Bulgarian Journal of Agricultural Science, 26 (No 2) 2020, 257–267

Quality certifications' impact on wine industry assets performance

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Abstract

Fiore, M., Giacomarra, M., Crescimanno, M. & Galati, A. (2020) Quality certifications' impact on wine industry assets performance. *Bulg. J. Agric. Sci., 26 (2)*, 257–267

This study analyses the impact of third-party voluntary certifications on the asset of wineries operating in the Southern Italian regions. The study carried out both quantitative and qualitative approaches, with data extracted from the AIDA Bureau van Dijk International Database (including performance indicators). The analysed sector belongs to 11.02 'Manufacture of wine from grape' of the Statistical classification of economic activities in the European Community (NACE). The econometric elaboration (regression) was carried out by means of STATA software 14. Comparing certified and no certified wineries, results show a better asset performance of certified wineries, confirmed by a positive relationship between higher revenues and bigger size. The adoption of voluntary certifications requires the presence of highly qualified people, capable of managing innovations of product or process. Wine managers should consider that the expected impacts of the adoption of voluntary certification are not independent from both targeted business scopes and institutional context where the winery operates, being strictly linked to specific market and seller strategic decisions, including customer centricity approaches. For what in our knowledge, this work is the first attempt in investigating the impact of voluntary certifications in the Sicilian wine industries. Results are thus of relevant importance and originality and able to suggest new insights on business assets management for the wine industry, enabling managers to better approach the decision to get certified through sustainable standards.

Keywords: business performance; voluntary standards; quality management; environmental management; regression analysis; Mezzogiorno regions

Introduction

For several years, purchasing decisions of consumer not are based solely on the characteristics of the product but also on the influence that the same products have on the environmental and social level (Sellers-Rubio & Nicolau-Gonzalbez, 2016). This trend has led to a growing consumers' orientation towards the quality of the products and the sustainability of production and processingmethods. Meeting the expectations of consumers, more and more conscientious regarding food safety, quality and environmental protection (Aisenberg Ferenhof et al., 2014), has prompted a rising number of agri-food companies to adopt best management practices aimed to guarantee a greater quality of the products and particularly include the basic principles of the sustainability (environmental, economic and social)in their business models. These processes have resulted in the adoption of Quality and Environmental Management System (QMS and EMS, respectively), which complement between theme, creating a single system where quality and environmental issue are taken into account at the same time (Tarì & Molina-Azorin, 2010). In this scenario, a proliferation of public and private voluntary standardshas spread in the agri-food market in order to reassure consumers about safety and quality (Giacomarra et al., 2016; Oosterveer et al., 2014; Ponte et al., 2011; Henson & Reardon, 2005), thus facilitating the international exchange

of food and services. These standards have become a vital supplement to mandatory environmental policies based on regulation and legislation (Frondel et al., 2008). Quality and environmental management standards and certifications can be clustered and classified into dissimilar categories depending on their extent, coverage, application and possible recognition (von Hagen et al., 2014).

There are numerous schemes and related certifications that have been developed and refined over the years to ensure the quality of production and the impact on the environment of production processes. Among these, the most widespread are the certifications of the ISO family (ISO 9001, ISO 14001, ISO 22000, ISO 14470, etc.), but also voluntary certifications created in order to offer more guarantees in trade relations with specific partners, among which retailers (British Retail Consortium, International Featured Standards, GlobalGAP, etc.). Voluntary quality and environmental certifications can be considered as firms' strategic responses to institutional market and non-market pressures to reduce the impact of business activities on natural environment, and also as a means to legitimate the firm in the eyes of the society and the stakeholders in general (Martín-de Castro et al., 2017; Galati et al., 2017a; Parlato et al., 2014).

While there are several empirical evidences that both QMS and EMS' adoption and related certifications can effectively improve the companies' environmental and organizational performance (Barla, 2007; Nguyen & Hens, 2015; Galati et al., 2017b; Alexpoulos et al., 2018; Ssebunya et al., 2019) and encourage environmental innovations (Horbach, 2008), impact on their business performance is far from clear. Very few studies in the economics literature have focused on the impact of the adoption of quality and environmental management certifications on the firm's economic and financial performances (He et al., 2015; Kafel & Sikora, 2012a; Heras-Saizarbitoria et al., 2011).

This paper is focused on the wine industry, traditionally considered a fairly "green" one (Marshall et al., 2005; Moulton & Zwane, 2005), which in the last few years has adopted a growing number of initiatives and significant efforts in grape cultivation and wine production aimed at increasing the sustainability of practices and the quality of products (Giacomarra et al., 2016; Vrontis et al., 2011a). This new approach appears as a consequence of a growing interest of consumers towards health and quality aspects, and the integration of environmental and social concerns into their life choices. Concerning the latter, requirements that ensure quality during the entire winemaking process and safeguard against relevant hazards have become important to consumers and obligatory for protecting human health (Giacomarra et al., 2016).Empirical evidence shows that factors affecting the economic and financial performance of wineries adopting quality and environmental management systems certified by third-party audits, following international standards, are very different and not necessarily the implementation of these standards improves the business performance in economic terms (Fiore et al., 2016; Giacomarra et al., 2016; Cambra-Fierro, 2015; Delmas & Grant, 2014).

With this in mind, this study aims to verify if the adoption of the third-party voluntary certifications positively affects the winery asset by assessing such impact in companies operating in the Southern Italian regions area, named "Mezzogiorno". Mezzogiorno area is chosen since in these regions is concentrated the most important area devoted to vine cultivation, and more than 1/3 of the Italian wine offer is from this area (Corriere Vitivinicolo, 2017) with strategic importance for the local economy. The Mezzogiorno wine industry contributed to 30.3% to the total value of wine industry in Italy and 5.4% of the total value of all plant and animal productions, hunting and related services in Southern Italy and the Islands (ISTAT, 2018).

Conclusions giveinsights on the close relation between firm assets, certifications and size of the firm in a tradition-based micro-sized sector as wine industry is; obtaining certification can improve the grade of sophistication of a good so enhancing the cellars performances.

Literature review

Organic, sustainable or simply green are product characteristics that in recent years are becoming more and more relevant also in the wine market. As a direct consequence, winegrowers and winemakers have replied to these challenges through the introduction of several certification schemes, voluntary or regulated ones, these last more oriented to geographical and territorial protection scopes. On the same way, also stakeholders started playing a more relevant role in allowing a more or less structured diffusion of such kind of schemes in the wine industry, with important implications in the effective acquisition of certifications from wineries. Even if a shared evidence on the importance that consumers attribute to certified wines has not been achieved yet (Sogari et al., 2016), the majority of researches that recently have tried to investigate the main impacts of certifications on the growth of wines sales have been focused on consumers' choice and related purchase behaviours. In this context, it is worthy to mention some important findings from Boncinelli et al. (2019) that highlight consumers assign a different "economic value" to a certified wine depending on the final scope of the buying decision. In fact, if the bottle of wine is a gift then consumer are more inclined to buy an organic labelled product, while in case of personal consumption purpose,

consumers seem to not care of such type of label. While in the case of Designation of Origin label, the scenario can be seen as reversed, that is a bigger value in case of personal consumption and lesser weight in the gift case. A controversial result, that totally differ from other findings (Carsana & Jolibert, 2017) show consumers are more oriented to assign a bigger value to certified wine in a gift-giving scenario. As a natural conclusion, it seems that once more time reputation and brand of a targeted winery continue to play a relevant weight in the final purchasing decision of consumer (Giacomarra et al., 2016). This means that by having a strong brand, a company can enjoy cost-effective marketing campaigns, greater financial performance, ease of line extension, a better competitive position (Vrontis et al., 2011b). Livat et al. (2018), through the investigation of time patterns of co-movement among average monthly wholesale prices for red wines from the 11 main Denomination of Origins in Bordeaux conclude that some Bordeaux wines, from different appellations, are seen as substitutes by consumers, based on the existence of similar words in the names of the denominations (i.e., a reputation mechanism).

As in other food sectors, also in the wine one, a strategic marketing strategy specifically addressed to better describe and publicize the environmental and quality labels of a wine bottle could help managers in increasing both sales and profits. Indeed, as suggested by Vrontis et al. (2011a) "the focus of marketing communications and branding shifted from the products and their attributes to the products' value in terms of product experience and higher-order consumer need satisfaction". The focus is then on new marketing strategies which, to be effective in the today world, do not anymore relay only on the utility of a product, but they need to become more customer-oriented, enriching the value proposition accordingly (Shams, 2018). A challenge hard to be met is success also depends on the ability of a firm to acquire consumer's knowledge, exploiting the potential of the current digital era. At this regard, Sogari et al. (2017), investigating the role of social media in the purchasing behaviour of a specific group of population, the so-called Millennial (young people born in the '80), making inter alia a comparison with the older generation (in this case called No millennials), conclude with the assertion that those wineries that have been able to publicize sustainable labels of wine bottles through digital media channels received a good response from millennial consumers, translated in sales' growth. As already confirmed by past researches, indeed, those green wineries engaged in providing additional information on their sustainable practices are able to increase the consumer's sensitiveness, thus facilitating the purchase and the willingness to pay for sustainable products, especially for the younger generation (Sogari et al. 2017; D'Amico et al., 2016; Pomarici & Vecchio, 2011). Consistent with this, a recent study reveals a greater WTP for natural wines, especially among younger ones, who pay attention to the label information about ingredients, production methods and sensory information, as well as consumers with greater attitudes in "safe" products (Galati et al., 2019). As Signori et al. (2019) sustain, the direct effect on firms is to start thinking more seriously to new communication strategies, these last enriched and more complete to be able to ensure also a "*Sustainable Customer Experience"* (Signori et al., 2019:132). In this context, Themistocleous (2018) practically suggest firms consider the possibility to adopt advanced customer's data system, to better profile targeted marketing campaigns, never forgetting the quality of the data then collected. From the adoption of the data collection system to the ability to use more sophisticated data analytics by firms, as suggested by Nayebpour & Bokaei (2019).

If the just mentioned literature branch put the attention on consumers behaviour, more or less mediated by cultural, ethical, social attitudes and more sensitive environmental feelings (Canestrino et al., 2015; Saunders et al., 2011), other investigations focuses on the context in which wineries operate, representing the main motivation according to which wineries adopt sustainable practices. At this regard, Stranieri et al. (2018) underline how sustainability cannot be separated from the context, exploring the possible positive association between the level of traceability complexity and the firms' perceived social pressure to adopt voluntary traceability schemes. Results suggest that apart from the stakeholder role, also the institutional environment impacts managers', final decision to invest in a more sophisticated traceability system (voluntary system).

From an economic impact assessment, few studies have tried to investigate the profitability of acquiring a voluntary certification in the wine industry, more probably because too many variables enter into force when third-party certifications are calling in the cause. At this regard, Fiore et al. (2016) underlie how acquiring a quality certifications in the Italian wine industry presents positive economic performance if the firm size is taken into account. Indeed, although some positive values of the main profitability ratios have been found for certified wineries group, this data, for a correct interpretation has to be linked to the firm size (that, in fact, presents a positive statistical correlation). To these results, Giacomarra et al. (2016) interested in the Sicilian wineries market behaviour, add how reputational reasons, brand power and historical winery background are also able to play a relevant role in the wine market, including external commercial relations, independently from the possession of quality certification. Cambra-Fierro (2015), studying

the Spanish Bodega Pirineos winery that achieved an ISO 14001 in 1999, finds that winery sales managers did not have a significant appreciation for an environmentally respectful production system. While, a different conclusion, has been achieved by Delmas and Grant (2014) according to which, differently from what happens in eco-labelled wine case, only thanks to eco-certification schemes a price premium is possible and admitted by consumers in the wine sector (Contò et al., 2015; Antonazzo et al., 2015).

According to the present literature review, there is a need to go in-depth in analysing the economic impacts on wineries that decide to get a voluntary certification, to provide to wine managers suitable economic insights allowing them to better decide on that. Agri-food firm managers should be aware of the different link played by both certifications and economic assets that are crucial for the firm's future because these processes can produce cash flow, reduce expenses, and improve sales: so future economic benefits are expected to flow (IASB, 2015). A need to propose new insights on business assets able to address the wine business strategy, enabling managers to better approach the decision to get certified through sustainable standards is scientifically lacking and thus necessary. However, data and results so achieved will be of benefit for managers also by taking into account the other scientific findings, before cited, and mainly linked to marketing and promotional business sides.

Based on the above, this paper intends to explore the following hypothesis:

H1: Do voluntary certifications allow wineries to improve firm economic assets?

Methods

The study carried out both quantitative and qualitative approaches (Bryman et al., 2008; Neuendorf, 2002). Data were collected from the AIDA Bureau van Dijk International Database that released specific performance indicators. The analysed sector belongs to 11.02 'Manufacture of wine from grape' of the Statistical classification of economic activities in the European Community (NACE – *Nomenclature Statistique des Activité séconomiques dans la Communauté Européenne*).

The work investigates the Southern Italy study area named 'Mezzogiorno' and composed of 8 Regions: Campania, Apulia, Basilicata, Calabria, Molise, Abruzzo, Sicily and Sardinia. This area represents an important wine district whose production is high (about 45% of the Italian production) but nowadays represents only 30.3% of the corresponding value (ISTAT, 2018). This highlights that the 'Mezzogiorno' area presents a lower limited aptitude to improve the production value than the remainder Italian regions (Fiore et al., 2017; Fiore et al., 2016; Pomarici et al., 2012). Recently, very active wineries are more and more activating processes aimed to high-quality modern productions, i.e. through the adoption of sustainable third-party certifications, new forms of packaging and so on (Galati et al., 2015; Galati et al., 2014; D'Amico et al., 2011). Recent studies (Fiore et al., 2016; Heeringa et al., 2010; Cardinal and Aitken, 2013) highlight the existence of differences between certified and non-certified wineries in relation to the value of the performance indicators (ROE, ROS, ROA and EBITDA); findings showed a higher performance for certified wineries, that seem to be more inclined in using their assets to generate earnings and produce revenue. Accordingly, here, the paper aims to investigate the relation between firm assets and the presence of sustainable certifications.

To explore this latter relation, we firstly collected data from the AIDA database related to 205 Southern Italian wineries. The selected variables are as follows:

- Revenues from sales and services pro-capita (in thousand Euros) [Revenues pro~e labelled];
- Economic Asset (in thousand Euros) [Asset labelled].

The released data were related to the 2014 year. These indicators were chosen following and analysing previous studies on the topic (Su et al., 2015; He et al., 2015; Kafel and Sikora, 2012a and 2012 b; Claver et al., 2007). In particular, the last indicator, economic assets, represents any item of economic importance functioning as a store of value in a firm (Arimany et al., 2014 and 2016; Fuentes-Lombarfo et al., 2011). It is to be noticed we are dealing with not current assets that are firm long-term investments whose value will not be comprehended in the accounting year. In this way, firms can spread costs over numerous years. This can avoid any losses during the years when capital expansions happen. Not-current assets include the fixed assets, i.e. plant and equipment, and the intangible ones: intangible assets as innovation products (patents, goodwill, trademarks, etc.), human resources, and so knowledge transfer can be considered crucial drivers in the firm development processes.

While there have been many scientific investigations into the relationship between performance indicators and obtaining certifications the studies concerning the economic firm assets in the wine industry have been limited. Besides, starting from the work by Miret-Pastor (2014), a categorical company size variable was created according to the European Commission recommendation (2003).

The firm size generally affects organizational behaviour and levels of specialization (Gil &Matavelli, 2017); additionally, the size represents a crucial factor in implementing any environmental innovations (Segarra-Oña et al., 2012).

Therefore firms with fewer than 10 employees (and an annual turnover ≤ € 2 million) are considered to be micro; those between 10 and 49 (and an annual turnover ≤ € 10 million) to be small-sized and finally those in the 50–249 employees range (with annual balance total ≤ € 43 million) to be medium companies. Consequently, according to the art 2 of the EC recommendation (2003), the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million. The Italian firms of wine sector generally fall in the SMEs range (INEA, 2015) also due to the very traditional profile of the Italy wineries based on the family business firm linked to the territory (Contò et al., 2015); in particular, the wineries belonging to our case study respect the above mentioned criteria (Figure 1). In addition, the wineries investigated are fully integrated comprising own vineyards and grape processing facilities until the bottling stage.

Enterprise category	Headcount: annual work unit (AWU)	Annual turnover	Annual balance sheet total
Medium sized	< 250	≤ € 50 million	≤ € 43 million
Small	< 50	≤ € 10 million	≤ € 10 million
Micro	< 10	≤ € 2 million	≤ € 2 million

Fig. 1. The enterprise category according to the EC recommendation (2003)
Source: EU (2015)

Furthermore, the recent food movements of the last decade promote the need for relocating a business in SMEs in the area structuring methods for sustainable and safety agriculture (Norberg-Hodge, 2005). Therefore a categorical dummy variable representing the size (S1 labelled) was created to examine whether size (micro, medium or small) and the adopting sustainable certifications are related, namely if they influence the economic assets performances of these wineries (Miret-Pastor, 2014). Figure 2 shows the distribution of the dataset firms for the different typology of the size; 61% of firms can be considered micro, 36% small and only 3% falls in the medium-sized category. As imagined, none firm is large-sized so corroborating our statement. Certified firms size is on an average double than non-certified ones.

Secondary, data collection has been finalized with variables related to adopting quality and environmental management voluntary standards by the selected 205 wineries. The third-party certifications considered for the research aims are as follows: ISO 9001 (Quality management), ISO 22000 (Food safety management), ISO 22005 (Traceability throughout the feed and food chain), ISO 14001 (Environmental management), BRC (British Retail Council), IFS (International Featured Standards for Food), Global GAP (Good Agriculture Practices).

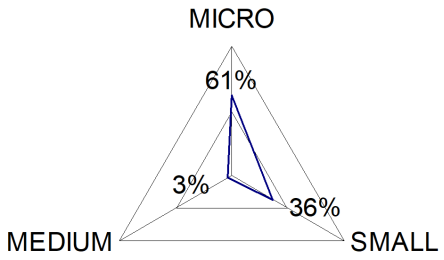

Fig. 2. The distribution of the South Italy wineries for size according to the EC recommendation (2003)
Source: our processing

For collecting data on adopting or not adopting third-party certifications of the dataset wineries, several analysis tools were structured and planned in order to raise a reasonable response rate and coverage. Primary data (obtained through the first-hand investigation, that is a survey by means of emails and phone interviews) and secondary data (widely available in wineries website sources) were collected (Groves et al., 2009; Dillman et al., 2008). The detection time was from September 2015 to October 2015. Finally, Table 1 shows the number of South Italy certified wineries: the ISO 9001, that is a managerial procedural certification, represents the more frequent choice in the wineries (23%), then ISO 14001 and IFS (16%), and BRC (with a percentage equal to 14%). It is to be specified about 75% of the firms obtaining a certification have already obtained another certification since implementation process becomes easier to reach the second or third one. Therefore, there are certainly firms with have two or three gained certifications. Lastly, the firms that did obtain none certifications are about 66%, the remainder of the firms (33%) reached any of the considered certifications.

A dummy variable [cert labelled] was created for representing 2 subgroups of the sample: 1. certified and 2 not certified. Finally, the dataset for this second analysis step was made up by 173 observations and 4 variables: 1 categorial variable (firm size), 2 quantitative economic indicators (asset and revenues pro-capita), 1 dummy variable (voluntary certifications). Non-significant and not available values are present in the dataset but their maximum presence for the variable was about 6%. In particular, the model aims at exploring the effects of acquiring a certification on the economic firm assets.

Thus, the *economic asset* variable was taken as the dependent variables. Dummy variables were modelled to sort

Table 1. Number of certified wineries on the total of "Mezzogiorno" Italian wineries

	ISO 22005	ISO 22000	ISO 14001	ISO 9001	BRC	IFS	Certified	Not_Certified
No. certif.firms	7	11	27	40	25	27	58	116
Total selected firms	173	173	173	173	173	173	173	173
Percentage	4%	6%	16%	23%	14%	16%	33%	66%

Source: our processing

data into mutually exclusive categories and assess their influence, taking a value of 0 or 1, depending on whether they are present or absent. The regression model for the economic asset was built considering that is dependent on firm size, on third-party certification, on revenues pro-capita as follows:

$$Asset = C + \beta_1 S1 + \beta_2 Cert + \beta_3 revenues\ pro{\sim}e + \mathcal{E},$$

where β_1 help us evaluate if the firm size has a significant influence on the dependent variable; β_2 allows to determine whether there is a difference in the firm asset indicators between certified and uncertified wineries; β_3 the impact of revenues from sales and services pro-capita variable. The econometric elaboration was carried out by means of STATA software 14.

Results and Discussions

Table 2 shows the main statistics related to the two quantitative variables that are Asset and Revenues from sales and services pro-capita. It can be highlighted that the values of certified firms are higher than those non-certified. Indeed, the mean of the economic asset is three times bigger (14 459.84 €) than the value of the non-certified firms (equal to 5 634.452 €); the average amount of the revenues pro-capita for certified firms is equal to 762 584.07 € than to the amount of the non-certified firms that is equal to 561 853.64 €. The values of Standard Deviation can be interpreted in the same way.

Thus, a regression analysis was carried out on the entire sample and the former variables studied for this purpose. In a previous step, the different certifications were used as separate dummies in order to investigate which one affects the asset value more (for example, BRC already evidences a company penetration in the foreign market) but the model did not turn. Before running the OLS regression model, a logarithm transformation of the variables made linear the equation: some tests suggested us to use this transformation instead of others (i.e. square root) since released a lower chi-square value. As expected, the model confirms all hypotheses with good R-squared value (0.51): tests confirmed the goodness of the model about the hypothesis and serial correlation between squared residuals. Variables are all highly significant: positive β_1 (1.29) and β_2 (0.36) coefficients indicate an economic asset higher value for certified firms, and when the firm size is small-medium. The B_3 coefficient is also positive and significant but the coefficient shows a low value.

The better asset performance attributable to certified firms as regards both higher revenues and bigger firm size suggests, one more time, that the adoption of voluntary certifications requires the presence of highly qualified people, capable of managing innovations of product or process, most common in the large-scale firms. The ability to arrange new business models and to reinforce the existing ones in order to acquire a competitive advantage is what again prevails in the niche food sector as wine is. The same ability that can be found in different firms, as Fusco & Migliaccio (2018) well described in their work, focused on Italian cooperatives and their potential to deal with current market challenges. Undoubtedly, a significant weight is attributable to marketing approach and specifically, as emphasized by Rossi and co-authors (2012) in a Southern Italian region, in the wineries ability to understand (and even predict) market trends and consumer behavioural patterns, adopting appropriate and timely strategies. The medium size gives some indications on the relationship among size, process organization and economic performance. In

Table 2. Some statistics about Asset and Revenues from sales pro-capita variables

Performance economic indicators	Kind of firm	Mean (inth. Euros)	SD (inth. Euros)
Revenues pro capita	Non-certified	561 853.64	483 482.65
	Certified	762 584.07	714 039.48
Asset	Non-certified	5 634.452	5 973.744
	Certified	14 459.84	17 177.24

Source: our processing

Table 3. Results of the regression model

				Number of observation		161
				F (3, 157)		55.27
				Prob > F		0.0000
				R – Squared		0.5137
				Adjusted R-squared		0.5044
Asset	Coef.	Standard error	t value	P > ItI	95% [Confidence interval]	
S1	1.289331	.1194993	10.79	0.000	1.053297	1.525365
Cert	.3582359	.1386167	2.58	0.011	.0844417	.6320301
Revenue	6.14e-07	1.15e-07	5.35	0.000	3.87e-07	8.40e-07
Const	6.144841	.2045071	30.05	0.000	5.740901	6.548782

Source: our processing

this interpretation, firm size should be seen as an important requirement for firms, above all in the agri-food industry, in order to be able to commercialize with foreigner partners considering new challenges deriving from new wine competitors (Conde et al., 2012). Successful participation (measured in terms of better revenues from sales and services) in such kind of trade channels presumes, on the firm side, important amount of goods production (also measurable in terms of firm size) as well as compliance with international and supra-national food quality standards, as confirmed by the results of the present work. In the majority of cases, bigger firms are well able to sustain, from an economic and managerial point of view, those financial and human resources costs related to the maintenance of food quality certifications, differently from smaller firms usually unable to do that (Aggelogiannopoulos et al., 2007; Handschuch et al., 2013; Giacosa et al., 2018) (Table 3).

Finally, the increased assets depending on the voluntary certification obtained by the wineries can be declined in terms of patents, skilled human resources (pool of oenologists, quality expert in vineyard and grapes, agronomist and so on), and procedural software and specific sustainable equipment i.e. packaging box wine (cask wine or boxed wine) or 'green' wine barrel furniture.

Conclusions

The purpose of this study was to verify if the adoption of the third-party voluntary certifications positively affects the wine firm assets in a tradition-based micro-sized sector as the wine industry is, in a special way in Italy. The decision to get certified against the most diffused green market tools can be crucial for enhancing the sector at the light of the recent economic challenges deriving from new competitors. In particular, this work investigates the impact of voluntary certifications on the firm assets in a highly dynamic sector, as the wine sector should be. In line with other research, by comparing groups of certified and no certified wineries, some results (Su et al., 2015; He et al., 2015; Miret-Pastor, 2014; Kafel and Sikora, 2012a and 2012b) show how the adoption of voluntary certifications positively influences some of the profitability ratios of wineries without an overall business improvement. Indeed, acquiring a voluntary certification shows good economic performances if the firm size (Giacosa et al., 2018; Fiore et al., 2016), reputational reasons, brand power and historical winery background (Giacomarra et al., 2016) are also considered. The eco-certification schemes allow, certainly, a price premium admitted by wine consumers (Contò et al., 2015; Antonazzo et al, 2015) but to that it is necessary to add other important factors, like the ability of firms to acquire more consumer's data s as well as to better frame their marketing strategies (Shams, 2018) and to invest more in ensuring a reliable sustainable experience for a new consumer' profile (Signori et al., 2019).In such a context, the wineries' environment-friendly behaviour can signify a high-powered opportunity aimed at differentiating products and facing new global challenges (Fiore et al., 2017).

Investigating economic assets in this particular sector is deemed crucial as the wineries, whose size is mainly traditions-based micro-sized, prefer to keep internally firm-specific assets (oenological know-how, new sustainable marketing skills, knowledge of the market needs and issues and so on) to avoid that other firms use it (Galati et al., 2017). Indeed, new strategies suggested co-operating for competing and for straightening the power of wine sector over the world (Festa et al., 2017). Furthermore, reputation is a firm-specific asset as well. In this scenario, the impact of voluntary certifications adopted by wineries can be also interpreted as a double added value: from one hand, indeed, implementing more quality-oriented production approaches further strengthens the reputational role of a wine firm, this last being widely recognized as a strategic and intrinsic marketing tool typical of the wine sector (Giacomarra et al., 2016). On the other hand, voluntary certifications allow wineries to enter into new markets because of the growing high demand

for quality requirements perpetrated by International trade distributors as well as Worldwide Large Scale Retailers. In addition, certification can contribute to improve the grade of sophistication of a good and so its value (Hausman et al., 2007): sophistication promotes GDP of a country and mutually the firm economic asset of a sector that has to compete in a dynamic scenario.

The main result of this work shows better asset performance of certified wineries, thus confirmed through a positive relationship between higher revenues and bigger size. In this sense, one more time, the adoption of voluntary certifications requires the presence of highly qualified people, capable of managing innovations of product or process, historically most common to find in larger firms. Consequently, the absorptive capacity of the firms is strategic because it is seen as important in capitalizing external input to innovation (Santoro et al., 2017). However, these important results can be interpreted in a wider scenario, the one specifically describing the today market segment that, worldwide, is showing different and new strategies. At this regard and by taking into account the more recent marketing strategies and tools; it is possible to encourage Managers interested in acquiring a quality and sustainable certifications in starting new marketing investments. This is true if a "customer-centricity" approach is implemented in the future wine marketing plan, employing digital channels to well vehicular communication messages (aimed at informing consumers on how a wine is sustainable, explaining the reasons why and processes implemented to achieve this scope). And this is also true if alternative selling strategies are included in the general operations system of a winery (such as e-commerce options). So new marketing channels, updated message frames and new selling strategies could be able to achieve targeted relevant population shares, thus attracting the attention of consumer's shares aware of the need of more sustainable production processes (to be translated, also, in willing to pay a premium price).

The present work, as just described, shows several insights from the managerial point of view. In fact, wine managers should hence correctly and scrupulously interpret the value of voluntary certifications, checking the opportunity to acquire such strategic market tools. In particular, they should take into account that the expected impacts are not independent of both targeted business scopes and institutional context where the winery operates, being strictly linked to specific market and seller strategic decisions. Moreover, if for bigger wineries, more interested in commercializing with Big Retailers (GDO) or to export wide amount of product into foreigner markets, quality certifications are to be seen from Managers as almost compulsory, a different consideration can be generated for medium-small winery or family business. In fact, in this last case, wine managers or owners should remember that a well-informed consumer (about sustainable production processes and related certification attesting it) represent an important added value, to be well-publicized (through more customer-centricity marketing plan), and by making products available/visible by means of updated tools (e-commerce, social networks, etc.). Only by taking into account all these insights, it is possible to efficiently gain from the effects of the voluntary certification, above all in the wine sector.

The work certainly presents any limitations because no comparison between several years or a time series regression investigates how these impacts have acted or evolved. In addition, further research steps can improve the completeness and robustness of this field of investigation. From a hand, a final variable referring to the status of cooperative (Maietta, 2008) could be introduced to verify if it affects the performance of the assets. On the hand, new relevant variables, such as the number of wine bottles sold through e-commerce channel and existence (or not) of targeted marketing and communication campaigns mainly channelled through digital media can explore other aspects. Indeed, such data integration would allow understanding how and whether the increase in sales (in %) of sustainable wineries is driven by managers that invest more than others in digital technology strategies, providing more empirical insights for Managers of both categories of firm sizes, from smaller to larger ones. Furthermore, a data mining approach creating a statistical model of future behaviour using machine learning algorithms can shed light on managerial strategies and firm policies.

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Received: February, 28, 2019; *Accepted:* January, 10, 2020; *Published:* April, 30, 2020