

Enterprises and markets of quality wines: an evaluation in Collio (Italy)

Francesco Marangon, Stefania Troiano, Jean Pierre Zaccomer¹

University of Udine - Italy

marangon@uniud.it, stefania.troiano@uniud.it, zaccomer@dss.uniud.it

1. Introduction

The international market of wine has been characterized by growing competition, especially in recent years (OIV, 2008). Wine is one of the main agroalimentary products for Italian export. From wine export depends Italian balance of trade. In this context, the study aims to identify the role of quality wine, which is strongly linked to the geographical location. In fact, this relation seems to be a strong tool in favour of international competition.

To this purpose we will describe the multifunctional role of wine growing in a specific area, the Collio, in Italy. Then we will analyse the chosen data set. The data were collected by quality wine producers that are partner of a Consortium. The Consortium safeguards and attests the quality of wine production.

Finally, in order to study the data we used descriptive statistics and the twostep cluster analysis technique of SPSS. The use of twostep analysis represented a first exploratory application of appropriate statistical techniques to study the relationship among some variables. This technique alongside models of wine producers behaviour permits the analyst to explore wine production segmentation by describing different types of wine producers strategies.

2. Quality wine growing in Collio

We collected the data in Collio, the hilly area located in the North-Eastern part of Italy, in province of Gorizia, on the border with Slovenia. The morphological features of Collio favour quality wine production. This economic activity has a fundamental role for the development of local socio-economic system. In fact, in this area wine production is strictly linked to the other economic activities, in particular tourism.

By producing quality wines agriculture is able to implement at best its multifunctional role. Wine growing, for example, is able to shape the landscape and to preserve the environment. This skill becomes a strategy that can benefit whole socio-economic local system. In particular the landscape attracts a lot of tourists.

In this area there has been created a trail linked to wine production. The wine producers in Collio are 594, as stated by Census of Agriculture 2000. There was a drop after Census 1990, when they were 957. The area harvested in grape declined from 2,586.51 in 1990 to 2,479 hectares in 2000. The mean surface value of grape production grew from 2.70 in 1990 to 4.17 hectares in 2000 (ISTAT, 1992 and 2002). Wine production is mainly devoted to white wines, but also some red wines are produced.

In Collio there is a Consortium. It safeguards and attests the quality of the wine production linked to the specific territory, such as DOC (Controlled Designation of Origin) wines. In particular, the Consortium controls the presence of all necessary qualifications to obtain mark guaranteeing the quality of wine. All quality wine producers have to be member of a Winegrapes register of the local Chamber of Commerce. From the register of the Chamber of Commerce of Gorizia it is possible to identify 804 quality wine producers in 2007. The wine producers declare the quantity of grapes and wine they produced. The statement could be presented not only by single producer, but also by producers cooperative, professional association or grape transformers.

¹ Statistical elaborations are due to J.P. Zaccomer.

Table 1 – Wine and grape production and surface of winegrape varieties production in 2007

WINEGRAPE VARIETIES	WINE (LITERS)	GRAPE (KILOGRAMS)	SURFACE (HECTARES)
Cabernet Franc	447943	639915	873508
Cabernet Sauvignon	146706	209579	331810
Chardonnay	678831	969753	1368917
Istrian Malvasia	130368	186238	306099
Merlot	658719	941023	1436012
Muller Thurgau	10773	15390	22229
Picolit	12921	21536	96860
Pinot bianco	341776	488248	880655
Pinot grigio	2379345	3399053	4309229
Pinot nero	90581	129401	162191
Ribolla gialla	438878	626964	806234
Riesling	18752	26788	46631
Italian Riesling	6888	9840	26211
Sauvignon	1480122	2114453	3084198
Tocai Friulano	1196740	1709621	2468475
Aromatic Traminer	50513	72160	94485
TOTAL	8089856	11559962	16313744

Source: Chamber of Commerce of Gorizia

From the data of the Chamber of Commerce (Table 1) it is possible to note that wine production exceeds 8 million liters. The main wine grape production is Pinot grigio. Grape production in 2007 was 11.6 million kilograms. Also for grape production, Pinot grigio is the main variety.

In Table 2 you can see the data about the number of registered wine producers and the declared surface as at 10th September 2008. Winegrapes Tocai Friulano, Sauvignon and Pinot grigio had the prevalence of registered wine producers.

Table 2 – Number of registered wine producers and declared winegrape as at 10th Sept. 2008

WINEGRAPE VARIETIES	REGISTERED WINE PRODUCERS	DECLARED SURFACE (HECTARES)
Cabernet Franc	108	848936
Cabernet Sauvignon	69	355651
Chardonnay	184	1439576
Istrian Malvasia	113	360817
Merlot	213	1470903
Muller Thurgau	9	33674
Picolit	35	111704
Pinot bianco	150	869037
Pinot grigio	259	4024674
Pinot nero	42	212413
Ribolla gialla	154	953447
Riesling	24	112343
Italian Riesling	9	39806
Sauvignon	261	2947309
Tocai Friulano	272	2398277
Aromatic Traminer	34	132682
TOTAL	1936	16311249

Source: Chamber of Commerce of Gorizia

3. The data collection

The survey was conducted to explore wine producers members of the Winegrapes register of the local Chamber of Commerce. In particular, we identify wine producers belonging to DOC Collio and members of the Consortium, that safeguards the quality of DOC Collio wines.

In total, 177 forms were used to collect information. The data were collected during the period between 12th February and 9th May 2007. In detail: we sent the questionnaire in February and March 2007 by e-mail and mail. 84 wine producers sent back the questionnaire (47.5% of total). 83 questionnaires were considered valid and used to construct the dataset that was analysed. We did not receive 93 questionnaires, that was 53.1% of total wine producers. To analyse the dataset we used also the information collected during a previous survey, that was conducted in 2001.

Wine producers were asked to answer a questionnaire containing fourteenth sections: the first one contained questions about their business conduction, while the second one recorded the legal form. The third one aimed at recording the membership to an association. The fourth one contained some questions about winegrapes, transformation, distribution and promotion of products. To collect some information about wine services there were fifth and sixth parts. The seventh part pointed out the question about the control of wine chain. The eighth and ninth parts were devoted to tourism and Consortium promotion. In the tenth part of the questionnaire there were some questions about knowledge and formation activities of the Consortium, then the eleventh part aimed at point out the importance of the services of the Consortium. Last parts of the questionnaire contained questions about the use of land, the presence of workforce and the personal socio-demographic characteristics (gender, age, education and profession).

The aim was to find out the socio-demographic characteristics of wine producers and some information about the economic activity. In particular, we would like to identify competitiveness of wine producers on the international and local market, but also the role of the Consortium.

4. Wine producers profile

4.1. Univariate analysis

From univariate analysis we can see that respondents to the questionnaire were more likely to be farmers that use only or mainly family members labour. Sole proprietorship is the prevalent legal structure of the respondents. Farmers usually prefer this type of legal structure as it reduces costs and administrative tasks that is necessary to undertake to create a new firm. The owner of farm were more likely to be male. We found that most wine producers were 40-59 years old and achieved secondary school graduation. Most respondents worked only for their wine farm. They worked three hundred days per year or more. Also family member that helped wine producing of the respondents were more likely male.

The information collected about wine production of the respondents regarded the agrarian year 05-06. Wine producers were asked to give some data about their DOC Collio surface. It is possible to note that 423.86 hectares were harvested in DOC Collio grape (23% of total agricultural area – TAA- and 30.9% of utilized agricultural area – UAA- of respondents). Considerable was also the area harvested in other DOCs (329.93 ha – 17.9% of TAA and 24.1% of UAA), while only a marginal area has been harvested in no quality wine productions (34.38 ha, that is 1.9% of TAA and 2.5% of UAA).

From the data we collected it was possible to underline an high membership of wine producers to local economic associations, such as professional associations. The respondents underlined the importance of the economical and management consulting provided by professional associations. As regards grape transformation and wine production, we found that most respondents carried out the whole transformation process inside their firm. In detail, they transformed grape in wine, then they bottled and labelled it.

They produced less than 20,000 bottles per year and had a turnover lower than € 150,000. The wine they produced has been sold at a minimum price of € 5.77, while the maximum one was € 13.65. We did not included the Value Added Tax. To promote their products the respondents were most likely to use the participation at events, fairs and other shows. To participate they spent less than € 10,000.

Wine producers were asked to express their opinion about market outlook. The results show that there were a significant concern about high international competition. The respondents tended to underline the role of tourism promotion as an opportunity to develop the whole socio-economic local system. In particular, the wine producers we analysed preferred the development of projects to increase the value of Collio production. Nevertheless, the percentage of wine producers that said they did not perform any tourism activity (i.e. agritourism) was particularly high.

The same consideration could be made regarding the willingness to support promotion. In fact, the respondents were not willing to pay to participate to the promotion of local quality wine certification.

The results described a situation similar to the Italian one: wine producers composed a fragmented system. This system was characterized by very easy legal structures, although with some evolution, and with a low internationalization.

4.2. Bivariate analysis

Each specific variable has been correlated to demographic variables. To complete this analysis we used correlation tables based on management and legal structure. The results we obtained were sufficiently distinct to create a first segmentation of wine consumers.

In order to illustrate certain characteristics of wine producers we analysed the respondents' behaviour by management structure. The aim was to describe the relationship between management structure and the behaviour of wine producers.

4.2.1. Organizational/management structure variable

Although sole proprietorship is the prevalent legal structure of the respondents (64.2%), wine producers managed their farms using only (82.9%) or mainly (59.1%) family members labour.

We observed that there was a strong relationship between organizational/management structure and business organization (legal form). Most respondents that personally managed their farm were more likely to be grapes producers, but also winemakers. This was true also for wine producers that bottled the wine. When the form of organizational/management structure became more complex and there were a great presence of employees, the respondents usually managed the whole process of transformation of grapes into bottled wine.

Similarly, if respondents produced a lot of bottles, we observed an organizational/management structure with higher number of employees. Also if we consider the annual turnover, we noticed that for higher values the form of management was more complex and the employees were numerous. Indeed, if the forms of management that used more family members labour, we observed higher presence of points of direct sale.

The use of instruments of promotion such as fair and show participation were most likely to be used by wine producers that managed their farm with higher presence of family members labour. Moreover they tended mostly to use newspaper and magazine promotion, and also internet promotion.

Complex organizational structures tended to prefer the use of complimentary bottles of wine to promote the wine. The same consideration could be made for the investment of higher financial sums to promote the wine. Wine producers with a complex form of management structure were

more likely to consider that the quality of wine and grapes are usually decided by the growing conditions. This relationship was true also for considering fundamental the choice of cultivar and clone compared to microclimate conditions.

The forms of organizational/management structure with an higher presence of family members labour tended mostly to restructure their vineyards to obtain a greater quantity of grapes. Moreover they seemed to have a better knowledge about renovation projects financed by regional authorities. This complex form of management structure had more knowledge of services provided by local Consortium. Nevertheless, also the other forms of management seemed to have sufficient information about the services.

Most respondents with complex organizational structure thought that Collio wines have some market difficulties. They also had great knowledge about the chain control projects addressed to quality Collio wines. Moreover, these respondents were confident about tourism promotion: they hoped it would add an opportunity to develop local socioeconomic system, but also to increase the value of Collio wines.

Nevertheless, wine producers with a complex form of management structure developed less tourism activities (such as agritourism) than others one, while they stated to be willing to assign a portion of their farm for tourism purpose. The knowledge of laws and financial opportunities in favour of Wine Routes were prerogative of wine producers with a complex form of management structure. Moreover they were more available to cooperate with local institutions to manage landscape and environmental resources near their property.

Although the acknowledgment about the promotional activity of the Consortium seemed to be very high, only wine producers with employees were really aware of this opportunity. They also considered useful all promotional initiatives carried out by Consortium in collaboration with other wine Consortiums.

At the same time they seemed to be most opposed to the hypothesis of unique regional Consortium creation, with the same rules and the participation of “Brda”, a Slovenian area. They also were not likely to create a new regional DOC. Nevertheless, they consider very important the maintenance of local Collio DOC.

These most complex organized farms tended to be more aware of the fundamental role of Consortium, in particular as regards the circulation of communication and information among its members. In addition, they had great interest about advanced training courses proposed by Consortium. They also seemed to have a feeling for positive externalities deriving from Consortium activities in favour of market evolution and consumers transformations.

4.2.2. Business organization (legal structures) variable

The use of the business organization (legal form) variable allowed us to compare wine producers behaviour with more precision. Moreover it was possible to verify some predictable behaviours. In detail we analysed the legal forms provided for Italian laws (i.e. sole proprietorship, general partnership, commercial partnership, limited liability company, limited partnership, public limited company).

To simplify and make more meaningful the results of the analysis, we grouped the legal forms. Thereby we analysed sole proprietorships, partnerships and corporations. By correlating our data with the frequency of wine consumption, we observed that sole proprietorships and partnerships did not externalize a lot of services. Occasionally they transformed grapes in wine and bottled it inside their farm. They were most likely to outsource some phases of wine production. This relationship was particularly true for sole proprietorships.

By introducing the business organization variable we were able to affirm that the more complex

business organization (i.e. corporations) form was complex, the higher was the number of produced bottles. Likewise, we noted that higher production of bottles of wine characterized also most complex organizational/management structure variable.

As regards promotion, we verified that corporations preferred fair and show participation, but a significant number of them also used brochures and newspaper and magazine promotion. Moreover they declared to use also internet promotion. Indeed, partnerships tended to promote their products giving complimentary bottles of wine. Corporations understood better than other respondents market difficulties of Collio wines.

We observed also a case in which greater uniformity in behaviour existed among legal structures groups rather than observed for previous variables. We noted that the preferences were the same for all legal structures. In fact, we can see that all legal structures supported the Collio project aimed to enhance the value of a wine strictly linked to local territory.

Tourism promotion to develop socio-economic local system seemed to be sustained by all forms of legal structure. The respondents evidenced a great insight to Consortium project aimed to enhance Collio territory. Partnerships and sole proprietorships declared they developed tourism activities. In detail, partnerships mainly offered overnight stay. The more the legal structure was complex, the larger was the respondents availability to assign part of their farm to tourism activities. Likewise, wine producers with complex legal structure had better knowledge of rules and economic incentives in favour of Wine Routes than other forms of legal structure.

Complex legal structures declared also greater availability to cooperate with local institutions to safeguard and manage landscape complements and environmental resources placed near their farms. Both partnerships and corporations acknowledged the strategic role of Consortium in promoting local territory and products. The more the legal structure was complex, the greater was the availability to financial support with local institutions to promote “Collio” mark guaranteeing quality.

Likewise, the more the legal structure was complex, the more positive was the opinion about the cooperation with other Consortiums, but also with other Regions. On the contrary, the less the legal structure was complex, the greater was the availability of respondents to cooperate with local institutions. Corporations seemed to be more inclined to create a “Friuli” regional brand to join “Collio” mark guaranteeing quality.

Both partnerships and corporations recognised the fundamental role of Consortiums as regards the diffusion of communications and information among its members. “Collio DOC” magazine seemed to be an useful support in favour of sole proprietorships and partnerships. On the contrary, newsletters and e-mails tended to be more appreciated by partnerships and corporations compared to sole proprietorships.

Most of the respondents we analysed declared their interest about professional meeting organized by Consortium.

The more the legal structure was complex, the more the respondents were persuaded that the instruments used by the Consortium were able to guarantee an high level of information. The Consortium was a strong focus to handle wine market evolutions and consumers modifications, in particular as regards partnerships.

Most of the respondents were inclined to make obligatory Consortium membership.

The more the legal structure was complex, the larger was the relevance of Consortium services. Likewise, the importance of wine services, laboratory services, mark quality promotion and tourism advertisement were great, when legal structure was complex. The offer of promotion services and law consulting seemed to be very, very important for corporations.

4.3. Twostep cluster analysis technique of SPSS®

To identify the likeness of wine producers behaviour, we used the twostep cluster analysis technique of SPSS. The use of twostep analysis (Banfield and Raftery, 1993; Chiu et al., 2001) in this context represented a first exploratory application of appropriate statistical techniques to study the relationship among some variables. The use of this cluster analysis technique alongside models of wine producers behaviour permits the analyst to explore wine production segmentation by describing different types of wine producers strategies.

To point out the strategies of wine producers we chose only some variables among the dataset (market, promotion, tourism activities, financial support to cooperate with local institutions, regional Consortium)². The twostep technique is considerable sensitive to variable relationships. In order to avoid distortions, we analysed the relationships among chosen quantitative and qualitative variables to conduct this technique.

Analysing variable relationships results with correlation analysis (quantitative variables), crosstabs and Chi-squared test (qualitative variables) and differences of means (variance tests: homogeneity variance, F test, post hoc test), we simplify the number of variables. In fact, we selected three variables: market (quantitative variable), promotion (qualitative ordinal variable) and regional Consortium (qualitative nominal variable).

The technique we used is able to propose an “optimal number” of clusters (Zaccomer, 2004), when the variables have certain distribution and have not connections. In our study the twostep analysis identified four clusters (Table 3).

Table 3 - Cluster distribution and features of classification algorithm

Cluster Distribution

	N	% of Combined	% of Total
Cluster 1	15	32,6%	18,5%
2	10	21,7%	12,3%
3	9	19,6%	11,1%
4	12	26,1%	14,8%
Combined	46	100,0%	56,8%
Excluded Cases	35		43,2%
Total	81		100,0%

prom12

	1		2	
	Frequency	Percent	Frequency	Percent
Cluster 1	15	40,5%	0	,0%
2	10	27,0%	0	,0%
3	0	,0%	9	100,0%
4	12	32,4%	0	,0%
Combined	37	100,0%	9	100,0%

² Questions number 4.4, 4.15, 8.5, 8.6, 9.2, 9.7 of the enclosed questionnaire.

cons

	1		2	
	Frequency	Percent	Frequency	Percent
Cluster 1	0	,0%	15	62,5%
2	4	18,2%	6	25,0%
3	6	27,3%	3	12,5%
4	12	54,5%	0	,0%
Combined	22	100,0%	24	100,0%

CL_FVG2

	1,00		2,00		3,00	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster 1	15	44,1%	0	,0%	0	,0%
2	0	,0%	5	83,3%	5	83,3%
3	7	20,6%	1	16,7%	1	16,7%
4	12	35,3%	0	,0%	0	,0%
Combined	34	100,0%	6	100,0%	6	100,0%

To create the clusters we used 46 cases (combined) instead of 81.

The clusters collected a similar number of cases, but the first one is the largest (32,6%), while the third one is the smallest (19,6%).

By observing the clusters of wine producers, we noted that:

- 1) group “1”: it was the largest; it was characterized by wine producers which used little or enough promotion, that encouraged the regional Consortium creation and had low regional market for their products (max 25%);
- 2) group “2”: it was characterized by little or enough promotion; some of the wine producers of this group supported the regional Consortium creation, while others were not likely to encourage it; it was characterized by middle-high regional market quota (more than 25%);
- 3) group “3”: it was the smallest; its wine producers used a lot promotion; there was not a homogeneous support in favour of regional Consortium creation; regional market quota was low (max 25%);
- 4) group “4”: it was similar to group “1”, but there was an important difference as regards regional Consortium, in fact, it did not encourage its creation; it had low regional market quota (max 25%).

Finally, using crosstabs we analysed the 46 wine producers discovering some relationships among variables, which contributed to differentiate the clusters.



Conclusions

To face increasing competition, that during last years is been connoting international markets, and to handle with consumers demand evolution it seems to be strategic the improvement of typical products, such as quality wines.

All strategies used by wine producers to enhance the relationship between their product and local territory seem to be useful.

The information we collected was sufficient to construct a market segmentation model. This type of examination seems to be very useful to wine producers. In fact, it give them the opportunity to understand the strategies of their competitors.

Undoubtedly, the data collected allowed us to analyse the role of local territory and the importance of local identity to typical products. Such analysis has become increasingly important for the wine sector, in which there is a specific institution – the Consortium – that has the duty to guarantee and promote mark guaranteeing quality.

The Consortium gives wine producers the opportunity to increase the knowledge of consumers about the wine quality.

From the data collected we observed the importance of Consortium to wine producers. However, in most cases, corporations seem to be really aware of importance of Consortium activities in facing wine market evolutions.

At the same time, it is generally acknowledged that it is fundamental for wineries to promote local territory to increase the value of its products (Duncan and Greenaway, 2008; Tempesta et al., 2007; Virtuani, 2008). Nevertheless, only bigger wine producers hope for the development of territorial brand and the cooperation among several stakeholders.

References

- Banfield J.D., Raftery A.E. (1993), *Model-based gaussian and non-gaussian clustering*, *Biometrics*, n.49, pp. 803-821.
- Chiu T., Fang D., Chen J., Wang Y., Jeris C. (2001), *A robust and scalable clustering algorithm for mixed type attributes in large database environment*, *Proceedings of the 7th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining 2001*, pp. 263-268.
- Duncan A. e Greenaway D. (2008), *The Economics of Wine – Introduction*, *The Economic Journal*, 118, Blackwell Publishing, Malden, pp. 137-141.
- ISTAT– Istituto Nazionale di Statistica (1992), *Censimento 1990*, Rome.
- ISTAT – Istituto Nazionale di Statistica (2002), *Censimento 2000*, Rome.
- OIV – (2008), *State of vitiviniculture world report*, marzo, Parigi.
- Tempesta G., Fiorilo M., Begalli D. e Borselli M. (2007), *Sistema vitivinicolo italiano come modello evolutivo*, XXX OIV World Conference of Vine and Wine, Budapest.
- Virtuani E. (2008), *Le relazioni tra azienda vitivinicola e territorio*, XXVIII Conferenza italiana di scienze regionali,
- Zaccomer G.P. (2004), *L'analisi dei gruppi nel caso di variabili miste*, in Grandinetti R., Bortoluzzi G., *L'evoluzione delle imprese e dei sistemi di subfornitura. Il caso Friuli Venezia Giulia*, F. Angeli, Milano, 2004, pp. 121-132.

Annex:

questionnaire