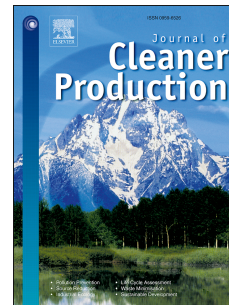


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Understanding the relationship between green approach and marketing innovations tools in the wine sector

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Abstract

Over the last years, research about sustainability has been interesting due to growing importance of green orientation in the consumer purchasing process. In particular, in the wine industry producers' environment-friendly behaviour, in terms of organic winemaking, agricultural waste recovery, efficient water use, can represent a high-powered chance to differentiate products and to face new market challenges. Understanding consumer expectations and new purchasing trends by means of marketing tools leads the wine producers to adopt green oriented innovations. Therefore, this research sought to investigate the relationship between marketing innovation tools and green firm approach. Structured on-line questionnaires were used to ascertain the views of 280 wineries in Apulia region, in South Italy, that has a very long history as a wine producer. Findings of this study indicate that wineries with marketing innovative tools seem to have a more eco-friendly approach, since the sustainability orientation can be considered a crucial issue in the framework of the new firm competitiveness challenges. Finally, implications shed some light on the importance of adopting suitable marketing and communication tools to address wineries towards sustainability based trends.

Keywords: sustainability, green orientation, marketing innovation, wine sector, Apulia region

1. Introduction

The agri-food system has recently experienced significant changes in production, trade, and distribution systems: over the last decade, public attention has focused on the quality and environmental issues surrounding food products (Giacomarra et al., 2016). Given the economic and cultural significance attributed to wine production across many of the world's regions, it is vital that research is undertaken in order to understand and minimise the negative environmental impacts associated with the industry's activities (Christ and Burritt, 2013). It is important to share new

42 innovative marketing knowledge and effective marketing policies to build sustainable competitive
43 advantage in international markets of wine (Felzensztein et al., 2014; Mazzetto et al. 2013;
44 Cotarella, 2013; Vrontis et al., 2011). For this reason, innovative marketing strategies should be
45 combined with “exclusive” and “secret” recipes (Dries et al. 2014). According to Cristofi et al.,
46 (2015), the sustainability can advance firm financial performance, minimises business risks because
47 and maximises market opportunities. The highly competitive environment of marketing alcoholic
48 drinks in the international market is shifting the features of the wineries and their wine marketing
49 strategies. As a matter of fact, wineries are increasingly required to get better marketing policies all
50 together with their production capacity (Azabagaoglu et al., 2006). Moving from these assumptions,
51 the hypothesis of this paper aims to verify if a correlation exists between the use of innovative
52 marketing tools and the implementation of environmental friendly actions (use of renewable
53 resources, adoption of organic certifications, emissions monitoring, bottle recycling and optimizing
54 of water resources). If marketing innovation strategies in the wine supply chain are effectively
55 introduced, a green approach seems to be a logical consequence since marketing helps firms to
56 address processes towards new trends oriented to sustainability. According to Kuosmanen and
57 Kuosmanen (2009) the sustainability is acknowledged as one of the key success factors in the long
58 term business strategy of the firm. By means of Survey Monkey – an online survey software - a
59 survey was submitted to a sample of 280 wineries, located in Apulia region (Southern Italy): data
60 analysis was carried out by using the Statistical Package for Social Science (SPSS) software. A
61 Pearson’s Correlation matrix was performed to investigate whether the sustainability orientation
62 affects marketing innovation in the wine sector: a positive correlation was expected to be found. A
63 similar result might lead to the consideration that small and medium sized enterprises (SMEs)
64 involved in wine supply chain, should shift towards greener business oriented models in order to
65 sustain their market competitiveness.

66 The explorative study has been designed and carried out within the following Integrated Projects of
67 Food Chain (IPFs) of the rural development programme of Apulia region – measure 124 (funded by
68 European Agricultural Fund for Rural Development) in the wine sector: being Vitis, North wine and
69 South wine.

70 The remainder of this paper is arranged as follows: section 1 provides an overview of background
71 research on business sustainability orientation and marketing innovation in the wine sector; in the
72 section 2, material and methods are presented. Section 3 shows results. Discussion and conclusions
73 close the paper. This study is addressed to owners, stakeholders and partners of wineries;
74 furthermore we dedicate the results of this study to academics that are already working on this

75 topic.

76

77 **2. Material and methods**

78

79 This paper is an exploratory research as it seeks to provide insight in the wine sector and to fill the
80 scientific gap on relationships between orientation to sustainability and green marketing innovations
81 as well as suggestions for further analysis and research.

82 Our study takes into account as case study the Apulia region (South of Italy) that has a very long
83 history as wine producer (Contò et al., 2014; 2015), as well as Apulian wines are very well known
84 for their physical and organoleptic characteristics all over the world. Due to the current global
85 economic, financial crisis and challenges in a highly competitive scenario characterized by new non
86 EU competitors, Apulian producers are searching for new markets, although their fragmentation and
87 small average size. European policy has crestfallen smaller wineries whose only lifeline is to bet on
88 a niche strategy. Apulian wine sector represents for all the reasons above described a fascinating
89 case to be investigated, and therefore, an explorative case study is here presented.

90 The exploratory nature requires researchers to deal with a hybrid research designs (Harrigan,
91 1983), for this reason, the present research approach has been structured to track the principles by
92 eminent scholars (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). Firstly, evidences and insights
93 were provided for defining and listing variables to investigate. After that, the survey questionnaire
94 was structured, previously testing it through a pre-validation step with 25 selected respondents
95 (wine experts, international entrepreneurs, oenologists, wine routes responsible, eminent academic
96 scholars etc.). In order to investigate the existence of the relationship between green firm approach
97 and marketing innovation tools, the survey questionnaire was structured with several questions.
98 Some of these questions were built with binary options, some others were developed to scaling
99 responses; for these latter questions seven Likert Scales items have been adopted. In this regard, the
100 authors used the following Likert rating scales (Allen and Seaman, 2007): Not a priority; Low
101 priority; Somewhat priority; Neutral; Moderate Priority; High priority; Essential priority. The
102 survey was structured in several sections: 1. general information; 2. firm activities; 3. competition;
103 4. innovation; 5. the firm and the future.

104 By means Survey Monkey software, a web based survey (Gilinsky et al., 2008) has been submitted
105 to a random sample of 280 wineries that was extracted from the population of wineries involved in
106 3 Integrated Projects of Food Chains (IPFs) in Apulia region. These wineries were considered
107 representative in order to provide suggestions and insights. Data collection was carried out during

108 the period September - November 2013. A 'recall survey' step and on-site visits were also
109 performed in order to increase the number of respondents: in particular, 204 responses have been
110 collected, out of the 280 wineries contacted. Data analysis has been performed by using Statistical
111 Package for Social Science software.

112 Within this research framework, it is hypothesised that wineries using innovative marketing tool
113 seem to be more interested and inclined to the implementation of environmental friendly actions
114 (use of renewable resources, adoption of organic certifications, emissions monitoring, bottle
115 recycling and optimizing of water resources): this insight could derive from the existence of a
116 correlation between these two analysis areas. In order to investigate our research hypothesis, we
117 selected variables (in a dummy variable format and in a Likert Scale format) as proxies to be used
118 to evaluate the relationship between innovative marketing choices and the green firm approach.
119 From the 36 questions, corroborated by eminent scholars studies, more suitable questions related to
120 our 2 research areas were selected. They are as follows:

121 1. Marketing innovations choices (Naidoo, 2010):

- 122 • *NewMark* variable, the importance that is assigned to new marketing tools (QR code,
123 website, newsletter, wine club, training course etc.) [Likert rating scale variable];
- 124 • *NewTecn* variable, the importance that is assigned to new technologies implementation (use
125 of organic, chemical and innovative substances) for reaching new market segments [Likert
126 rating scale variable];
- 127 • *R&D* variable, if Research and Development Area is structured in the firm [Dummy
128 variable];
- 129 • *WhWinTec* variable, if innovative techniques for white wines (e.g.: reduction in
130 winemaking, selective cryoextraction) and relative stabilization are implemented [Dummy
131 variable];
- 132 • *RedWinTe* variable, if innovative techniques for processing red wine are implemented
133 [Dummy variable];

134 2. Orientation to sustainability (Gabzdylova et al., 2009; Zucca et al., 2009);

- 135 • *EnvRes* variable, the importance that is assigned to the concern for the natural environment
136 [Likert rating scale variable];
- 137 • *GreenAct* variable = the importance that is assigned to the implementation of green activities
138 promotion [Likert rating scale variable];
- 139 • *OrgCer* variable, if organic certification is adopted [dummy variable];
- 140 • *SustPrac* variable, if sustainable practices (emissions monitoring, bottles recycling,

141 optimizing the use of water resources) are implemented in the wineries [dummy variable];
 142 • *GIS_IT* variable, if GIS and IT technologies are adopted in the winery [dummy variable].
 143 The selected variables seems to be consistent with the research objectives anyway try to fill the
 144 current gap in the literature related to the main framework of this study. Figure 1 describes the flow
 145 chart related to the methods by highlighting research questions, hypotheses, main assumptions and
 146 general structure: in red the path to be followed for understanding the general methodological
 147 structure of the paper.

148
 149 **Fig. 1**

150
 151 From the analysis of the figure 1, a correlation analysis was performed in order to highlight
 152 significant relationships between the variables selected in considering of the paper research
 153 framework (Hinkle et al., 2003; Lane, 2015). Correlation between sets of data is a measure of how
 154 well they are related. The Pearson Product Moment Correlation or PPMC highlights the strength of
 155 the linear relationship between two sets of data: it is used when both variables being studied are
 156 normally distributed. Pearson's correlation coefficient (*r*) can range from -1 (perfect negative linear
 157 relationship) to 1 (perfect positive linear relationship); 0 indicates no linear relationship between
 158 variables. Then, Pearson's *r* was calculated in order to measure the strength of the association
 159 between the above selected variables so to prove or reject our hypotheses. The correlation
 160 coefficient formula is specified as follows:

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{(\sum X^2 - \frac{(\sum X)^2}{N})(\sum Y^2 - \frac{(\sum Y)^2}{N})}} \quad \text{Pearson correlation's } r \quad (1)$$

161 where:

162 *x* are the variables related to Marketing innovations choices; *y* are the orientation to sustainability
 163 variables. This study is not investigating the issue of spurious correlations as it lacks control
 164 variables.

165 166 **3. Results**

167
 168 The correlation matrix in Table 1 shows Pearson's Correlation values among different variables
 169 selected for testing the paper research questions. Then, the variables were split into two groups: the
 170 first group gives evidence of the wineries approach to marketing innovations (in columns); the
 171 second group of selected variables represents as a proxy for a green approach and orientation of

172 considered firms (in rows).

173

174

Tab. 1

175

176 Results show that most of the variables are significant at the 0.01 level (2-tailed) so enabling
177 confirming the initial hypothesis. The correlation matrix shows that 12 of 25 originated values are
178 significant; amongst them, there are seven that present a positive correlation.

179 The highest correlation value (+0.493) is found between *NewTecn* and *SustPrac*. The lowest
180 significant value (+0.143) is found between *NewMark* and *GreenAct*. The most negative significant
181 value of correlation (-0.289) is between *NewTecn* and *OrgCert*. The correlation among the variables
182 *EnvRes*, *SustPrac* and marketing innovation group variables is still significant; while the correlation
183 among the variable *GIS_IT* and marketing innovation group variables is still no significant.

184

185

4. Discussion

186

187 Regarding the significance of the research design, findings confirm the main hypotheses on which
188 this study was based upon and are supported by theoretical implications shown in the literature
189 review. As shown in table 1, the application of new technologies in order to reach new market
190 segments is related to an environmentally friendly approach as reflected in the highest level of
191 significance (+0.493) and the positive correlation between the *NewTecn* and *SustPrac* variables.
192 Sustainable Agriculture Promotion, Green Action Promotion and Environmental Respect are
193 becoming marketing innovation tools, that might be enable in turn firms to penetrate new market
194 segments in order to sustain their competitiveness for SMEs in the wine sector. A negative
195 correlation between the use of new technologies and Organic Certification adoption was found,
196 probably due to the use of traditional and conservative agricultural practices of Italian firms being
197 far from adopting new technologies. So, it could be argued that orientation to sustainability is
198 shifting manufacturers to a strategy which remains rooted to the old farmer traditions (negative
199 correlation with organic agriculture) and is increasingly creating the foundation for more
200 technology-based sustainable innovation. Indeed, wineries with a Research and Development area
201 are sure conscientious and skilled of new environmental challenges on ethically correct
202 consumption. It might induce firms to develop process and production innovations primarily
203 through sustainable agricultural and winemaking practices, such as efficient use of water for
204 irrigation operations and the reuse of washing water. The positive correlation between the following
205 variables;

- 206 1. *NewMark* and *EnvRes* (0.240);
- 207 2. *NewMark* and *GreenAct* (0.143);
- 208 3. *NewTecn* and *EnvRes* (0.313)

209 highlights how orientation to sustainability is taking a central and crucial role in the operational and
210 strategic choices of wineries thank to the marketing innovative strategies and tools.

211 The environment respect can be interpreted as a crucial driver to connect firm strategies to market:
212 it becomes an economic need as well as a moral obligation for the wineries. This approach allows to
213 optimise operating costs and to increase the company's reputation (Cristofi et al., 2015). In this
214 sense, environmental respect can be understood as a factor that affects the innovative marketing
215 approach and viceversa. The promotion of green activities within the company raises awareness in
216 the importance of adopting an innovative approach (environment friendly) aimed to environmental
217 protection and food safety. Consistent with the first two correlations, the adoption of sustainable
218 agricultural and industrial technologies and practices can take the role of real distinctive
219 communication lever useful to penetrate in different market segments (especially upper segments).
220 The use of GIS and IT technologies can be functional in order to monitor the production cycle,
221 energy efficiency, quality certification of products and cycles, and land protection. However, the
222 correlation among the variable *GIS_IT* and marketing innovation group variables is still no
223 significant. This is unexpected result because GIS technology allows to visualize and to disseminate
224 the results of the analysis, enabling it to be easily accessible by researchers, professionals, workers
225 within the sector. This free availability of information represents a starting point to promote Italian
226 wines. GIS fundamental tools are able to provide accurate climate, soil type and geomorphology
227 information. The innovative techniques for obtaining white wines are particularly powerful as
228 shows the negative correlation between the variables *EnvRes* and *WhWinTe*. Wine-making with the
229 reduction of oxygen, selective cryoextraction and the relative stabilisation are so techniques that
230 require high energy levels. The same observations could be made after reviewing the results
231 obtained from the correlation between *EnvRes* and *RedWinTe*. Indeed, the grapes processing,
232 cleaning and sanitizing processing monitoring in order to obtain healthy grape are particularly
233 impacting actions.

234 235 5. Conclusions

236
237 Wine consumers are becoming increasingly interested in green issues so that the concept of
238 environmental sustainability can act as a relational channel between wineries and customers: the
239 environmental policy of firms positively influences consumer purchasing behaviour, therefore

240 marketing strategies can help wineries to address firm green choices for, improving financial
241 performance, minimising costs and business risks and maximising market opportunities (Cristofi et
242 al., 2015). Considering this background, the paper investigated the correlation between the
243 orientation to sustainability and marketing innovation tools in the wine industry.

244 The analysis of paper dataset collected among the population of Apulia wineries shows that the
245 orientation to the sustainability of the observed wineries is positively correlated to the adoption of
246 innovative marketing tools and actions. It emerges that the use of new technologies to penetrate new
247 markets shows a positive correlation with the adoption of sustainable production practices and the
248 environmentally-friendly approach..

249 As some scholars suggested (Mishra and Sharma 2012), the “green marketing concept” aims at
250 sustainable marketing and socially responsible products (non-toxic and environmentally friendly); it
251 is increasingly becoming an important driver for management and for matching profitability and
252 sustainability issues. Overall, the environmentally efficient technologies are positively correlated
253 with the innovative marketing choices, because of the increasing importance of concerns regarding
254 the environment and the efficient use natural renewable resources have in public opinion and in
255 consumers perception. A critical success factor for the wineries becomes the ability to communicate
256 to their target market by providing information on their degree of environmental respect. Further
257 research is clearly necessary to test and refine these findings: the orientation to sustainability of
258 firms can be considered a tool for reaching and maintaining competitive advantage and to face
259 market crisis (Chen, 2006). In this context, the study carried out could be considered as the starting
260 point to revise the policies of firms and to introduce into these latter marketing innovation tools and
261 so the adoption of more eco-friendly processes and products, that allows to achieve a competitive
262 advantage and to penetrate new market segments by reaching consumers’ preferences.

263 Finally, the drawbacks of the paper can be linked to its exploratory nature. Some limitations can be
264 highlighted; firstly the relative small sample constrained the application of some statistical
265 procedures (e.g., PCA procedure). Secondly, the variables selected are not exhaustive and represent
266 only a proxy for the study’s objectives. Furthermore, the surveyed wineries belong to the IPFs: in
267 considering the nature and characteristics of some of these projects, the participating firms can be
268 more driven towards developing an innovative and green approach. The sample of companies could
269 be expanded numerically, but also to include firms and wineries not participating in IPFs.

270 This exploratory research is ongoing and its findings are far from being final. Further empirical
271 research is needed to test and validate the essentially preliminary framework developed and the
272 assumptions made for the purpose of the current study. Other variables could be included regarding

273 the analysis of marketing innovation approach and a green orientation. Specifically, secondary data
274 that are available through research and official statistics could also be included in order to make the
275 current study more inclusive and robust.

ACCEPTED MANUSCRIPT

Tab. 1 Pearson's Correlation values between marketing innovation variables and orientation to sustainability variables

Green Var	<i>NewMark</i>	<i>NewTecn</i>	<i>R&D</i>	<i>WhWinTe</i>	<i>RedWinTe</i>
<i>EnvRes</i>	+0.240 ***	+0.313 ***	+0.303 ***	- 0.221 **	-0.203 **
<i>GreenAct</i>	+0.143 **	+0.114	+0.053	+0.014	+0.043
<i>SustPrac</i>	+0.359 ***	+0.493 ***	+0.470 ***	-0.226 **	-0.211 **
<i>OrgCer</i>	-0.263	-0.289 ***	-0.308	+0.196	+0.151
<i>GIS_IT</i>	+0.119	+0.071	+0.104	-0.081	+0.005

*** significant at 99%; ** significant at 95%; *significant at 90%

Source: our processing

Fig. 1 Flow chart of methods (included research questions, hypotheses, assumptions and structure)

Research question: Is there a relationship between sustainability orientation and marketing innovation in the wine sector?

Hypotheses:

- Null hypothesis is:

H0: There is **no correlation** (equivalent to saying $r = 0$)

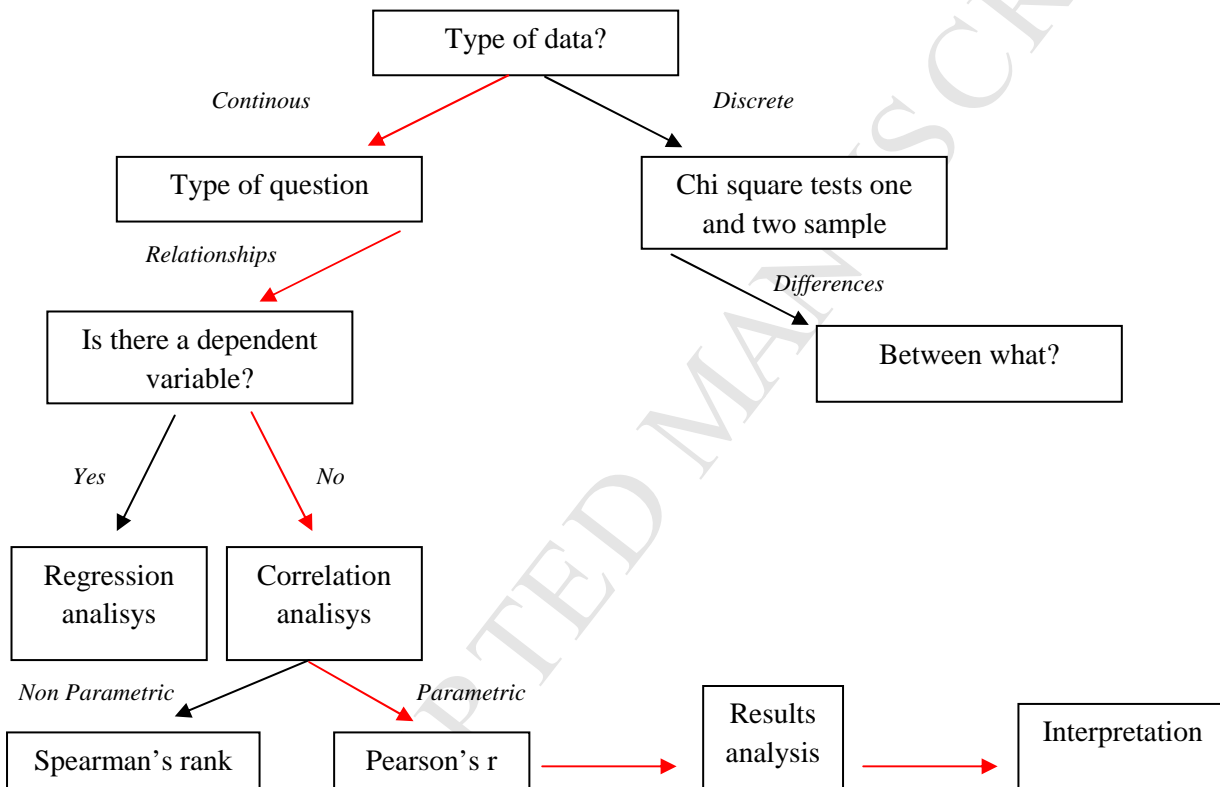
- Alternative hypothesis' is:

H1: There **is a correlation** (equivalent to saying $r \neq 0$)

Assumptions:

- data is at continuous (scale/interval/ratio) level
- data are normally distributed
- data values are independent, unbiased samples
- a linear relationship is assumed when calculating Pearson's coefficient of correlation
- observations are random samples from normal or symmetric distributions

Structure:



Source: our processing

Highlights

- Orientation-to-sustainability were related to green marketing innovations
- Consumer purchasing and firms orientation were analyzed
- 280 wineries in Apulia region (in South Italy) were sampled
- Correlation analysis was performed considering a set of specific variables
- Study contributed to communication between the business and the final consumer