builds upon the findings of the second study and extends them to the specific context of sustainable wine. It suggests that Agreeableness, Openness to Experience, and Overconfidence Bias can play a role in shaping individuals' decision-making processes when it comes to sustainable wine. While the first article by A. Basic-Sontic et al. does not directly discuss these specific traits, the hypothesis draws connections between the second study's findings and the impact of personality traits on decision-making in the context of sustainable wine.

Overall, both the study by Raymond L. Horton and the hypothesis provided contribute to our understanding of how personality traits, such as Agreeableness, Openness to Experience, and overconfidence, can influence decision-making behavior. Although the two articles focus on different domains (energy efficiency investments and consumer choice behavior), they collectively highlight the role of personality traits in shaping individuals' decisions and offer valuable insights into the specific context of sustainable wine.

In addition, these studies and the existing literature contribute significantly to our understanding of sustainable wine and consumer behavior, yielding several key findings and implications.

Another prominent finding is the increasing consumer demand for environmentally friendly products, particularly sustainable wine. Both the studies and the literature highlight consumers' growing awareness of the environmental impact of their choices and their active pursuit of products that align with their values and support sustainable practices.

A recurring outcome observed in all the studies is the propensity of consumers to demonstrate a willingness to pay a higher price for sustainable and natural wine products. This demonstrates that consumers perceive sustainability as a valuable attribute and are willing to invest in products that meet their environmental and social expectations.

The factors influencing consumer choices in the context of sustainable wine, such as label information, ingredient content, production method, and sensory characteristics, are recognized in both the studies and the literature. These factors serve as important cues for consumers, providing them with information about the environmental impact and quality of the wine, which ultimately affects their purchasing decisions.

Additionally, the studies place emphasis on understanding cognitive biases and tailoring strategies to specific consumer segments. By acknowledging the influence of cognitive biases, such as overconfidence bias, on consumers' decision-making processes, the research highlights the importance of targeting different consumer groups based on their unique

characteristics and preferences. This approach allows wine producers and marketers to develop tailored strategies that resonate with specific consumer segments, enhancing engagement and willingness to pay for sustainable wine, as is going to be specified later in the "Managerial Implications" section.

In summary, these studies and the existing literature underscore the growing significance of sustainable wine and consumer behavior. By examining consumer demand, willingness to pay, influencing factors, and cognitive biases, they offer valuable insights for wine producers, marketers, and policymakers. Further research, including comparative studies and investigations into long-term impacts, will help the field evolve and meet the evolving needs of consumers while promoting sustainability in the wine industry.

#### **5.4 Meta discussion**

In the context of a meta discussion, it becomes crucial to reevaluate and elaborate on the hypotheses, allowing for reflection and in-depth analysis of the underlying processes and structural elements involved. By engaging in this higher-level examination, we can gain deeper insights into the discussion's dynamics and enhance our understanding of its implications.

A notable common denominator among the three significant hypotheses of this study is the impact of individuals' beliefs in their knowledge or abilities on decision-making regarding sustainable wine. The presence of Agreeableness and Openness to Experience, as well as the manifestation of Overconfidence Bias, suggests that individuals with higher levels of confidence in their knowledge or abilities tend to exhibit overconfidence in their decision-making related to sustainable wine.

This common thread emphasizes the role of self-perception and belief systems in shaping decision-making behavior within the context of sustainable wine. Agreeable individuals, characterized by their cooperative and friendly nature, may possess an elevated belief in their knowledge or abilities, leading them to display overconfidence when making decisions

concerning sustainable wine. Similarly, individuals with heightened Openness to Experience, driven by their inclination toward novel ideas and experiences, might overestimate their knowledge or abilities, contributing to overconfidence in their decision-making regarding sustainable wine.

Moreover, the presence of Overconfidence Bias further supports the notion that individuals' perceptions of their own competence significantly impact their decision-making processes. The tendency to overestimate one's knowledge or abilities in the context of sustainable wine can influence individuals' willingness to pay a premium for sustainable wine products. This suggests that self-perception plays a crucial role in shaping consumer behavior and preferences within the realm of sustainable wine.

Another shared common denominator among the three hypotheses revolves around the influence of psychological factors on decision-making related to sustainable wine. The presence of Agreeableness, Openness to Experience, and Overconfidence Bias indicates the existence of specific psychological tendencies that exert an influence on individuals' decision-making processes. These findings underscore the significance of personality traits and cognitive biases in shaping consumer behavior and preferences when it comes to sustainable wine.

To summarize, the common denominators among the three significant hypotheses highlight the impact of individuals' beliefs in their knowledge or abilities, the influence of psychological factors, and the relationship between self-perception and decision-making within the context of sustainable wine. By considering these factors, stakeholders can gain insights into consumer behavior and develop tailored strategies that align with consumers' unique psychological profiles, ultimately promoting sustainable wine consumption.

On the other hand, the common denominator among the non-significant hypotheses regarding the lack of connection between Conscientiousness, Extraversion, and Emotional Stability with Overconfidence Bias highlights the significance of considering individual differences and their impact on decision-making processes.

This common denominator emphasizes the importance of examining how individual characteristics and traits can influence decision-making behaviors. It suggests that factors beyond personality traits such as Conscientiousness, Extraversion, and Emotional Stability may play a less substantial role in shaping overconfidence in decision-making about sustainable wine. By recognizing the influence of individual differences, stakeholders can better understand the diverse range of consumer behaviors and tailor their strategies accordingly to promote informed and sustainable decision-making in the wine industry.

### **5.5 Managerial implications**

The practical implications of your study on consumers' willingness to pay (WTP) for sustainable wine can have significant implications for managers, organizations, and industries, particularly in the context of the wine sector, which holds great importance in Italy and across Europe. Here are some potential actions and strategies that can be implemented based on your findings:

**Communicating sustainability efforts:** Managers and organizations in the wine industry, especially Italian and European wine producers, can leverage the importance of new sustainable practices. They can highlight their sustainability initiatives and effectively communicate them to consumers. This can include providing clear-label information about the production methods, ingredient content, and environmental impact of their wines. By transparently showcasing their sustainability practices, managers can cater to the growing consumer demand for environmentally friendly products and potentially increase consumers' willingness to pay.

**Targeting specific consumer segments:** Given the significance of the wine industry, understanding the cognitive biases and preferences of different consumer segments becomes crucial. Managers can conduct market research to identify specific consumer segments, both domestically and internationally, that are more inclined towards sustainable wine and tailor their marketing strategies accordingly. This can involve creating targeted advertising

campaigns, engaging with influencers or opinion leaders within those segments, and utilizing social media platforms to reach the desired audience effectively.

Enhancing consumer engagement: In a highly competitive market, engaging consumers becomes essential. Dynamic visual presentations and engaging storytelling can play a significant role in capturing consumers' attention and enhancing their engagement with sustainable wine. Managers can invest in visually appealing marketing materials, such as videos or interactive websites, that highlight the sustainability aspects of their wines. This can help create a memorable and positive brand image, leading to increased consumer engagement and potentially higher WTP.

Corporate social responsibility (CSR) engagement: Recognizing the importance of sustainability, managers can actively engage in CSR activities that align with their sustainability goals. This can involve participating in environmental initiatives, supporting local communities, or partnering with nonprofit organizations working towards sustainability. By showcasing their commitment to social and environmental responsibility, managers can strengthen their brand reputation and build trust with consumers, ultimately influencing their WTP for sustainable wine.

Collaboration and knowledge-sharing: The wine industry can benefit from insights gained in other industries that have successfully implemented sustainable practices. Given the importance of the wine sector, collaborating with experts or organizations in related fields can help foster knowledge-sharing and drive innovation. Lessons learned from research on organic menu items in the food industry or green all-purpose adhesives in the manufacturing industry can provide valuable strategies and approaches for sustainable wine production.

Overall, this research can significantly contribute to improving decision-making and business practices in the wine industry. By implementing the suggested strategies and actions, managers can enhance their marketing efforts, improve consumer engagement, and potentially increase consumers' willingness to pay for environmentally friendly wine.

These findings can contribute to the development of sustainable practices, promote environmental stewardship, and improve overall business performance in the wine industry, benefiting both Italian and European wine producers.





## VI. Limitations

This study conducted on consumers' willingness to pay (WTP) for sustainable wine has important implications for future research. By considering the following areas, we can further expand our understanding of this topic:

Firstly, exploring cross-cultural and regional differences can provide insights into the variations in consumer preferences and WTP for sustainable wine on a global scale. By investigating the influence of cultural factors, societal norms, and economic conditions, we can identify the specific drivers and barriers to WTP in different contexts.

Secondly, conducting longitudinal studies that track WTP for sustainable wine over an extended period can help identify trends and changes in consumer behavior. Such studies enable us to understand the stability of consumer preferences, the impact of external factors (such as economic conditions or environmental events), and the effectiveness of sustainability initiatives in influencing WTP.

Furthermore, delving into consumer behavior analysis can provide a deeper understanding of the underlying factors that drive WTP for sustainable wine. By examining the influence of cognitive biases, social norms, and perceived value, we can unravel the complexities of consumer decision-making processes. This can be achieved through experimental designs and qualitative research methods that allow us to explore the intricate dynamics of consumer behavior.

Segment-specific analysis is another avenue for future research. By identifying specific consumer segments that exhibit different levels of WTP for sustainable wine, we can tailor marketing strategies and product offerings to effectively target and engage these diverse consumer groups. Understanding the characteristics, motivations, and preferences of these segments is crucial for developing targeted approaches.

Investigating the impact of labeling and certification on consumers' WTP can provide valuable insights into the role of information and trust in shaping consumer behavior. Future

research can explore the influence of different types of certifications, the credibility of labels, and the extent to which consumers rely on these cues when making purchasing decisions.

Assessing the environmental impact of different wine production methods and comparing them to consumer perceptions and WTP can contribute to the development of sustainable wine production practices. Research in this area can focus on life cycle assessments, carbon footprint analysis, and exploring innovative production techniques that reduce environmental impact while aligning with consumer preferences.

Additionally, researching the economic implications of sustainable wine production and consumption can shed light on the profitability and market viability of sustainable practices. This can involve cost-benefit analyses, examining supply chain implications, and exploring the potential for scaling up sustainable wine production. It is important to acknowledge the limitations of your study, which may have focused primarily on consumer preferences and WTP without considering other factors such as distribution channels, pricing strategies, or the impact of regulatory frameworks.

In conclusion, future research should consider the aforementioned areas to expand our knowledge of consumers' WTP for sustainable wine. By conducting comparative studies, longitudinal research, analyzing consumer behavior, segment-specific analysis, examining the impact of labeling and certification, assessing environmental impact and investigating economic implications, gaps can be addressed in knowledge and gain valuable insights. These research endeavors will provide managers, policymakers, and the wine industry with valuable information to promote sustainability and meet consumer demands.

## VII. Conclusions

This thesis has explored the influence of overconfidence bias on decision-making in relation to personality traits and willingness to pay for sustainable wine. The research aimed to investigate the relationship between overconfidence bias and individual characteristics within the context of sustainable wine consumption, providing valuable insights into consumer behavior and decision-making processes.

The significance of this study lies in its contributions to the specific market of sustainable wine and the broader field of consumer behavior. In recent years, sustainability has emerged as a critical aspect across various industries, including the wine sector, as consumers increasingly seek products that align with their values and support sustainable practices. Understanding the interplay between personality traits, overconfidence bias, and willingness to pay for sustainable wine can offer valuable guidance to wine producers, marketers, and sellers.

By examining the impact of personality traits on consumers' willingness to pay for sustainable wine, this research sheds light on the underlying psychological mechanisms that drive purchasing decisions. The findings can assist wine industry professionals in identifying and understanding target market segments that are more receptive to sustainable wine offerings. Moreover, the study provides practical implications for wine producers and sellers to develop effective marketing strategies and communication approaches that resonate with consumers' personality traits and address their concerns regarding sustainability.

The analysis presented in the discussion section emphasizes the importance of considering overconfidence bias and personality traits when studying consumer behavior in the context of sustainable wine. By uncovering the connections between these factors, this research provides new insights into the complex dynamics that shape consumers' willingness to pay for sustainable products. Furthermore, the findings contribute to the existing body of knowledge by expanding the understanding of consumer decision-making processes in the context of sustainability, thereby filling gaps in the literature.

The measurement model analysis confirms the reliability, convergent validity, and discriminant validity of the measures used in this study. The results demonstrate that the measures reliably and consistently capture the intended constructs, providing a strong foundation for interpreting the findings and drawing meaningful conclusions. Researchers can trust the quality and accuracy of the data collected, enhancing the validity and reliability of the study's results.

In the structural model analysis, it was found that consumers are willing to pay a premium price for sustainable wines compared to conventional wines with similar characteristics. This finding aligns with the influence of overconfidence bias on consumers' decisions. The analysis shows that individuals' levels of Agreeableness and Openness to Experience significantly impact overconfidence bias, which, in turn, influences consumers' willingness to pay for sustainable wine.

The connection between individuals' personalities and their decision-making process in wine preferences is evident through the influence of Agreeableness and Openness to Experience on overconfidence bias. Understanding these relationships can help marketers and policymakers tailor their strategies to target different consumer segments and promote sustainable wine products effectively.

Overall, this study highlights the relevance of investigating the influence of overconfidence bias on personality traits and its impact on consumers' willingness to pay for sustainable wine. The insights gained from this research can assist wine industry stakeholders in developing more effective marketing strategies, enhancing consumer satisfaction, and promoting sustainable practices in the wine market. The reliable and valid measurement model used in this study ensures accurate interpretation and meaningful conclusions, further strengthening the study's contribution to the field of consumer behavior in the context of sustainable wine consumption.

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## IX. Sitography

- Academic Journal Guide 2021, <https://charteredabs.org/academic-journal-guide-2021/>
- ScienceDirect, <https://www.sciencedirect.com>
- Wiley, <https://www.wiley.com/en-it>
- Sage Journals, <https://journals.sagepub.com>
- Business Source, <https://www.ebsco.com/academic-libraries>
- Springer, <https://www.springer.com/gp>



## Appendix A

### Construct, Items and Sources

Construct	Items	Sources
<b>WTP - open question</b>	How much more are you willing to pay for a bottle of sustainable wine?	C. Homburg, N. Koschate, W. D. Hoyer (2005). Do Satisfied Customers Really Pay More? A Study of the Relationship between Customer Satisfaction and Willingness to Pay.
<b>WTP - 3 items</b>	<ol style="list-style-type: none"> <li>1. I am willing to pay a higher price for a sustainable wine bottle than a non-sustainable one.</li> <li>2. I would like to keep buying sustainable wine, even if other bottles were cheaper.</li> <li>3. For the positive outcome of sustainability in the wine sector, as a customer, I would be willing to pay a higher price.</li> </ol>	Habel, J., Schons, L. M., Alavi, S., & Wieseke, J. (2016). Warm glow or extra charge? The ambivalent effect of corporate social responsibility activities on customers' perceived price fairness. <i>Journal of Marketing</i> , 80(1), 84-105.
<b>Overconfidence Bias</b>	<p>Put each item in the form of a two-alternative: half-range question. subjects would select one alternative and assign a probability (ranging from 1 to 7) of its being correct.</p> <p>Reflects the range of uncertainty: 1 being very uncertain and 7 being very certain.</p> <ol style="list-style-type: none"> <li>1. The carbon footprint is the measure of the carbon dioxide emitted throughout the entire life cycle of the product.</li> <li>2. The average cycle of a bottle from the birth of the bunch in the vineyard to the moment we throw the bottle into glass and calculate an emission of around: 1.2 kg of carbon per bottle.</li> <li>3. What are the aspects that most affect the carbon footprint in the wine sector? Transport and Pack.</li> </ol>	J. Mahajan (1992). The Overconfidence Effect in Marketing Management Predictions.

	<p>4. But how much is really needed to produce wine? For a 125 ml glass of wine, you need almost: 90 liters.</p> <p>5. Organic certification is now a standard at the end of 2021, almost: a fifth of Italian vineyards are organic.</p>	
<p><b>Personalities</b></p>	<p>E1 In unclear situations, I usually take control of things.</p> <p>E2 It is easy for me to get to know other people.</p> <p>E3 I usually let others make the decisions. (Reverse coded item)</p> <p>E4 Can talk others into doing things. A1 I trust other people.</p> <p>A2 I trust what people say.</p> <p>A3 I like to help others.</p> <p>A4 I believe people usually have good intentions. C1 I am conscientious about the things I do.</p> <p>C2 I finish my work on time.</p> <p>C3 I am deliberate in my decisions.</p> <p>C4 I obey the rules the best I can.</p> <p>OE1 I have a vivid imagination.</p> <p>OE2 I greatly appreciate poetry.</p> <p>OE3 I enjoy wild flights of fantasy.</p> <p>OE4 I see beauty in things that others might not notice.</p> <p>ES1 I feel that I can handle any situation.</p> <p>ES2 It is hard for me to take criticism. (Reverse coded item)</p> <p>ES3 It is easy to hurt me emotionally. (Reverse coded item)</p> <p>ES4 I get very nervous before important meetings. (Reverse coded item)</p>	<p>Goldberg, 1999. Mahlamaki 2010.</p>

## **Appendix B**

*In Appendix B, the questionnaire administered to consumers is provided as an attachment.*

## Default Question Block

---

Below you will be presented with some affirmations and general questions and you can choose only one answer from the alternatives. The affirmations need to be rated from 1 to 7; for the general questions you can choose between three answers:

- 1) Please choose only one of three given answers. Only one of them is correct.
- 2) When you have made your choice, I would like to know how sure/confident you are that your answer is correct.

Since there are three alternative answers and only one of them is correct you have a 33% chance of giving a correct answer. You can select one alternative and assign a probability of its being correct. Your decision will reflect the range of uncertainty: therefore 1 means that you are guessing and do not know the correct answer, and 7 corresponds to absolute certainty. Enter your confidence for every answer in the question after every test item:  
How confident are you that your answer is correct?

NOTE: Please answer all questions and do not consult anyone else. Guess any answer you do not know, even if you must guess everything, you could answer 33% correct by chance. Do not return to already answered questions to change your answers; I am interested in your first answer.

Thank you for your patience in completing this questionnaire.

---

Are you a wine consumer?

---

- No  
 Yes

Do you have knowledge of sustainable methods for wine production?

---

- No  
 Yes

I am willing to pay a higher price for a sustainable wine bottle than a non-sustainable one.  
1= disagree, 4=neutral, 7=agree

---

- 1  
 2  
 3  
 4  
 5  
 6  
 7

I would like to keep buying sustainable wine, even if other bottles were cheaper.  
1= disagree, 4=neutral, 7=agree

---

- 1

- 2
- 3
- 4
- 5
- 6
- 7

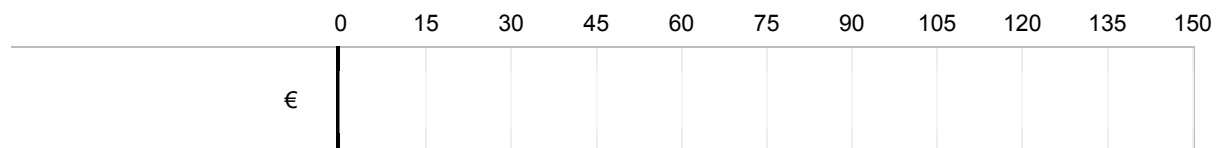
For the positive outcome of sustainability in the wine sector, as a customer, I would be willing to pay a higher price.  
1= disagree, 4=neutral, 7=agree

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Suppose you have the choice between 2 bottles of wine, you have consumed them both before, you like both of them equally. One of these wines has been produced according to established best practices of sustainability with minimal environmental impact, the other not. Now: How much more are you willing to pay for this type of wine compared to a wine that has not been produced according to established best practices of sustainability. Please indicate your answer with the slider below.

---



The carbon footprint is the measure of the carbon dioxide emitted throughout:

---

- The production of grapes
- The production of bottles
- The entire life cycle of the product

How confident are you that your last answer is correct?  
1= not confident at all, 4=neutral, 7=very confident

---

- 1
- 2
-

- 3
- 4
- 5
- 6
- 7

What is the average carbon dioxide emission for a complete cycle of production of a bottle of wine, from the harvest to the bottling?

---

- 2.2kg
- 1.2kg
- 0.2kg

How confident are you that your answer is correct?  
1= not confident at all, 4=neutral, 7=very confident

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7

What are the aspects that most affect the carbon footprint in the wine sector?

---

- Transport and Packaging
- Bottling and Transport
- Bottling and Packaging

How confident are you that your answer is correct?  
1= not confident at all, 4=neutral, 7=very confident

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7



How much is needed to produce wine? For a 125 ml glass of wine, you need almost:

---

- 90 liters of water
- 60 liters of water
- No water

How confident are you that your answer is correct?  
1= not confident at all, 4=neutral, 7=very confident

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7

How many Italian vineyards follow organic certification standards?

---

- 1/5 of Italian vineyards are organic.
- 1/10 of Italian vineyards are organic.
- 1/3 of Italian vineyards are organic.

How confident are you that your answer is correct?  
1= not confident at all, 4=neutral, 7=very confident

---

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Please indicate somewhat disagree now.

---

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
-

Somewhat agree

 Strongly agree**Extraversion**

1= disagree, 4=neutral, 7=agree

	1	2	3	4	5	6	7
1. In unclear situations, I usually take control of things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. It is easy for me to get to know other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I usually let others make the decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Can talk others into doing things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Agreeableness**

1= disagree, 4=neutral, 7=agree

	1	2	3	4	5	6	7
1. I trust other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I trust what people say.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I like to help others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I believe people usually have good intentions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Conscientiousness**

1= disagree, 4=neutral, 7=agree

	1	2	3	4	5	6	7
1. I am conscientious about the things I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I finish my work on time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am deliberate in my decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I obey the rules the best I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Openness to Experience**

1= disagree, 4=neutral, 7=agree

	1	2	3	4	5	6	7
1. I have a vivid imagination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I greatly appreciate poetry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I enjoy wild flights of fantasy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I see beauty in things that others might not notice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Emotional Stability**

1= disagree, 4=neutral, 7=agree

	1	2	3	4	5	6	7
1. I feel that I can handle any situation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. It is hard for me to take criticism.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. It is easy to hurt me emotionally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I get very nervous before important meetings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Are you aware of sustainable practices regarding the production of wine?

- No  
 Yes

Do you care about environmental sustainability in wine shopping?

- No  
 Yes

Do you care about social sustainability in wine shopping?

- No  
 Yes

Gender

- Male  
 Female

Age

- Under 18  
 18 - 34  
 35 - 54  
 55 - 74  
 75 or older

Education

- Less than high school

- High school graduate
- College
- Professional degree
- Doctorate

### Family Income

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- Less than €10,000
- €10,000 - €29,999
- €30,000 - €49,999
- €50,000 - €69,999
- €70,000 - €89,999
- €90,000 - €149,999
- More than €150,000

### Employment

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- Employed full time
- Employed part time
- Unemployed looking for work
- Unemployed not looking for work
- Retired
- Student

### Profession/Sector

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### Nationality

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