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Relation between antecedents, barriers and consequences of sustainable practices in the wine tourism sector

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ABSTRACT

This research aims to test the relation between the antecedents, barriers and consequences of adopting sustainable practices in Portuguese wine tourism companies. Quantitative research resorted to collecting primary data from 103 Portuguese wine tourism companies, the data analysis technique being structural equation modelling using SmartPLS 3.0 software. The results indicate that the antecedents (internal pressure and external pressure) influence the adoption of sustainable practices in wine tourism. In addition, the adoption of sustainable practices may result in benefits for companies in the wine tourism sector. Finally, the barriers were found not to moderate the relation between antecedents (internal pressure and external pressure) and the adoption of sustainable practices. Therefore, even if barriers are perceived by business-people, they tend to continue to adopt sustainable practices in wine tourism.

1. Introduction

According to Maignan and Ferrell (2001), firms are evidencing greater environmental concern related to the use of natural resources, not wanting to contribute to their disappearance (Gabler et al., 2017). Thus, the subject of sustainability has come to occupy its place in society (Yu et al., 2015), given the growing relevance of environmental, social and economic issues and the fact that companies can be a driver of sustainable development (Kraus et al., 2017). Furthermore, sustainability is one of the main priorities of the European Union (EU) which is reflected in the development of policies aimed at sustainable growth which include, for instance, promoting a more resource efficient; combating climate change; underpinning responsible economic policies; and supporting social and territorial cohesion (Europe 2020 Strategy, 2010). Therefore, sustainability is an area of major importance for companies, as it is necessary to control the use of natural resources, especially when a shortage of any one of them is envisaged, with it being essential for companies to carry out more efficient management.

In turn, the United Nations Organisation (UNO) has also worked with countries worldwide towards a more sustainable planet, and in 2015 defined a set of seventeen Sustainable Development Goals (SDG) which consider various practices aiming for sustainable development (Can & Alatas, 2017), including one goal (SDG 12) directed particularly towards more sustainable consumption and production.

Companies operating in the tourism sector also show growing concern about sustainability, since tourism is one of the industries with greatest impact on the economy and the environment, with sustainability being one of its greatest challenges (Niñerola et al., 2019). In particular, González (2017) indicates that wine producing companies that provide tourist experiences associated with wine are concerned about the social, economic, environmental and cultural sustainability of territories, since this type of tourism is emerging as a profitable sector able to generate local and rural economic development (Marzo-Navarro and Pedraja-Iglesias, 2012). Likewise, Graça et al. (2017) argue that the wine industry has been incorporating sustainability policies in its business model in order to ensure the resource efficiency and sustainable growth. For Pulido-Fernandez et al. (2019), the debate on sustainability and tourism has grown and gained importance in recent decades, due to tourism's impact on the global economy (Niñerola et al., 2019).

Wine tourism is considered to be one of the most relevant segments of the wine industry (Vagnani & Volpe, 2009), being that wine-producing regions can get a competitive advantage by linking wine production with tourist services (Marzo-Navarro and Pedraja-Iglesias, 2009). Moreover, the wine tourism sector contributes to the social and economic development of the wine-producing regions, and it can also contribute to the implementation of more environmentally friendly

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practices in the sector (González, 2017).

In a country like Portugal, the wine tourism sector is an important element with respect to the economic dimension, at the social level and, also, to the promotion of the territorial development (Maduro et al., 2015). This sector is strongly growing in some Portuguese regions as Douro and Alentejo (Silva et al., 2018).

Companies' use of sustainable practices is becoming increasingly encouraged (Annunziata et al., 2018). Complementarily, various studies have focused on identifying the antecedents (Font et al., 2016; Neumayer & Perkins, 2005; Walker et al., 2008), difficulties/barriers (Bhanot et al., 2017; Grimstad & Burgess, 2014; Pinzone et al., 2015; Álvarez-García & RíoRama, 2016) and the results of firms that implement sustainable practices (Amaeshi et al., 2008; Gavronski et al., 2008; Poksinska et al., 2003; Álvarez-García & RíoRama, 2016). However, as yet no studies have been found to test the relations between sustainable practices and their respective predictors, barriers and benefits. Therefore, this research aims to test the relation between antecedents, barriers and consequences of adopting sustainable practices in Portuguese wine tourism firms.

After this introduction, the article is structured as follows. A review of the literature on the subject studied is presented, followed by a description of the methodology adopted. The results are presented in the next section, and finally the conclusions, limitations and future lines of research.

2. Literature review

2.1. Wine tourism

Wine tourism can be defined as the union between tourism and wine production (Carmichael, 2005), i.e. it consists of a set of activities associated with visits and experiences related to wine production (Gu & Huang, 2019). This can be, for example, participation in harvesting and/or tasting wines provided to tourists so that they can enjoy and get to know the wines of a given wine-producing region (Hall et al., 2000).

The European Wine Tourism Charter (2006) states that wine tourism is understood as carrying out tourist, leisure and free time activities devoted to the cultural and oenological discovery of the vine, wine and its territory, with wine tourism being a multi-dimensional system resulting from the interaction of the Territory, Tourism and Wine-Culture sub-systems.

In turn, the Georgia Declaration on Wine Tourism highlights that wine tourism: i) contributes to promoting sustainable tourism, promoting the destination's heritage; ii) generates economic and social benefits for the main parties involved in each destination; iii) plays an important role in terms of preserving cultural and natural resources; iv) provides exclusive, innovative tourist products, maximizing the synergies in tourism development; and v) provides an opportunity for underdeveloped tourist destinations, most of them in rural areas (UNWTO, 2016).

According to Simões (2008, p.270), "wine tourism can be defined by the demand side and by the supply side. In the first case, wine tourism is seen as a set of activities associated with visiting wine-producing companies and other establishments connected to the sector, participation in events linked to wine production, with the main objective of getting to know the natural and architectural heritage related to vineyards and wine production, and also tasting wines from the regions visited, providing tourists with direct contact with producers. On the supply side, wine tourism is organised and structured above all around wine routes. Wine routes are therefore a tourist product formed of marked routes, organised as a network, involving companies and structured as a tourist attraction".

Therefore, wine tourism is shaped by interactions between visitors and the wine production team, management systems and other attributes of wine cellars (Clarlsen & Boksberger, 2015), and may include wine and grape festivals, visits to vineyards and wine tasting (Hall et al., 2000).

In Portugal, firms in various wine-producing regions are investing in the wine tourism sector (Loureiro & Cunha, 2017). Wine tourism has gained importance in the country (Filopoulos & Frittella, 2019), being a clearly growing sector with great potential (Silva et al., 2018). It is an important element whose dynamic capacity does not come down to merely the economic dimension but also has social repercussions regarding the stimulation of sustainable, local development (Maduro et al., 2015).

According to Brás et al. (2010, p.1623), "tourism and wine are two products that can be differentiated based on regional identity". Indeed, wine tourism plays an important role in the national economy (Loureiro & Cunha, 2017). Various Portuguese wine-producing regions, such as Douro and Alentejo are known internationally (Loureiro & Cunha, 2017). It is noted that the Upper Douro vineyards and the vine-growing landscape of the island of Pico have been classified as World Heritage sites by UNESCO (Silva et al., 2018). Finally, a considerable part of Portugal is occupied by the following certified wine-producing regions: i) Vinho Verde, ii) Trás-os-Montes and iii) Douro (Marques & Marques, 2017).

2.2. Sustainable practices

Recognising that sustainability gives firms the function of including and pursuing economic, environmental and social objectives (Pero et al., 2017), and that this implies resilience and/or capacity to adapt to changes that may occur (Lin, 2011), it is essential for companies to be concerned about implementing sustainable practices (Annunziata et al., 2018).

Sustainability is a challenge imposed on all sectors of society, considering that environmental damage, the harmful, social consequences and negative impacts on the economy are felt generally (Schaltegger & Burritt, 2010; Flores, 2018).

Considering that the three dimensions of sustainability (environmental, social and economic) are interdependent and should be taken together, the concept of sustainability should be interpreted from the environmental, social and economic point of view (Corbo et al., 2014). Each of the dimensions is presented below.

Environmental sustainability can be defined as the conservation of natural elements and preservation of natural resources (Moldan et al., 2012). According to Shnayder et al. (2016), preserving the planet corresponds to the environmental dimension, i.e. it includes everything related to firms' actions that affect the environment. This covers topics such as: pollution, waste, recycling, environmental protection and biodiversity, but also soil and wastewater management and the use of plant protection products (Ohmart, 2008). Bollani et al. (2019) add other impacts that can emerge in the environment, namely rising temperatures and the acidification of the oceans. Therefore, environmental sustainability ensures development compatible with preservation of diversity and biological resources (Timur & Getz, 2009), and natural resources should be kept at sustainable rates, since they are generally non-renewable (Goodland, 1995).

The social dimension pays special attention to people and the social environment (Shnayder et al., 2016), and to the well-being of individuals and the community (Moldan et al., 2012). This dimension is related to companies' actions that affect people (Timur & Getz, 2009), namely, matters connected to health, human rights, safety and justice, diversity (Shnayder et al., 2016) and social equality for all individuals, as well as access to a fair income and job opportunities (Lehtonen, 2004). According to Elkington (1994), concerning social responsibility, the company should offer equitable opportunities, encourage diversity, promote links inside and outside the community, and ensure its collaborators' quality of life, together with open and responsible governance structures. Pullman et al. (2009) indicate that social sustainability changes the focus to an organisation's internal (human resources) and external publics. Briefly, social sustainability covers community

development, justice and social responsibility (Dempsey et al., 2009).

As for economic sustainability, this is defined as maintaining the capital produced, with the intention at the strategic level being to maximize economic growth (Bartelmus, 2003). Ionescu (2018) claims that economic sustainability means the economic system's capacity not to lose its identity, not block and not collapse. In the perspective of Shnayder et al. (2016), this dimension concerns profit and includes everything related to the company's financial situation, i.e. topics related to company growth and the areas of marketing, competitiveness and others. Economic sustainability seeks resource efficiency in order to achieve long-term profitability (Niñerola et al., 2019), ensuring they are managed efficiently to be available for future generations (Timur & Getz, 2009). In addition, economic sustainability includes the mitigation of economic disparities (Volkow et al., 2019). Economic sustainability is recognised as an important characteristic of all economic systems (Malyarets et al., 2019). Therefore, companies are concerned about reconciling sustainability with profitability (Li & Toppinen, 2011), and it is considered important for them to balance sustainability setting out from these three dimensions (environmental, economic and financial).

2.3. Sustainable practices: antecedents, barriers and benefits

2.3.1. Antecedents

Firms come under increasing pressure from stakeholders to consider matters related to the sustainability of their operational strategies (Tuni et al., 2019), i.e. they are under pressure to find practices that will avoid harming bio-diversity, growing social inequality and the unsustainable use of scarce resources (Rezapouraghdam et al., 2019).

Walker et al. (2008) categorize the motivations for implementing sustainable practices in two types: internal and external. In the same connection, for Stone (2006) there are two different situations regarding the implementation of sustainable practices: the starting point can be an internal or external stimulus. So, if the members of a company's administration/board really intend to achieve sustainability, stakeholder involvement is a pre-requisite for the development of an effective sustainability programme (Schaltegger & Burritt, 2010).

Nevertheless, Font et al. (2016) point out that the motivations for implementing sustainable practices differ greatly according to company owners' values. Similarly, Collins et al. (2007) state that personal values, beliefs, involvement and commitment by the elements of company management, as well as collaborators and other stakeholders, can be seen as motivations to implement sustainable practices.

Increased efforts to implement sustainable practices is the result of the growing influence of stakeholders' awareness, leading to responsible behaviour by companies (Amran et al., 2015) and owners and managers' increased awareness (Atkin et al., 2012).

Neumayer and Perkins (2005) group motivations to implement sustainable practices in internal ones (related to efficiency, i.e. better performance, productivity and profitability) and external or institutional ones (related to stakeholder pressure). In turn, Kuppig et al. (2016) group the motivations in three levels: i) financial (contemplating energy efficiency, acceptable return, reduced operational costs and increased productivity); ii) social (contemplating corporate commitment, improved public image); and iii) health (reduced risk, safety benefits and compliance with regulations).

According to Boiral et al. (2017), pressure to preserve bio-diversity, namely in industries whose core business is the exploitation of natural resources, reinforces the need to implement specific measures in this area and also indicates these measures are related to ethical and environmental aspects, as preservation of bio-diversity is increasingly considered a critical component of sustainability (SCBD, 2010).

In turn, Bansal and Roth (2000) indicate that ethically motivated companies respond to environmental concerns because they believe this is 'the right thing to do'. This pressure leads to increased awareness about sustainability and corporate social responsibility in commercial practices (Kotler & Lee, 2005). So, the path to sustainability can involve the company, from the corporate level to market relations, creating a response to institutional and stakeholder pressure regarding environmental, social and economic practices (Miglietta & Morrone, 2018). From the above, the following hypotheses are established:

H1. The greater the effect of internal pressure, the greater the adoption of sustainable practices.

H2. The greater the effect of external pressure, the greater the adoption of sustainable practices.

2.3.2. Barriers

According to the definition presented by Laurett and Paço (2018), barriers can be considered situations or problems that hinder the execution of an activity or action. Here, various barriers were identified in the literature, namely: a lack of human and material resources (Bhanot et al., 2017; Lozano, 2013; Salomone, 2008; Álvarez-García & RíoRama, 2016); lack of collaborator involvement (Bhanot et al., 2017; Álvarez-García & RíoRama, 2016); lack of top management involvement/commitment (Bhanot et al., 2017; Lozano, 2013; Álvarez-García & RíoRama, 2016); the firm's lack of interest/concern as regards matters related to environmental management (Álvarez-García & RíoRama, 2016); lack of knowledge (Grimstad & Burgess, 2014); lack of training and lack of understanding of how to incorporate sustainable practices (Bhanot et al., 2017; Walker et al., 2008), lack of finance (Bhanot et al., 2017; Salomone, 2008) and resistance to change (Duarte, 2015).

In addition, for Salomone (2008), the lack of information and high costs are considered significant barriers, particularly concerning the implementation of practices to meet certification standards in the area of sustainability. In the perspective of Bhanot et al. (2017) and Lozano (2013), the lack of strategy is one of the main barriers firms face when drawing up objectives with a view to sustainability.

For Pinzone et al. (2015), especially concerning environmental matters, the firm's lack of commitment is the main obstacle to implementation of pro-active environmental strategies. In turn, Bhanot et al. (2017) add that lack of awareness of the concept of sustainability, the lack of awareness programmes, the high associated costs and difficulties in operationalization are also considered critical barriers in the field of sustainability.

Following on from the perspectives described above, Neto et al. (2017) categorize barriers in six groups: economic and financial (related to difficulties in investing in the implementation of sustainable practices: lack of investment, associated costs, lack of financial incentives, difficulty in accessing finance); technical – (related to a lack of technical knowledge and infrastructure problems); cultural (related to the resistance to change, little knowledge about the environment, lack of investment in training); legislative (related to the difficulty in complying with regulations, little knowledge about legislation); governmental (related to the lack of policies to encourage and support); and organisational (related to a lack of interest, lack of information on environmental matters and difficulties in environmental management).

Considering that the path towards sustainability is 'cut' and/or blocked by various barriers that can detract from the motivation for action (Milbrath, 1995), and that there should be efforts to mitigate them (Bhanot et al., 2017), the following hypotheses are established:

H3. Barriers moderate the relation between internal pressure and sustainable practices, making this relation weaker.

H4. Barriers moderate the relation between sustainable practices and the perceived benefits, making this relation weaker.

2.3.3. Benefits

According to Amaeshi et al. (2008), a given company gives attention to sustainability practices, with a view to: gaining a competitive advantage, improving its operational efficiency, reducing costs, obtaining gains in reputation and social legitimacy, and responding to economic, social and environmental needs. In turn, Poksinska et al.

(2003) identify the following benefits: improved internal performance, external commercialisation and benefits arising from relations with stakeholders.

In the study by Gavronski et al. (2008) four types of benefits are categorised: i) productivity benefits; ii) financial benefits; iii) market benefits and iv) societal benefits. Concerning productivity benefits, these are benefits perceived from the operational point of view, for example, improved performance during the whole production process (Angell & Klassen, 1999). Financial benefits arise from the capacity to reduce wastage, which will be reflected in reduced costs (Melnyk et al., 2003), market benefits are those perceived in relations with customers, competitors and suppliers, and societal benefits concern those perceived in relations with external stakeholders – government and society (Gavronski et al., 2008).

Similarly, Álvarez-García and RíoRama (2016) list many benefits, both tangible and intangible, or economic and organisational, that can arise from implementation of sustainable practices, particularly concerning the implementation of measures towards the environmental management system. The authors present some benefits such as: improved relations with consumers and increased consumer trust and satisfaction, reduced costs in the medium and long term, better productivity, improved relations with public administration, improved internal firm management and improved relations with suppliers (Álvarez-García & RíoRama, 2016).

According to Prajogo (2011), internal improvements the company achieves through implementing sustainable practices help towards better performance, productivity and profitability, which can bring a competitive advantage. Moreover, sustainability can be considered a stimulating market strategy and a key to the innovation process in companies (Fiore et al., 2016). Knight et al. (2019) also consider that one way for the firm to gain competitive advantages is through implementing strategies of environmental sustainability.

Considering that sustainability is recognised as one of the main stimulants of innovation and value creation (Nidumolu et al., 2009), and that ideally these practices allow environmental and social benefits, and increase economic return (Pomarici et al., 2015), the final hypothesis is established:

H5. The more sustainable practices are adopted, the greater the perceived benefit.

2.4. Proposed model

Based on the five hypotheses presented above, a conceptual model is proposed (Fig. 1), in order to test the relations established. In this case, it is suggested there are two predictors that motivate the adoption of sustainable practices in wine tourism. In this model, the barriers have a moderating role, suggesting that they reduce the strength between predictors and sustainable practices. Finally, it is estimated that the adoption of sustainable practices tends to result in benefits for wine tourism companies.

3. Materials and method

To fulfil the objective of this study, quantitative research was carried out using primary data. To form the sample, company managers in the wine tourism sector were selected, i.e. wine producers who also provide tourist services. Non-probabilistic sampling was used, by convenience and accessibility (Marôco, 2014).

Initially, to form the sample, the Vine and Wine Institute (IVV) was contacted face-to-face, in order to obtain information about firms that engage in wine tourism. The IVV provided a list of approximately 2400 wine-producing companies. After assessing this list, contact was made with 315 companies meeting all the requirements of wine tourism, wine production and rural tourism.

To collect information, a closed questionnaire was elaborated, made up of three parts. The first part presented an initial text explaining the study, informing that it was anonymous and confidential, and that the data would be analysed as a whole rather than individually. The second part presented the closed questions forming the proposed model. Antecedents were measured through two constructs (internal pressure and external pressure). The internal pressure construct was measured through eight indicators based on the scale by Collins et al. (2007). The external pressure construct was measured through six indicators based on the scale by Collins et al. (2007) and Font et al. (2016).

The sustainable practices construct was measured through three dimensions (environmental, social and economic practices) based on the scale by Font et al. (2016), formed respectively by six, eight and five indicators. Barriers were measured by eight indicators based on the studies by Álvarez-García and RíoRama (2016), Salomone (2008) and

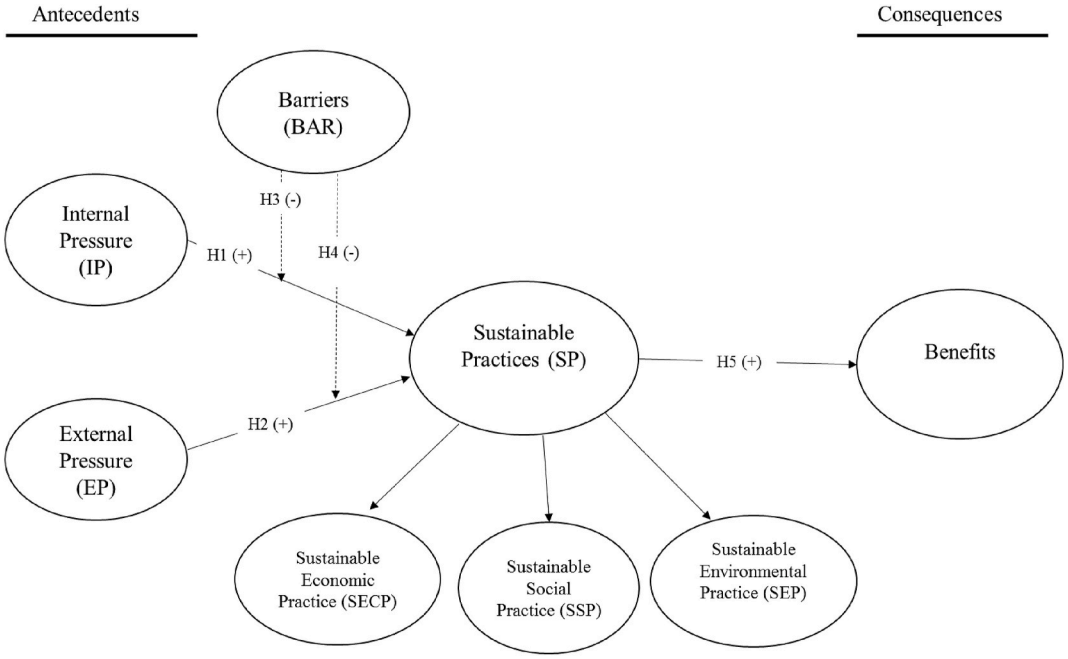

Fig. 1. Conceptual model.

Walker et al. (2008). Finally, the benefits constructs were measured by eight indicators based on Álvarez-García and RíoRama (2016). To do so, a 7-point Likert scale was used, varying from one 'completely disagree' to seven 'completely agree'. The third part of the questionnaire asked for information about the company (size, turnover and the region it was located in) and respondents' socio-demographic data (gender, age, level of education, and position occupied in the firm).

This questionnaire was posted on the Google Forms platform. Next, a pre-test was carried out with three wine tourism firms, in order to check for potential difficulties in understanding the questions. The participants in the pre-test suggested some alterations in the wording. These were accepted and the questionnaire was adjusted. It is noted that to test the suitability of the sample size a priori, G*Power 3.1.9.2 software was used (Ringle et al., 2014), since structural equation modelling (SEM) would be used. In G*Power four criteria were taken into consideration: effect size (f^2) of 0.15; significance of 5%; test power of 0.80; and the number of predictors forming the proposed model (Internal Pressure (IP); External Pressure (EP)) (Hair et al., 2017; Ringle et al., 2014). Using these criteria, the minimum sample necessary a priori was 68 responses.

The questionnaire was sent by e-mail to the 315 companies meeting the sample profile. Data were collected between April and May 2019, and a total of 103 questionnaires were answered, representing a response rate of 29%. The size of the sample was greater than that defined by the G*Power criteria.

As the data analysis technique, and to fulfil the aim of the research which is to test the relations of the model proposed, it was decided to use structural equation modelling (SEM), focusing on testing the relations between the various constructs. SEM can be considered as an extension of the regression analysis and can be used to test complex relations between different constructs, which can be of first order, second order, exogenous, endogenous, and having a mediating or moderating effect, which can be used in the same structural model by using the SmartPLS software (Hair et al., 2017). Previous and recent studies, like the ones of Vukovic et al. (2019) and Singh et al. (2020), also used this SEM technique in the wine tourism sector.

Based in the theoretical framework (e.g. Becker et al., 2018; Crocetta et al., 2020; Hair et al., 2017), several aspects were taken into account regarding the definition of endogenous and exogenous constructs, moderating effects, reflective and formative measures, and ways of assessing the constructs of the model. Thus, the internal pressure and external pressure constructs were considered of first order, being exogenous and reflective. The benefits construct was considered of first order, endogenous and as having reflective indicators. The barriers construct was used as a moderator (which has the effect of reducing the strength between two proposed relations), with reflective indicators. The sustainable practices construct was considered as a second order construct that is manifested in three dimensions (environmental, social and economic practices).

Then, following the guidelines provided by Hair et al. (2017), SEM analysis was divided into two stages. In the first stage, the measurement model was analysed, that is, the confirmatory factorial analysis was performed, being evaluated the convergent validity and internal consistency reliability, through the following items: factorial loadings (FL) of the manifest variables, Average Variance Extracted (AVE), composite reliability (CR), Cronbach Alpha (CA) and Rho_A (Hair et al., 2017). For this, the PSL algorithm was used. In the second stage, the structural model was tested, and the following items were evaluated: Pearson coefficient (R^2) and the significance of the proposed relations from the value (P-Value). The bootstrapping resampling process with 5000 samples and cases equal to 103 was used. In order to test the moderation effect, the calculated method in the repeated indicators approach and advanced settings standardized was used (Becker et al., 2018). The data was processed on PLS-SEM, using SmartPLS 3.0 software (Ringle et al., 2014).

4. Analysis of the results

4.1. Characterisation of the sample

In this study, the sample is formed of 103 companies belonging to the wine tourism sector. A hundred and three valid responses were received, with no lost or cancelled responses. Regarding the distribution according to location, slightly more companies in the wine-producing region of Alentejo (26.2%) responded; most companies have a turnover of less than 500,000€ (39.8%); regarding size, 44.7% are micro-firms; concerning wine tourism services, 7.8% provide all the services mentioned in the questionnaire (i.e. wine tasting, harvesting programme, gastronomic experiences, accommodation, visits to the vineyards and cellars. In addition, 58.3% of companies are certified. Regarding the characterisation of respondents, more men (51.5%) than women answered the questionnaire; the largest number are in the 31–40 age group (34.9%); and in terms of education, 68.9% have a university degree.

4.2. Descriptive statistics

Table 1 shows descriptive analysis of the variables and constructs used in the structural model. The means of the variables ranged from 2.951 to 6.485. The standard deviation values were between 0.703 and 4.881. Finally, the kurtosis and skeweness indicators showed values in the range of ±2 which points to the normality of the data (Tabachnick & Fidell, 2007).

4.3. Validation of the measurement model

First, the measurement model was validated. To this end, convergent validity, internal consistency reliability and discriminant validity were assessed. In determining convergent validity, eight variables were excluded (IP8; SECP4; SEP4; SEP5; SSP4; SSP5; SSP6; PSS7) due to presenting factor loadings below 0.50 and/or affecting the Average Variance Extracted (AVE) (Hair et al., 2017; Ringle et al., 2014). After this adjustment, all the factor loadings of the variables and the AVE of the constructs presented values above 0.50.

Next, internal consistency reliability was assessed, through the values of composite reliability (CR), CA (Cronbach Alpha) and Rho_A, with all the constructs and dimensions presenting values above 0.65 (Disjkstra & Henseler, 2015; Hair et al., 2011, 2019). Therefore, convergent validity and internal consistency reliability were tested, meaning that the constructs/dimensions represent themselves and this measurement is reliable (Hair et al., 2017; Ringle et al., 2014), which is shown in Table 1.

Next, discriminant validity was assessed through three analyses: cross loadings; Fornell & Larcker criterion (1981); and the Heterotrait – Monotrait ratio (HTMT). Discriminant validity aims to determine when a construct/dimension is different from the other constructs/dimensions used in the proposed model (Hair et al., 2017; Ringle et al., 2014). The constructs/dimensions present the highest cross loading values of the manifest variables in their respective constructs/dimensions, meaning that each.

The correlations between the constructs/dimensions were also analysed, based on the Fornell & Larcker criterion (1981) (see Table 2). The square root of the AVE was found to be greater than the other correlations of the constructs/dimensions (Fornell & Larcker, 1981). Finally, the HTMT values were determined, with all the constructs/dimensions presenting values no greater than 0.85, indicating that the constructs/dimensions are conceptually different (Hair et al., 2019; Henseler et al., 2015), as can be seen in Table 2. So discriminant validity was confirmed through these three evaluations.

Summarising, the results of the adjustments allowed us to validate the measurement model. This indicates that the constructs/dimensions are suitable, and so the structural relations of the proposed model can be analysed. These results indicate that the sustainable practices construct

Table 1
Descriptive statistics and Convergent Validity and Internal Consistency Reliability.

Construct	COD	Variable	N	Mean	SD	Convergent validity		Internal Consistency Reliability		
						FL	AVE	CR	CA	Rho_A
Sustainable Practices (SP)							0,38	0,88	0,85	0,87
Sustainable Envorimental Practices (SEP)	**SEP1**	The firm uses ecological products (production department, stores, material, consumables, etc.)	103	5.181	1.544	0.77	0.64	0.87	0.81	0.81
	SEP2	The firm encourages customers to be ecological.	103	5.515	2.037	0.81				
	SEP3	The firm implements various activities to save energy and water.	103	5.767	1.435	0.80				
	SEP4	The firm carries out selective separation for recycling.	103	6.243	1.362	<0.50[a]				
	SEP5	The firm uses renewable sources of energy (solar, wind, biomass).	103	4.223	4.881	<0.50[a]				
	SEP6	The firm chooses suppliers that apply ecological policies.	103	4.738	2.391	0.78				
Sustainable Social Practice (SSP)	**SSP1**	The firm supports development of the local community and conservation of heritage.	103	5.913	1.571	0.72	0.50	0.80	0.66	0.66
	SSP2	The firm promotes gender equality in its employment practices.	103	6.369	0.961	0.79				
	SSP3	The firm actively encourages respect for the region's culture and language.	103	6.505	0.723	0.68				
	SSP4	The firm's premises are adapted to people with reduced mobility.	103	5.107	3.292	<0.50[a]				
	SSP5	The firm collaborates in social projects and social solidarity.	103	5.553	2.269	<0.50[a]				
	SSP6	The firm encourages customers to contribute to social initiatives of social solidarity.	103	4.767	3.024	<0.50[a]				
	SSP7	The firm supports the work-life balance.	103	5.738	1.470	<0.50[a]				
	SSP8	The firm chooses suppliers who demonstrate social responsibility.	103	4.932	2.280	0.60				
Sustainable Economic Practice (SECP)	**SECP1**	The firm encourages customers to consume local products.	103	6.282	1.126	0.79	0.56	0.84	0.74	0.76
	SECP2	The firm gives local preference whenever possible.	103	6.485	0.703	0.77				
	SECP3	The firm encourages customers to contribute financially to social benevolence activities.	103	4.388	3.063	0.58				
	SECP4	Collaborators' salaries are above average for the sector.	103	4.476	2.409	<0.50[a]				
	SECP5	The firm chooses suppliers who contribute to local development.	103	5.408	1.793	0.81				
Barriers (BAR)	**B1**	Lack of human and material resources.	103	4.311	3.236	0.59	0.60	0.92	0.91	0.93
	B2	Lack of collaborator involvement and difficulty in motivating them.	103	3.680	3.063	0.72				
	B3	Lack of involvement/commitment by top management.	103	3.379	3.453	0.74				
	B4	The firm has little interest in/concern about questions related to environmental management.	103	2.951	3.282	0.72				
	B5	Lack of financial support.	103	4.155	3.858	0.84				
	B6	Lack of information.	103	3.320	3.436	0.85				
	B7	Lack of understanding of how to incorporate sustainable practices.	103	3.544	3.525	0.84				
	B8	Lack of training.	103	3.854	3.596	0.85				
Internal pressures (IP)	**IP1**	The parent-firm encourages the firm to be sustainable.	103	5.136	2.923	0.83	0.60	0.88	0.85	0.87
	IP2	Shareholders encourage the firm to be sustainable.	103	5.223	3.038	0.83				
	IP3	Collaborators encourage the firm to be sustainable.	103	5.184	2.289	0.69				
	IP4	Personal values, beliefs, management commitment.	103	5.097	1.716	0.73				
	IP5	The firm implements sustainable practices to reduce costs.	103	5.359	1.879	0.60				
	IP6	The firm implements sustainable practices to improve value for shareholders.	103	4.913	2.806	0.53				
	IP7	The consultancy council encourages the firm to be sustainable.	103	5.068	2.731	0.77				
	IP8	The company implements sustainable practices because of its reputation and brand.	103	5.029	2.715	<0.50[a]				
External Pressure (EP)	**EP1**	Customers encourage the firm to be sustainable.	103	4.835	2.649	0.81	0.66	0.91	0.88	0.91
	EP2	Competitors encourage the firm to be sustainable.	103	3.903	3.226	0.83				
	EP3	Central government encourages the firm to be sustainable.	103	3.738	3.372	0.82				
	EP4	Local government encourages the firm to be sustainable.	103	3.893	3.312	0.85				
	EP5	Other stakeholders encourage the firm to be sustainable.	103	4.078	2.935	0.82				
	EP6	The firm implements sustainable practices to respond to the requirements of a distributor/intermediary.	103	4.417	2.951	0.55				
Benefíts (BE)	**BE1**	Improved customer relations.	103	5.466	1.565	0.81	0.66	0.94	0.93	0.94
	BE2	Increased customer trust and satisfaction.	103	5.544	1.525	0.79				
	BE3	Reduced costs in the medium and long term.	103	5.330	1.537	0.82				
	BE4	Improved levels of productivity.	103	5.087	2.022	0.87				
	BE5	Improved firm profitability.	103	5.204	1.791	0.82				
	BE6	Improved relations with public administration.	103	4.699	2.742	0.76				
	BE7	Improved relations with collaborators.	103	5.146	2.145	0.79				
	BE8	Improved relations with suppliers.	103	5.049	2.302	0.80				

[a] The variable was excluded because the factor loading was <0.50.

Table 2
Discriminant validity: Fornell and Larcker criterion (1981) and discriminant validity: Heterotrait – Monotrait ratio (HTMT).

Construct/dimension	BAR	BE	SEP	SECP	SSP	EP	IP
Barriers (BAR)	0.77[a]						
Benefits (BE)	−0.29[a] | 0.29[b]	0.81[a]					
Sustainable Environmental Practice (SEP)	−0.35[a] | 0.39[b]	0.53[a] | 0.58[b]	0.79[a]				
Sustainable Economic Practice (SECP)	−0.15[a] | 0.23[b]	0.47[a] | 0.54[b]	0.48[a] | 0.61[b]	0.75[a]			
Sustainable Social Practice (SSP)	−0.25[a] | 0.31[b]	0.37[a] | 0.44[b]	0.58[a] | 0.75[b]	0.62[a] | 0.85[b]	0.70[a]		
External Pressure (EP)	−0.22[a] | 0.24[b]	0.57[a] | 0.63[b]	0.54[a] | 0.62[b]	0.41[a] | 0.50[b]	0.39[a]| 0.46[b]	0.78[a]	
Internal Pressure (IP)	−0.36[a] | 0.38[b]	0.62[a] | 0.64[b]	0.53[a] | 0.61[b]	0.47[a] | 0.55[b]	0.49[a] | 0.59[b]	0.51[a] | 0.54[b]	0.72[a]

[a] Values of discriminant validity: Fornell and Larcker criterion (1981).
[b] HTMT values.

can be used as a second order construct (type I model).

4.4. Structural model and test of hypotheses

Concerning the structural model, first the values of the determination or Pearson coefficient (R^2) were analysed. The R^2 measures the predictive power of the structural model, i.e. exposing the amount of variance of the endogenous constructs that are explained by all the exogenous constructs linked to it (Hair et al., 2017). In this case, as can be seen in Fig. 2, the model explains 45.5% of the variance of the SP construct; and 32.1% of the variance of the benefits construct. Both R^2 values were moderate (Chin, 1998).

Fig. 2 also shows sustainable practices (SP) as a second order construct that is formed of 3 dimensions (Sustainable Environmental Practice (SEP = β = 0.839); Sustainable Economic Practice (SECP = β = 0.859); Sustainable Social Practice (SSP = β = 0.822), and is significant at 1% of significance, which indicates that sustainable practices can be represented by these three dimensions, since all the dimensions are interlinked with the SP construct and measure this concept. Regarding the sustainable practices (SP), the three dimensions have high and very close coefficients (0.839; 0.859; 0.822), thus their importance is quite similar.

Table 3 presents the summary of the results of testing the five hypotheses proposed.

Hypotheses H1 and H2 focused on testing the relation between antecedents (Internal Pressures (IP); External Pressures (EP)) and sustainable practices in wine tourism. In Hypothesis H1, it was determined whether a greater effect of internal pressure meant greater adoption of sustainable practices. This hypothesis was supported (βIP- > SP = 0.428; p = 0.000). Similarly, Hypothesis H2 was supported (βEP- > SP = 0.311; p = 0.000), the focus being on testing whether a greater effect of external pressure meant greater adoption of sustainable practices.

Hypotheses H3 and H4 intended to determine the moderating effect of barriers in the relation between antecedents and the adoption of sustainable practices. Hypothesis H3 (βMOD IP-BAR- > SP = 0.069; p = 0.536) analysed whether the barriers to sustainability moderate the

Table 3
Analysis of the hypotheses.

Hypothesis	Structural Relations	Path Coefficient Original Sample (O)	T Statistic	P value	Result of the Hypothesis
H1	IP - > SP	0.428	4.899	0.000	Supported
H2	EP - > SP	0.311	4.056	0.000	Supported
H3	MOD_IP-BAR - > SP	0.069	0.618	0.536	Not supported
H4	MOD_EP-BAR - > SP	−0.080	0.748	0.455	Not supported
H5	SP- > BE	0.566	7.889	0.000	Supported

Notes: *t*-test (≥2.57 = *p < 0.01 significance at 1%).

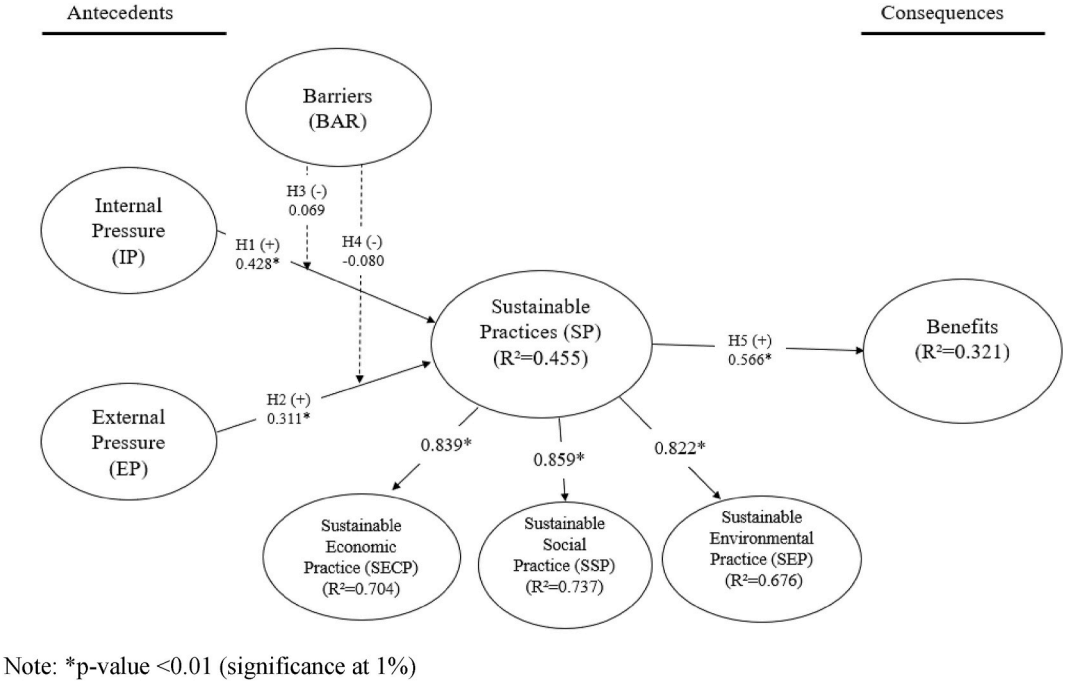

Fig. 2. Results of the structural model Note: *p-value <0.01 (significance at 1%).

relation between the antecedent of internal pressure and the construct of sustainable practices in wine tourism, making that relation weaker. Hypothesis H4 (βMOD IP-BAR - > SP = −0.080; p = 0.748) checked whether the barriers to sustainability moderate the relation between the antecedent of internal pressure and the construct of sustainable practices in wine tourism, making this relation weaker. Neither hypothesis was supported. Hypothesis H5 checked whether, according to the perceptions of Portuguese wine producers, the more sustainable practices are adopted in wine tourism, the greater the perceived benefit. This hypothesis was supported (β SP- > BE = 0.566; = 0.000).

Summarising, of the five hypotheses proposed, three were supported (H1, H2 and H5) and two were not (H3 and H4).

5. Discussion

Companies have come under increasing pressure from a great variety of stakeholders to adopt more sustainable practices in their production processes (Tuni et al., 2019). This pressure can be internal or external (Collins et al., 2007; Font et al., 2016). Therefore, concerning the result supporting Hypothesis H1, indicating that with greater internal pressure from firm managers, shareholders, collaborators and the consultative board, firms in the wine tourism branch are more likely to adopt sustainable practices. These results agree with previous studies by Boiral et al. (2017), Collins et al. (2007) and Rezapouraghdam et al. (2019). Walker et al. (2008) identified the importance of board members and the various stakeholders' engagement for sustainable actions to be put into practice.

Just as internal pressure leads to sustainable practices, also external pressure from customers, competitors, government, distributors and suppliers tends to pressurize Portuguese wine producers to adopt more sustainable practices in wine tourism, as supported by Hypothesis H2. These results are consistent with previous studies (Collins et al., 2007; Font et al., 2016). This reinforces the importance of the individuals and companies involved in the wine tourism process engaging in sustainability.

So, this study confirms that internal and external pressure leads to increased awareness about adoption of sustainable practices, in order to address social, environmental and economic requirements. This result was already found and reinforced by Kotler and Lee (2005) and Miglietta and Morrone (2018).

For various researchers, numerous barriers can hinder companies' adoption of sustainable practices (Álvarez-García & RíoRama, 2016; Laurett & Paço, 2018; Lozano, 2013; Pinzone et al., 2015; Salomone, 2008; Walker et al., 2008). However, analysing the moderating role of barriers in the relation between IP/EP and SSP, that moderation was not supported in this study (see Hypotheses H3 and H4). This indicates that barriers such as the lack of human and material resources, lack of collaborator and top management involvement and the company's lack of interest in environmental matters (Salomone, 2008; Walker et al., 2008; Álvarez-García & RíoRama, 2016) do not change the relation between antecedents and the adoption of sustainable practices by wine producers.

Therefore, internal and external pressure influence business-people to adopt sustainable practices, without barriers affecting that relation. This indicates that internal and external stakeholders have considerable influence in wine tourism companies' decision-making regarding the implementation of sustainable practices.

Concerning Hypothesis H5, which was supported here, this indicates that the implementation of sustainable actions (environmental, economic and social) in wine tourism tends to result in various benefits. Among them, improved customer relations, trust and satisfaction, reduced costs, higher productivity, profitability, relations with public administration and improved relations with collaborators and suppliers (Álvarez-García & RíoRama, 2016). These results agree with several previous studies emphasizing that companies' implementation of sustainable actions can result in various benefits (Amaeshi et al., 2008; Knight et al., 2019; Poksinska et al., 2003; Álvarez-García & RíoRama, 2016). Therefore, wine producers who adopt sustainable practices (environmental, economic and social) in wine tourism tend to perceive the benefits arising from sustainability.

6. Conclusion

Analysis of the data leads to the conclusion that internal and external pressure can influence wine producers to adopt sustainable practices in wine tourism. It is also found that barriers do not moderate the relation between antecedents (IP and EP) and sustainable practices. So, if wine producers are motivated and encouraged to adopt sustainable practices, even if obstacles arise on the way, these tend not to interfere in that relation. Finally, the adoption of sustainable practices can create benefits, and these are perceived by business-people.

As an implication for theory, the proposal of a theoretical model is highlighted. This aims to test the relations between the antecedents, barriers and consequences of adopting sustainable practices in wine tourism and insert barriers as a moderator in that relation. These relations had not been proposed in the literature, which makes this model innovative for the area of sustainability and specifically for the wine tourism sector.

The results of this research also present practical contributions, reinforcing the importance of internal and external stakeholders' influence as motivating the adoption of more sustainable practices in wine tourism. This increases the importance of the firm itself, and the external parties involved in wine tourism, considering the adoption of sustainable actions as essential for the firm and the sector. These results also reiterate that business-people in the sector perceive that the adoption of sustainable practices can create various benefits for the sector. Therefore, the Vine and Wine Institute (IVV) can encourage companies to adopt increasingly sustainable practices in Portuguese wine tourism.

Additionally, these results can help the companies operating in the enotourism sector to have a better understand of the sustainability problematic, taking into account the need of a coordinated support network for wine tourism (Silva et al., 2018). This study may contribute to the development of policies at the management level, and to the definition of marketing strategies, since wine tourism is a priority for the development of national tourism, representing one of the strategic assets for the valorisation and cohesion of tourist activity. Thus, a recommendation to the enotourism companies would be developing partnerships/cooperation networks between the business community, universities and other entities, in order to promote awareness raising actions on sustainability. Also, the existence of support instruments (e.g. manuals, digital tools) would be a way to promote the implementation of sustainable practices in the wine tourism sector.

As limitations, firstly it is emphasized that the study used convenience sampling, which means the results cannot be generalized. As the study was focused on the Portuguese wine tourism sector, these results cannot be generalized to other sectors or countries. The conceptual model proposed can be altered in future research with new variables and constructs being added to the model.

Future research can replicate this study and model with other firms, countries and sectors. Longitudinal data can be used, which could result in studies being able to determine whether there is a cause/effect relation. Another suggestion is to study whether managers' demographic characteristics, such as age, level of education, income and gender can influence the adoption of sustainable practices.

Author statement

Ana Nave: Conceptualization, Methodology, Writing – original draft preparation, Rozelia Laurett: Conceptualization, Formal analysis, Writing – original draft preparation, Arminda do Paço: Conceptualization, Supervision, Writing-Reviewing and Editing.

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