Supplier-industries of brewing and wine-production in the Czech Republic and their development

Dodavatelská odvětví pivovarnictví a vinařství v ČR a jejich vývoj

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Abstract: The paper compares the main factors influencing the key supplier-industries for brewing and wine-production in the Czech Republic – hop-growing and winegrowing – and it is a part of a more extensive research focused especially on the processing industries, and the specifics of their analyses. The importance of hop-growing and winegrowing is based on the fact that they significantly influence not only the final product, but also the competitiveness in the successive industries of the product vertical. Similar influence within the examined industries is evidenced in the close interconnection with the above-mentioned (main) successive processing-part, and in the complicated position of the small growers. Differences are shown especially in the flexibility of reaction to the changes of demand for final products of the successive industries, and also in the position of both industries in the Czech Republic, and in the world.

Key words: competition, industry analysis, hop-growing, brewing, winegrowing, wine-production

Abstrakt: Příspěvek srovnává základní faktory ovlivňující vývoj klíčových dodavatelských odvětví pro pivovarnictví a vinařství v České republice – chmelařství a vinohradnictví – a je součástí širšího výzkumu zaměřeného především na zpracovatelská odvětví a specifika jejich analýzy. Význam chmelařství a vinohradnictví je dán tím, že výrazně ovlivňují jak výsledný produkt, tak také konkurenční situaci v návazných odvětvích výrobkové vertikály. Obdobný vliv u zkoumaných odvětví se projevuje ve velké návaznosti právě na tento (hlavní) následný zpracovatelský článek a v ohrožení menších subjektů. Odlišná je jednak pružnost reakce na změny poptávky po finálních produktech následných odvětví, a také pozice obou odvětví v ČR a ve světě.

Klíčová slova: konkurence, analýza odvětví, chmelařství, pivovarnictví, vinohradnictví, vinařství

All organizations are nowadays put under a growing pressure connected with improving the effectiveness of their particular activities, acquiring and continuous update of information about customer needs and their fulfilment by the organisation and its competitors, and also with other fields of activities. This pressure on effectiveness and success is caused mainly by the growth of competition in most sectors. Significant advantages in the above-mentioned fields are still more and more connected with the use of information and communication technologies, turbulent development of which has also given the name to the current development stage of the world economy, which is called "digital economy".

This paper focuses on a comparison of the winegrowing and hop-growing industries in the Czech Republic from the viewpoint of industry analysis. The importance of both examined industries is determined by their position within the respective product-verticals, their popularity, and also the size and time-development of consumption of the subsequent industries.

Owing to the fact, that the share of the Czech Republic in the total area of the world is 0.06% (according to the CSO data), in the number of inhabitants it is 0.17%, and the share in the total GDP of the OECD countries is about 0.19%, it is obvious, that with our share of 1.2% in the total beer production and the long-term world leadership in beer-consumption per capita, which oscillates around 160 litres per year (CSO), the product vertical of beer is an interesting research object (confirmed by the almost 11% share

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in the world production of hops in 2003 – according to the data of the Ministry of Agriculture). Position of winegrowing is strengthened by the wine-market growth, which amounted for almost 10% in terms of the volume of the purchased wine in 2003 in comparison with 2002 (according to the survey of the GfK – ConsumerScan), and also by the 6% share of winegrowing in the total plant production of the Czech Republic.

MATERIALS AND METHODS

The main objective of this paper is a comparative study of the key characteristics of the winegrowing and hop-growing industries with regard to the operation of the key movement and driving forces of competition within these industries. Based on the identification of these influences, their cardinal effects for the subsequent industries are identified, and some recommendations for the firms operating in these industries are formulated.

Before the comparison itself, it is necessary to define the analyzed industries and their borders. This paper comes from Porter's definition of industry (Porter 1994), and considers winegrowing to be the industry formed by the growers of wine-grapes, and hop-growing formed by the growers of hops. This definition can be broadened using the industrial classification of economic activities (CZ NACE), according to which the paper deals with the following sub-groups or their parts:

- 01.11 – Growing grains and other cultural crops – hop growing;
- 01.13 1 – Growing fruits and nuts – production of wine if it is produced in the place of vineyards.

The comparative part of the paper is based on the concept presented by Thompson and Strickland (1989), and focuses on a comparison of operation of driving forces within the examined industries, which include the long-term industry growth rate, technological changes, diffusion of proprietary knowledge, changes in costs and efficiency, product innovations, marketing innovations, changes in who buys the product and how they use it, changing societal priorities and lifestyles, buyer preferences for a differentiated product, entry or exit of major firms, regulatory influences and government policy changes, uncertainty and business risk. The paper further compares the two industries from the viewpoint of the analysis of movement forces of competition within the industries according to the Porter's methodology (Porter 1994), which emphasizes the key forces emanating from intensity of competition of the current competitors, threat of new entrants, threat of substitutes, bargaining power of suppliers and bargaining power of buyers.

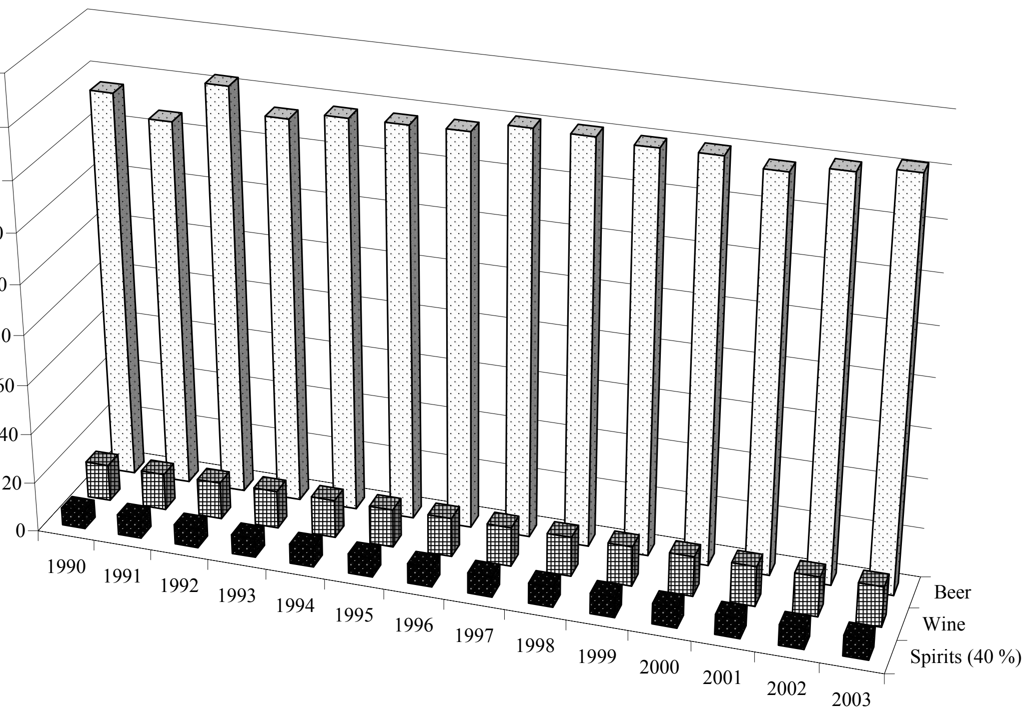

Figure 1. Average annual consumption of alcohol in the CR in the period of 1990–2003 (in litres per capita)

Source: Czech Statistical Office

Factors identified in the above-mentioned fields (a detailed description is included in the papers of Černíková 2004; Tomšík 2004; Žufan et al. 2000; Žufan, Erbes 2002 and Žufan 2004) are compared also with regard to the time of their influence, and their possible impacts on actions and strategies of brewing and wine-producing subjects are discussed, as well. Based on these analyses, the most important aspects of similarity/difference of winegrowing and hop-growing are compared from the viewpoint of the current competitors, and also from the viewpoint of the firms in the subsequent industries.

The evaluation of attractiveness of both industries is done in the verbal form (from the viewpoint of an existing firm), according to the methodology introduced by Higgins and Vincze (1989). Attractiveness is evaluated on the scale "high-medium-low". This evaluation is assessed based on a targeted dialogue with selected representatives of businesses operating in the respective fields.

RESULTS

The current situation in winegrowing and hop-growing is particularly determined by the development of the subsequent industries. In both cases, there occur slow changes, especially in terms of the development of demand, which is contrary in these industries – while the wine consumption is gradually growing, and it is expected that in the near future it will reach at least the average level of consumption in the EU member-states (35 litres per person per year compared with the Czech 16 litres), beer consumption is stable in the long-term and stays on the level, which does not enable any further growth, so its slow decline is generally expected (even though this expectation is still not fulfilled – just alike the expectations in the field of wine-consumption, which were a little more optimistic). Therefore, it is very important for the firms within these industries to monitor the key determinants of the future development, and also to compare these determinants in wine-production and brewing – industries, with a long-term (the average for the period of 1990–2003) share of 95% on the total consumption of alcoholic drinks, in the Czech Republic (Figure 1).

Driving forces

The key differences of winegrowing and hop-growing in terms of the driving forces include especially the long-term industry growth rate, and regulatory influences and government policy changes.

– *Long-term industry growth-rate* – this driving force is the most important one for both industries – currently, but even more from the long-term perspec-

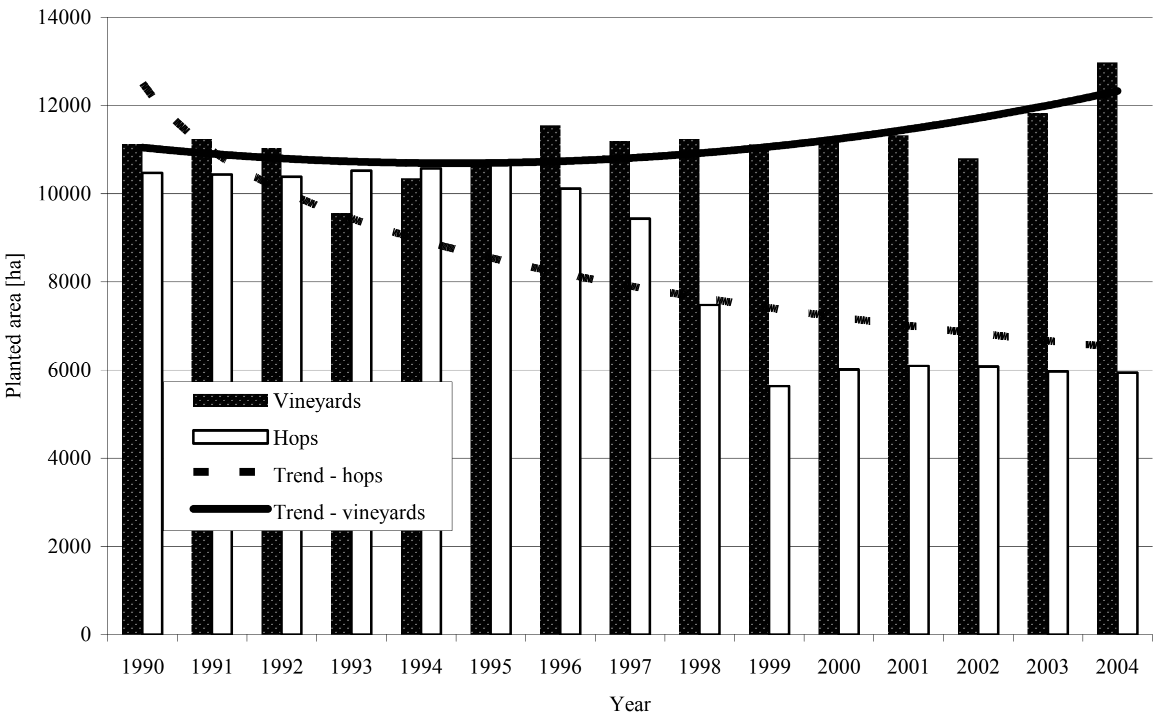

Figure 2. Comparison of the development of the area of vineyards and hop-fields in the period of 1990–2004

Source: Czech Statistical Office

Table 1. Development of the harvest and prices of grapes and hops in 1993–2004

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Grapes											
Harvest [t]	51 209	64 522	42 620	69 694	35 758	55 172	67 073	66 937	68 346	56 682	67 412
Prices of agricultural producers [CZK/t]	6 838	8 523	9 744	13 429	14 900	12 670	10 714	12 670	10 259	13 883	14 560
Hops											
Harvest [t]	8 536	9 417	9 489	9 889	10 125	7 415	4 896	6 434	4 865	6 621	6 442
Prices of agricultural producers [CZK/t]	177 893	146 411	146 879	142 771	120 039	123 864	132 068	133 603	134 121	107 690	118 000

Source: Central Institute for Supervising and Testing in Agriculture, Czech Statistical Office

tive. The main trends are obvious from the Figure 2, where the attention should be paid especially to the fact that while the area of hop-growing was on the level of only 57% of 1990, in 2004, the area of fertile vineyards grew by more than 15%, in the same period (which is distorted by the fact, that the results of the reaction of winegrowing to the actual market situation develop later than in hop-growing – the difference between the total area of vineyards, and the area of fertile vineyards in 2004 amounted to more than 5.7 thousand ha).

– *Regulatory influences and government policy changes* – the law on winegrowing and wine-production, law on hops-protection, and the directions of the European Union delimitate a lot of strict rules in the examined fields (and also in the subsequent ones) – from the basic terms in the field of growing vines and hops, their processing, through defining the maximum acceptable yields, the way of marking of products, to defining sanctions for not keeping or breaking the directives included in the particular laws.
– *Uncertainty and business risk* – this factor can be evaluated by a number of criteria; the most important ones include the price-development (and its possible dependence on the volume of harvests) and frequency of legislative changes. The second named factor can be considered to have a rather stabilizing character in the examined industries – there are some changes, but these are realized with (at least) certain interaction with the concerned subjects, and they are announced sufficiently in advance – enabling their incorporation into the business strategies. In terms of comparison of the development of the production volumes of grapes and hops in the Czech Republic and their prices, the development is easier to be estimated in hops, where the change of the total volume of harvest is more connected with the change of prices than in the case of grapes, where the connection of price with the volume of the harvest is imperceptible (see Table 1). These facts clearly project into the profitability of businesses – winegrowing was profitable only twice in the period of 1994–2004.
– *Technological changes* – main changes of winegrowing and hop-growing technologies are mostly based on the growing use of mechanization and decreasing share of human work. This factor grows in importance especially in winegrowing, where the potential use is much higher, than the current situation shows. Hop-growing is quite stabilized in these terms, and major changes are not expected in terms of new approaches to planting and growing, which could bring a cut of costs and an increase of effectiveness of production processes, whereas in winegrowing a more extensive use of mechanization is expected especially in the works connected with harvesting.

According to the significance, the most important driving forces for both industries (even though in a different way and interpretation) are the long-term industry growth rate, and regulatory influences. Winegrowing will go through significant technological changes, whereas hop-growing is facing a growing uncertainty and business risk.

Movement forces of competition

Similar features of winegrowing and hop-growing from the viewpoint of analysis of movement forces of competition (Porter 1994) include the character of influence of the threat from substitutes and bargaining power of buyers.

– *Threat of substitutes* – considering the situation in both industries, we can say that their main customers do not have any substitutes, which could replace the products of these industries. Just as it is not possible to produce grape-wine without grapes, it is also impossible to produce beer (at least the type demanded by the domestic consumers) without hops (even though its concrete form can differ). In this sense, the threat of substitutes is not a relevant force for these industries – or it does not cause a growth of the competitive rivalry within them.

– *Bargaining power of suppliers* – winegrowing and hop-growing are influenced by very similar partners, in this regard – reproducers, suppliers of plants, fertilizers and chemicals, and suppliers of mechanization equipment. Other suppliers include engineering firms producing the processing equipment for transforming the primary products into the form demanded by the subsequent industries – even though in the case of winegrowing these technologies are rather a matter of the next stage of the product vertical. Therefore, certain influence of this factor can be observed especially in hop-growing, because the development of the demand for hops shows a clear drift from its raw form to the granulated or otherwise processed hops, as it is also clear from Figure 3.

On the other hand, there can be identified major differences in winegrowing and hop-growing in the influence of the bargaining power of buyers and intensity of rivalry of existing firms.

– *Bargaining power of buyers* – here, it is necessary to differentiate the situation of winegrowers, typically integrated with the next part of the product vertical, and the situation of hop-growers as primary producers separated from the processors of hops (low level of forward integration). The difference between the examined industries is also based on the importance of their product for their buyers (grapes as the core input for wine-producers, and hops as only one of three main inputs, on the other hand). On the basis of this differentiation, the power of buyers towards hop-growers can be seen as partly strong (with regard to the number of breweries and the exports possibilities of Czech hop-growers). In winegrowing, it is necessary to differentiate two extreme situations – independent growers, and growers integrated with processing firms. In the case of independent growers, the situation is comparable with hop-growing (also in terms of economics – see Figure 4) – bargaining power of buyers can be considered partly strong. The other situation – integrated growing and processing of grapes – when the buyer is the same firm, which moves the situation into an incomparable basis (see also Štůsek 2005).

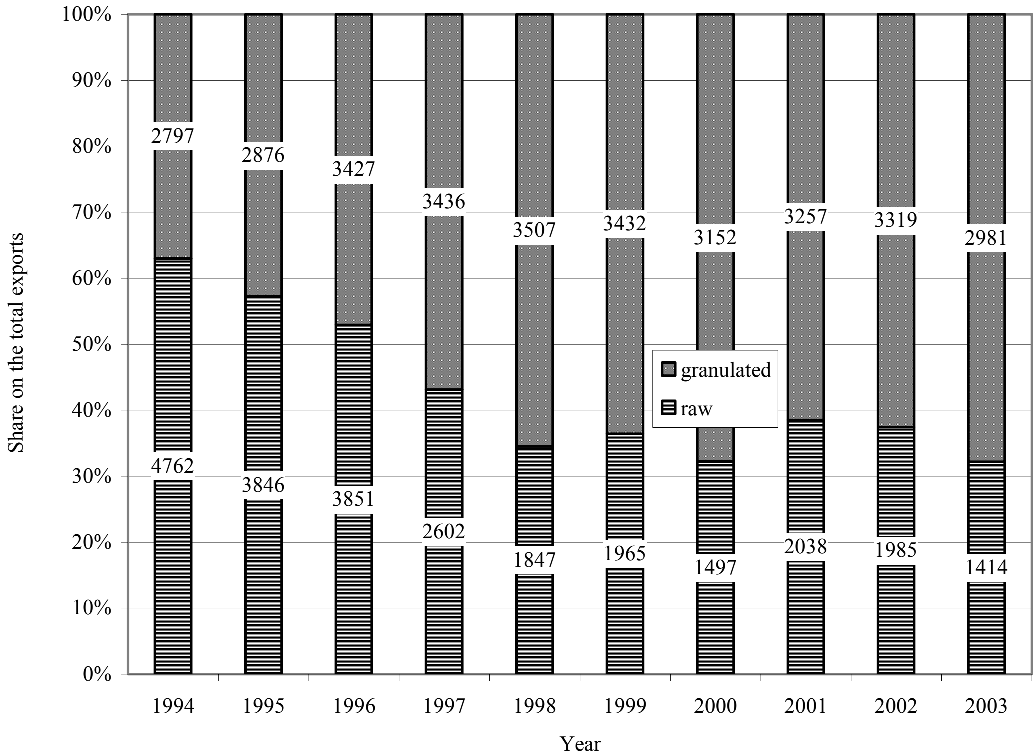

Figure 3. Structure of hops' exports in 1994–2003 (tons)

Source: Czech Ministry of Agriculture

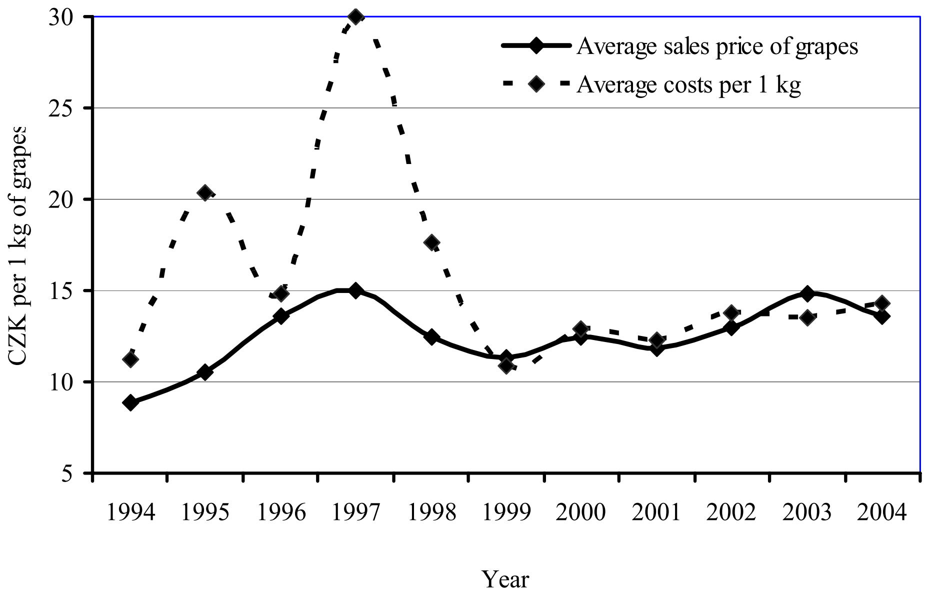

Figure 4. Economics of winegrowing

Source: Czech Union of Winegrowers

– *Intensity of rivalry of current competitors* – in both industries, the rivalry is not very intensive – hop-growers compete on the market, where they can react to the changes of demand faster than the winegrowers, and the nature of the product (hops) enables its storage, which lowers the competitive rivalry. In the case of winegrowers, the situation differs, because even though the area of mature vineyards will grow, the total area of (registered) vineyards has reached its limit, for certain time (currently to 2010), and its growth is temporarily stopped. Furthermore, the processing capacity of Czech wine-producers is double in comparison with the yield-capacity of Czech vineyards, which also lowers the competitive rivalry of winegrowers. The main subjects of competition are thus in both cases the foreign growers and processors, which is a lot more significant for winegrowers than for hop-growers.

Industry attractiveness

The above-performed analyses can be summarized in the following way, with regard to the key features of attractiveness of the examined industries (from the viewpoint of an existing firm):

– *Market size, growth potential, stage of the life-cycle:* from this point of view, the examined industries are in a different situation – the area of hop-fields has dropped down to a half within the past 15 years, whereas the vineyards have been slowly increasing their areas, and even in spite of the temporary ban on their expansion, this trend is expected to continue in future. Thus, hop-growing can be considered not attractive, and winegrowing attractive.
– *Industry structure:* these industries are attractive thanks to the potential growth of profitability, which is expected in future. From the viewpoint of the smaller producers (and potential new entrants), the structure of both industries is not attractive, which is determined by their bargaining power towards the next part of the processing chain.
– *Key driving forces:* attractiveness of the above-mentioned forces in hop-growing is rather low due to the growth of competition and the consequent drop of the hop-fields area, but also due to the respective risk and growing technological demands. Wine-growing, though, is attractive thanks to the growth of the vineyards area to 19 thousand hectares, and stabilized technological demands.
– *Probability of entry/exit of a major firm:* changes in both analyzed industries can rather be expected in terms of a change of owners of the existing firms, than in a possible establishment of a new or divestiture of an existing major player. Therefore, the attractiveness of both industries can be described as average, in this connection – we cannot expect an entry of a major firm (decreasing the attractiveness), neither an exit of a major firm (increasing the attractiveness).
– *Capital demands:* in these consequences, both industries are demanding especially due to the length of the production cycle, and the resulting

Table 2. Summarization of attractiveness of winegrowing and hop-growing

Factor	Industry attractiveness evaluation	
	winegrowing	hop-growing
1. Market size	high	low
2. Industry structure	medium	medium
3. Key driving forces	high	low
4. Entry/exit of a major firm	medium	medium
5. Capital demands	low	low
6. Demand stability	low	high
7. Technological level	high	high
8. Cost conditions	low	low
9. Intensity of competitive rivalry	high	high
10. Regulation	low	medium

slow speed of capital turnover. Thus, the attractiveness of these industries is low.

– *Stability of demand*: this factor, again, influences both industries differently – the demand in hop-growing, is rather stable (even though the attractiveness is lowered by the dependence on the natural cycles and its consequences), whereas in winegrowing, big differences are apparent, caused (except the mentioned natural cycles) by the fact that grapes in their raw form cannot be stored, which concentrates the demand into several weeks of the year, and it is impossible to correct the possible mistakes done in this period by their spread into a longer time.
– *Technological level and innovations:* from the viewpoint of technologies used and the needed know-how, both industries are rather attractive. These technologies, even though they are gradually implemented, and there still exist a number of firms keeping the "traditional" approaches, are generally known, and their development is slower, so there do not happen any surprising changes. Nevertheless, it is not possible to forget to mention the qualitative shift enabled by the new technologies, which was realized in the 90-ies of the past century.
– *Cost conditions*: both, winegrowing and hop-growing, are currently (in spite of the growth of consumer prices of beer and wine) on the edge of the possible survival for many firms, so even in spite of the expected improvement in this field, this group of factors makes both industries unattractive.
– *Intensity of competitive rivalry:* intensity of competition in both winegrowing and hop-growing can be judged as low – i.e. attractive for the current firms within these industries (and also in comparison with other industries).
– *Legislative, political, and other regulations:* this group of factors significantly influences the winegrowing, and decreases its attractiveness. In hop-growing, it does not play such an important role in terms of attractiveness.

Summarization of attractiveness of winegrowing and hop-growing is shown in Table 2 – based on the analyses summarized in the table, both industries can be considered medium-attractive for (as mentioned above) firms already operating in these industries, where a concrete influence of the particular factors differs not just with the size, age, but also with the area and extent of activities of a particular subject.

DISCUSSION AND CONCLUSION

Winegrowing and hop-growing are not only very popular industries for wide public, but it is also interesting to examine and compare these industries from the viewpoint of the current situation in them, and the possibilities of the future development. This paper focused on the comparison of the fundamental factors influencing the current situation, but also the future development in the winegrowing and hop-growing industries. The key differences of the examined industries currently include especially the size of the market and its future development, regulatory and technological influences, bargaining power of buyers (or the level of vertical integration), and intensity of competitive rivalry. An important difference is also the fact, that whereas the Czech Republic is the 4th largest grower of hops in the world, in the case of grapes the volume of Czech production is almost neglectable, which is even strengthened by the fact, that it does not cover even a half of the domestic consumption. On the other hand, the similar features of both industries include the influence of product differentiation, threat of substitutes, and bargaining power of suppliers.

Based on these important influences, it is possible to say that the most threatened group of firms are the small growers. Especially the viniculture subjects from this category are experiencing an increased attention of control and regulation bodies complicating their activities (especially putting high administrative demands), and also high barriers of exit (their vineyards are not attractive for the larger wine-producers because of their structure, location, area, etc.). Czech hop-growing is threatened especially by the expected decline of beer consumption, which should be possible to elevate by hops exports, because the Czech hop-growing (as the 4th biggest hops producer in the world) has a very good image, which still provides an advantageous potential for exports expansion.

Both examined industries are very dependent on the subsequent part of the product vertical, which emphasizes the necessity to monitor the trends of demand for final products of these industries, even though it is not possible to immediately react to these trends. That makes the situation of firms within these industries very problematic, and significantly underlines the necessity of strategic approach to their management.

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