
SERBIAN WINE PRODUCERS' PERFORMANCE EVALUATION: A NETNOGRAPHIC BASELINE STUDY OF WINE INDUSTRY IN SERBIA

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ABSTRACT

The paper presents the wine production performance in the Republic of Serbia. The research adopts quantitative and qualitative methods, using a relatively novel method, netnography, which involves the observation and analysis of specific social groups or occurrences in the digital world using search engines as the primary source of data gathering. Key factors identified in the study are land, labor, capital and factors supply and demand. Goal of this research is, through the analysis of before mentioned factors, to evaluate wine production of Serbian wine producers. The paper also examines current conditions and possibilities of grape growing and wine making in the Republic of Serbia

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Introduction

In the Republic of Serbia there are three main vine-growing regions: Central Serbia, Vojvodina and Kosovo and Metohija. By dividing these main vine-growing regions into smaller areas, Serbia has on its territory 22 vine-growing areas with 77 sub-areas. Vine-growing regions are at a maximum of 800 m above sea-level. These areas are:

1. *Central Serbia:* Pocerina-Valjevo, Negotin, Knjaževac, Mlava, Toplica, Niš, Nišava, Leskovac, Vranje, Čačak-Kraljevo, three Moravas, Belgrade and Šumadija;
2. *Vojvodina:* Srem, Subotica, Telečka, Potisje, Banat, South Banat, Bačka;
3. *Kosovo and Metohija:* North Metohija and South Metohija.

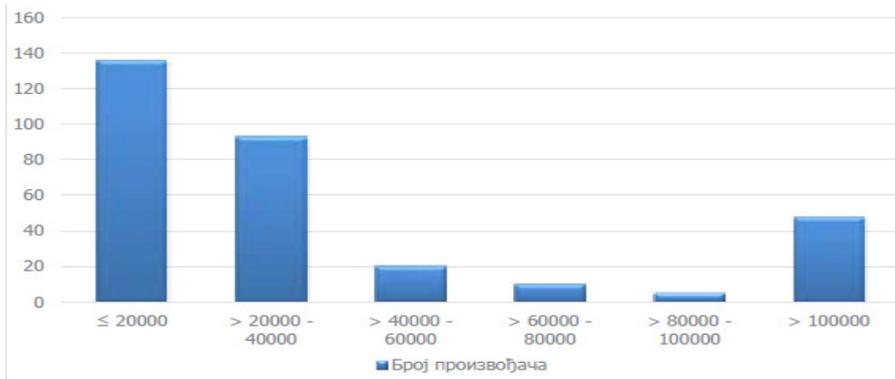
Serbia also has one of the most complex regional divisions in the world. Today's regionalization is legally regulated, but it is too ineffective and complex for marketing purposes and communication (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

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According to the Ministry of Agriculture, Forestry and Water Management, for the year 2019, in the Wine registry are registered 369 wineries. Most of these wineries, 225, are located in Central Serbia, with 139 in Vojvodina and five wineries in Kosovo and Metohija. When it comes to municipalities, most wineries are located in the municipality of Aleksandrovac (55), then Negotin (22) and more than 10 wineries are located in municipalities of Vršac, Novi Sad, Irig, Sremski Karlovci and Indjija (Jakšić et al, 2019).

The majority of wineries (136) registered in the Wine registry are small wineries, whose yearly production capacity does not exceed 20,000 l (Figure 1). After those there are 93 wineries whose yearly production capacity is between 20,000 and 40,000 l. The number of wineries that can produce more than 100,000 l of wine per year is 48 (Statistical Office of the Republic of Serbia, Wine registry, 2019).

Figure 1. Number of wine makers registered in the Wine registry according to their maximum possible production in a year, 2019.



Source: Centre for Viticulture and Oenology chart by Ministry of Agriculture, Forestry and Water Management, Wine registry, 2019

The purpose of this paper is to evaluate the overall performance of Serbian wine producers by using an innovative method, netnography. It also aims to present the current state of Serbian wine producers and vine growers. Similar research has been conducted for the Uruguayan wine industry (Camillo, Kim, 2021), where the competitive position of the emerging Uruguayan wine industry and its potential to become a player in the global wine trade was analyzed using netnography. This paper intends to follow up that research by using the same critical factors. Similar researches for different countries have not been conducted.

Materials and methods

The research applies quantitative methods, where domestic and foreign literature was used. It also applies a qualitative method, netnography, with one part of the collected data is presented through tables and charts. The study adopts a holistic research design, using desk research as a method to collect and describe gathered data.

Netnography was developed by marketing professor Robert Kozinets in 1995. The term is a portmanteau which combines “network” with “ethnography”³. Netnography represents a qualitative method to gather data using online search engines. It applies non-invasive techniques of observation, focusing primarily on the context of online textual communication (Kozinets, 2002).

When compared to surveys, focus groups or interviews, netnography can be less obtrusive. This methodology, although popular with marketing scholars, is beginning to be used more by wine research scholars as well (Camillo, Kim, 2021). It is designed to gather data from online platforms, including social media, websites and blogs, by searching for specific keywords or hashtags and by eye-scanning individual websites and webpage content (Kozinets, 2014).

Data was collected during May to July 2021 from aggregate sources. As for the data collection, desk research was conducted to analyze the data. Online data were searched using keywords and statistical data were gathered from official government websites, such as from Statistical Office of the Republic of Serbia and Ministry of Agriculture, Forestry and Water Management. Wine registry was examined, as well as statistical yearbooks for 2019. and 2020 which were published by Statistical Office of the Republic of Serbia.

Critical factors identified in the study of Serbian wine producers are *land, labor, capital and supply and demand*, similarly as with the prior Uruguayan wine industry assessment.

Results and Discussion

As previously stated, a performance evaluation will be conducted through analysis of four critical factors necessary for wine production, which are *land, labor, capital and factors supply and demand*.

The factor “land”

According to the Statistical Office of the Republic of Serbia, there are 5,178,692 ha of available agricultural land. Table 1 presents total available land (in ha), used and unused agricultural land, the total arable land with gardens and total area covered in orchards.

Table 1. Total, used and unused agricultural land with total arable land, gardens and orchards (in ha)

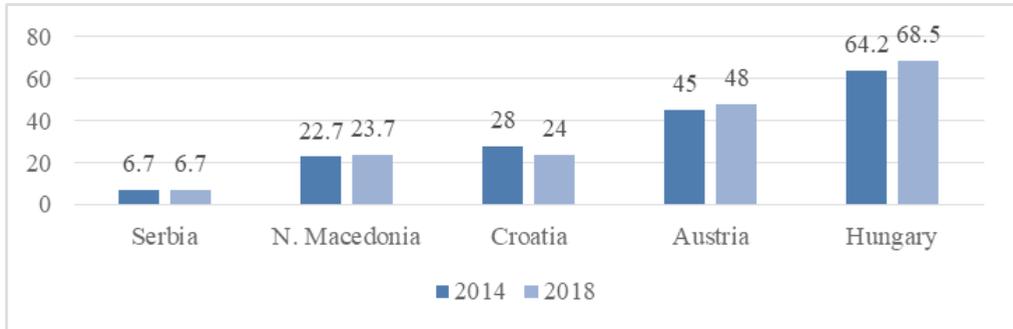
Available agricultural land	5,178,692
Used agricultural land	3,475,894
Unused agricultural land	289,953
Arable land and gardens	2,571,580
Orchards	182,923

Source: Authors illustration by date of Statistical Office of the Republic of Serbia, 2018

3 Ethnography (from Greek “ethnos”- folk, people and “grapho”- to write) is a branch of anthropology and the systematic study which observes and describes behaviors of certain cultures, nations or social groups.

Serbia has in total 22,150 ha of vineyards, out of which only 30%, or 6,700 ha are registered for wine production. The majority of land is used for cultivating grapes that are freshly consumed, while the rest is categorized as “other” (non-arable land or black market). This means Serbia has the smallest area which is covered in vineyards, comparing to other countries from the region with no growth between 2014 and 2018, as shown in Figure 2 (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Figure 2. Vineyard areas in Serbia and surrounding countries (in 000ha) in 2014 and 2018



Source: Authors illustration by date of Statistical Office of the Republic of Serbia, OIV, 2019

Total grape production, for the 2018-2020 period, as well as average yield (t/ha), can be seen in Table 2.

Table 2. Total production and average yield of grapes produced in Serbia for 2018-2020

Period	Total production (t)	Average yield (t/ha)
2018	149,474	7.4
2019	163,516	8
2020	160,307	8.1

Source: Authors illustration by date of Statistical Office of the Republic of Serbia, 2021

According to data from 2018, there are a total of 60,228 farms that own a vineyard and grow vines for wine production (Statistical Office of the Republic of Serbia, 2018). Table 2 presents the distribution of farms according to the type of grapes produced.

Table 3. Overview of the total number of farms and their specified grape production

Total number of farms	60,228
Grapes for wine production with geographical origin	3,780
Grapes for red/rose wine production	32,622
Grapes for white wine production	12,018

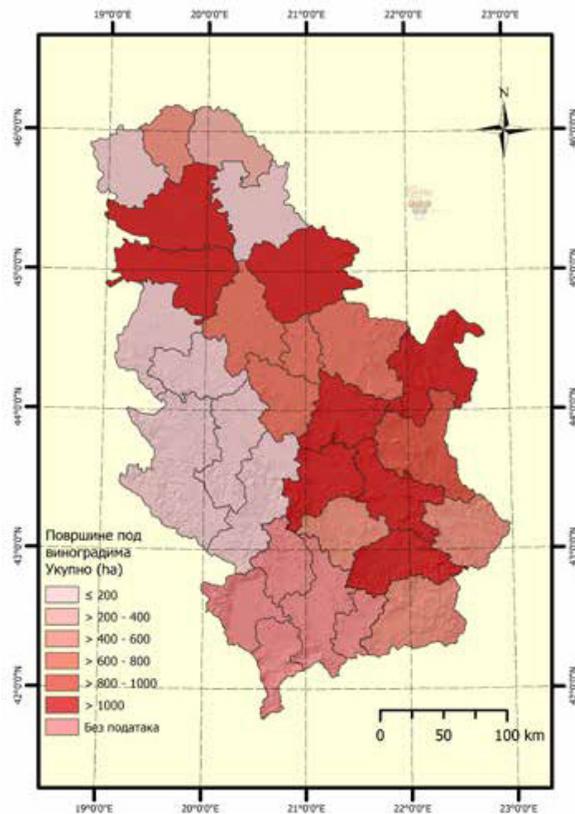
Source: Authors illustration by date of Statistical Office of the Republic of Serbia, 2018

As stated, Serbia has three vine-growing regions, in which there are 22 vine-growing areas with 77 sub-areas. Alongside Hungary (which also has 22 vine-growing areas), Serbia has the most complex regional division. Other countries have less areas, like Italy

(20), Portugal (13), France (11), Spain (7), Croatia (4) and Austria (4). The majority of these areas (72%) are smaller than 150 ha and the average size of a vine-growing area is 10 to 13 times smaller comparing to Hungarian ones (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Regarding the distribution of vineyards, most vineyard areas (more than 1,000 ha) are located in South Bačka, Srem, Bor, Pomoravlje, Rasina, Nišava and Jablanica county (Statistical Office of the Republic of Serbia, 2012). There is no available data for Kosovo and Metohija region. Figure 3 presents the distribution of vineyards in Serbia.

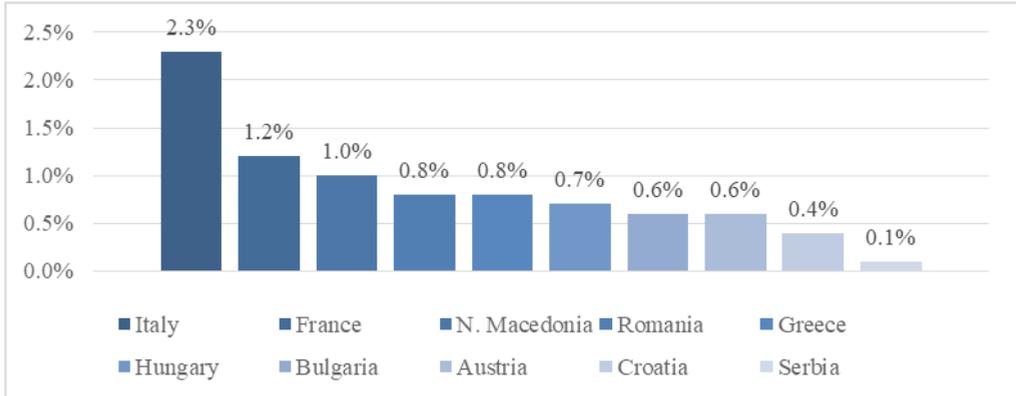
Figure 3. Distribution of vineyards in Serbia, 2012



Source: Centre for Viticulture and Oenology map by date of Statistical Office of the Republic of Serbia, Agricultural census, 2019

Serbia has one of the smallest vineyard coverages in Europe. Its vineyards cover around 0.1% of territory. The following chart (Figure 4) presents the relation between total area of selected countries and their coverage with vineyards.

Figure 4. Coverage with vineyards comparing to the total area of selected countries, 2017

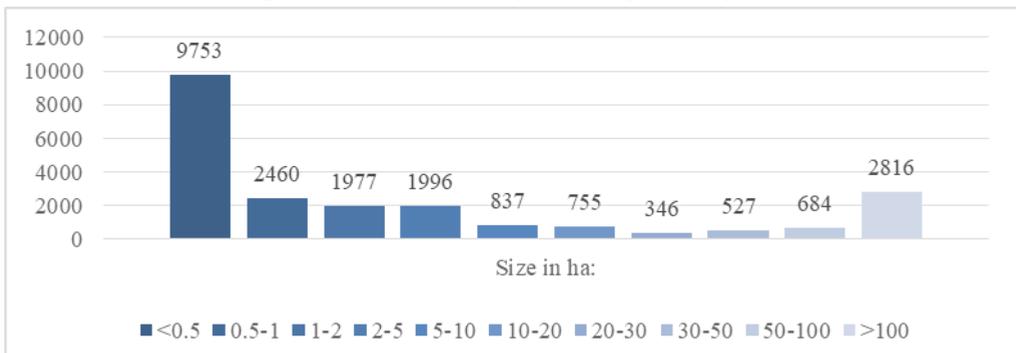


Source: Authors illustration by date of OIV, 2019

In order for Serbia to reach the level of vineyard coverage of the selected countries, it would need to plant at least 44,000 ha to reach Austria, 58,000 ha to reach Hungary and 198,000 ha to reach Italy’s coverage (Development program from 2021.-2031. for winemaking and viticulture in the Republic of Serbia).

As shown in Figure 5, the majority of vineyards in Serbia are smaller than 0.5 ha (44%). Out of total vineyards, 77% are smaller than 10 ha (Agricultural census 2012, Statistical Office of the Republic of Serbia, 2019).

Figure 5. Number of vineyards categorized by size



Source: Authors illustration by date of Statistical office of the Republic of Serbia, 2019

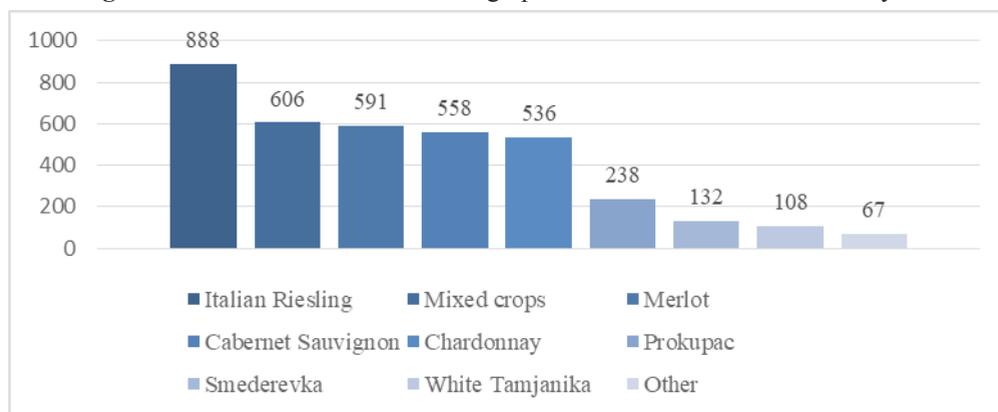
Given this, 99% of farms is cultivating less than 2 ha of vineyards. The average size of vineyard that one farm is cultivating is 0.28 ha (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia). Table 4 shows the number of farms categorized by the size of vineyards they cultivate.

Table 4. Number of farms by vineyard size

Size (in ha)	<0.5	0.5-1	1-2	2-5	5-10	10-20	20-30	30-50	50-100	>100
Number of farms	73,840	3,960	1,590	716	131	60	14	14	10	6

Source: Authors illustration by date of Statistical Office for the Republic of Serbia

Regarding grape varieties that are cultivated in Serbia, according to data from 2014, majority of cultivated grapes are of international origin (Cabernet Sauvignon, Merlot, Chardonnay) and the most common grape variety that can be found in Serbian vineyards is Italian Riesling (13,29% of vineyards). The main reason for this higher percentage is because Italian Riesling is cultivated mainly in agro-industrial complexes, such as the Vršac vineyards. After Italian Riesling are mixed grape varieties (9,07%). Autochthonous and local grape varieties account for about 8,1% (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia). Figure 6 depicts most common grape varieties in Serbian vineyards.

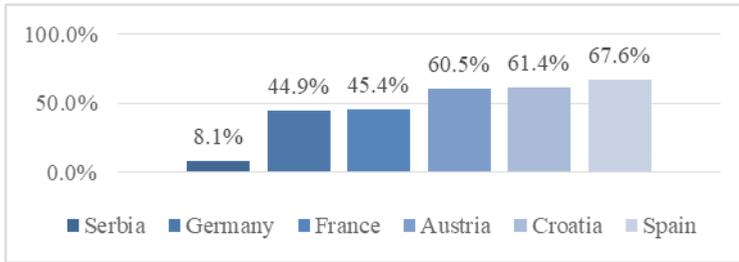
Figure 6. Overview of most common grape varieties found in Serbian vineyards

Source: Authors illustration by date of Statistical Office of the Republic of Serbia, 2019

During the recent years, an emerging trend of cultivating high quality vines was recorded. The main reasons for this trend are that a law regulating vine seedlings was passed, introduction and registration of new grape varieties were eased and subsidies were introduced by the Ministry of Agriculture, Forestry and Water Management. The development of small and micro wineries also had a positive influence on this growth. The production of wines with geographical origin from 2014-2016 was 5,100,000 l, or 13.6% of total wine production (Vlahović, 2017).

In case of autochthonous and local grapes, as presented, they are least cultivated varieties in Serbian vineyards. Serbian domestic grapes are: Prokupac, Smederevka, Tamjanika (red and white variety), Bagrina, Morava, Petka, Petra, Probus, Sila etc. Comparing to chosen countries (Germany, France, Austria, Croatia, Spain), Serbia has the smallest percentage of vineyards covered with domestic grape varieties (Figure 7).

Figure 7. Area covered with autochthonous grapes



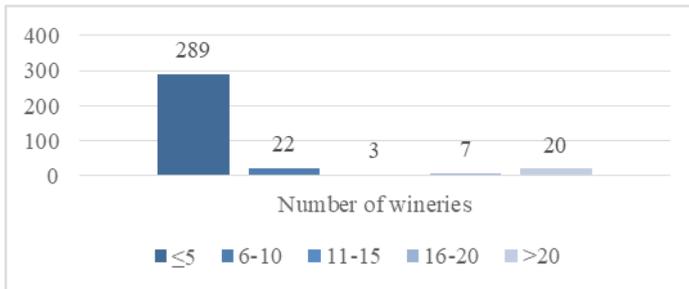
Source: Authors illustration by date of Statistical Office of the Republic of Serbia, austrianwine.com, germanwines.com, total-croatia-wine.com, OIV, Horwath HTL, 2019

Cultivating grapes for organic wine production in Serbia is at its beginning, comparing to other countries (Italy, Austria, France). Organic vineyards in Serbia cover the area of 0.7% out of all registered vineyards (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

The factor “labor”

According to Wine registry data, there are 1,629 part-time and full-time registered workers⁴. Out of the total number of workers, 1,364 are full-time employed and 265 are part-time employed in wineries. The following chart (Figure 8) presents how many workers are employed by wineries. Most wineries in Serbia hire up to five workers and the least wineries employ between 11 to 15 workers.

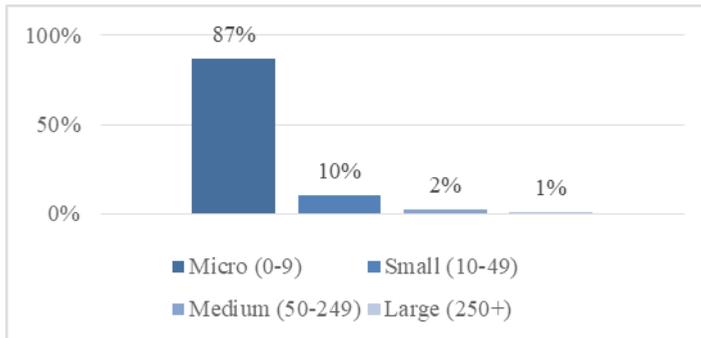
Figure 8. Wineries categorized by their number of employed workers



Source: Authors illustration by date of Ministry of Agriculture, Forestry and Water Management, Wine registry, 2019

According to European Commission criteria, which is based on the Commission’s 2003 standards, Serbia has a dominant number of micro wineries (87%) by the number of full-time employed workers (0-9 workers) (Figure 9).

4 Note: data collected was on 14 March 2019. At the time, Wine registry had 330 wine producers registered.

Figure 9. Size of wineries according to their number of full-time employed workers

Source: Authors illustration by date of the questionnaire completed by wine makers (n=97), Statistical Office of the Republic of Serbia, 2018

There is a disproportionate number of vine growers compared to wine makers in Serbia. Vine growers outnumber wine makers 12.5:1. From 2014 to 2018 the number of wine makers has increased by 10% and the number of vine growers has increased by 42%. There are several main reasons for this. One is that wine makers are demotivated to register due to unfavorable legislation which regulates the production and distribution of wine. The second reason is a lack of appropriate know-how, along with risks that disincentives entering the wine business (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Serbia intends to implement a digital reform of agricultural employment. The main goals of this reform are eradicating the gray economy, easing financial and administrative procedures for employers, regulating informal employment and the protection of rights for seasonal workers. The reform intends to:

1. Cut time needed for registering a worker;
2. Reduce monthly costs for employers regarding taxes and fees;
3. Decrease average yearly expenses for hiring seasonal workers;
4. Increase the number of registered seasonal workers with the right for social insurance;
5. Create a registry of seasonal workers.

There are multiple benefits from this digital reform. For the state it means an increase in formal employment and an increase in income from taxes and fees. For the employers this means less time needed to register workers, as well as lesser monthly expenditures per worker. And finally, this reform gives workers a right to social insurance, pension and insurance from work related injuries. Workers can apply for unemployment benefits if they are unemployed and their years of service will be accepted (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

The factor “capital”

Capital is one of the three economic factors (other two being land and labor) believed to be the pillars of any economy. To a certain extent, capital is a crucial factor in the wine industry as well.

If an entrepreneur decides to plant and cultivate a vineyard in Serbia, given average input prices, excluding the expenses for land clearing, resting the soil or insurance costs, the average cost would be 14,692 €/ha. The cost of yearly maintenance during yielding would be 2,827,6 €/ha. A general economic assessment indicates that one farm can have use of vine growing and wine making if it owns at least 5 ha of vineyards. Given that, total costs for planting and maintaining 5 ha of a young vineyard until yielding are 73,460 €. Yearly costs of maintenance and insurance are 14,138 € (Jakšić, 2019).

Appropriate wine processing rooms and equipment is needed for wine production. If appropriate processing rooms, such as a wine cellar, is already owned, the next biggest investment would be in equipment, which requires additional 5,000 €. Equipment in wine production are wine mulches, stainless steel tanks, bottling machines etc. There are also expenses regarding bottles, corks, labels, yeasts and other enological equipment which amount to 2.5 € per bottle. It is estimated that, for 1 ha of vineyard and for wine production, around 30,000 to 35,000 € is needed⁵.

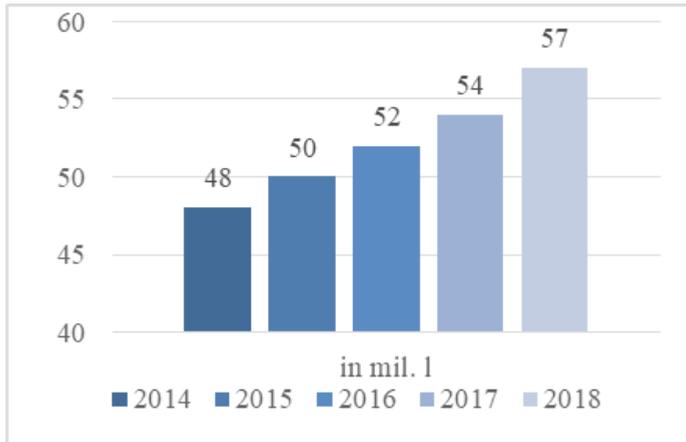
The factors “supply and demand”

There are no special limitations or licensing systems regarding wine trade in Serbia. Wine trade is operated by a business entity or entrepreneurs registered in Serbian Business Registers Agency. Wine can be sold to the end customer only in original packaging, but wine producers can sell their wine, without geographical origin, to customers in wineries or at wine events. The bulk wine trade is limited to wine makers registered in the Wine registry (Jakšić, 2019). Most of the wine is sold in a glass bottle (75%), then in a plastic (PET) container (15%) and finally in a cardboard packaging (10%)⁶.

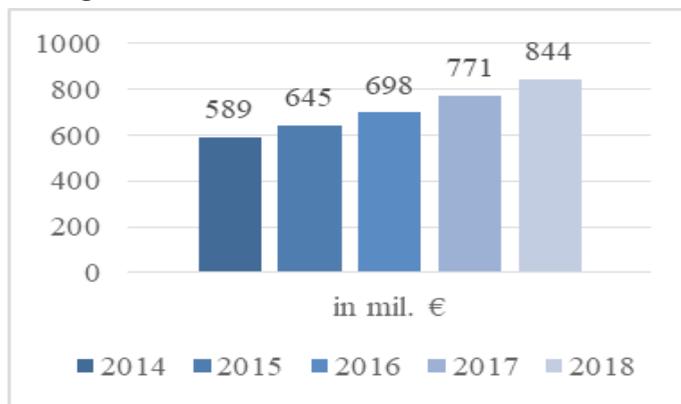
For the period from 2014 to 2018, wine sales were on the rise. Income from wine sales rose approximately 9% as well as consumption on average 4% (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia). Figures 10 and 11 present wine trade in Serbia in sold quantities and acquired profits.

5 Source: www.vino.rs/podrum/q-and-a/item/2165-koliko-novca-treba-za-proizvodnju-vina.html

6 Source: www.agroklub.rs/vinogradarstvo/uvozimo-tri-puta-vise-vina-nego-sto-izvozimo/40271/

Figure 10. Sold quantities of wine in Serbia, 2014-2018

Source: Authors illustration by date of Euromonitor International, 2019

Figure 11. Profit from wine sales in Serbia, 2014-2018

Source: Authors illustration by date of Euromonitor International, 2019

Retail is the most dominant wine distribution channel (69%). Although, when it comes to revenue, most of revenue is made through HoReCa⁷ distribution channel (57%), (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Most of the wine customers in Serbia are willing to pay 350-500 RSD for a bottle of wine (32%). After that, 26% of customers from 200-350 RSD, 17% from 500-750 RSD and only 5% are willing to pay over 900 RSD. The cheapest wine, under 200 RSD is bought by 11% of customers⁸.

Serbia has great potential for exporting wine, given its many bilateral and multilateral agreements. The most significant agreements are CEFTA (agreement made with

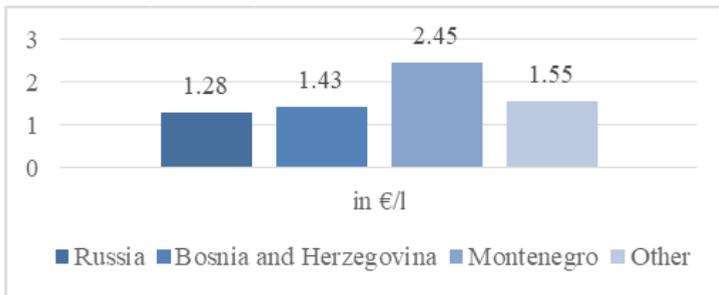
⁷ Syllabic abbreviation of the words Hotel/Restaurant/Café.

⁸ Source: www.agroklub.rs/vinogradarstvo/uvozimo-tri-puta-vice-vina-nego-sto-izvozimo/40271/http://ea.bg.ac.rs

countries from South-eastern Europe), with the EU, Russian Federation. Serbian wine exports to CEFTA countries in 2016 was approximately 13,700,000 l, which is 6% out of all CEFTA countries wine exports (Vlahović, 2019).

Serbia’s largest wine export market between 2015 and 2018 was the Russian Federation (on average 44,360 hl of wine per year, with an average value of 4,800,800 €). Bosnia and Herzegovina (on average 35,633 hl per year, with an average value of 4,228,870 €) and Montenegro (on average 15,985 hl per year, with an average value of 2,823,777 €) were also notable destinations for Serbian wine (Statistical Office of the Republic of Serbia, 2019). Average export prices (in €/l) of Serbian wines on beforementioned markets are presented on the following chart (Figure 12).

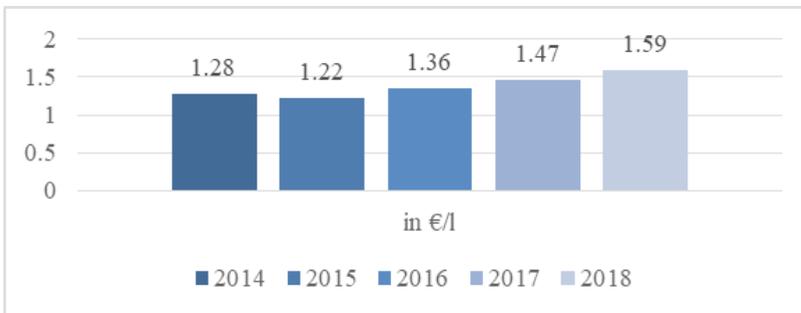
Figure 12. Average export price for Serbian wines on various markets, 2018



Source: Authors illustration by date of UN Comtrade database, 2018

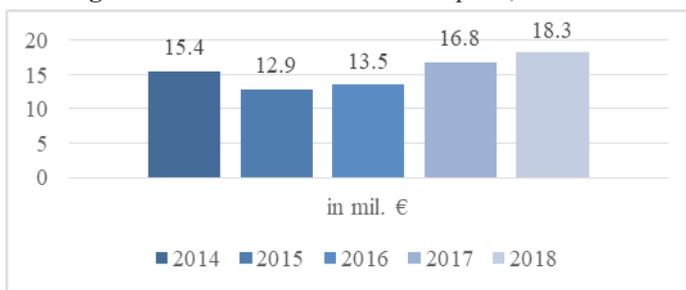
The average price of Serbian exports rose 5,5% from 2014 to 2018. The following chart (Figure 13) clearly indicates such trend (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Figure 13. Average export price of Serbian wines, from 2014 to 2018.



Source: Authors illustration by date of UN Comtrade database

The biggest revenue from wine exports was made in 2018, when it was 18,3 million € (Figure 14). The value of Serbian exports from 2014 to 2018 grew on average 4,4% (Development program for 2021-2031 for winemaking and viticulture in the Republic of Serbia).

Figure 14. Value of Serbian wine exports, 2014-2018

Source: Authors illustration by date of UN Comtrade database, Statistical Office of the Republic of Serbia, OIV, 2019

Conclusions

As stated, performance evaluation of Serbian wine producers was evaluated using a relative novel method, netnography, which gathers data and observes occurrences in a digital sphere. Netnography is a qualitative method, which was used to search relevant sources during research. Conclusions will be presented individually for each before mentioned factor.

The factor “land”

The total agricultural land in Serbia is 5,178,692 ha, out of which 22,150 ha are covered with vineyards. Out of the total vineyard area, 6,700 ha are registered for wine production. International grapes can be mostly found in Serbian vineyards with a small percentage of autochthonous grape varieties. The average yield from 2018 to 2020 was 7.8 t/ha and the majority of wine produced is red and rose. Land coverage with vineyards in Serbia is among the smallest in Europe, which results in small individual vineyards, where the average farm cultivates 0.28 ha of vineyard. There is also a small percentage of vineyards registered for organic wine production.

The factor “labor”

As measured by number of workers employed, small and micro wineries are the dominant types of wineries in the Republic of Serbia. The majority of wineries employ a maximum of 10 full-time workers. There is also a notable imbalance between the total number of vine growers and wine makers, which shows that wine makers are not motivated to register their business. Steps to ease regulations and provide a better transfer of know-how, which has been identified as main reasons for this small number of wine makers, should motivate them to register.

The factor “capital”

When looking at costs for planting a vineyard and producing wine, it can be concluded that high expenses make this business one of the most expensive agricultural branches. The costs consist of costs for planting a vineyard, servicing, equipment and other

materials. If small wineries are to be profitable, and also competitive on the ever-growing market, various subsidies from the state are needed.

The factors “supply and demand”

Wine consumption in Serbia has increased over the years, and with that, wine makers income has increased as well. Given the bilateral and multilateral agreements the Republic of Serbia has, there is an increase of Serbian wine exports. Most notable trading partners are the Russian Federation, countries that signed the CEFTA agreement and the European Union. The biggest quantities of wine, for the 2014-2018 period, have been exported to the Russian federation, Bosnia and Herzegovina and Montenegro. Because of low exporting prices, it can be concluded that Serbian exports are based on low priced wines. The average export price of Serbian wines has increased, though, as has overall value of Serbian wine exports. This trend is expected to continue for the foreseeable future.

This research has some limitations. Given that it is conducted using netnography, the reliability of aggregate data depends on the sources where that data was obtained on the internet. However, most of the data were collected from the Statistical Office of the Republic of Serbia and Ministry of Agriculture, Forestry and Water Management. Further avenues of research could include detailed interviews or surveys to corroborate the results presented here. It can also be conducted by introducing additional factors other than the assessed five factors.

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Conflict of interests

The authors declare no conflict of interest.

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