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Consumer perceived value of sustainably produced wine

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by

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Resumo

Nos últimos anos o mundo empresarial tem-se tornado cada vez mais competitivo, com as empresas a adotarem estratégias mais arriscadas no sentido de acompanhar os rápidos níveis de inovação e globalização. A indústria do vinho é um exemplo dessas mudanças. O comportamento dos consumidores tem vindo a adaptar-se a novas tendências, nomeadamente preocupações de saúde e ambientais que acabam por influenciar as suas compras. A sustentabilidade tornou-se um elemento distintivo das estratégias de diferenciação por parte das empresas. Deste modo, o interesse por produtos sustentáveis e, consequentemente, a adopção de práticas sustentáveis na produção de vinho, é uma mais valia para a indústria deste setor melhorar e ajustar as suas estratégias de comunicação sobre este tema. Esta investigação tem como propósito caracterizar o valor que o vinho produzido de forma sustentável tem para os consumidores, incluindo a sua predisposição para um pagamento adicional por um vinho com estas caraterísticas de produção. Neste sentido, realizou-se uma pesquisa quantitativa através de um questionário online, cujos dados foram tratados num programa estatístico. Para uma amostra de 257 inquiridos, os resultados obtidos mostraram que a maioria dos inquiridos valoriza e está disposta a pagar mais por um vinho que foi produzido a partir de práticas sustentáveis. Esta predisposição foi maior em indivíduos do sexo feminino e em grupos etários mais jovens.

Palavras chave: Sustentabilidade, Práticas de produção sustentável, Indústria Vinícola, Perceção do consumidor, Predisposição para pagar

Abstract

The world has becoming increasingly competitive, with companies adopting their best and boldest strategies in order to keep up with innovation and globalization. The wine industry is one example of such changes. Consumer behavior is adjusting to new trends, such as health and environmental concerns that affect consumer's purchases. Sustainability is now a distinguishing element within differentiation strategies that companies are implementing. Thus, the relevance of sustainable products and, therefore, the adoption of sustainable practices within the wine production, is a valuable insight for wine producers to improve and adjust their communication strategies regarding this matter. This research aims at characterising the value that sustainably produced wine has for consumers, including their predisposition for an additional payment regarding sustainable wine. For this purpose, a quantitative researchc was conducted, using an online questionnaire where the data was treated in a statistical program. With a sample of 257 surveyees, the results obtained showed that most of the respondents value and are willing to pay more for a wine that was produced with sustainable practices. This willingness to pay was greater for women and younger age groups.

Palavas chave: Sustainability, Sustainable production practices, Wine industry, Consumer perception, Willingness to pay

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1. Introduction

1.1 Theme of research and relevance of the topic

Sustainable development is changing to the degree where it is becoming a priority objective from a political, economic, and social perspectives (Mariani & Vastola, 2015).

When it comes to winemaking, it is known for its century old tradition and is an agricultural product, where sustainability plays a significant role within the industry (Szolnoki, 2013).

Nowadays, the wine industry is facing issues such as climate change, chemical exposure and water and energy availability (Gilinksy et al., 2016).

Furthermore, this industry is under constant pressure from consumers as well as regulators, when it comes to measuring, reducing, and establishing a better communication on the environmental impact in the winemaking process (Christ & Burritt, 2013).

Quality, safety issues, and environmental impacts of winery operations are features that results in more conscious consumers which directly affect their wine preferences, consumptions and purchases (Alonso, 2010). What has been previously mentioned changed consumers' behaviours, that in turn, motivated the wineries to seek competitive advantages by the production of environmental certified wines (Dodds et al., 2013). Hence, it is proven that an increasing number of wine companies are adopting social and environmental friendly directions when producing and advertising their wines, by integrating sustainability into their communication strategy (Sellers-Rubio & Nicolau-Gonzalbez, 2016).

Some wineries affirm that the production costs of sustainable wine are higher than the production costs of the conventional wine. In order to compensate the higher costs of these practices, consumers are willing to pay a premium price.

Furthermore, to make this viable, an effective sustainable management practice has to be applied (Sellers-Rubio & Nicolau-Gonzalbez, 2016).

Regarding the willingness to pay, a positive influence was found on environmental friendly wines (Sellers, 2016).

The motivation for this work lays in the fact that the wine sector has shown a very interesting propensity for innovation, either in production processes and in product differentiation, which has favoured the progressive development of sustainable production. As a result of an increasing presence of sustainable wine in the market it is important to investigate and analyse the consumers' behaviour and their willingness to pay a higher price for these products.

1.2 Methodology and research definition

For this research paper, a quantitative study was chosen, with an exploratory nature. To study the characterisation of the value that sustainable produced wine represents for participants and their willingness to pay an additional value, data was collected from an online questionnaire. A statistical analysis with SPSS (Statistical Package for Social Sciences) was carried out.

The objective of the present work is to characterise the value that sustainable produced wine represents for participants, as well as their predisposition for an additional payment.

1.3 Thesis outline

In the next chapter the literature review will be presented, developing important concepts for the study. Chapter three covers the research methodology, which is divided in two subchapters. The first chapter explains the survey design and the second describes the data analysis.

Chapter four shows the results from the study which presented in the form of tables and detailed description of the findings.

The last chapter features the discussion of the research objectives regarding the results of the study and the findings about the topics. The same chapter also shows the conclusion, limitations of the investigations and recommendations for future research.

2. Literature Review

2.1 Value concept

According to Schwarts (1992), value is defined as desirable goals, varying in importance, that serve as guiding principles in people's lives.

Beliefs and behaviours of different kinds can be affected by value, which are abstracts and transcend in particular circumstances.

The associations between values, beliefs and behaviour with respect to sustainability have been broadly investigated in the environmental domain.

Individual beliefs can be influenced by a wide range of things, which can determine individuals' environmental or social directed behaviour. Furthermore, the fact that beliefs are more specific than the values, they are more likely to be strongly related to behaviour (Collins et al., 2007).

It is essential for companies to present a higher value for its customers, as it is considered to be a key factor in creating competitive advantage as well as differentiation against their rivals (Ravald & Grönroos, 1996).

However, Peter and Olson (1993) mentioned value as the utility that consumers obtain when purchasing a product, based on perceptions about what is received and what is given (Zeithaml, 1988).

From the price literature perspective, Monroe (1990) defines value as the ratio between perceived benefits and perceived sacrifice.

The perceived sacrifices refer to all the costs the buyer supports when making a purchase, for example, "purchase price, acquisition costs, transportation,

installation, order, handling, repairs and maintenance, risk of failure or poor performance" (Ravald & Grönroos, 1996, p. 21).

The perceived benefits are " some combination of physical attributes, service attributes and technical support available in relation to the particular use of the product, as well as the purchase price and other indicators of perceived quality" (Ravald & Grönroos, 1996, p. 22).

Many alternatives can be chosen to provide a higher value to customers (Ravald & Grönroos, 1996).

If the definition of Monroe (1990) is taken into account, there are two possible solutions: either the company tries to deliver more benefits, or the customer perceived sacrifice should be decreased by the company.

By increasing the benefits, such as adding something to the core product, the customer recognises that the product is important, beneficial and of unique value.

In addition, when the core product quality is good, and supporting services are added such as home delivery, warranties, etc, the benefits for the customer will also positively affect the customer perceived quality (Ravald & Grönroos, 1996).

Price and quality are also components that tend to vary according to the type of product or service and its importance for the customer (Sweeney & Soutar, 2001).

The two elements that are mutually dependent are the benefits and sacrifice: when the benefits increase, then the customer perceived sacrifice reduces (Ravald & Grönroos, 1996).

2.2 Consumer Perceived value

Perceived value is considered the most important measure to gain competitive advantage (Parasuraman, 1997).

It is a concept derived from price, quality, quantity, benefits and sacrifice perceptions and must be dimensionally investigated and established for a given product category (Sinha & DeSarbo, 1998).

Perceived quality creates perceived value and this results in purchase intention (Petrick, 2004).

Quality and sacrifice are related with perceived value and perceived value is associated with willingness to buy (Zeithaml, 1988). Thus, we can conclude that willingness to buy is directly influenced by the perceived value (Doods et al., 1991).

The notion of customer perceived value has changed with time. Being particularly personal and situational, the personal values are influenced by individuals' education, culture, religion, and personality, varying from individual to individual. The situational values refer to the fact that the elements of value change occasionally and in different circumstances or locations (Chang & Dibb, 2012).

In regards to the conceptualisation and measurement of perceived value, there is a lack of agreement within scholars, as there is an unclear nature of the concept (Lapierre, 2000).

The value that consumers attach to a particular product attribute is a good indicator of demand for that product by the consumer (Hamzaoui-Essoussi & Zahaf, 2012).

2.3 Consumers' value perception about sustainable products: sustainable wine

The interest in sustainable food production and consumption has been growing all over the world (Vermeir & Verbeke, 2006), as consumers have demonstrated a growing interest in products which are considered as sustainable (Lanfranchi et al., 2019).

The main drivers of behavioural intention with respect to sustainable consumption: values, needs, motivations, information, knowledge and behavioural control (Vermeir & Verbeke, 2006).

An observation carried out by Kardash 1976, as cited in McDonald & Oates, 2006, p.159, concluded that all the consumers are possible green consumers, because " if two products were identical in every way but one was less damaging to the environment then most consumers would select the least damaging product".

There is a growing trend for wine that has been produced using sustainable practices. Studies show that consumers are sensitive to the concept of sustainable wine making, considering it a choice for them (Flores, 2018).

Over the last few years of investigation, it has been concluded that consumers are interested in buying more consciously (Darnall et al., 2012), and the concern about production practices result in a demand for products which have been made taking environmental aspects into account, such as organic and sustainable practices (Stisser, 1994 ; D'Souza et al., 2006). Consumers that have a positive attitude about sustainable consumption, claim to pay more attention to ecological packaging, the origin of the food products, or the lack of genetically modified organisms, and the regular purchase of sustainable organic food products (Vermeir & Verbeke, 2006).

When it comes to sustainable wine, consumers lay their trust on sustainable certification on wine labels, which is why it is crucial to adopt this implementation process. Not only will it solve the issues around information to the client, but it will also aid in placing sustainable wine on the high quality product side (Sogari et al., 2015).

On the other hand, because of the fact that the individual components of sustainability programs can be interpreted by the consumers in different ways, the use of logos reflects that individual sustainability attributes are not immediately perceptible and this causes difficulty in the identification of the elements that are included in the certification scheme (Tait et al., 2019). Also, the wide existing number of different logos demonstrating environmental sustainability provided by the market, makes the success associated to the messages perceived by the consumers questionable (Sellers-Rubio & Nicolau-Gonzalbez, 2016). A clear example of what was said before is explained by Ginon et al. (2014) which conducted a study among French consumers' to understand their logo perceptions. The study used 14 logos, which are used in France and are related to wine production and sustainable practices. The research concluded that the multiple logos claiming environmental sustainability are confusing for consumers which can be slightly responsible for a reduction in the credibility of the same logos.

Prior research has shown that the idea of "sustainable winemaking" is admired by consumers, but consumers still do not know much about it (Zucca et al., 2009). However, a significant number of consumers among different countries had positive perceptions about sustainable production methods as well as being willing to pay a premium price for wine with sustainable production characteristics, except in some European and North America countries (Schäufele & Hamm, 2017).

2.4 Wine market

To better understand the wine industry, we can divide the wine producer countries into two categories: the old-world countries and the new-world countries (Banks & Overton, 2010).

The old-world countries are considered the European countries that have a continuous history of wine production, with consumption habits which began within the Mediterranean culture (Li et al., 2018).

New-world countries are those that produce wine outside of Europe and started producing it later than the old-world countries, and that have no culture tradition of drinking wine (Li et al., 2018).

As indicated by the "World of Atlas of Wine", countries as Greece, France, Italy, Spain, Germany, Portugal, Austria and Hungary, are considered old-world countries (Li et al., 2018). On the other hand, United States, Australia, New Zealand, Chile, South Africa and Argentina are regarded as new-world countries (Li et al., 2018). Additionally, French Foreign Trade Advisory Committee defined the "New New World" to include countries like China, Brazil, India, Eastern Europe and North Africa, describing them as the last countries producing significant quantities of wine (CNCCEF, 2009).

The wine market has experienced significant changes in the last thirty years, as a result of the increasing number of wine producers in a global perspective, the growing wine markets in "the New World" and the transformation of consumer behaviour of wines (Fiore et al., 2017).

Moreover, wine production faces new issues such as global warming (Van Leeuwen & Darriet, 2016), and an increasing competition from new markets and producers, such as China (Jenster & Cheng, 2008).

Apart from these challenges, there is an additional demand for higher quality and sustainable wine (Jamali et al., 2020).

2.5 Sustainability

Sustainable development is referred to as a means to "make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs"(WCED, 1987, p.16). Consequently, sustainability involves social, environmental and economic responsibilities (Kleindorfer et al., 2005).

Firstly, social sustainability focuses on internal (i.e., employees) and external communities (Pullman et al., 2009), and can be achieved when organisations "provide equitable opportunities, encourage diversity, promote connectedness within and outside the community, ensure the quality of life and provide democratic processes and accountable governance structures" (Elkington,2005, as cited in Gimenez et al., 2012, p.150).

Secondly, environmental sustainability at the plant level is related to the use of energy as well as to what companies leave behind after operating, such as leftover resources and their footprint (Gimenez et al., 2012). Some more examples of what is often connected with environmental issues are: "waste reduction, pollution reduction, energy efficiency, emissions reduction, a decrease in the consumption of hazardous/harmful/toxic materials, a decrease in the frequency of environmental accidents" (Gimenez et al., 2012, p.150), and so on.

Finally, economic sustainability is defined as the production and manufacturing costs at the plant level, a concept that is frequently well understood (Cruz & Wakolbinger, 2008).

The triple bottom line concept, developed by Elkington (1998), takes economics, environmental, and social issues into consideration, from a microeconomic point of view. The triple bottom line is a framework that helps to focus on particular criteria to empower the progress in each of the three elements (Rogers & Hudson, 2011).

Furthermore, the framework emphasises the connection between the three elements, where the intersection of all of them means that the three goals are achieved (Rogers & Hudson, 2011).

2.6 Sustainability in the wine industry

Due to the growing concern in the wine industry about sustainability issues such as climate change, chemical exposure, water and energy availability (Gilinksy et al., 2016), the industry is being confronted with constant threats and its activities have been impacted (Flores, 2018). Besides that, another strong reason for wineries taking into consideration sustainable aspects is the fact that consumers purchase decision are not based only on how well the product satisfies their needs, but also how these products affect the society as a whole (Sellers, 2016). So, for this reason the number of wineries including socially and environmentally friendly orientations when producing and marketing wines, reinforcing their brand and market positions by the integration of sustainability into their communication strategy (Sellers, 2016).

Therefore, sustainability is a key subject that has primary importance in the global wine sector (Lanfranchi et al., 2019).

Environmental challenges are a main issue in the wine industry, thus, increasing the use of industry practices that improve environmental outcomes is the primary focus to achieve sustainability in this industry (Tait et al., 2019).

Additionally, considering the effects of decision making on communities is an example that belongs to the inclusion of local communities, integrating an important element that corresponds to the socially responsible practices. Indeed, there is evidence that consumers have less information about economic viability which includes the main objective of improving the long-term of economic viability (Tait et al., 2019).

Sustainability is an important issue in the wine sector at a global level, but it has had particular significance for the "New World" of wine countries, in particular The United States of America, New Zealand, Australia, Chile and South Africa (Szolnoki, 2013), which have been the pioneers of sustainability in the vineyards and wineries (Santiago-Brown et al., 2014).

It was back in 1992 that the Lodi Wine Grape Commission from California created the first sustainability program, which launched its integrated Pest Management program (Ross & Golino, 2008). Since the creation of this program, some other institutions and organisations established their own guidelines for sustainable wine growing (Szolnoki, 2013).

The International Organization of Vine and Wine (OIV) has been considering the increasing importance of sustainability in the wine industry, defined by the Resolution CST 1/2004 as a "global strategy of scale of the grape production and processing systems, incorporating at the same time the economic sustainability of structures and territories, producing quality products, considering requirements of precision in sustainable viticulture, risks to the environment, product safety and consumer health and valuing of heritage, cultural, ecological and aesthetic aspects" (OIV, 2014, as cited in Flores, 2018, p.2302).

The number of initiatives and tools created to measure sustainability performance has been growing substantially in the last period (Flores, 2018).

There are two possible frameworks to be applied in the wine industry: the general frameworks and the national or regional programs. The general frameworks use the same methodologies applied to other sectors, such as ISO standards. The ISO 14001 is the main standard to certify Environmental Management Systems, which is prevalent in several wine regions including the US, New Zealand and some producers from Europe (Corbo et al., 2014). On the other hand national and regional programs, have developed their own frameworks with guidelines and indicators associated with environmental,

social and economic dimensions to evaluate activities from vineyards, winery operations and management processes (Santiago-Brown et al., 2014).

With the implementation of sustainable strategies, companies create a unique and differentiated product, giving customers the perception of innovation and higher quality (Gilinksy et al., 2016). Ultimately, these strategies also provide the opportunity for companies to charge a premium price for its product or services (Gilinksy et al., 2016).

2.7 Willingness to Pay

As reported by Wertenbrouch and Skiera (2002), Willingness to Pay (WTP) indicates the maximum price a buyer is willing to pay for a given quantity of goods.

In order to investigate consumer reactions to prices, many different concepts are used in the marketing literature review. Willingness to pay is linked to variables that influence decision making such as, satisfaction, loyalty and culture. The concept is also closer to price judgements like reference price or acceptable price (Le Gall-Ely, 2009).

The perceived value of a product or service is reflected by the price that consumers are willing to pay (Simonson & Drolet, 2004). It is essential to design optimal pricing or to estimate the demand for new products in order to measure consumers' willingness to pay (Voelckner, 2006).

The measurement of willingness to pay, can be divided into the four following categories: Analysis of market data, experiments, direct surveys and indirect surveys. Using market data which represents the real behaviour, the willingness to pay is very trustworthy but cannot be used, for instance, to investigate on a new product where lack of information subsists in the market data (Lanfranchi et al., 2019).

To solve this previous case, experiments are the solution as for example, laboratory experiments in which the results are obtained quickly. Field experiments can also be used and are often conducted by the so-called test markets. Lastly, auctions are useful when it comes to obtaining knowledge of products or brands evaluations by the consumers in order to be used to show consumers' valuations to support future pricing decisions (Breidert et al., 2006).

Products and prices can simply be adapted by using these approaches and by ensuring that the participants are presented with the necessary variations. Nevertheless, the experiments are limited by small sample sizes sustaining the potential for sample selection bias. In addition, the high level of time consumption and high costs are problems that make it difficult to use these approaches. These problems can be solved by applying direct and indirect methods that are less time-consuming and costly (Lanfranchi et al., 2019).

Regarding the direct method, the respondent is directly asked to indicate how much he or she is willing to pay for a particular good or service. However, the indirect surveys make it possible to estimate preference structure from which willingness to pay can be obtained (Lanfranchi et al., 2019). To summarise, each method has its particular strengths and limitations, which is why one should choose while taking conceptual considerations and practical restrictions into account. Direct survey methods continue to be broadly used (Hofstetter et al., 2013), especially when the manager is fronting monetary and/or time constraints (Lanfranchi et al., 2019).

As evidence supported by the growth of ecologically consumers behaviour shows (Laroche et al., 2001), consumers are willing to pay more for environmentally friendly products. The willingness to pay a premium price for green products has also increased among consumers in European countries (EuropeanComission, 2014).

Studies also highlight that characteristics such as environmental protection and a high environmental involvement in production, determine consumers'

willingness to pay a premium price for wines that contain said attributes (Pomarici et al., 2016).

A study conducted by Forbes et al. (2009), shows that around 73 percent of New Zealand respondents reported they were interested in sustainable wines. A conclusion from a study carried out by Zucca et al. (2009), demonstrated that a surprising number of Californian customers appreciate the idea of sustainable wine, even though, they actually did not have a clear notion of what sustainability means in practice, or even what wineries are doing to achieve it.

Mueller and Remaud (2013) with reference to a cross-national study discovered that even though social and environmental responsibility had highly comparable awareness and perception and comparable customer trust, the additional WTP (willingness to pay) for environmentally responsible was about three times as high as for the socially responsible.

Finally, a research performed in Spain concluded that most Spanish wine consumers are willing to pay a premium price for a sustainable wine. This type of wine can be considered as a market opportunity for wineries since the consumption of quality wine is a very competitive topic in Spain (Sellers, 2016).

2.8 Willingness to buy

This concept is an alternative of purchase intention (Liao & Hsien, 2013), can be defined as a significant indicator for actual purchase behaviour because it expresses the effort given by the consumer toward a particular behaviour (Bagozzi et al., 1990). Willingness to buy can also consists of the customer's likelihood to shop, purchase products and suggest the store to others (Jahangir et al., 2009).

Jahangir et al., (2009) concluded that price sensitivity, promotion and product quality are important indicators of WTB (willingness to buy), furthermore, according to Konuk (2019) environmental concerns, a desire for fair

consumption, trust in the fair trade, certified label and consumers innovativeness are also considered important determinants of WTB.

Related with the consumption of sustainable food, consumers felt positive emotions during the consumption of that food that enhance the consumer's willingness to pay (Ghali, 2020).

Willingness to Pay and Willingness to buy are two different concepts in consumer preferences. In the marketing area these two concepts are appropriate and effective to predict and explain consumers' purchase decisions or behaviour (Keramitsoglou et al., 2018). However, it is important to say that WTB still less studied compared with WTP (Ghali, 2020).

2.9 Willingness to pay regarding demographic variables: Gender, Age

2.9.1 Women are willing to pay more

A study conducted by Lanfranchi et al., (2019) concluded that in terms of gender the estimation results showed that women are more able to pay an extra value for the purchase of a sustainable wine. At the same time, Kollumuss and Agyeman (2002) came to the conclusion that women have generally a lower broad environmental knowledge than men, however, they are more emotionally involved showing more concern about environmental damage.

A curiosity shown by Grebitus et al. (2013) in a study of German consumers indicates that man paid more for wine with a lower distance travelled than women.

Another research concluded that female respondents appear to be more willing to pay for the environmental benefits of sustainable grape production than male (Loureiro, 2003).

Sellers-Rubio and Nicolau-Gonzalbez (2016) also confirmed with their article that among the gender's variable female are willing to pay a higher premium price than males.

A high WTP can be justified due to a higher household income and gender status that is usually that women tend to pay more attention to these products comparing to men (Loureiro, 2003).

2.9.2 Younger generations are willing to pay more

Regarding the age groups, younger people demonstrated a more positive attitude towards wine with sustainable characteristics (Bernabéu et al., 2008). Furthermore, these consumers have a higher level of knowledge with respect to environmental issues and they also support environmental reform, approving pro-environmental ideologies faster and more easily than older consumers. This is because the available research is still limited and because younger people have a stronger social conscience (Diamantopoulos et al., 2003). This conclusion can also be justified due to the fact that young consumers are focus on the information in order to reduce the risk associated with their purchase and also because they are more involved about the impact of their choice on the environment and society (Atkin & Thach, 2012).

As a last example, in Lanfranchi et al. (2019) study it was concluded that the consumerrs that are willing to pay a higher premium price are the younger. This is also in acordance with the results of the study held by Sellers-Rubio and Nicolau-Gonzalbez (2016) which concludes exactly the same regarding the age.

As a last important finding, for the consumers who value sustainable produced wine, Forbes et al. (2009) supported the conslusion by finding out that consumers have a preference for sustainably produced wines. This means that they perceive these products as having a clear obvious point of difference from

the conventionally produced wines. Along with the previous idea, some more authors shown in their studies that consumers consider sustainable practices an important attribute of wine production, this appreciation makes consumers willing to pay a premium price (Maesano et al. 2019; Sellers-Rubio & Nicolau-Gonzalbez, 2016).

3. Research Methodology

This chapter, will present the reasons behind the choice of the type of methodology used to achieve the study's objective: to characterise the value that sustainable produced wine represents for participants, as well as their predisposition for an additional payment.

3.1 Type of study

In the first place, it should be defined which kind of research method was applied, qualitative or quantitative. These two types can be differentiated considering the data treatment, as for the quantitative method data can be analysed using statistical analysis, while for the qualitative method data interpretative content is considered (Morais & Neves, 2007). For the purposes of this study, a quantitative method was chosen. As it aims to draw statistically significant conclusions about a population through the study of a representative sample of the population (Crewell, 2003).

3.2 Variables

It was considered important, accordingly to Saunders et al. (2012), the identification of the variables in study. Based on the present research objective, the following main variables were identified:

- The value of sustainable practices in wine production;
- Willingness to pay;
- Willingness to buy;

- The difference in amount paid for sustainably produced wine and conventional wine.

3.3 Hypotheses

To observe the relationship between the diverse variables (Saunders et al., 2012), and answer the main goal of the study, the following research hypotheses were formulated, based on previous research:

- **Hypothesis 1: There is a direct association between the value of sustainable practices and willingness to buy.**

  Participants who value sustainable practices in wine production are more willing to buy sustainable wine.

- **Hypothesis 2: There are differences in the participants' willingness to pay more for wines produced through sustainable practices according to the value of these practices.**

  Participants who value sustainable practices in wine production are willing to pay more for a bottle of sustainable wine.

- **Hypothesis 3: There are differences between male and female participants' willingness to pay more for wines produced through sustainable practices.**

  Women are willing to pay more for a bottle of sustainable wine.

- **Hypothesis 4: There are differences in the willingness to pay more for wines produced through sustainable practices according to the age group.**

  Younger participants are willing to pay more for a bottle of wine.

3.4 Instruments

The present research was carried out using an online questionnaire, which was subsequently sent to randomly selected individuals. The questionnaire was developed on Google Forms, a tool that allows to carry out questionnaires quickly and easily. One of the reasons to choose an online questionnaire was for the fact that this is one of the fastest methods of obtaining answers at lower costs (Curtis, 2008).

Before the design of the final version of the questionnaire, a small pilot test with seven participants was carried out to assess respondents' understanding and to make any necessary change. Some questions were adapted to make them clearer for the participants.

After this pilot study, the questionnaire was developed with the purpose of obtaining the needed information to achieve the research objective. It was based on the article of Lanfranchi et al. (2019), after noting some similarities in objectives with the present study, some ideas were collected from it, since the aim of the present study were slightly different. In particular, the use of the direct method to estimate the willingness to pay, where the respondents are directly asked to declare how much they are willing to pay for a good or service. The rest of questions that were not based on this study, were developed for the purpose of the present study.

The questionnaire had nine questions in total, with a small introduction explaining to the participants that their information would only be used for the investigation, ensuring data confidentiality.

The first question asked participants what they value more, a bottle of wine produced with sustainable practices, or a bottle of wine produced in a conventional manner.

Then, in the second question, a list of different sustainable practices used in wine production were presented, with the goal of understanding which practice the participants most value.

The third question asked participants if they were willing to buy a bottle of wine produced through sustainable practices; it was a yes/no question. The fourth and fifth questions were related: in the fourth one, participants were asked to refer the value that they usually pay for a conventional wine, and the fifth question was about how much they would be willing to pay for a bottle of sustainably produced wine, assuming that the quality is similar or superior to the wine they usually buy. It was based on participants' answers to these questions that the difference in amount that participants are willing to pay for sustainable wine was computed.

The last four questions were regarding sociodemographic information, aiming to gather data regarding participants age, gender, income and education level. These questions were used to characterise the sample and to obtain some conclusions.

3.5 Data analysis

For the data analysis, IBM SPSS (Statistical Package for Social Sciences), 27.0 version was used.

An exploratory data analysis was first carried out regarding the quantitative variables in order to examine whether these presented a normal distribution, an assumption that needs to be met in order to use parametric statistics. This analysis considered skewness and kurtosis values, Kolmogorov-Smirnov and Shapiro-Wilk tests, and plots. Not all variables met this assumption, therefore parametric and non-parametric tests were carried out and, because the obtained results were the same, results of parametric tests are presented (Fife-Schaw, 2006).

For the descriptive analysis, qualitative variables are described using frequencies and percentages, and for quantitative variables mean, standard deviation, median and interquartile range are presented.

To analyze the association between qualitative variables, a chi-square test was used. However, because the percentage of cells with expected count lower than 5 was over 20%, Fisher´s exact test was selected.

In order to compare two groups regarding a quantitative variable, t tests for independent samples were carried out. Homogeneity of variances was examined using Levene's test.

For the comparison of more than two groups, an ANOVA was used. Homogeneity of variances was examined using Levene's test. Tukey post hoc tests were used to explore significant differences between groups.

When examining the relation between a quantitative and an ordinal qualitative variable, the Spearman correlation coefficient was used.

For the inferential analyses, results were considered as statistically significan for $p < 0{,}005$.

4. Results

This chapter serves to present the results obtained with the questionnaires. And will be divided in:

-Participants;

-Descriptive analysis;

-Willingness to buy and Difference in amount paid for sustainable practices and regular wine according to the value of sustainable practices;

- Difference in amount paid for sustainable practices and regular wine according to sociodemographic varibales.

Participants

The sampling process reached a sample size of 257 useable answers. Descriptice statistics regarding sociodemographic variables (Table 1) shows a majority of female respondetns (68,9%), that 45-54 years old is the largest age group (31,1%), most respondets have a bachelor's degree (52,5%), and 27,2% had monthly incomes between 1001-1500€.

Table 1 *- Descriptive statistics regarding sociodemographic variables*

	Frequency	Percentage (%)
Gender		
Female	177	68,9
Male	80	31,1
Age		
18-24	74	28,8
25-34	35	13,6
35-44	22	8,6
45-54	80	31,1
55-64	41	16
+65	5	1,9
Academic Qualifications		
Elementary School	9	3,5
Secondary School	37	14,4
Bachelor's Degree	135	52,5
Master's Degree	66	25,7
PhD	10	3,9
Household's net monthly income		
<1000€	36	14
1001-1500€	70	27,2
1501-2000€	49	19,1
2001-3000€	50	19,5
>3000€	52	20,2

Descriptive analysis

Table 2 presents the descriptive measures concerning the main variables of this study: valuing of sustainable practices, willingness to buy wine, amount normally paid for a wine bottle, willingness to pay for a wine bottle and the difference in amount paid for sustainable practices and regular wine.

Table 2 *- Descriptive measures concerning the main variables of the study*

	Descriptive measures	
Valuing sustainable practices	Frequency	Percentage
No	44	17,1
Yes	213	82,9
Willingness to buy		
No	7	2,7
Yes	250	97,3
Amount normally paid		
Mean (*SD*)	6,58 (7,42)	
Median (*IQR*)	5 (4,25)	
Min-Max	0-100	
Willingness to pay		
Mean (*SD*)	8,46 (7,69)	
Median (*IQR*)	5	
Min-Max	0-100	
Difference in amount paid for sustainable practices and regular wine		
Mean (*SD*)	1,88(3,69)	
Median (*IQR*)	2(1,63)	
Min-Max	-29-25	

Most participants (*n* = 213, 82,9%) said they valued sustainable practices in wine production and they are also willing to buy a wine produced with sustainable practices (*n* = 250, 97,3%). Participants reported that they usually pay for a conventional bottle of wine, on average, 6,58€ (*SD* = 7,42). As for sustainable practices wine, participants reported to be willing to pay, on average, 8,46€ (*SD* = 7,69). Therefore, Difference in amount paid for sustainable practices and regular wine is 1,88€ (*SD* = 3,69), ranging between paying less 29€ and paying more 25€.

Willingness to buy and difference in amount paid for sustainable practices and regular wine according to the value of sustainable practices.

When looking at associations between participants' appreciation of sustainable practices and their willingness to buy (Table 3), it can be seen that 98,1% of participants valued sustainable practices and are also willing to buy sustainable wine.

Table 3 *- Association between participants' appreciation of sustainable practices and willingness to buy*

	Valuing sustainable practices		**Fisher's exact test (*p*)**
	No *n* (%)	Yes *n* (%)	
Willingness to buy			
No	3 (6,8)	4 (1,9)	0,099
Yes	41 (93,2)	209 (98,1)	

However, no statistically significant association was found between participants' appreciation of sustainable practices in producing wine and their willingness to buy, Fishers' exact test, $p = 0.099$.

Differences regarding the difference in amount participants were willing to pay for sustainable practices and regular wine according to their appreciation of sustainable practices are presented in Table 4.

Table 4 *- Differences regarding the difference in amount participants were willing to pay for sustainable practices and regular wine according to appreciation of sustainable practices*

	Valuing sustainable practices		***t* (255)**	***p***
	No (n = 44) M (SD)	Yes (n = 213) M (SD)		
Difference in amount paid for sustainable practices and regular wine	0,70 (2,62)	2,12 (3,84)	-2,34	0,020

Differences between participants who valued and did not value sustainable practices regarding the difference in amount paid for sustainable practices and regular wine were statistically significant, t (255) = -2,34, p = 0,020. Participants who value sustainable practices are willing to pay more for sustainable wine than for conventional wine, when compared to participants who do not value sustainable practices.

Difference in amount paid for sustainable practices and regular wine according to sociodemographic varibales

As for gender differences in what concerns the difference in amount paid for sustainable practices and regular wine, results are presented in Table 5.

Table 5 *- Differences regarding difference in amount participants were willing to pay for sustainable practices and regular wine according to gender*

	Gender		***t* (255)**	***p***
	Female (n = 177) M (SD)	Male (n = 80) M (SD)		
Difference in amount paid for sustainable practices and regular wine	2,41(3,24)	0,72(4,33)	3,48	0,001

Statistically significant gender differences were found concerning the difference in amount paid for sustainable practices and regular wine, t (255) = 3,48, p = 0,001. Women are willing to pay 1,69€ more for sustainable wine than for conventional wine, when compared to men.

Table 6 presents the results regarding differences between age groups in what concerns the difference in amount participants were willing to pay for sustainable practices and regular wine.

Table 6 *- Differences regarding difference in amount participants were willing to pay for sustainable practices and regular wine according to age groups*

	Age groups					
	18-24 (n = 74) M (SD)	25-44 (n = 57) M (SD)	45-54 (n = 80) M (SD)	+ 55 (n = 46) M (SD)	***F* (3, 253)**	***p***
Difference in amount paid for sustainable practices and regular wine	2,53 (4,04)	2,21 (3,01)	0,86 (4,22)	2,21 (2,37)	3,14	0,026

Statistically significant differences were found regarding the difference in amount paid for sustainable practices and regular wine, according to participants' age group, F (3, 253) = 3,14, p = 0,026. Tukey post-hoc tests showed a statistically significant difference only between the 18-24 group and the 45-54 group (p = 0,025). Participants in the age group of 18-24 are willing to pay 1,67€ more for sustainable wine than for conventional wine, when compared to participants with ages comprised between 45-54 years.

Finally, when examined the correlation between participants' household net monthly income and the difference in amount paid for sustainable practices and regular wine, no statistically significant correlation was found, $r_s = -0,11$, $p = 0,085$.

5. Discussion and Conclusion

5.1 Discussion

In this chapter, the objective is to understand how the results of the study carried out are or are not in accordance with the concepts presented in the literature review.

After the research and the data analysis, it is important to observe if the hypotheses are confirmed, the results are in agreement with the previous literature, as well as to understand if the study's objective has been achieved.

In what concerns the concept of willingness to buy, despite of its importance, information about this concept is scarce, when compared with willingness to pay (Ghali, 2020). In this study, it was expected that participants who valued sustainable practices in wine production were more willing to buy sustainable wine.

However, the obtained results did not confirm this hypothesis, there was no significant association between participants' appreciation of sustainable practices in producing wine and their willingness to buy. It is important to note that only seven participants reported they were not willing to buy a bottle of sustainable wine which can have influenced this result.

As for the second hypothesis, participants who value sustainable practices in wine production were expected to be willing to pay more for a bottle of sustainable wine. This hypothesis was supported by the finding of this study in that participants who value sustainable practices were willing to pay more for sustainable wine (Maesano et al., 2019). This idea is also supported by a study

which confirmed that consumers have a preference for sustainable wines, which means that they perceive sustainable wines as being different from the conventionally produced wines (Forbes et al., 2009). Moreover, it is also showed by Maesano et al. (2019) and by Sellers-Rubio and Nicolau-Gonzalbez. (2016)

that consumers are willing to pay a premium price because they consider sustainable practices an important attribute of wine production.

Regarding the effect of sociodemographic variables, gender and age were expected to have an impact in the difference in amount participants were willing to pay for sustainable practices wine, versus conventional wine. Women and younger participants would be more willing to pay more for sustainable wine.

These hypotheses were both confirmed in the present study.

Regarding gender differences, some authors came to the same conclusion, Kollumuss and Agyeman (2002) said in their study that even though women have generally a lower broad environmental knowledge than men, they have a higher emotional involvement, demonstrating more concern about environmental knowledge, which could explain their willingness to pay more for sustainable wine. Apart from this, the higher willingness to pay for sustainably produced wine by women was demonstrated several times in different studies (Lanfranchi et al., 2019; (Loureiro, 2003), as for instance the Sellers-Rubio and Nicolau-Gonzalbez (2016), which confirmed that, female participants are willing to pay a higher price.

Concerning the age group, in the present study it was found that respondents between the ages of 18 to 24 (young generation) are the ones that are willing to pay more for sustainable wine when comparing to what they pay for conventional wine, when compared to older participants (between 45-54 years). In fact, the literature showed that younger people demonstrate a more positive attitude towards wine with sustainable characteristics (Bernabéu et al., 2008). This can be explained by the fact that this generation has a higher level of knowledge regarding environmental issues (Diamantopoulos et al., 2003). Also,

Lanfranchi et al. (2019) and Sellers-Rubio and Nicolau-Gonzalbez (2016) found that young consumers are willing to pay a higher premium price comparing with other generations.

This study contributes to the theory that sustainable production has a positive impact in companies' strategies, working as a motivation to new consumer segments.

5.2 Conclusion

This study was designed to characterise the value that sustainable produced wine represents for participants, as well as their predisposition for an additional payment. This allows to depict the importance of sustainability and the changes associated to this concept. Increased awareness about the topic is present not only in the wine sector but also in many other industries.

Currently, the growing presence of sustainability concern made companies rethink their way of producing and communicating their products. Accordingly, consumers have also been changing their consumption habits due to the concerns about sustainable practices, which have reflected in a greater interest in sustainable purchases.

In order to achieve the study's objective, a questionnaire was designed and randomly sent out, obtaining a sample constituted with 257 individuals. The data was subsequently treated with the help of a statistical program, analysed and discussed, and then compared with the existing findings of the literature review.

This study concluded that consumers are effectively willing to pay more for sustainably produced wines. Additionally, participants who value sustainable practices were willing to pay more for sustainable wine than for conventional wine, when compared to participants who do not value sustainable practices.

Gender and age had some influence on the responses. Women were willing to pay more for a sustainably produced wine when compared to men.

Concerning age, it was also found that the younger age group had a higher willingness to pay. In particular, women are willing to pay more (1,69€) than men and young adults presented a higher predisposition to pay more (1,67€) for sustainably produced wines.

5.3 Limitations

During this study, a few limitations have been encountered. First, the sample selection should have been directed only to wine consumers, in this way, it would avoid the removal of the answers from respondents that do not drink wine. Another limitation is related to the design of the questionnaire, namely the way questions were formulated. Despite achieving the study's goal, some questions could have been designed differently, mainly the questions on pricing, which were pretty much open ended. In some cases, participants wrote intervals of values or even other information that was not possible to take into account which had led to the exclusion of this data.

5.4 Recommendations

Given the current trend about sustainable purchases, it would be interesting to conduct a study among Portuguese wine consumers, to see and observe this group of consumers' purchasing behaviour when it comes to paying an additional price for sustainably produced wine. Also, it would be interesting to understand through the questionnaire the frequency of wine consumption.

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Appendix 1- Questionnaire structure

Produção de vinho sustentável

Este questionário está a ser desenvolvido para a realização de um Trabalho Final de Mestrado, da Católica Porto Business School, Universidade Católica Portuguesa.

Pretende-se estudar o valor acrescentado que os vinhos de produção sustentável podem representar para os consumidores, analisando também a sua predisposição para um pagamento adicional por este tipo de vinhos.

O inquérito é anónimo e demora cerca de 3 minutos a ser preenchido. As respostas serão tratadas de forma confidencial, sendo apenas utilizadas para esta investigação.

Não existem respostas certas ou erradas. O objetivo está em perceber a sua perspetiva sobre o assunto.

Agradeço, desde já, a sua disponibilidade para participar neste estudo.

1. Considera que uma garrafa de vinho produzida através de práticas sustentáveis tem mais valor do que uma garrafa de vinho produzida de forma convencional?

- Sim
- Não

2. Das seguintes práticas consideradas sustentáveis, selecione a(s) que para si têm mais valor:

- Otimizar a utilização de água
- Otimizar a utilização de energia
- Reduzir a utilização de químicos
- Preservar os solos e ecossistemas
- Envolvimento das comunidades onde a empresa se encontra inserida

- Esforços adicionais para reduzir, reutilizar e reciclar
- Não valorizo nenhuma das anteriores

3. Dadas as práticas anteriormente mencionadas, estaria disposto a comprar uma garrafa de vinho produzida a partir de todas ou algumas dessas práticas?

- Sim
- Não

4. Que valor paga habitualmente por uma garrafa de vinho?

   _____

5. Que valor estaria disposto a pagar por uma garrafa de vinho de produção sustentável, pressupondo que a qualidade é similar ou superior ao vinho que costuma comprar?

   _____

6. Indique, por favor, o seu género

- Feminino
- Masculino

7. Indique, por favor, a sua idade

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- +65

8. Indique, por favor, o valor aproximado do rendimento mensal líquido do agregado familiar

- <1000€
- 1001-1500€
- 1501-2000€
- 2001-3000€
- >3000€

9. Indique, por favor, as suas habilitações literárias

- Ensino básico
- Ensino secundário
- Licenciatura
- Mestrado
- Doutoramento