



THEORETICAL OVERVIEW OF THE FACTORS AFFECTING WINE PRODUCTION

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ABSTRACT

This paper reviews the authors' theoretical and empirical views on the factors influencing wine production. The theoretical framework indicates the presence of many factors affecting the vine growing and winemaking enterprises. The indicators are summarised in terms of terroir, the competitiveness of the enterprise, its ability to innovate, the production quality and the quality of wine product intended for the market. The analysis assists in highlighting the following more important conclusions: evolution of the object of study from an enterprise to a whole supply chain; regarding the subject of study, many factors that affect the object, combined into leading factors and indicators characterising the factors, can be identified; the terroir and the human factor are the main factors influencing the quality of the wine produced.

Key words: factors affecting the vine growing and winemaking enterprises, wine production, terroir

INTRODUCTION

Each enterprise is influenced by many factors, both in the external and internal environment. The aim of the paper is to identify the factors affecting the wine production enterprises. To achieve this aim, the following tasks are set: first, clarification of the terroir and indicators of competitiveness and innovation in wine production; second, identification of the factors influencing the quality of wine production and wine product that is marketed. As a result of the theoretical review, the leading factors affecting the vine growing and winemaking enterprises are summarised.

TERROIR AND INDICATORS OF COMPETITIVENESS AND INNOVATION IN WINE PRODUCTION

The external environment usually encompasses many factors outside the enterprise, and depending on their impact – directly or indirectly – is defined as a micro and macro

environment. The factors of the macro-environment cover the legislative and legal aspects of the development of vine growing and winemaking business, the natural and ecological aspects of the environment, technologies and technological innovations, the economic environment and the socio-cultural environment. The microeconomic environment is in most cases reduced to the current five forces of M. Porter (1) aimed at analysing competition in the industry – competitors, start-ups, established businesses, suppliers and customers.

In the traditional and fully developed market, such as the wine market, the competitive advantages of wine producers are based on the potential resources and product quality that can serve to ensure their financial sustainability (2). The main factors that belong to the competitive environment in the wine sector are: price, quality, implementation of innovations, etc., as well as opportunities to create strong connections and relationships with global distributors and networks for the realisation of the manufactured product (2). Despite the above-mentioned leading factors of

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the microenvironment, as secondary to competition, the factors characterising the resource possibilities of the wine producers can be taken into account. These factors include: increasing the possible capacity to purchase grapes; the availability of privileged access to limited resources such as land; cheaper, rarely produced grapes; unique natural resources; lack of pests and plant diseases; availability of varieties suitable for the region, and proven over the centuries; specific content of combinations of substances influencing the quality of the wine; typical management practices, expressed in production techniques and ways of growing the vineyards.

The specific management and production practices are a consequence of the experience gained over the years and socio-cultural features of people living in the respective wine region. From this point of view, such can be the characteristics of the terroir, determining the specifics of the final product and giving rise to its competitiveness in the national and international markets (2). The complex convergence among territorial location, heredity and terroir determines the impact on wine production and land use in different territories of a country. The relationship between the production of grape and wine and the terroir is expressed through human practices, soils, climate and cultivated grape varieties (3).

C. M. Rendleman and al. (4) determine that the terroir is a concept linking the wine sensory attributes with the environmental conditions in which the grapes are grown. In order to increase the competitiveness of vine growing and winemaking enterprises, it is necessary to cover a large number of factors that contain various indicators. The above-mentioned authors combine the indicators into several groups. The first group is production indicators (degree of low-skilled employees, transport costs, financing costs, total costs of doing business, costs of highly skilled labour, administrative costs, accessibility to credit, accessibility to technology, quality of technology and accessibility to natural resources). The second one is indicators related to other economic activities (access to electricity, telecommunications, cooperation with scientific organisations, infrastructure and transport links, availability of grape producers, etc.) (4).

The third group is indicators describing the company's strategy, structure and competition (development expenditure, management actions, movement of information in the supply chain, substitutes, barriers to entry, structure of wine production in neighbouring regions, etc.). The fourth group is indicators characterising the support of the government (trust in the national political system, trust in local political system, labour legislation, bureaucratic obstacles, use of agricultural land, compliance with standards, the European Union policy on the structure of wine market, etc.). Legislation and legal environment defined as political can be seen as institutional (4). D. Kirechev and A. Stoyanova analyse the institutional framework and opportunities for support in the formation of economic and managerial relations in the wine sector of Bulgaria (5), concluding that this is a prerequisite for increasing the quality and efficiency of production.

Another group is the indicators describing the demand (degree of growth of the local market, size of the local market, competition on the local market, offered ecologically clean products, availability of tourist destinations nearby, demand in the administrative centres of the region, etc.) (4).

D. Vergamini, F. Bartolini, P. Prospero and G. Brunori (2) develop a scheme for the analysis of environmental factors, which covers the following sequence of the supply chain, specific for a certain geographical region – grape producers, intermediaries in the sale of grapes, wine producers – agricultural land, cooperatives of wine producers, virtual sales, wholesalers and bottling companies that rely on grapes from their own production and those purchased by grape growers in the region, purchase of broached wine in large volumes, without its own brand, sharing the product with other enterprises, mainly tourist ones (2). According to the different quality of wine and the chosen marketing strategy, wine producers can realise eco-wine, wine from a certain geographical region and with a designation of origin, wine without a region of origin (table wine), wines from well-known brands.

Depending on the product produced by winemakers, they choose different channels for the sale of their product. Possible sales channels can be at the national level – direct

sales from the winemaker, direct sales outside the winemaker (local food chains, etc.), contracts with national and international chain stores, and sale of commercial enterprises – wholesalers and retailers, sales through cooperation. Besides the domestic market, the wine can also be sold on the international market, as a certain quantity is intended for export. There can be a lack of wine sales via Internet and reduced use of information and communication technologies in wine sales, but this has its advantage because it causes a tourist flow that generates revenue for the transport and tourism industry (2).

The considered regional wine supply chain is influenced by the following factors:

- Geographical factors – remoteness from urban centres; availability of labour force (year-round and seasonal); availability of suitable agricultural land; age of the grape and wine producers in the region; degree of digitalisation of producers; availability of a mixed system of farming (obligatory inclusion of environmental activities in agro-technological processes aimed at protecting the environment and natural resources to ensure sustainable development in the region).
- terroir – agro-ecological conditions; type of grapes grown; socio-cultural factors of the region; local inherited practices and techniques for grape growing and wine production; geographical names; trademarks and established brands for the region; established farmers' networks and cooperatives.
- company's resources – type of the enterprise; size of the enterprise; production structure; organisational structure; degree introduction of technological innovations (2). Sample framework for evaluating the innovation activity of the enterprise is developed by P. Midova, it contains five main factors and many sub-factors (6); A., Stasi and al. (7) make a theoretical and empirical analysis of the implementation of innovations and the achievement of environmental and sustainable effects in the Italian wine industry. They bring out the following factors influencing the wine production enterprises: degree of automatisisation of the processes in the farm and the wine production enterprise; reduction of energy consumption; optimisation of squeezing and fermentation processes; reduction of water consumption, etc.; use of biotechnologies suitable for the terroir and the region of grape

growing; technological innovations for monitoring the quality of wine and technological processes of wine production; alternative technologies for wine production by heating and cooling. R. Nenova notes that technological innovations in agriculture can be digital, bio-technological and processing (8).

Furthermore, depending on the technologies used, winemakers can implement various quality standards (ISO 14000/14004), as well as opportunities to monitor the carbon footprint on the environment. One of the main marketing indicators is the share of sales on the national and international market. The following factors can be used to reveal the human potential of the enterprise, as well as the way of measuring them: contacts with universities and centres for innovative technologies, as well as national and international variety testing agencies, participation in branch organisations based in the region and enterprises using similar grape varieties and technologies for wine production, separation of wine clusters; creating a real supply chain based on long-term relations with grape suppliers, involving technology companies that meet the specific needs of winemakers for technological innovations and equipment, as well as chemicals; extending the supply chain to consumers and providing opportunities to manage relationships with leading customers (7).

The empirical analysis of the above-mentioned authors shows that the certification of wine production enterprises presupposes higher innovative activity among the studied enterprises. The supply chain is the basis for creating a quality product due to the general interest of the companies involved in the chain. This leads to specific investments that ensure the sustainability of all companies involved in the supply chain. I. Marinov notes that agriculture is going through the development of its own strategy for social responsibility based on responsible farming (9).

M. J. F. Aldecua and al. (10) examined the various possible innovations in wine production. They note that there are five main factors generating various innovations: products (delicatessen wines with less alcohol, new blending of different grape varieties); markets – targeting international markets; marketing (sustainability and quality of the wine, high quality wines, strategy of high

prices and prestige, change of the bottle and labelling, looking for new forms of promotion); production process (new techniques for growing vines, introduction of hygiene and quality standards); administration and management (using information and communication technologies, attracting specialists, attracting investors).

The impact of climate change on wine production in the European Union has been studied by S. Green (11). According to her, the main reason is rooted in the strong influence of climate change on the terroir and the change in taste, aroma and colour characteristics of grapes and wine. From this point of view, the EU institutions, through various legal and regulatory acts, are trying to cope with the increasing climate change and to protect the environment, including the specific terroirs of grape growing and wine production (11).

S. Sabbado Flores (12) focuses on building a framework that includes factors and sub-factors specific to grape and wine production expressed in economic sustainability of the structures and territories defined as wine regions for a country (relationships with suppliers and environmental criteria for purchased products and services; relationships between grape and wine producers; initiatives to promote certified products and producers), product quality – grapes, wine, alcoholic beverages, etc. due to the specific characteristics of the region and the production technology (food and beverage protection procedures; wine quality criteria), opportunities for tasting and realisation; safety of manufactured and sold products; hereditary, historical, cultural, ecological and aesthetic aspects of wine production and consumption; the management of grape growing and wine production activities, in view of the increased protection of the environment against pollution, including – choice of location, biodiversity, choice of different grape varieties specific to the region, soil characteristics, management of soil activities, plant and animal husbandry in the neighbouring properties, air quality, human resources management, agrochemical treatment of the used property and those around it.

FACTORS AFFECTING THE QUALITY OF WINE PRODUCTION

Winemakers are often located in close proximity. For this reason, the geographical characteristics and the climate or terroir of a region determine the main characteristics of the wine and the method of its production. The impact of other factors should not be underestimated because they can be decisive for the geographical concentration of wine producers due to spatial dependences or “spill overs” of effects resulting from cluster-specific resources and activities (13). There are two main types of factors that determine high quality wine production – localisation and scientific marketing aspect. The localisation emphasises the peculiarities of the terroir, as for many vine growing and winemaking enterprises, the quality of the wine is determined by the specifics of the soils and the climate, referring to a certain geographical region in which the enterprises are located. According to the second approach (scientific marketing), quality wine can be produced anywhere, regardless of the climate and soil characteristics of the terrain on which the vineyard is created (13).

E. Climent-López and al. (14) identify five categories of factors, combining 19 sub-factors (indicators), influencing the quality of products and the wine production process. The first criterion (factor) is “production”. It includes the following indicators: share of vineyard planted area with high-yielding grape varieties; share of the area of vineyard planted on trellis; average wine production of a winery; share of young wine compared to total wine production. The second factor is “trade”. It includes the following indicators: share of area planted with global (commercial) grape varieties; index of various segments of the wine market (Shannon Index/Shannon-Weaver Index (H)); share of wine for export multiplied by the Gibbs-Martin Index of the countries to which it is exported; share of foreign wine producers selling on the national market.

The third factor is “confidence in national wine production” and includes: indicators for the share areas planted with local grape varieties; relative share of primary local wineries; share of registered local brands; share of wineries that sell on the premises and by tasting. The fourth factor is “reputation” and synthesises the following indicators: average number of

stars obtained from wine at a respective winery; average number of publications in wine-oriented magazines; average number of results generated by searching the Internet; average number of awards received from prestigious competitions for the winery. The last factor is “responsibility” and includes the following indicators: relative share of vineyards managed by cooperatives; share of wineries producing an organic product reflected with an eco-label; share of areas planted with rare grape varieties.

CONCLUSIONS

As a result of the theoretical review of the factors influencing the vine growing and winemaking enterprises, the following more important summaries can be synthesised:

- first, the subject of study is the vine growing and winemaking enterprise, which is placed in the centre, and the factors influencing it are at different levels of distance from the enterprise. In the studied and analysed economic research, it can be observed evolution in the subject of study and its shift from the vine growing and winemaking enterprise to the supply chain of the wine company, where the number of companies in the chain is more than one;
- regarding the object of study, it can be identified many factors that affect the subject and these indicators can be grouped into the following groups – terroir, competitiveness, innovation activity and quality of processes and products;
- much of the research concern the topic of global warming, environmental pollution and the role of the vine growing and winemaking enterprise (supply chain) in sustainable development;
- due to the direct dependence of the vine growing and winemaking enterprise on the terroir, most research related to wine production is focused on certain regions with a specific agro-environmental conditions, forming the uniqueness of grapes used in wine production;
- the human factor is the other specific resource needed for the production of high quality wines and is expressed in the knowledge and skills accumulated over time for the cultivation of vineyards and wine production processes.

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