



# *An Economic Analysis of the Macedonian Viticulture*

*– A Competitiveness View of the Grape and Wine  
Sectors*

*Gordana Manevska Tasevska*

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*An economic Analysis of the Macedonian  
Viticulture*

*– A Competitiveness View of the Grape and Wine Sectors*

*En ekonomisk analys av den makedonska vinodlingsindustrin  
– konkurrensperspektiv på druv- och vinproduktion*

*Gordana Manevska Tasevska*

*Supervisor: Yves Surry*  
*Co-supervisor: Nenad Georgiev*

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## Abstract

The study deals with an analysis of the competitiveness characteristics of the Macedonian grape and wine sectors during the period 1995 to 2004. The study is based on theoretical tool, the Diamond model (Porter, 1998, 127) on which qualitative and quantitative competitiveness parameters are incorporated.

In addition the SWOT analysis has been used as a diagnostic tool for identifying the strengths, (sectors' areas that need further development, and area that could seriously impact the ability to stay competitive), and the problematic areas, which need additional adjustment to the market conditions.

The research showed that the basic strengths of both sectors are due the existence of favorable factor conditions, and that the roots of the sectors weaknesses come from the lack of infrastructural investments (lack of capital) and application of inappropriate management strategies. Significant sectors benefit is the possibility given by the European Union, by which the wine production is classified as highly sensitive product. The specifically applied measures minimise disruption to existing wine markets and protect the Macedonian wine sector during a prolonged transition period to 2011, when the beneficial treatment will be terminated.

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Key terms: grape and wine production, competitiveness, competitive advantage, competitiveness strategies, and SWOT analysis.

## Sammanfattning

Studien analyserar konkurrensfördelarna i den makedonska druv- och vinproduktionen under perioden 1995 till 2004. Studien använder ett teoretiskt verktyg, Diamant modellen (Porter, 1998, 127), vilken integrerar kvalitativa och kvantitativa konkurrensfaktorer.

SWOT analys har även använts som diagnosverktyg för att identifiera styrkor (branschens områden som behöver utvecklas vidare och områden som allvarligt kan påverka förmågan att bevara konkurrenskraften) och problemområden, vilka behöver fortsatt anpassning till marknadsförhållanden.

Undersökningen visade att de huvudsakliga styrkorna i båda branscherna är närvaron av fördelaktiga faktortillgångar och att orsaken till sektorernas svagheter står att finna i bristen på investeringar i infrastruktur (brist på kapital) och användandet av missriktade strategier i företagsledningen. En viktig fördel för industrin är den möjlighet som EU erbjuder, som har klassificerat vin som en mycket känslig produkt. De speciella stöd som tillämpas minimerar störningar på den existerande vinmarknaden och skyddar den makedonska vinproduktionen under en förlängd övergångsperiod till 2011, när den fördelaktiga behandlingen upphör.

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Key terms: druv- och vinproduktion, konkurrenskraft, konkurrensfördel, konkurrensstrategi, SWOT-analys

## Abbreviations

BIH	Bosnia and Herzegovina
CEFTA	Central European Free Trade Agreement
denar	Macedonian currency
EAR	European Agency for Reconstruction
EU	European Union
FTA	Free Trade Agreement
GPV	Gross Production Value
MAFWE	Ministry of Agriculture Forestry and Water Economy (Republic of Macedonia)
MFN	Most Favoured Nations
MKD	Macedonian denar
SFRY	Socialist Federal Republic of Yugoslavia
SMG	Serbia and Montenegro
SSO	State Statistical Office (Republic of Macedonia)
SWOT	Strengths, weaknesses, opportunities and threats
VAT	Value Added Tax
WTO	World Trade Organization

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# 1 Introduction

The competitiveness issue is a crucial element of interest for all economies that work under the principles of market economy. To be competitive and to stay at that position requires constant adjustments to market conditions, following the competitors' moves and trends, but first of all, there is a need for restructuring the main production characteristics as quality, standard and prices according to the demand of the domestic and the international market.

The competitiveness of the grape and wine sector originates from the period when Republic of Macedonia was a part of the Yugoslavian Federation. In that period Macedonia was producer for a market of 22 million people (Yugoslavia as a whole). The existence of common market had direct impact to the size of the producing capacities and the products assortment. In that time almost all of the biggest processing facilities were built, and the major infrastructural facilities as vineyards, road and irrigation network were installed, but also the market was well organized. It allowed the Macedonian grape and wine sectors to enjoy the best time in the history of their existence.

Since the independence,<sup>1</sup> Macedonian agriculture has faced dramatic market changes. The market size dropped from 22 million to 2 million people. It caused big problems in the utilization of the production capacities but also the products sale at the foreign market was in a crisis. All of the previously established relations with the export market had to be renewed, but also there was a need to promote and expand markets toward other measures.

The new policy environment that took place implies signing of few international agreements, like FTAs with other countries in the region, central European countries and most importantly, the trade agreements signed with the World Trade Organization and the European Union. All of these agreements increased the sectors globalization, implying changes in the competitiveness conditions preferably in the sense of new regulation and changes in the buyers' demand.

Since 1991 until 2004, the main export destinations for the Macedonian wine are the European Union and the neighbouring countries, while grape production is used as main raw material for the wine industry.

Considering the competitiveness position at the domestic market, the Macedonian wine sector is on the second place among the agricultural sectors, and is next to the Tobacco sector. This ranking is based on the value that it generates from the export. In 2004 the total income of the wine export was about 32.6 million dollars while the tobacco industry has generated export income of about 61.7 million dollars.

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<sup>1</sup> Republic of Macedonia proclaimed its independence on September 8, 1991.

Knowing all these facts and the changes in market conditions there is a need of clarification whether the grape and the wine sectors are still competitive, or whether the competitive position on the market has changed.

Also important is to know what are the main characteristics that can hold the sectors to be competitive, and what are the problematic areas that have to be taken into consideration to keep the sectors' competitive position. All of these questions are included and observed by this analysis, through the application of specifically chosen qualitative and quantitative methods and parameters.

## 1.1 Aim

The aim of this study is to make a sectoral analysis of the Macedonian viticulture. This analysis determines the competitiveness's of the grape and the wine sector in terms of the strengths, weaknesses, opportunities and the threats of the Macedonian grape and wine sector.

## 1.2 Delimitation

The study is concerned with the competitiveness of the viticulture sector at national and international level. The analysis is done for the period 1995 to 2004, observing the factual situation, and the potentials as a base for further sector development.

The study does not deal with a comparative analysis of the competitors acting in these sectors nor of a viticulture sector in relation to the remaining sectors in the economy.

## 2 Method

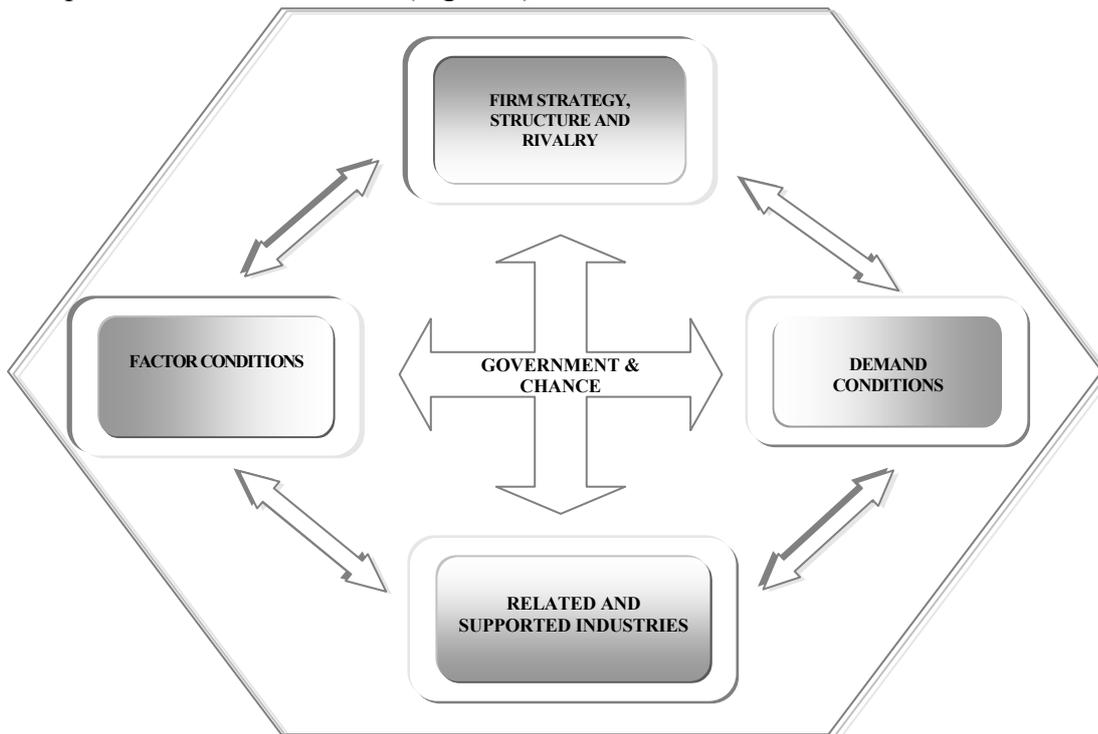
The study analysis for grape and wine sector competitiveness is based on two methodological approaches.

The approach contains the following parts:

- Descriptive presentation of the sectors' conditions;
- Empirical analysis of trade patterns, competitiveness and protection indexes, as well as market concentration measures;

All of the presented methodological approaches are based on statistical data from the Macedonian State Statistical Office, university textbooks, scientific papers, national agricultural reports and governmental documents. Furthermore, the study contains data calculated by the Department of Economics and Organization and the Department of Grape and Wine Production at the Faculty for Agricultural Sciences and Food – Skopje, as well as personal calculations. Some of the results are obtained and/or supported by relevant persons from the previously mentioned departments, as well as sector specialists that were contacted by e-mail or personal interviews.

The methodology for the *descriptive sector analysis* is built on the Porter's diamond model of competitiveness shown below (Figure 1).



**Figure 1: The Porter's Diamond Model (Porter, 1998, 127)**

Porter, one of the leading authorities on competitive strategy and international competitiveness, defines the diamond as a system in which the role of any determinant cannot be viewed in insulation.

The model deals with the information, incentives, competitive pressures, and access to supporting firms, institutions, infrastructure, and pools of insights and skills in a location that supports productivity and the productivity growth in particular fields (Porter, 1998).

The *empirical analysis* is the second part of the methodology. It represents the quantitative analysis part, through observation of the following characteristics and indexes:

- i. The trade patterns: export and import characteristics (quantities and prices), as well as the supply/demand of the grape and wine production;
- ii. The comparative advantage indexes: Domestic Resource Cost (DRC) and Balassa Index (BI);
- iii. Protection indexes: Nominal Protection Coefficient (NPC), and the Effective Protection Coefficient (EPC);
- iv. The market concentration indexes: Herfindahl index (H) and the Concentration ratio (CR);

The main reason for such an approach for determination the competitiveness of the Macedonian grape and wine sector stems from the fact that in insulation all competitiveness factors and measures have limited validity. As an example, the quantitative measures do not allow quantification of the results that have been obtained by the research. Weak side of the measures that use production cost, the producer's price, export and import price is that the structure of all costs incorporated in the calculation and the product quality differs widely among the sectors and countries, but also the application of specific agricultural policy (special product treatment) is not taken into account.

The analysis in which the qualitative and quantitative parameters are integrated gives more comprehensive picture of the sectors competitiveness by providing more relevant results that assure the analyst or the reader of their credibility.

## 3 Literature review

The literature review presented in the study is a theoretical background for better understanding of the models. The content of this chapter gives directions, to which the findings should be elaborated and presented, in the results section.

Porters' textbooks that treat the competitiveness issue are used as main sources for the literature review.

### 3.1 Concepts of competitiveness and comparative advantage

Competitiveness is one of the central preoccupations for the industry and the government in every nation. Many economists are trying to give an appropriate definition of what competitiveness and a competitive nation are. The competitiveness of the nations is explained with few fundamental statements such as: (i) "Competitive nation is one in which every firm or industry is competitive", (ii) "one whose exchange rate makes its goods price competitive in the international markets", (iii) "one with a large positive balance of trade", (iv) "one with a rising share of world export", (v) "one that can create jobs", and finally (vi) "one whose unit labour costs are low".

As a key concept for competitiveness, Koo and Kennedy stated that it is ability to deliver goods to consumer at prices equal to or lower than the competitors' price. According to Reed (2001), the competitiveness paradigm begins with the idea that the nations become rich because they experience sustained increases in productivity (for labour, capital, and other input factors).

Porter explains that among some economists the national competitiveness is seen as a macroeconomic phenomenon, depending on the exchange rates, interest rates, and government policy, while for other competitiveness depends on possessing fruitful national resources or appropriate management strategies and labour-management relations. Even though each of the previously mentioned factors are obviously related to the national competitiveness, still Porter does not see any of them as fully satisfactory.

The central principle in trade theory, which aids on an understanding of competitiveness, is that of comparative advantage. The *principle of comparative advantage* is one of the most important notion of trade theory that have been widely discussed by many economists. It is commonly used tool to analyze the trade patterns and further to explain country, or regional specialization and the trade advantages.

Following the Ricardian concept a country has a comparative advantage in producing a good, relative to another country or the rest of the world, if the relative cost of producing the goods is lower than it is abroad. Closer explanations to this definition give Koo and Kennedy. They explain that even through one country has absolute advantage in the production of all commodities; the country should specialize in producing commodities in which it has greater advantage. The other country should specialize in producing commodities in which it has a smaller disadvantage. In this case, both countries will produce and consume more by specializing in the production of one commodity and exchanging their output. So, according

to them the comparative advantage concept refers to the differences in opportunity costs<sup>2</sup> among the trading nations.

While Ricardian trade theory identified differences in *the efficiency* as the source of comparative advantage, Heckscher and Ohlin demonstrated that cross-country variations in relative *factor endowments* could also shape the pattern of trade. (Koo and Kennedy)

By *Comparative advantage*, Tsakok defines two meanings. She argues that the international competitiveness is due to *higher productivity* and *exchange rate*, explaining that the second meaning of comparative advantage is implied in the first one, and vice versa. If domestic production costs are less than in other producing nations, then the economy gains in efficiency terms in producing the tradable good. The gain is expressed in terms of foreign exchange.

The comparative advantage is not static and shifts over time. As possible reasons, Dahl and Hammond, (pg. 167) have listed the following changes in comparative advantages:

- Changes in natural resources;
- Changes in biological factors;
- Changes in input prices;
- Increased mechanization;
- Cheaper and more efficient transportation.

### 3.2 Coefficients of protection and comparative advantage

The *protection coefficients as defined* by Tsasok are explained as measures of relative incentives while the *coefficients of comparative advantage* as measures of relative efficiency, which have implication for incentives.

According to her the *coefficients of protection* enable analysts to compare domestic prices to foreign prices. These price ratios indicate the extent to which domestic price policy protects domestic producers from the direct influence of foreign markets and in the process generates incentives to domestic production.

*Coefficients of comparative advantage* indicate relative efficiency of domestic production for export and import substitution. They compare the domestic cost of producing a commodity to the net returns in foreign exchange (if an export) or to the net savings in foreign exchange (if an import substitute), and indicate activities that are efficient earners or savers of foreign exchange.

Coefficients of protection and comparative advantage allow analysis to determine whether incentives generated by price policy are supportive of efficient agriculture development and in what direction public investment and private incentive should be restructured to promote more efficient use of resources. The information content of coefficients of protection and comparative advantage is complementary, explaining that policy making combines considerations of both incentives and efficiency.

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<sup>2</sup> The opportunity cost is defined as minimum amount of a second commodity that must be given up to produce one additional unit of the first commodity (Koo and Kennedy p.14).

### 3.2.1 Nominal and effective protection coefficients

The coefficients for the level of protection are measures of the effects of policy protection. *Nominal Protection Coefficient (NPC)* is an indicator that describes the divergence between the market price and the foreign price of the product. It measures the protection in relation to the international markets, which the product enjoys on the local market.

$$\text{Nominal Protection Coefficient} = \frac{\text{Output}_{MP}}{\text{Output}_{SP}} = \frac{\text{Private output price}}{\text{Adjusted border price}}$$

“MP” – represents the domestic market price (private output price);

“SP” – is the shadow price (adjusted border price), respectively.

In case when:

$NPC < 1$  the markets' domestic price is less than the international parity price; There is no protection for producers;

$NPC > 1$  means that producers returns are higher than the international opportunity cost of the product allows. They benefit from protection, which gives gross receipt higher than the value of the goods produced.

The indicator is applicable only to the tradable goods. (Fabre, 1997)

Another protection coefficient that takes into account the tradable inputs used for the product is *Effective Protection Coefficient (EPC)*. This index combines the balance of the protection of the outputs and of the tradable intermediate goods and services (TGS). Actually the index value indicates the impact of the market imperfection and the price policies.

$$\text{Effective Protection Coefficient} = \frac{(\text{Output} - \text{TGS})_{MP}}{(\text{Output} - \text{TGS})_{SP}} = \frac{\text{Private value added}^*}{\text{Social value added}}$$

\* Note: Refers to what is left to share as payment for rents, services, wages, salaries, and profits.

The main difference between the NPC and EPC is that NPC does not take into consideration the price effect (protection or tax effects); it measures the absolute incentive. The EPS measures the relationship of the values added to the tradable flows within the two valuation systems (market price and the international opportunity prices), and enables estimation of the relative incentive (price effect and cost effect). (Fabre 1997).

### 3.2.2 Domestic resource cost

The criterion of the *Domestic resource cost (DRC)* indicates the cost of the production factors (non-tradable goods) necessary for the production of the equivalent of one foreign currency unit.

$$DRC = \frac{\text{Factors of production}_{SP}}{\text{Output}_{SP} - \text{TGS}_{SP}} = \frac{\text{Social value of nontradable inputs}}{\text{Social value added}}$$

The DRC expresses the effective income (cost) of the non-tradable production factors (the “domestic resources” of the economy) devoted to the potential net earning of one currency unit of “tradable resources”.

It compares the opportunity costs of domestic production to the value added that it generates and provides information about the international competitiveness of the product.

In case when:

$DRC < 1$  means that after covering the production factors cost, the society as a whole still has surplus of wealth; it indicates competitive advantage;

$DRC > 1$  indicates that the actual cost of the domestic factors used is higher than the value created for the economy, or that there is a loss of wealth; the value added in tradable goods and services (TGS) is less than the cost of the inputs used; it indicates competitive disadvantage.

$DRC = 1$  indicates maximum possible income of the factors which enable the product to be competitive in the international economy. (Fabre).

### 3.2.3 Balassa index

Another index which calculation is included and analyzed in the study is the *Balassa index (BI)*. It is an index of revealed comparative advantage (RCA) at the sector level showing the success in the export markets relative to the performance of the economy in general. As an index of RCA the Balassa index measures the intensity of specialization of a country within a region or world.

It is calculated as the ratio of the share of a given product in a country’s exports to another country or region to the share of the same product in that country or region’s total exports.

The Balassa index measures the intensity of trade specialization of a country within a region. The formula that was applied in the study is presented below:

$$BI = \frac{x_{mk}^{wine} / X_{mk}^{Agr.}}{x_{world}^{wine} / X_{world}^{Agr.}}$$

$BI$  – balassa Index;

$x_{mk}^{wine}$  – value of the wine exported from Macedonia in a certain year;

$X_{mk}^{Agr.}$  – total value of agricultural production exported from Macedonia for the same year;

$x_{world}^{wine}$  – value of the wine exported from the world in the certain year;

$X_{world}^{Agr.}$  – value of the total agricultural exports from the world in the certain year;

Note: As reference country can be taken any country or region, or the world as a whole.

A positive index value refers to country’s revealed comparative advantage. Higher value indicates better sector specialization, one in which the product belongs.

<http://www.oecd.org/dataoecd/18/60/35452748.pdf>

## 3.3 Market concentration measures

The relative amount of market concentration in any industry can be measured by two commonly used measures. These measures are the Concentration ratio and the Herfindahl index. Market concentration in this context is used as an indicator of market power. Its link to the competitiveness is that increase in market power decreases competitiveness.

### 3.3.1 Concentration ratio

The *Concentration Ratio* is expressed in the terms  $CR_x$ , showing the percentage of the market sector controlled by the biggest  $x$  firms.

If  $CR_3 = 70\%$ , indicate that the top three firms control 70% of a market.

$CR_4$  is the most typical concentration ratio for judging what kind of an oligopoly it is.

A  $CR_4$  of over 50% is generally considered a tight oligopoly;

$CR_4$  between 25% and 50% is generally considered a loose oligopoly;

A  $CR_4$  of less than 25% is no oligopoly at all;

$CR_3$  of over 90% or a  $CR_2$  of over 80% should be considered a super-tight oligopoly.

The main weakness of this measure is that  $CR_4$  does not indicate what the relative size of the four largest companies is. It may be that a  $CR_4$  of 80% means that only one company controls 50% of the market, while the others have 10% a piece. That's a very different market structure than one where every firm has a 20% share.

(<http://www.oligopolywatch.com/2003/08/15.html>).

### 3.3.2 Herfindahl (Herfindahl Hirschman) index

The **Herfindahl-Hirschman Index (H)** is named after Orris C. Herfindahl, the economist first credited with using it to analyze industry concentration. The index is assumed as more precise tool for measuring concentration because takes into account the relative size and distribution of the firms in a market.

It is calculated by squaring the market share of each firm competing in the market and then summing the resulting figures. The formula for this index is:

$$H = (\%S_1)^2 + (\%S_2)^2 + (\%S_3)^2 + \dots (\%S_n)^2$$

“**%S**” – represents the percentages of the market owned by each of the larger companies;

“**%S<sub>1</sub>**” – is the percentage owned by the largest company, “**%S<sub>2</sub>**” by the second;

“**n**” – represents the total number of firms you are counting.

The index value increases both as the number of firms in the market decreases and as the disparity in size between those firms increases. Higher index value assumes more concentration, and less open market competition. A monopoly, for example, would have an H index of  $S_1^2$  or  $100^2$ , or 10,000, that is the maximum score. By contrast, an industry with 100 competitors that each has 1% of the market would have a score of  $1^2 + 1^2 + 1^2 + \dots 1^2$  or a total of 100. The Index value of 1,000-1,800 indicates moderate concentration and value over 1,800 the concentration can be assumed as acute. (<http://www.oligopolywatch.com/2003/08/15.html>).

### 3.4 Determinants of national comparative advantage

The nature of competition and the sources of competitive advantages differ widely among the industries and even industry segments. Main determinants (Porter, 1998) that contribute to the national competitiveness are:

- Factor conditions,
- Demand conditions;
- Related and supported industries;
- Firms' strategy, structure, and the rivalry.

Except these four, Porter claims that there are two additional variables that can significantly influence the national system. The first variable is the *chance events* and the second one is the *government influence* (whether positive or negative influences that can not be controlled by the industry).<sup>3</sup> All of the previously mentioned determinants are part of the Porter Diamond Model that is graphically presented in the methodology part.

The determinants of national advantage shape the environment for competing in particular industries. At the natural resource-intensive industries and in the standardized lower-technology segments of more intensive industries factor conditions (first determinant) are frequently decisive, while the competitive advantage in the more sophisticated industry segments rarely results from only one single determinant.

Porter believes that nations achieve success in international competition where they possess advantages in the [“Diamond”](#). Because the requirements for success in industries and industry segments differ widely, nations can enjoy dominance in one industry segment and lack competitive advantage in another (Porter, 1998).

General Porter's argument is that the advantage in every determinant is not prerequisite for competitive advantage, but the interplay of advantage in many determinants yields self-reinforcing benefits that are extremely hard for foreign rivals to nullify or replicate.

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<sup>3</sup> All of the listed determinants are components of the Porter Diamond model, presented in the methodology part of the study.

### 3.4.1 Factor conditions

According to the standard trade theory the nations are endowed with different stocks of factors. The theory says that the nation will export those goods, which make incentive use of the factors with which it is relatively well endowed.

A common description for what the factor of production is refers to the terms like land, labour and capital. Porter sees this explanation as too general, and not appropriate to give clear insights to the competitive advantage, thus he suggests that the factors should be grouped into categories that are more specific.

The classification that he has proposed is as follows:

- *Human resources*: the quality, skills, cost of personnel (taking into account standard working hours);
- *Physical resources*: the abundance, quality, accessibility, cost of the nations' land, water, minerals, hydroelectric power sources, climatic conditions, location and the geographic size;
- *Knowledge resources*: the nations' stock of scientific, technical and market knowledge;
- *Capital resources*: amount and cost of capital available to finance the industry (debts, bonds, equity and venture capital);
- *Infrastructure* (type, quality, and user cost): transportation, and communication system, mail and parcel delivery, healthcare, payments of funds transfer etc.

The portion of each of the factors varies among the nations. The Competitive advantage from the factors depends on how efficiently and effectively they are used.

### 3.4.2 Demand conditions

The composition of demand conditions is presented by three main characteristics, each containing few more sub-parameters that significantly contribute to achieving national advantage.

- Home demand conditions:
  - *Segment structure of demand*, refers to the distribution of demand for particular varieties;
  - *Sophisticated and demanding buyers*;
  - *Anticipatory buyer needs*, home demand provides an early warning indicator of buyers' needs that will become widespread.

Nations' firms gain competitive advantage if domestic buyers are sophisticated and demanding for product and services. It pursues the firms to meet high standards in terms of product quality, features, and services. Another benefit of having sophisticated buyers with anticipatory needs comes from the fact that they are easily adaptive to new products and services.

- Demand size and pattern of growth:
  - *Size of home demand*, is widely discussed whether it is a positive or negative factor to the competitive advantage. Some of the explanations say that big domestic market assumes better economy, while other that the small domestic market pushes the companies to find other markets, and export the products. Referring to the size of home demand, Porter concludes that home market size is an advantage if it encourages investment and reinvestment, or dynamism.

- *Number of independent buyers*, stimulate the entry and investment in the industry, by limiting the power of dominant buyer to bargain away all profits.
  - *Rate of growth of home demand*. Rapid domestic growth influences the competitiveness advantage by its absolute size.
  - *Early home demand* helps local firms to move sooner than foreign rivals to become established in a nation.
  - *Early saturation*, the early penetration helps local firms to become established.
- Internationalization of domestic demand:
    - *Mobile and multinational local buyers*, mobile consumers provide a base of often-loyal customers, in foreign markets.
    - *Influences of foreign need*, refers to the situation when domestic needs and desires are transmitted to or inculcated in foreign buyers.

The effect of demand conditions on competitive advantage depends on the interplay among the presented factors but also depends on other “diamond” parts. (Porter, 1998).

### 3.4.3 Related and supportive industries

The existence of supplier or related industries in a nation is the third determinant that Porter has included in his “Diamond” model for competitive advantage. The supplier industries gives potentials for comparative advantage by producing inputs, offering new methodologies and opportunities to apply new technology, transmission of information, innovations, etc. Related industries are those in which firms can coordinate or share activities in the value chain when competing, or those, which involve products that are complementary. (Porter, 1998).

In the context of this determinant can be mentioned the practice of Clusters establishing. Clusters are inter-related firms and other institutions that drive the competitiveness of a given industry (e.g., private enterprises of varying sizes, associations, suppliers, buyers, universities, financial institutions, training and other business service providers, and other groups). Nation successful industries are usually linked through vertical (buyer/supplier) or horizontal (common customers, technology, channels, etc.) relationships. Vertical clusters generate high quality, while the horizontal clusters generate highly competitive firms. Once a cluster forms, the whole group of industries becomes mutually supporting.

As for the other determinants, Porter claims that the benefit of both supportive and related industries depends on the rest of the “Diamond”, and its systematic character.

### 3.4.4 Firm strategy, structure, and rivalry

The goals, strategies, and the ways of organizing firms in industries vary widely among nations, and there is not a managerial system that is universally appropriate. Porter claims that the national advantage results from a good match between these choices and the sources of competitive advantage in particular industry. The way in which firms are managed and choose to compete is affected by national circumstances. As most important national differences in management practices and approaches can be mentioned: the training, background and the orientation of leaders, hierarchical style, decision making, the relationship between labour and

management, relationship with the consumers. These differences create advantage and disadvantages in competing in different types of industries.

The pattern of rivalry has impact to the process of innovation and the ultimate prospects for international success. This pattern is explained further in the text as a part of the structural competitiveness determinants.

### 3.4.5 The role of chance

Porter sees the chance events as occurrences that have little to do with circumstances in the nation. The importance of the chance events is that they create discontinuities that allow shifts in competitive position. Namely, such events nullify the advantages of previously established competitors and create potential that a new nation's firms can supplant them to achieve competitive advantage in response to new and different conditions.

Possible influences that can be assumed as "chances" are:

- Act of pure invention;
- Major technological discontinuities (biotechnology and microelectronic);
- Discontinuities in input costs;
- Shifts in world financial markets or exchange rates;
- Surges of world or regional demand;
- Political decisions by foreign governments;
- Wars

### 3.4.6 The role of government

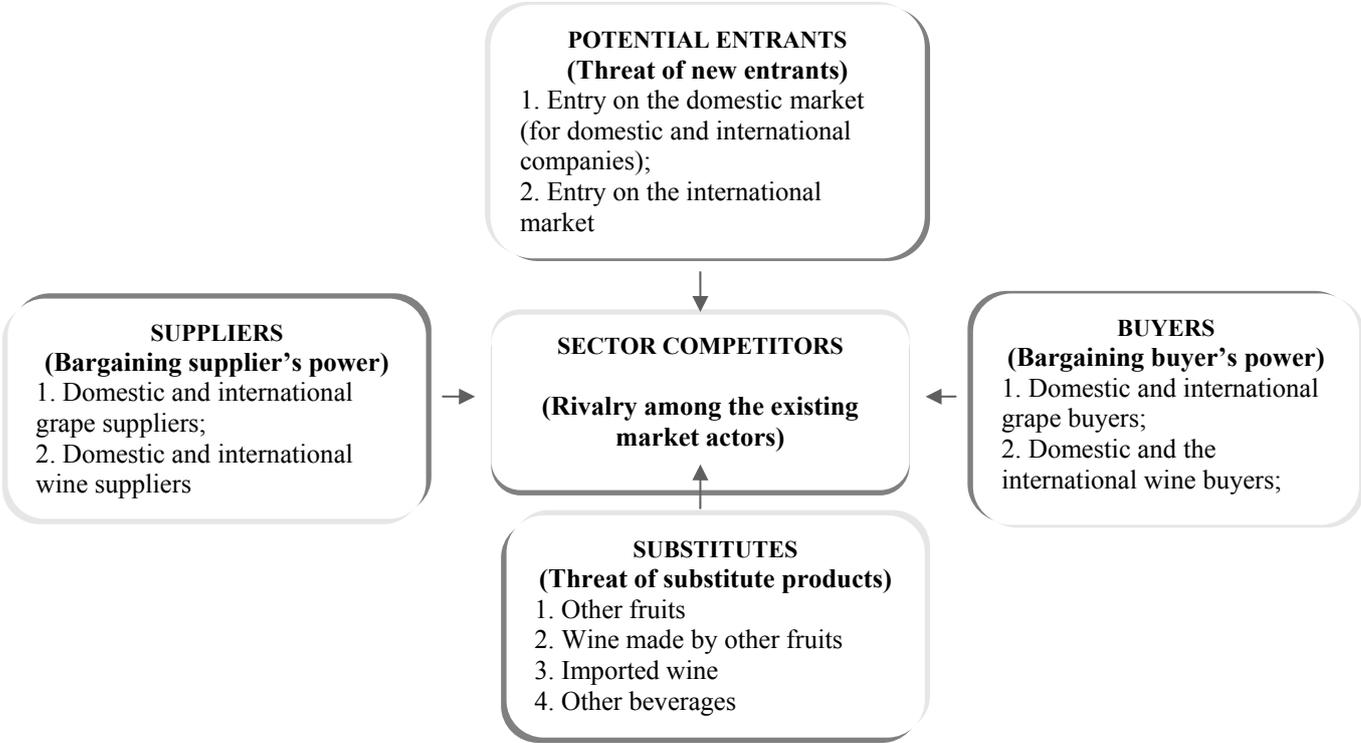
The role of government is the last determinant of national competitive advantage described by Porter. Even though the chance and the role of the government in the "Diamond" model are presented as additional determinants, their role especially the government role is very important and has significant direct influence to all of the basic four determinants. Actually, the government shapes the circumstances in the demand and factor conditions, as well as to the related and supported industries and the firms' strategies, structure and rivalry. In one sentence the government through application of its "positive" or "negative" policy (subsidies, taxes, education policies, roles, antitrust laws, quality standards, capital market regulations etc), has an important influence to the national competitive advantage.

### 3.5 Industry structure analysis<sup>4</sup>

#### 3.5.1 Structural determinants of the intensity of competition

The basic principles of competitive strategy apply whether a firm is competing domestically or internationally. The pattern of international competition differs markedly from industry to industry. The *goal of competitive strategy* for a business unit in an industry is to find a position in the industry where the company can best defend itself against competitive forces or can influence them in its favour. (Porter, 2004).

In terms of formulating competitive strategy, the intensity of competition in an industry is neither a matter of coincidence nor a bad luck. Instead, it comes from underlying economic structure and goes well beyond the behaviour of the competitors. The state of competition in an industry depends on five basic competitive forces. The collective strength of these forces determinates the ultimate profit potential of the industry. The forces are graphically presented in the figure below (Figure 2).



**Figure 2: Forces Driving Industry Competition<sup>5</sup> (“minor alterations”, Porter, 2004, pg. 4)**

<sup>4</sup>Note: Following Porter explanation structural analysis (1998, p. 5) applies to diagnosing industry competition in any country or in an international market, though some of the institutional circumstances may differ.

<sup>5</sup> The factors presented in the figure serve as complement determinants to the “diamond” model, and give better insight to the problem analysed in this study.

## Potential entrance

The threat of entry into the market depends on the *barriers* to entry that are present, coupled with the reaction from existing competitors that the entrant can expect.

In his book, Porter (2004) has elaborated six major sources of barriers to entry:

- *Economies of scale* refer to declines in unit cost of product as the absolute volume per period increases.
- *Product differentiation* means that established firms have brand identification and customer loyalties, which stem from past advertising, customer service, product differences, or simply being first into the industry.
- *Capital requirements*, getting credits.
- *Access to distribution channels*. Existing competitors may have ties with channels based on long term relationships, high-quality service, or exclusive relationships in which the channel is solely identified;
- *Switching costs*, that may include employee-retraining costs, cost of new equipment, cost and time in testing or qualifying new sources etc.
- *Cost disadvantages independent of scale*, the most critical advantages are factors such as the following: proprietary product technology (product know-how) or design characteristics that are kept proprietary, favourable access to the raw material, favourable location, government subsidies, learning or experience curve, government policy (licensing requirement and limits on access to raw materials, control requirements, product standards).
- *Government policy*, by limiting or foreclosing the entry into industry with controls as licensing requirement or limits on access to raw materials.

## Bargaining power of buyers

Buyers compete with the industry by forcing down the prices, bargaining for higher quality or more services, and playing competitors against each other — all at the expense of industry profitability. The power of each buyer's group depends on many characteristics of the market situation and on the relative importance of its purchases from the industry compared with its overall business.

A buyer group is powerful if the following circumstances are held true:

- It is concentrated or purchases large volumes relative to seller sales;
- The purchased product represents significant fraction of the buyers' costs or purchases;
- The products it purchases from the industry are standard or undifferentiated, the buyers are sure that can always find alternative product;
- It faces few switching costs;
- It earns low profits;
- Buyers are partially integrated or pose a credible threat of backward integration;
- The industry's product is unimportant to the quality of the buyers' products or services;
- The buyer has full information.

A company choice of buyer group to sell to should be viewed as a crucial strategic decision. A company can improve its strategic posture by finding buyers who possess the least power to influence it adversely — *buyer selection*. (Porter, 2004).

## **Bargaining power of suppliers**

Suppliers can exert bargaining power over participants in an industry by threatening to raise prices or reduce the quality of purchased goods and services. The conditions making suppliers powerful tend to mirror those making buyers powerful.

A supply group is powerful if the following apply:

- It is dominated by a few companies and is more concentrated than the industry it sells to. Suppliers selling to more fragmented buyers will usually be able to exert considerable influence in prices, quantity and terms;
- It is not obligated to contend with other substitute products for sale to the industry;
- The industry is not an important customer of the supplier group. If the industry is an important customer, suppliers' fortunes will be closely tied to the industry;
- The suppliers' product is an important input to the buyers' business, especially in case when the input is not storable;
- The supplier groups' products are differentiated or it has built up switching costs;
- The suppliers group poses a credible threat of forward integration;

In many industries, the government is a buyer or supplier and can influence industry competition by the policies it adopts. (Porter, 2004).

## **Pressure from substitute products**

All firms in an industry are competing, in a broad sense, with industries producing substitute products. Substitutes limit the potential returns of an industry, but also can reduce the bonanza of an industry can reap in boom times.

Identifying substitute products is a matter of searching for products that can perform the same function as the product of the industry. Substitute products that deserve the most attention are those that (1) are subject to trends improving their price-performance trade off with the industry's product, or (2) are produced by industries earnings high profits. In the latter case, substitutes often come rapidly into play (if some development increases the competitiveness of their industries) and causes price reduction or performance improvement. (Porter, 2004)

## **Intensity of rivalry among existing competitors**

Rivalry among existing competitors (Porter, 2004) occurs because one or more competitors either feels the pressure or sees the opportunity to improve position. For that purpose companies use tactics like price competition, product introduction, increasing of the consumers' services or warranties, advertising battle etc. In most industries, competitive moves by one firm have noticeable effects on its competitors and thus may incite retaliation or efforts to counter the move (if firms are mutually dependent).

Rivalry in some industries is characterized by such phrases as: "warlike", "bitter" or "cutthroat" whereas in other industries it is termed "polite" or "gentlemanly".

Intense rivalry is the result of a number of interacting structural factors:

- *Numerous of equally balanced competitors*, at the domestic market and internationally;
- *Slow industry growth*. It turns competition into market share game for firms seeking expansion;
- *High fixed or storage costs*. The significant characteristic of costs is fixed costs relative to value added and not fixed costs as a portion of total costs. The situation related to high fixed costs is one in which the product, once produced, is very difficult or costly to store;
- *Lack of differentiation or switching costs*. The Product differentiation creates layers of insulation against competitive welfare because buyers have preferences and loyalties to particular seller. The switching cost issue explains the same;
- *Capacity augmented in large increments*;
- *Diverse competitors*, meaning that the strategic choices right for one competitor will be wrong for others. The competitors may have hard time reading each other's intentions and agreeing on a set of "rules of the game". In such situations foreign competitors often can add a great deal of diversity to the industries;
- *High strategic stakes*;
- *High exit barriers* like economic, strategic and emotional factors that keep companies competing in businesses even though they may be earning low or even negative returns or investments.

## 3.6 Structural analysis and the competitive strategy

Once the forces affecting competition in an industry and their underlying causes have been diagnosed, the firm is in a position to identify its strengths and weaknesses relative to the industry. An effective competitive strategy takes offensive or defensive action in order to create a defensible position against the five competitive forces.

In this context, the industry can apply a number of possible approaches like:

- To position a firm so its capabilities provide the best defence against the existing competitive forces;
- To influence the balance of forces through strategic moves, thus to improve the relative position;
- To undertake activities that will lead the company to further evolution.

### 3.6.1 Generic competitive strategies

The generic strategies (Porter, 2004) are approaches to outperforming competitors in the industry. In his book, he has elaborated three potentially successful approaches for outperforming, and each of them will be presented separately.

#### **Overall cost leadership**

This strategy requires (Porter, 2004) strong construction of efficient-scale facilities, vigorous pursuit of cost reduction from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization for advertising, services, etc.

Having low cost position gives the firm a defence against rivalry from competitors, against powerful buyers and suppliers, and finally places the firm into a favourable position vis-a-vis substitutes relative to its competitors in the industry. So, low cost position protect the firm against all five competitive forces because, as Porter explains, bargaining can only continue to erode profits until those of the next most efficient competitor are eliminated, and because the less efficient competitors will suffer first in the face of competitive pressures.

Achieving a low overall cost position often requires a high relative market share, favourable access to raw materials, heavy up-front capital investment in state-of-the-art equipment, aggressive pricing, start-up losses to build market share. Once achieved, the low-cost position provides high margins, which can be reinvested in new equipment and modern facilities in order to maintain cost leadership. Such reinvestment may well be prerequisite to sustaining a low-cost position.

As risks (Porter, 2004) that may follow this strategy can be mentioned:

- Technological change that nullifies past investments or learning;
- Low-cost learning by industry newcomers or followers, through imitation or through their ability to invest in state-of-art facilities;
- Inability to see required product or marketing changes because of attention placed on cost;
- Inflation in cost that narrow the firm's ability to maintain enough of a price differential to offset competitors brand images or other approaches to differentiation.

## **Differentiation**

This strategy refers to differentiating the products or services offering of the firm, creating something that will be perceived as unique.

Porter has mentioned few approaches that can lead to differentiation: design or brand image, technology, customer service, and dealer network. Differentiation, if achieved, is a good base for reaching defensible position for coping with the five competitive forces, by providing insulation against competitive rivalry (because of the brand loyalty by the consumers), resulting consumer loyalty provide entry barriers, differentiation increases the margins that avoids the need for low-cost position, and deals with the supplier as well as the buyer power, and finally the firm that has differentiated it self is better positioned vis-a-vis substitutes than its competitors.

One of main characteristics for the differentiation is that it requires a perception of exclusivity, which is incompatible with high market share. Achieving differentiation implies extensive research, product design, high quality materials or intensive customer support.

Risks (Porter, 2004) that are closely related with the differentiation are:

- The cost differential between the low-cost and the differentiated firms becomes too big, thus the brand loyalty is becoming questionable.
- Buyers' need for differentiating factor falls. It occurs when as they become more sophisticated.

## **Focus**

Following the Porter's explanation, this strategy means focusing on a particular buyer group, segment or product line, or geographic market. The focus strategy is build to serve to a narrow targeted group. The established close relation enables the firm to achieve either the differentiation from better meeting the needs of the targeted group, lower cost in serving this target, or both. As well as the differentiation the focus, strategy implies some limitations, so according to Porter the focus involves trade-off between profitability and the sales volume, and may or not involves a trade-off with the overall cost position. Risks that may influence the focus strategy are:

- The cost differential between broad-range competitors and the focused firm widens to eliminate the cost advantages of serving a narrow target or to offset the differentiation achieved by focus;
- The differences in desired product or services between the strategic target and the market as a whole narrows;
- Competitors find submarkets within the strategic target and out focus the focuser.

Finally, as an overall comment again I will use the Porter explanation saying that all of the previously mentioned strategies are alternative, viable approaches for dealing with the competitive forces. He also claims that extremely worse situation for the firm is to be "stuck in the middle". The firm stuck in the middle must either take the step necessary to achieve cost leadership, must orient itself to particular target, or to achieve some uniqueness (differentiation). (Porter, 2004).

## **Conclusion to the literature review**

Competitiveness is one of the central preoccupations for the industry and the government in every nation. Moreover that the competitiveness position is permanently influenced by many factors and the operating conditions vary over the years.

As presented in the literature review section, among the most important factors that influence the competitiveness are: the factor and demand conditions, sectors' management and strategy, firms' rivalry, as well as the government and the chance influence. While analysing the competitiveness, all factors have to be seen as a system. The analysis of these factors is used as a tool for qualitative describing of the competitiveness conditions in which a sector or an industry operate. Quantification of the competitiveness conditions is possible by using quantitative parameters. Measures that are applied in this study are: coefficients of protection, comparative advantage and market concentration measures. Market concentration are used as an indicator of market power, the coefficients of comparative advantage show the cost of the domestic resource use and the sector specialization, while the value of the protection coefficients indicate the extent to which domestic price policy protects domestic producers from the direct influence of foreign markets.

## 4 Results

The results are combination of the qualitative and the quantitative findings that contribute to explaining the conditions prevailing in the grape and wine sector in Macedonia. The results' structure follows Porters' Diamond model frame.

### 4.1 Factor endowments

#### 4.1.1 The tradition as a factor endowment

Viticulture had a long-standing tradition in Macedonia. Many historical documents and the amphorae unearthed in the archaeological locations testify to the tradition of grape growing and wine production in as early as the classical (the period before Christ – BC). Between the V<sup>th</sup> to VII<sup>th</sup> century (AC) the Slavs arrived to the territory and embraced this tradition. The period between the XI<sup>th</sup> and the XIV<sup>th</sup> century in the historical documents is marked as the age for significant development of vine growing and the wine production.

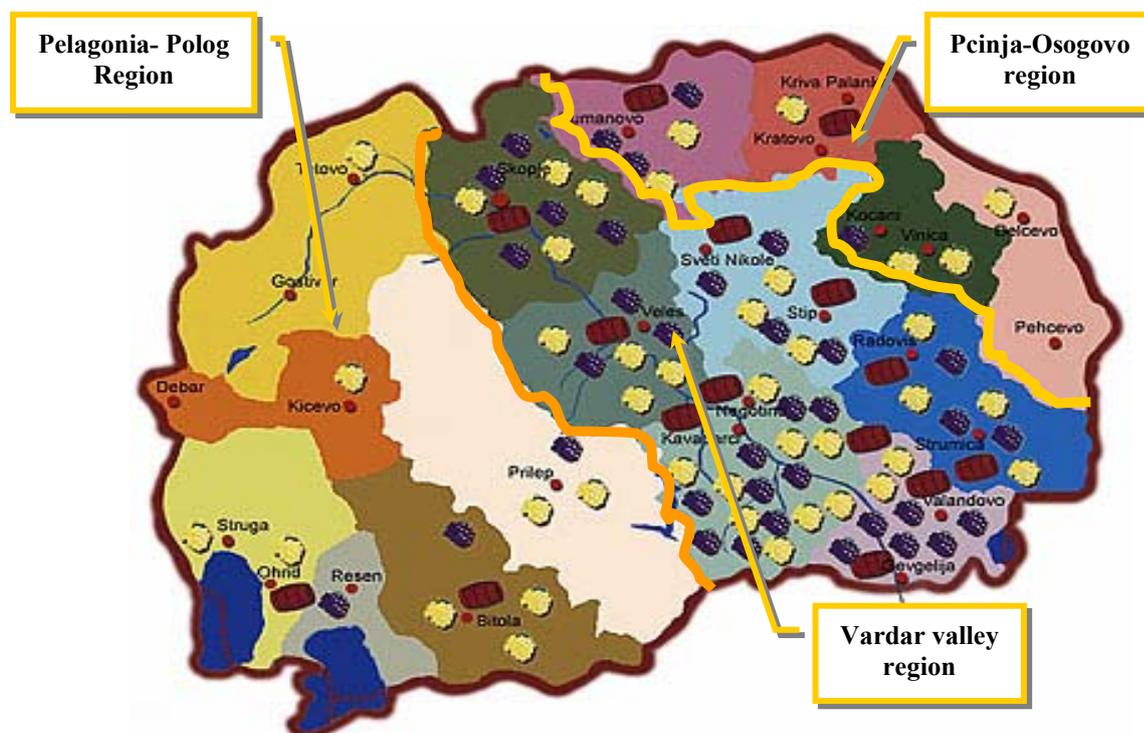
The arrival of the Ottomans in the region during the period of the XIV<sup>th</sup> – XX<sup>th</sup> century, and their religious conviction contributed to stagnation of viticulture. In that period grape growing continued in the monasteries (which were allowed to grow and produce grapevines for the purpose of their religious rituals) by expansion of the table grape varieties.

Real upward trend viticulture is evidenced at the beginning of the XX<sup>th</sup> century, when according to the statistical data 8,455 hectares of land was under vineyards. This increasing trend of grapevine plantations develops further on and the blooming period was in 1981 when vineyards covered 38,759 ha. (Hristov, 2002). Recently grapevines are grown on about 25,000 hectares, representing in average 2% of the total agricultural area (cultivated area, pastures and ponds, reed, beds and fishponds), and 5.7% of the total cultivated area (arable land and gardens, orchards, vineyards, meadows). (State Statistical Office).

#### 4.1.2 Geographic and climatic factors

In the Republic of Macedonia the vine is grown and processed in three vineyard regions: Vardar Valley, Pelagonia-Polog, and Pčinja-Osogovo. Each of them consists of smaller units called vineyard areas, all adding up to 16.

The regions are characterized by specific production conditions, which determine the structure of the vine varieties and the formation of specific quality characteristics.



**Figure 3: Macedonian Grape Growing and Processing Regions**

Note: The signs in the figure refer to the white and black grape varieties and the wineries location.

**Vardar Valley Region** is the biggest by surface, grapevine presence (65 –77% of the total vines number), as well as wine production. Economically it is the most important region. It is spread along the Vardar River stream and consists of the following sub-regions: Skopje, Veles, Tikves (Kavadarci and Negotino), Gevgelija-Valandovo, Strumica-Radovish, and Ovcepole (Sveti Nikole, Stip). Its territory is characterized by influence of continental climate in its northern part, and Mediterranean climate that comes from the Aegean Sea, especially in its southern part. The vineyards are cultivated mainly on rolling terrains with mild slopes.

The basic temperature and rainfall parameters of this region are presented in Table 4-1. The many sunny days and the fertile soil play an important role in the development of the taste and the quality of the varieties produced.

The vine assortment contains both wine and table grape varieties. Wine varieties are represented by Vranec, Merlo, Kadarka, Cabernet Sauvignon, Stanushina, Burgundec white, Smederevka, Rizling, Semijon, Chardonnay, Zilavka, Temjanika, and Rkaciteli. Afus-Ali, Kardinal and Muscat Hamburg represent the table grape varieties.

**Pelagonia-Polog Region** consists of the following areas: vineyards in the territory of Prilep, Bitola, Prespa, Ohrid, Kicevo and Tetovo. Geographically, the position of the region is in the southwest and the west site of the Country presenting 14-24% of the total vine number). The region is characterized by continental climate. The numbers presented in the table below

(Table 4-1) show constant soil humidity and favourable rainfall distribution. The vineyards are grown mainly on rolling terrain, and soil rich with minerals.

The vine assortment is represented by the following varieties: Rizling, Rkaciteli, Zupljanka, Merlot, Burgundec, Cabernet Sauvignon and Prokupec. The high quality sort of Muskat Hamburg represents table grape varieties.

**Pcinja-Osogovo** is the smallest grape growing region (8-10% of the vineyards) and is placed in the north and the northeast side of the country. The region is represented by the following areas: Kumanovo, Kratovo, Pijanec, and Kocani. It is endowed with continental and highland climate. The vineyards are situated on steep, rolling terrain with mild and medium slopes. The basic temperature and rainfall parameters are shown in the table below.

The vine assortment is represented mainly by wine varieties: Rizling, Sauvignon, Prokupec, Merlot, but also late table grape varieties as the White Winter sort.

**Table 4-1: Temperature and rainfall parameters of the Macedonian Grape – growing regions. Vegetation and the whole growing season parameters.**

	Average “t” (whole season) in °C	Average“t” (veg. season) in °C	Precipitation (whole season) in mm	Precipitation (veg. season) in mm
<b>Vardar Valley</b>	12,4 to 14.8	3880 to 4581	437 to 762	249 to 417
<b>Pelagonia-Polog</b>	10,2 to 11,7	2985 to 3609	554 to 768	271 to 342
<b>Pchinja-Osogovo</b>	10,7 to 13,1	3470 to 4147	550 to 660	346 to 358

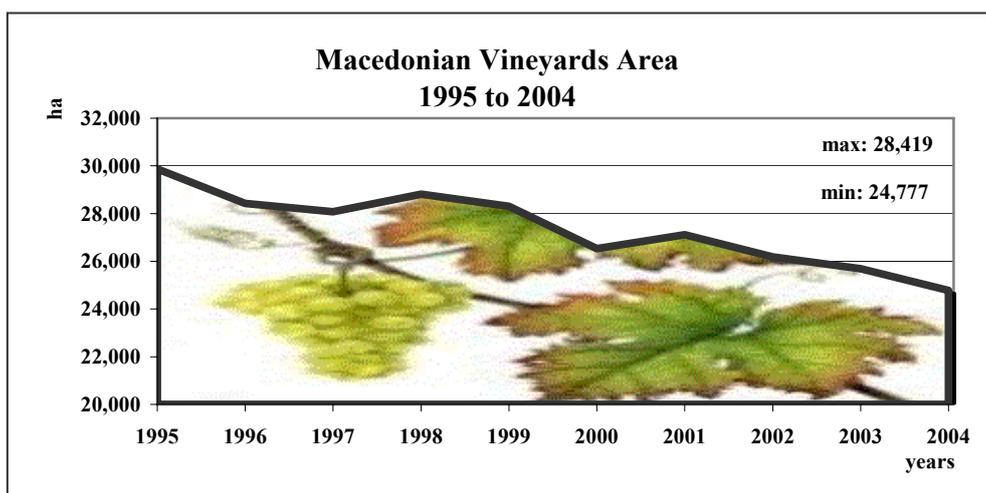
Source: Petar Hristov, 2002.

#### 4.1.3 Infrastructure

Most of the infrastructure facilities that belong to the grape and wine sectors were built in the middle of the last century (fifties). One of the most important factors for stable yield and competitive agricultural production is irrigation<sup>6</sup>. According to statistical data for the period 1998 to 2004 in average only 21% of the total area planted with vine was irrigated. An additional problem is that due to considerable losses in the conveyance system and the poorly maintained distribution systems, the irrigation efficiencies don’t exceed 30% (EU Questionnaire, agriculture).

Most of the grapes growing regions have quite well organized road networks. Due to the fact that they have been used for a long period, it is obvious that additional technical corrections are necessary. In the period included in the study the vineyards area accounts for an average 27.000 hectares (Appendix A.1), with a tendency of decreasing.

<sup>6</sup> Irrigation is a part of the water management, and all capital investments for maintenance and extension of irrigation systems and water accumulation system constructions are funded from the Budget of the Ministry of Agriculture, Forestry and Water Economy within the frame of the annual programs of the Water Economy Directorate.



**Figure 4.1: Vineyards area, for the period 1995 to 2004**

One of the reasons for such trend is that Macedonian vineyards are relatively old. More than 60% are planted before 15 years. The most productive plants (5-15 years old) represent about 30% of the total vine number. The rest (less than 10%) represent the newly planted vines (Hristov). Such ratio shows that the investments in this sector do not follow the technologically proposed vines' replacement. The structure of the vine varieties is mixed. The most present are the domestic vine varieties, but there is success in growing widely spread varieties known in the world.

Knowing that the grape need special manipulation treatment and storage conditions, it is important to mention that the grapes' storage capacities are very low, so the whole quantity that is produced should be delivered during the picking season i.e. sold to the direct consumers, processing facilities, or processed under home conditions).

In Macedonia there are about 30 wineries, but not all of them are active in wine production. In 2003 the Ministry of Economy registered 21 operating wineries (Table 4-2). Few of them have a relatively old tradition (built in the middle of the last century – fifties), and big capacity (Appendix I). Except these, many newly built facilities give a good opportunity for production of quality wine. The present activities of wine cellars are oriented towards replacement of old equipment with new ones according to the latest technology.

Most of the wine cellars are located in the vineyard regions near the plantations. The whole capacity of the wine processing industry in 2004 was 2,487,500 hl, with a degree of utilization of about 44%.

**Table 4-2: Macedonian wine production capacities and degree of utilization (2000 to 2004)**

	2000	2001	2002	2003	2004	Average
Installed production capacities in hl	1,854,681	1,938,932	1,767,929	2,373,646	2,487,500	2,084,538
Degree of utilization of production capacities in %	58	47.1	26.9	43.3	...	43.8

Source: EU questionnaire, industry.

#### 4.1.4 Labour market and labour cost

The main characteristic of the Macedonian labour market is high percentage of unemployment and comparing to the European labour market relatively cheap labour force. The average unemployment rate for period 2002 to 2004 was (35%), and the average net wage in agriculture was 9700 denars (160€/month). The average net wage in the country level is 11800 denars (195€/month).

Agriculture, including the food-processing industry, still plays a major role in the country's economy. It accounts for approximately 11% of full-time jobs, but knowing that the grape production is a labour-intensive agricultural activity many people out of its non-farm activities are involved in this business and realize additional earnings for their households' budgets (most of the families in that region have vineyards).

Taken into account that the whole vineyards area is about 27000 ha (average number for the entire period), and that the agro-technical operations for one hectare require 1000 working hours/year, the given area can absorb about 14500 workers/year. To this number should be added the number of the workers engaged in the process of the transportation, storage, processing and trade of the grape and wine production. (Georgiev, pg. 24). For the period 2000/2004 the wine industry employs about 1000 workers, or 0.2% of the employees in the economy. (EU questionnaire, industry). For the period 2000 – 2003 the average productivity per employee in the wine industry was 508,625denars (\$8,134), while on the level of all agricultural processing industries was 564,270denars (\$9,061.3).

The responsibility for the educational and training activities for the people involved in the grape and the wine sectors belong to the agricultural secondary schools, faculties and the institutes. In Macedonia, there are ten agricultural secondary schools, Faculty for Agricultural Sciences and Food and separate Institutes for all of the agricultural branches. All of these institutions have a great impact for acquirement of appropriate agricultural knowledge and generating agricultural high skill labour. However, the expert's opinion is that the sector lacks specialists especially oenologists, and managers that are able to deal with the prevailing production and market conditions.

## 4.2 Sector structure, business environment and the management strategy

During the period before independence, Macedonia was the main producer for 22 million people (period when Macedonia was part of the Yugoslavian Federation). During that period, agricultural policy measures were predominantly aimed at the small number of large agricultural farms, with an objective to strengthen their role as pillars of agriculture production development, through a massive budgetary support. These "Agro-combinats" used to play a large role in supplying agricultural inputs, managing agricultural machinery and purchasing agriculture production. The small individual farms were considered as insufficiently productive and with low accumulation capability.

After the independence, the small individual farms strengthened their position within the sector. With the breakdown of the industrial complexes/facilities, massive portion of the labour transferred to the agriculture, which strengthened the role of the individual farms through their increased share in the overall agriculture production volume. This confirmed the

role of the agricultural sector as a factor of alleviation of the social and economic crisis during the period that followed the independence.

The business environment (Appendix J) in which the sector is operating is also part of the study. The questionnaire results show that both the grape and wine sectors are opened for starting production and processing activities. The interest among the grape producers exists. It comes as a result of lack of other possibilities to work, especially in the agricultural regions. Facts that significantly decrease the grape growers' motivation are: their weak ability to have impact on the raw materials supply, price control of the grape, and the money collection (for their production) especially from the biggest processing capacities. Grape sale to the wineries are not followed by specifically settled pre-conditions, and without contracts for cooperation (whether short-term or long-term). The wineries see favourable conditions for this business because the grape is relatively cheap raw material, the procedure for starting a winery is not complex, and the equipment necessary for production is available at the Macedonian market, as well as can be imported.

The license requirement is compulsory for starting the winery, trading (the procedure requires chemical and bacteriological analysis, wine tasting), and exporting products. The procedure usually takes one week to one month depending on the license type. The Institute for grape and wine production and the MAFWE is in charge of the issuing licenses;

One of the biggest problems that appears and affects both the grape producers and the wineries is the credit issue. The banks offer credits, but the conditions are very rigid. The interest rate is between 9% and 13% per year, depending on the deposit and the bank. The guarantee that should be provided by the credit users is  $\frac{1}{3}$  to  $\frac{1}{2}$  of the total credit value. The maximum amount that can be loaned is 30 000€.

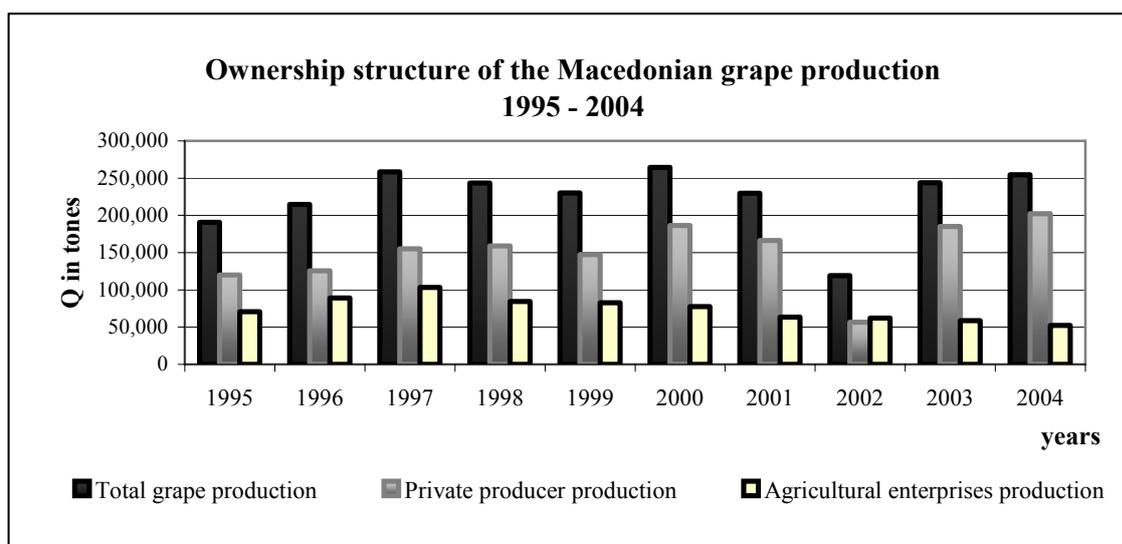
The World Bank analysis on the credit issue has calculated the Macedonian Credit Information Index, and its value is 3. The index ranges from 0 to 10, and higher scores indicate that the collateral and bankruptcy laws are better designed to expand access to credit.

All of the previously mentioned conditions are not acceptable for the farmers, usually they are not able to provide deposit funds and do not have a property (valuable for the banks – the land can not be offered as such guarantee), that can be offered as mortgage (the mortgage ratio of the real estates is 2:1 or 3:1). (Macedonian commercial banks).<sup>7</sup>

Other features analysed in this part of the study are the ownership structure of the grape producing and the wine processing capacities, as well as the companies' structure and market share. A characteristic that indirectly presents the ownership structure of the vineyards is the quantity of the grape produced by the private producers and the agricultural enterprises.

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<sup>7</sup> Tutunska Banka, (June, 04, 2006) <http://www.tb.com.mk/>  
Stopanska banka AD – Skopje, (June, 04, 2006) <http://www.stb.com.mk/>  
Komerčijalna Banka AD – Skopje, (June, 04, 2006) <http://www.kb.com.mk/>



**Figure 4.2: Structure of the grape production for the period 1995 – 2004; (State Statistical office, statistical yearbooks 1995 – 2005).**

The Figure presented above shows the distribution of the grape quantities produced for the 10-year period. As presented, the private producers are dominant grape producers with the average share of the total production of 66%. Maximum share is marked in 2004, presenting 79% of the total production, and the minimum value is recorded in 2002, presented with share of 48% (Appendix A.1.).

A specific situation appeared in 2002, when the grape quantity produced by the farmers matches the quantity produced by the Agricultural Enterprises. The specialists' explanation is that in 2002 due to the late spring frost, big quantity of production was lost. They also state that in comparison to the farmers the agricultural enterprises have capacity and equipment, to deal with such circumstances, thus they marked lower decrease of the production.

A general conclusion is that the vineyards are mainly privately owned (66%). The wine is generally produced by the wineries, but production of wine and its by-products in home conditions is a common practice for almost all grape growers too.

**Table 4-3: Structure of the grape processing companies: gross production value (GPV) and the number of wineries operating in the period 2000 to 2003**

Company's size	2000		2001		2002		2003	
	GPV in 000 denars	N° of wineries	GPV in 000 denars	N° of wineries	GPV in million denars	N° of wineries	GPV in 000 denars	N° of wineries
Small	75	10	145	11	103	13	188	17
Medium	884	3	815	4	32	2	249	1
Large	1157	1	1037	1	1214	3	1211	3

Source: EU questionnaire, industry.

As presented in the previous table (Table 4-3), most of the grapes' processing capacities are classified as small. Even though in 2000 and 2001 there is only one big facility, the biggest gross production value is obtained in that company. In 2002 and 2003 the ministry has registered three big companies but the gross production value has not changed significantly.

Analysing the values of the concentration coefficients (Appendix I), it is easy to conclude that just few of the wineries control the wine market in terms of capacity, production, as well as the export at the foreign market. The results of the calculated indexes are presented in the table below. The Herfindahl index values and values of the Concentration ratio index, show that the market is highly concentrated (oligopoly characteristics).

**Table 4-4: Market concentration indexes; Herfindahl index and Concentration ratio**

	HI	CR04 (%)	CR01 <sup>8</sup> (%)
Share in the total wine production capacity	987.16	50,56	22,51
Share of the average wine production	...	...	38,43
Share of the total wine export in 2004	1247	...	35,33

Source: Own calculations

The results obtained in the questionnaire (Appendix J) are supportive to the previously presented table and show that the market is opened, the relations among the wineries and grape growers are not well regulated, and that the rivalry and the non loyal competition prevail. The “monopoly power” of the biggest wineries is present in the winery sector through ascendancy obtained by closely related interests. Officially in Macedonia, there are not production and marketing monopolies in the food and beverages industry (EU questionnaire, industry).

The management strategy in the grape and wine sector according to the officials state attitude is that “at the moment, the vine management and control system, as well as the institutional and technical capacity in the Republic of Macedonia are insufficiently developed for attainment of effective improvement and promotion of the quality wine production” (EU Questionnaire, agriculture, pg. 84).

For the period observed in this study the practice shows that almost all of the relationships established for exporting of Macedonian wines are based on the low cost position at the foreign market (EU and Ex Yugoslavian Republics).

The Macedonian wine is exported mainly as bulk wine thus big share of the producers profit is lost. The export in EU is focused to one country – Germany, with export average for ten years period of 54% of the total exported quantity. In addition, there are attempts for product differentiation and exporting high quality products to other EU countries.

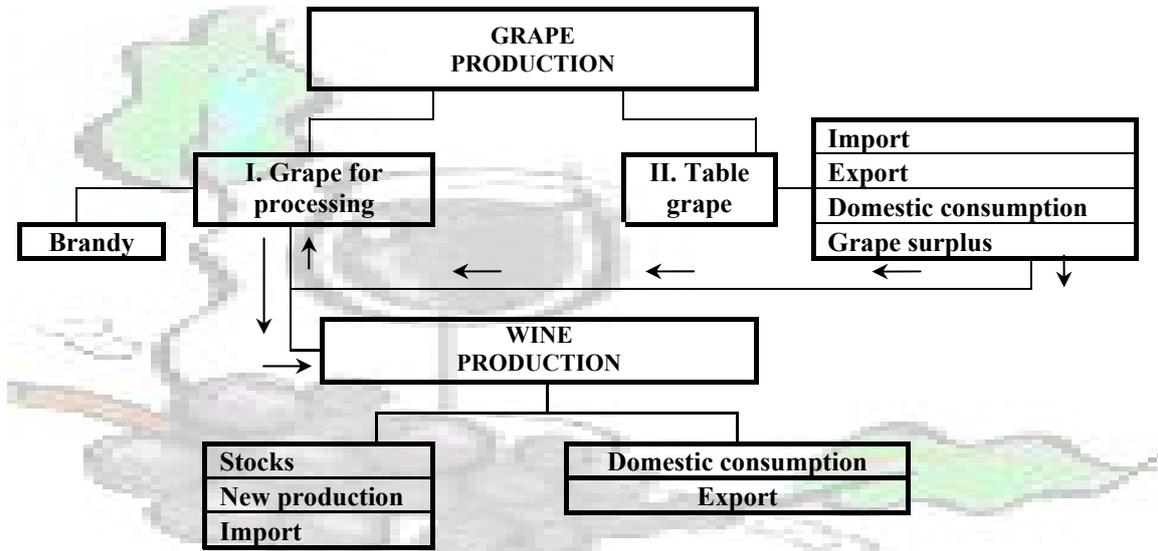
The experts’ opinion is that the wine producers are aware of the weaknesses that follow the low cost strategy. They try to brand their products and get higher prices, thus to earn extra profit especially in the years that come.

<sup>8</sup> Note: The Concentration ratio is calculated as CR01, because of lack of official data from the wineries.

### 4.3 The supply and demand conditions

In Republic of Macedonia the grape and wine production are closely related sectors. It comes from the fact that the grape production is oriented to producing processing grape, which is a main raw material to the wine industry.

The whole cycle starting with the production of grape to the final grape and wine customers is presented in the figure below (Figure 4). The explanations and all of the supply and demand characteristics of the grape and wine sector, in this study are described separately.



**Figure 4: Graphical presentation of the grape and wine balance sheet\*.**

**Note:** Supply and demand balance sheets of the Macedonian grape and wine production are shown in Appendix B and F, respectively.

#### 4.3.1 Grape sector

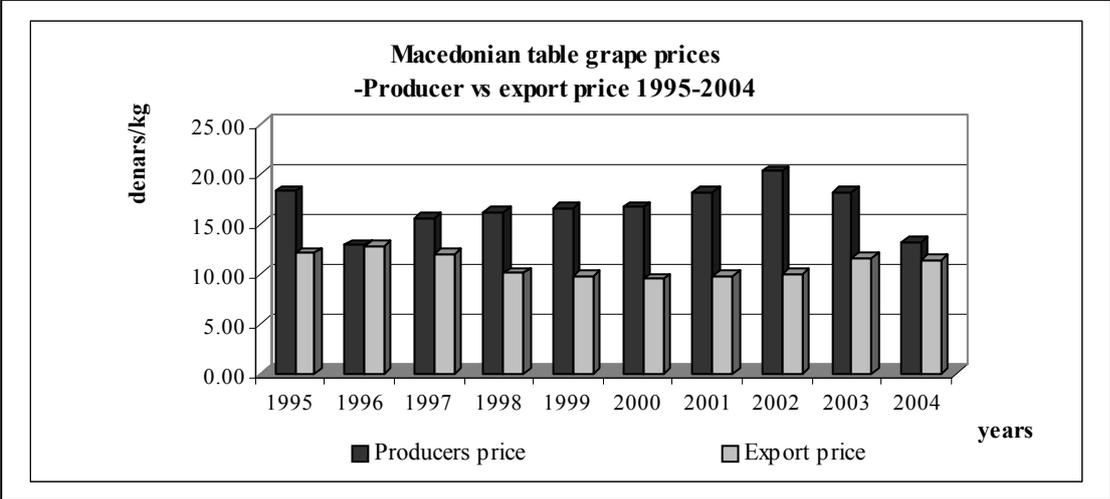
The vine production in the Republic of Macedonia in the past ten years was spread on 27,379 ha (Appendix A.1). Macedonian grape production consists of table and winemaking grape varieties. Table grape varieties represent about 30% of the total grape production (Hristov), (Appendix A.2). The remaining 70% belongs to the winemaking varieties. These varieties are basic raw materials for production of different types of wine. The proportion of black and white varieties is 50% each.

The quantity representing the table grape varieties is used for domestic consumption and very small quantity is exported. The average grapes' domestic consumption is 12.87 kg/member of household, (Appendix B.2) and 12% from the total grape production is used for domestic consumption (Figure 4.5). Significant influence to the grape consumption in Macedonia has its seasonal supply character (absence of cooling facilities to extend its consumption period), and the existence of many other fruits that are present on the Macedonian markets during the summer and autumn period.

The share of the grape import is not significant, it represents only 0.01% of the total grape supply (Appendix B.1).

Due to the problems that exist on the table grape market (shortage of storage capacities – refrigerators, and not organised export) and the increased interest for wine export, a big

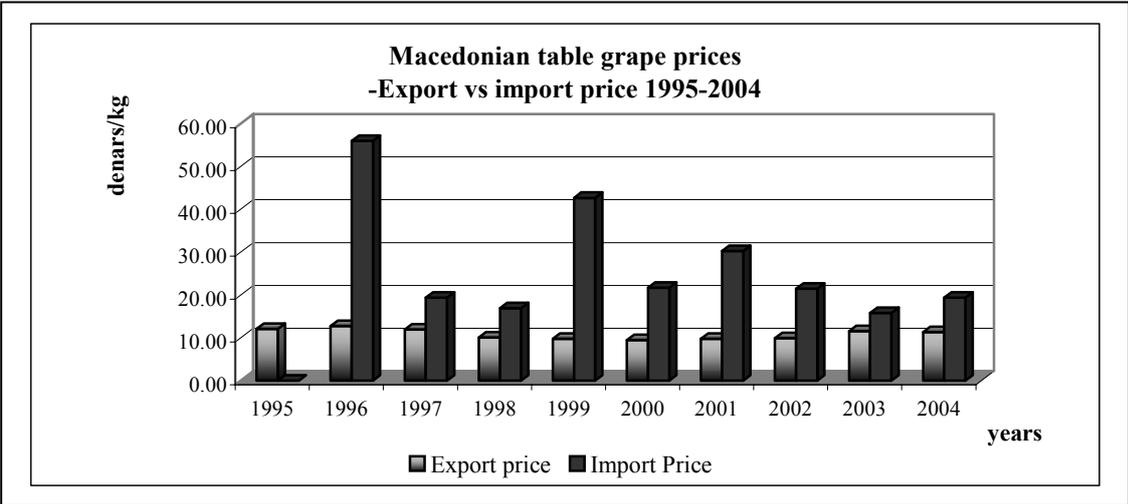
quantity of the table grape is processed into wine and wine by-products (these quantities are not precisely estimated and officially announced by any institution). In the entire period on average 14,641 tonnes of table grape is exported (Appendix B.1) to the neighbouring countries. Presented as a share of the total grape demanded quantities, and total table grape production, the grape export contributes with 7% (Figure 4.5) and 19% respectively. The main problem of this export is that the grape is exported at very low price; on average 20% lower than the producers' price (Figure 4.3). (Appendix E)



**Figure 4.3: Comparison of the table grape prices: producers vs. export price**

The price, at which the table grape is imported in Macedonia, is much higher than the export grape price (Figure 4.4).

It comes with the fact that the table grape import is during the off-season. On the other hand, the table grape export is in period when at the domestic market there is excess grape supply.



**Figure 4.4: Comparison of the table grape prices: export vs. import price**

Average producers price of the processing grape is 10.19 denars, with a standard deviation of 1.29 denars (Table 4-5).

**Table 4-5: Producers price of the Macedonian processing grape (1996 to 2004)**

Processing grape	Source	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St dev
Producers price in den/kg	SSO	8.16	8.34	9.36	11.02	11.63	10.10	11.11	11.02	11.00	10.19	1.28

In comparison to the other European grape producers and the producers from the other countries in the region, Macedonian producers get the lowest price for their production.

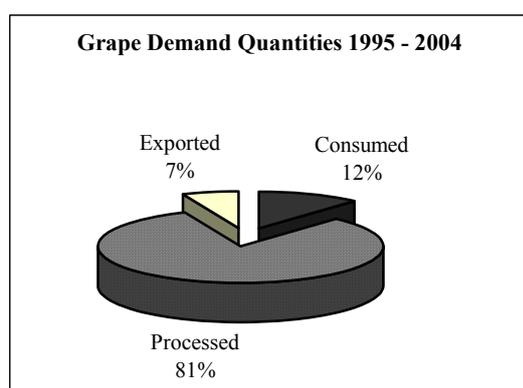
**Table 4-6: Producers prices of processing grape in some European grape producing countries**

State	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average €/ton	Average den/kg
Spain	1362	1460	1946	1606	307	251	288	...	...	...	1031	63.9
France	878	744	1073	968	901	988	969	1107	1165	1159	995	61.7
Malta	...	...	...	486	502	655	680	648	675	...	608	37.7
Italy	538	567	651	649	651	728	394	460	478	469	558	34.6
Bulgaria	931	1490	219	322	286	255	279	230	231	193	444	27.5
Portugal	435	363	402	542	451	441	388	365	341	530	426	26.4
Greece	334	340	358	359	...	...	...	...	...	...	348	21.6
Slovakia	213	276	253	390	229	276	278	289	331	305	284	17.6
Romania	...	...	...	465	257	212	238	267	269	269	282	17.5
Hungary	...	...	...	241	209	237	250	447	328	113	261	16.2
<b>Macedonia*</b>	...	132	134	151	178	188	163	179	178	177	164	<b>10.2</b>

Source: Eurostat;

\*State Statistical Office provides the prices that refer to Macedonia.

The production cost for processing grape in 2004 was 7,97 (Appendix C.1. and C.2.) and the Domestic Ratio Cost<sup>9</sup> for the same year is 0.62 (Appendix D). DRC value indicates that the cost of factors (land, labour, capital) is less than the value they generate within the economy, or the use of the resources produces more if compared with international prices; production has a lower cost of trading the same resources on the international market.



The processing grape represents 70% of the whole production. Except this, the table grape is included in the processing too, thus the whole processed grape quantity is about 81% of the total grape production (Figure 4.5).

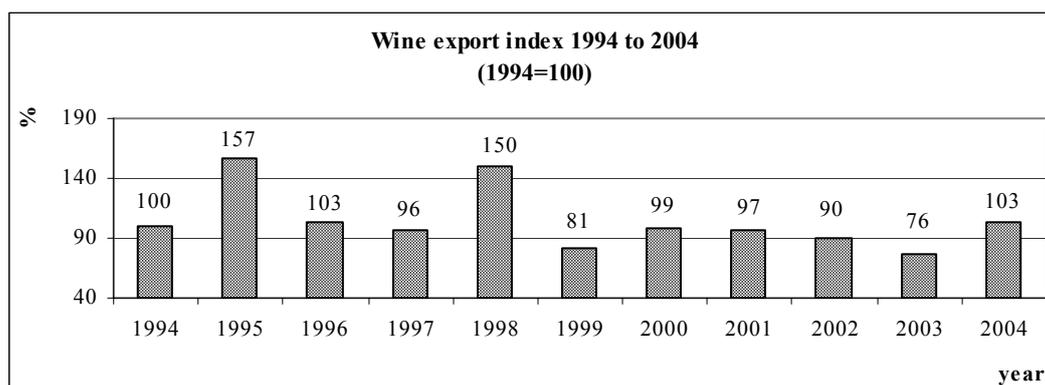
**Figure 4.5: Average demanded quantities of the Macedonian grape**

<sup>9</sup> In the calculation is used the producer's price of the processing grape. It comes due to the lack of official data for the production cost of table grape. Still, the specialist opinion is that the Macedonian table grape is not differentiated product and there is not significant extra cost that could increase the production cost of table grape above the price of the processing grape.

### 4.3.2 Wine sector

In the period, 1995 - 2004 in average 81% of the grape production was processed into wine and wine by-products. Average wine production for the observed period is 910,794 hectolitres. Except domestic production, the wine supply contains small quantities of imported wine, representing 0.5% of the total supply (Appendix F). Also every year a significant quantity of about 500,000 hl is stored as wine for further ageing, wine stocks remained from the previous year, and wine quantities kept by the wineries to face the wine demand for the coming year, in case that the grape production does not satisfy the prescribed quality standard.

In comparison to the wine supply, Macedonian wine export depends on the foreign consumers, (81% of the total wine demand is for export). The average wine exports for the observed period was 742,353 hl. This information gives a clear picture that the Macedonian wine production is export oriented. The average domestic consumption was 4,55 litres/household member, or the domestic consumers use 10% of the total demanded quantity (Appendix F). The remaining wine quantity was used for processing into grape brandy. On the Macedonian market there is not “a real” wine substitute (wine produced from other fruits). Among the other alcoholic beverages, the most favoured drink is the beer<sup>10</sup>.

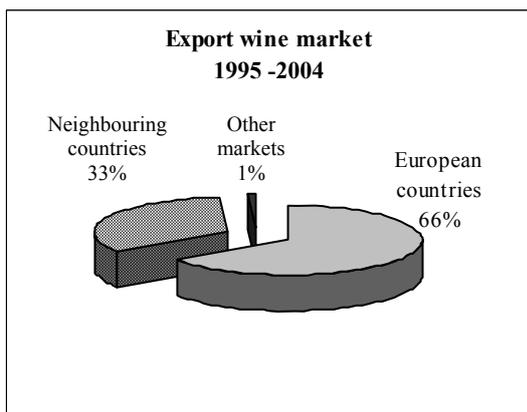


**Figure 4.6: Index value of the Macedonian wine export, 1994 taken as a basic year**

The figure (Figure 4.6) presents the change in the quantity of wine that have been exported for the period 1994 to 2004, by taking the 1994 as a basic year. As shown in the period 1999 to 2003, there is a significant export decrease. One of the reasons that contribute to such a decrease is that in this period the region (neighbourhood and the country) was affected by war crisis, and conflicts, thus exports to these destinations were hampered.

For the period included in the study main wine markets were the neighbouring and the European countries. The rest of the worlds accepted only 1% of the total Macedonian wine exports. Detailed presentation of the exported quantities at the foreign markets is given in Appendix H.2.

<sup>10</sup> Macedonian beer industry is the most productive among all of the agricultural industries (EU questionnaire, industry).

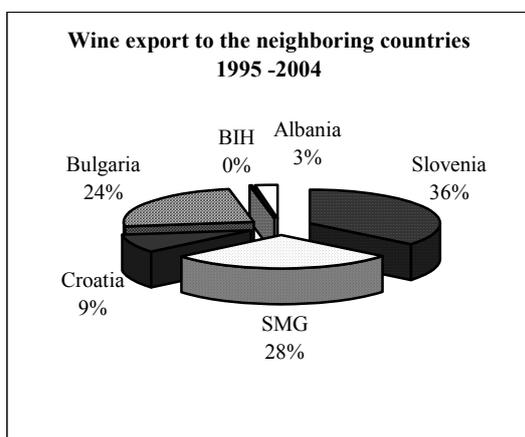


**Figure 4.7: Macedonian wine exports markets**

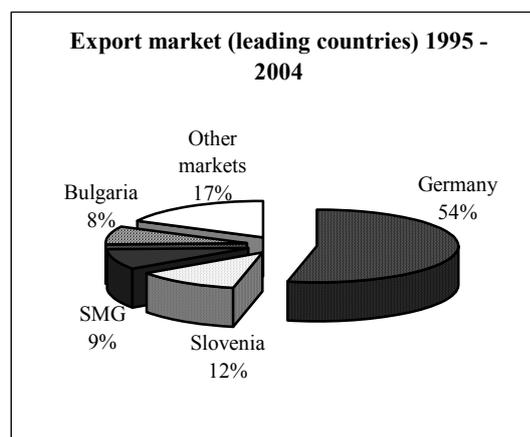


**Figure 4.8: Wine export at the European market**

As presented, 66% of wine is exported in European countries (Figure 4.7), among which Germany's share is 80% (Figure 4.8). Other major export destinations include the Czech Republic, Greece, Austria and United Kingdom.



**Figure 4.9: Wine export to the neighbouring countries for the period**



**Figure 4.10: Wine export to the leading trade partners for the period**

Total export share of the neighbouring countries in the observed period is 33% (Figure 4.7) of the total wine export. The most important markets were Slovenia with 36%, Serbia and Montenegro (SMG) with 28%, and Bulgaria with share of 24%. Among the other republics the most important market is the Croatia, representing 9% of the total export to the neighbouring countries (Figure 4.9).

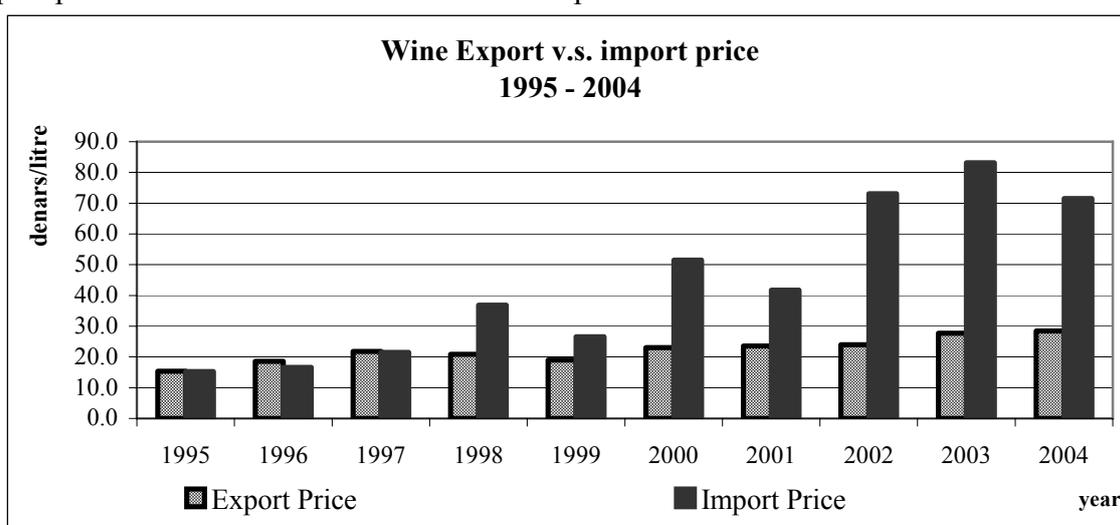
To sum up, Macedonian wine is mainly exported to Germany 54%, Slovenia 12%, SMG 8%, and Bulgaria with a share of 8%. The category "other markets" represents 17% of the total wine exports. (Figure 4.10).

Another feature that is part of the study is the analysis of the wine prices. One of the main characteristic that determines the price is the wine category. According to the official Macedonian classification, the following wine categories exist: table wine, regional wine, quality and extra quality wine (superbly wine). Except the table wine, all of the other categories have geographic origin and specified sorts' content. (Full explanation of the all wine categories is presented in Appendix K)

All of the previously mentioned categories are available and consumed on the Macedonian market. Also at the domestic market there are wines that are produced in home conditions without specified characteristics.

At the foreign market, Macedonian wine is presented with all categories but the wines with lower categories are much more exported. This statement can be easily supported by price analysis of the exported Macedonian wine.

According to the statistical data, the average export price (1995/2004) of the Macedonian wine is 22.2 denars (\$0.42), while average price of the imported wine is 43.8 denars (\$0.8) (Appendix H). The Figure presented below shows the difference between the export and import price of the wine traded in the observed period.



**Figure 4.11: Comparison of the Macedonian wine export and import prices, 1995 - 2004**

As presented during the first three years, the export price matches the import price, but after 1998 the price of the imported wine continuously rises, reaching highest value of 83 denars (\$1,53) in 2003.

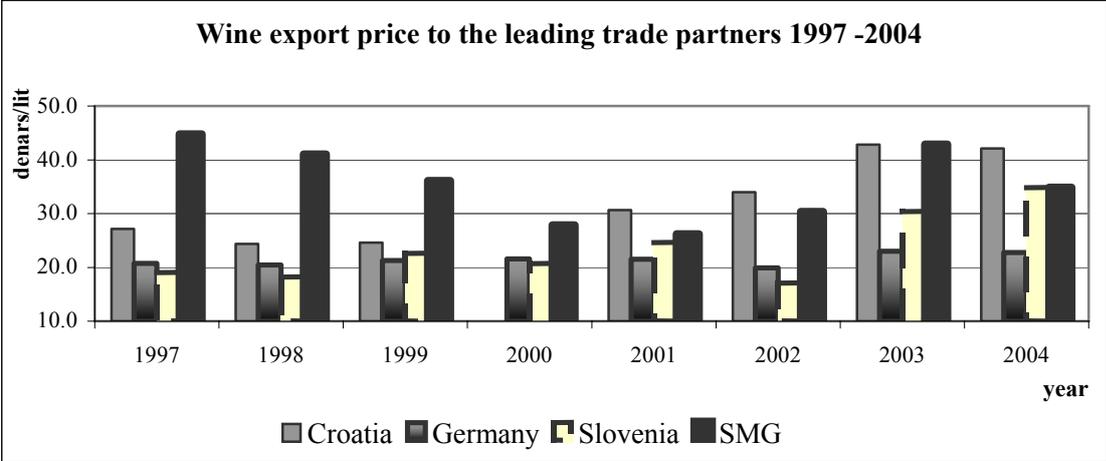
Another issue connected to the wine export price is that Macedonian wine is exported at different prices to different destinations (market segmentation). In the table below are presented the top ten countries in which the wine is sold at the highest price:

**Table 4-7: Export destinations of the Macedonian wine – the highest wines export prices (1998 – 2004)**

	Average export price in US \$/lit	Average export price in denars/lit
1. Norway	6.50	396.58
2. Belgium	2.26	126.97
3. UK	2.05	92.49
4. France	1.66	92.41
5. China	1.68	84.54
6. Australia	1.45	82.72
7. Denmark	1.45	81.65
8. USA	1.43	79.08
9. Switzerland	1.36	77.03
10. Greece	1.41	73.95

Note: Detailed presentation of the wine export prices by countries is given in Appendix H.3.

Referring the markets that accept the biggest share of the exported wine, the statistical data shows that the wine export price is much lower. In the Figure below are presented the prices at which the Macedonian wine is exported to the major wine trade partners.

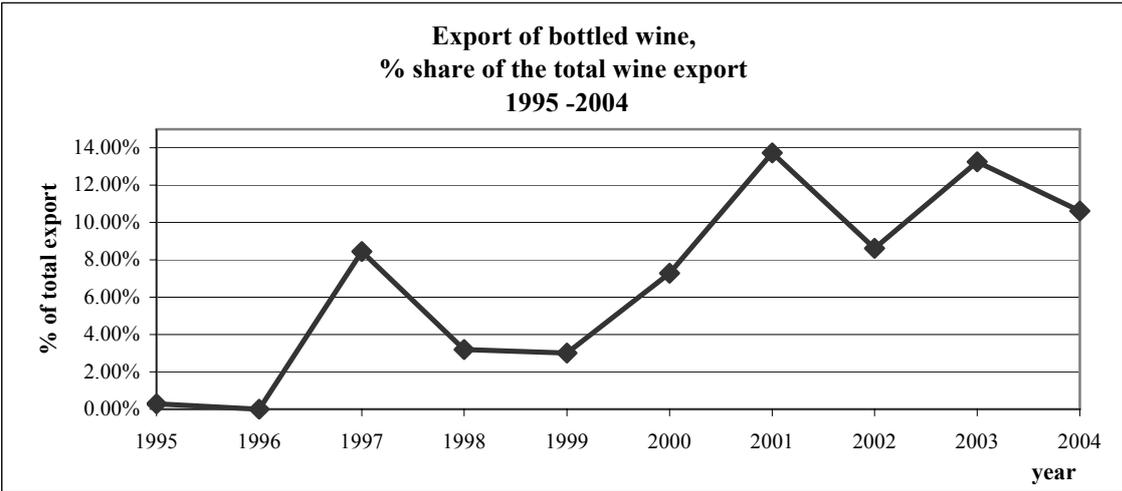


**Figure 4.12: Price of the wine exported to the leading wine trade partners for the period 1997 - 2004**

As shown, at the lowest price the wine is sold to Germany (the average price was 21.09MKD; \$0.39) and Slovenia (23.44MKD; \$0.46). In SMG (35.52MKD; \$0.63), and Croatia (32.23MKD; \$0.58) the wine was exported at higher price.

The explanation of such price discrimination is that countries that have paid higher price have imported bottled, high quality wine. More precisely in the top ten countries basically was exported quality wine with geographic origin label, and other specified characteristics required with the category.

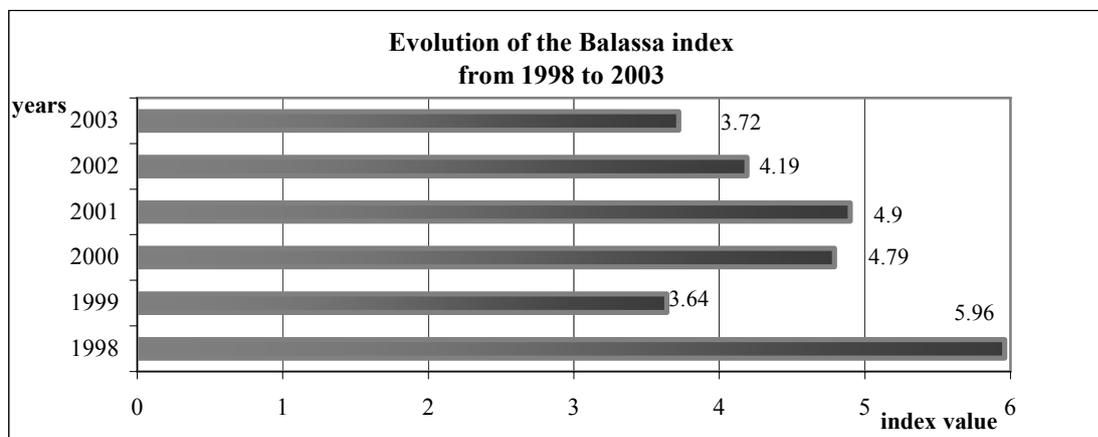
At the lowest price is exported bulk wine. Unfortunately, its main destinations are our leading trade partners. From the total amount of exported wine, in average 94% is bulk wine, and only 6% belongs to bottled wine. (Detailed presentation of the exported and imported wine quantities and prices by category of wine is presented in Appendix H.1.)



**Figure 4.13: Export of bottled wine as % share from the total export, 1995 - 2004**

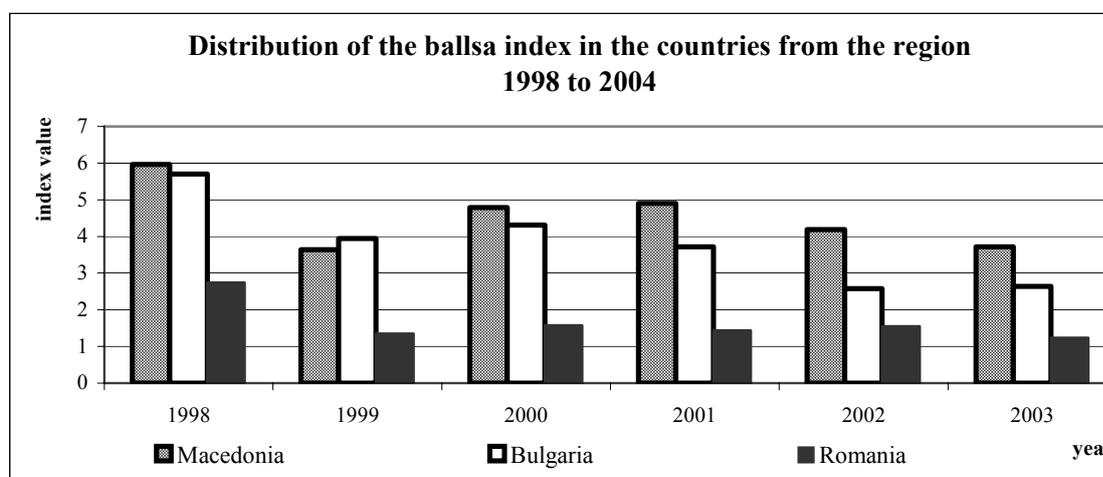
As presented the quantity of the exported bottled wine has increasing trend, but with cyclic changes. An evident decrease of 62% is marked in 1998 (in comparison to 1997) and 47% in 2002 (in comparison to 2001), but also in 2004 (in comparison to 2003) when the exported quantity of bottled wine dropped by 20%.

An additional tool applied in the study as a measure of sector competitiveness, is the Balassa index (Appendix G). According to results, the Balassa index value of the Macedonian wine for the period 1998 to 2003 is positive 4.53 in average, and in a range between 3.64 as min value to 5.96 as max value. The distribution of the index values starting from 1998 to 2003 tends to decline (Figure 4.14). Just as an example the average value of the Balassa index for the Macedonian tobacco sector for the same period was 8,19 (Tuna, 2006).



**Figure 4.14: Evolution of the Balassa index calculated for the Macedonian wine sector, for the period 1998 to 2003.**

A comparison of the Balassa index values for the neighbouring countries is presented in the Figure below (Figure 4.15).



**Figure 4.15: Comparison of the Balassa indexes for the neighbouring countries.**

As presented the Macedonian specialization in wine production and trade is higher than the Bulgarian and Romanian. The Croatian and the Hungarian index values are even lower, not exceeding the value one (for the same period). (Appendix G.2).

Additionally the Chilean, French and Australian average value of the Balassa index for the same period were: 5.9, 4.87 and 2.0 respectively (Appendix G.2).

## 4.4 Related and supporting industries

Following world trends, and the need for better market organization and easier penetration on the international markets, recently Macedonian grape growers and wine producers joined in the Macedonian Wine Cluster (2003).

The wine cluster was established by a special (USAID funded) time limited Project for creation of competitiveness of the Macedonian economy. As part of the Project activities a National Entrepreneurship and Competitiveness Council of Macedonia was established, which is a partnership between the private, the public and the civil sector. The expectations are that the cluster will connect the participants, thus the final result will be better working conditions, producing wine with higher quality, and better production realization at the domestic and the foreign markets.

Members of the wine cluster are: grape growers' associations (6), wineries (14), and two research and educational institutions. Great impacts to the clusters' success have the wine production equipment suppliers and donor organizations.

The cluster consists of three working groups.

- The first working group focuses on research into domestic and foreign markets. Its aim is to increase exports to neighbouring and EU countries by promotion and marketing of a Macedonian brand, as well as through establishment of contacts with potential wine distributors.
- The second working group works on quality improvement of wine grapes and reviews the application of wine quality standards. This group also develops and maintains improved cooperation between the grape growers and wine producers.
- The third working group is planned to work for human resources development in the cluster, to identify the specific training needs of the oenologists, and to organize foreign experts' that will assist in the improvement of grape growing, processing technologies and the sectors' market issues.

The experts' opinion is that the attempts for association are in emergence. The links for vertical (buyer/supplier) and horizontal (common customers, technology, channels, etc.) connection are established but "don't work at the imagined way". Some of the wineries owners finally have understood the importance and the need for associating and that there is a group for export and association of producers of quality wine.

According to the National Entrepreneurship and Competitiveness Council of Macedonia the progress of the wine cluster in the previous period, has been achieved in terms of accepting the idea of clustering and in understanding the benefits of cluster networking. They also state that there is not evident progress in terms of significant growth of productivity of the entities incorporated into the cluster, nor a significant increase of their exports (Jordanovska).

## 4.5 Agricultural policy affecting the sector, governmental and EU support and regulations

Until the independence Republic of Macedonia did not have its own agricultural policy. The policy was in accordance to the state structure of the common Socialist Federal Republic of Yugoslavia (SFRY). The first move towards establishing its own independent policy was made right after the declaration of the independence. The policy that was applied is in fact a kind of an extension/continuation of the former agricultural policy of the SFRY in 1991.

After the independence, Macedonia began a process of trade liberalization, which intensified during the second half of the 1990's. The process of the Macedonian trade integration can be divided into regional, EU integration and global. (EU questionnaire, agriculture)

Republic of Macedonia concluded a series of Free Trade Agreements (FTA's) with the neighbouring countries and other traditional partners. The renewal of the traditional trade relationships has significant contribution to its regional integration. Republic of Macedonia has signed FTA's with the following countries: Turkey, Serbia and Montenegro, Bulgaria, Croatia, Bosnia and Herzegovina, Ukraine, Albania, Moldova and Romania. In 2004, Macedonia began the negotiations for accession into Central European Free Trade Agreement (CEFTA), for its further trade liberalization. (Accession Document)

Another agreement that Macedonian has ratified is the Agreement for Stabilization and Association, signed in 2001. It regulates trade aspects focused on increased trade liberalization between Macedonia and European Union. As a part of the governmental bodies the Ministry of Agriculture Forestry and Water Economy (MAFWE) has an important role in supporting this process in the area of agriculture. Among the prioritized areas for approximation activities is the wine production. In order to align the sector with EU legislation, all vineyards should regulate declaration of harvest, planting, vine varieties that may be planted, oenological practices, labelling, quality wine production and categorization of all wines, preparation of the wine cadastre etc. A complete legal approximation of this area is expected that by the end of 2007. The main goal of the MAFWE is first to draft legislation that will meet all the commitments prescribed in the agreement as Additional Protocol regulating the wine trade between EU and Republic of Macedonia.

Under the Stabilisation and Association Agreement concluded with Macedonia, the EU agreed to abolish most of the tariff barriers and quantitative restrictions, but restrictions in the form of tariff quotas for wine remained. On the other side, Macedonia has agreed to abolish (from January 1st, 2004) the customs duties applicable on imports into the Republic of Macedonia of those products originating in the EU, which are considered as "non sensitive". The customs duties applicable on imports of "medium sensitive" products shall be progressively reduced annually by 5% of MFN tariff between 2004 and 2007 and by 10% of MFN tariff between 2008 and 2010 with complete liberalisation starting from January 2011. No tariff reduction will apply for "highly sensitive" instead; during the period 2004 to 2011. In that period, Macedonia should gradually increase the preferential duty-free tariff quotas. The Macedonian wine is classified as a highly sensitive product. The objectives of this negotiation process, is to minimise disruption to existing markets and to protect the sector during a prolonged transition period. ("Approximation of the legislation of the Republic of Macedonia with that of the European Union")

The Agreement for Stabilization and Association to EU contains part for trade reciprocity. From 2002 (to EU) Macedonia can export 300,000hl (zero-tariff quota) wine (285,000 bulk wine and 15,000hl bottled wine). The document proposes that every year the quantity of the bottled wine should increase for 6,000hl, the quantity of the bulk wine decreases by the same amount. On the other side, Macedonia allows import from EU 3,000hl bottled wine, and every year that quantity to rise for 300hl bottled wine. Due to EU enlargement tariff quota for wine export to EU (sparkling wine and wine of fresh grape) in 2004 was 391,500 hl. (EU Questionnaire, pg. 29). In the table below are presented quantities of the Macedonian wine that were exported to EU, and the quota that were proposed by EU for import of Macedonian wine for the period 2002 to 2004.

**Table 4-8: Fulfilment of the wine quota for the Macedonian wine export to EU (total exported quantities for 2002 – 2004)**

	Total wine quota to EU in hl	Total wine exports to EU in hl	Quota realisation in %
2002	300,000	447,000	149
2003	300,000	327,700	109
2004	391,500	364,500	93

**Source:** Own calculations

As presented, in 2002 and 2003 the wine export to EU was above the proposed quota. In 2002 the export was 49% higher than the proposed quota, and in 2003 the export sale at the European market is 9% above the proposed quota. In 2004 the quota realization the wine export to EU is 93%. Detail presentation of the wine export for 2004 is given in the table below.

**Table 4-9: Quota fulfilment of the Macedonian wine export to EU, for bulk and bottled wine for 2004**

	Export of bulk wine in 2004		Export of bottled wine in 2004	
	Quota for bulk wine (hl)	Export of bulk wine (hl)	Quota for bottled wine (hl)	Export of bottled wine (hl)
Quantity (hl)	362,500	351,000	29,000	13,500
Realization in %		97		47

**Source:** Own calculation

As presented in the Table 4-9, in 2004 both the exported quantities of bulk wine and bottled wine did not fulfil the quota proposed by EU. Namely, the realization of the export of bulk wine is 97% of the proposed quota, meaning that the quota was not fulfilled for 3%. The most problematic situation appears with the export of bottled wine. According to the calculation the quota realization is 47%, and the quota was not fulfilled by 53%. The quota fulfilment for wine imported from EU, in 2004 was 57% of the proposed quantities (Table 4-10).

**Table 4-10: Quota fulfilment for the Macedonian wine import from EU, total imported quantity in 2004**

	Total import (hl)	Import quota (hl)	Quota realization (%)
2004	2,067	3600	57

**Source:** Own calculation

The Macedonian membership in WTO marked its global trade integration. Macedonia applied to join the WTO in 1994. The Agreement itself was ratified in February 2003, when actually Macedonia officially became a member of WTO. Membership was conditional on the termination of licenses and quotas, abolition of variable levies and exports' subsidies, as well as phased reduction of import tariffs. Trade liberalisation will be implemented within a transitional period by 2007 during which the economic entities will have to adjust to the competition from other countries. (Agri-report 2003).

All the agricultural policy applied in the grape and wine sector are in line with the Free Trade Agreements, the Stabilisation and Association Agreement, the WTO rules as well as the Law on Trade. (EU Questionnaire, agriculture).

According to the rules the table grape is subjected to import tariff quotas, while the wine to: (i) import tariff quota, (ii) export tariff quota, (iii) custom duty, and (iv) export/import permits (license). Export licenses are issued for: (i) quality wine produced in specific regions with the alcohol content less than 13% vol, (ii) with more than 13% vol, but less than 15% vol alcohol, (iii) wine containing more than 15% vol. but not exceeding 18% vol. alcohol, and (iv) wine containing more than 18% vol. but not exceeding 22% vol. alcohol. The wine is subjected to VAT.

The measure imports/exports “*out-of-quota*” has no quantitative restrictions, and is carried out in accordance with the agreements reached in bilateral negotiations. (EU Questionnaire, agriculture).

For the entire period the government support to the grape and wine sector was orientated to encouraging vine-growing and wine production. The measure was applied by funding a centre for reproduction of seed and planting material, by which the Macedonian grape growers will have a possibility to obtain certified and sanitary safe domestic grape vine planting material.

**Table 4-11: Financial support for founding a centre for reproduction of seed and planting material, and for obtaining certified and sanitary safe domestic grape vine planting material (in million Macedonian denars)**

	1999	2000	2001	2002	2003
Plantations of wine grape	7,4	5,5	15	6	8,2
Financial support to the centre				8	3
<b>Total amount</b>	<b>7,4</b>	<b>5,5</b>	<b>15</b>	<b>14</b>	<b>11</b>

**Source:** EU Questionnaire, agriculture, pg. 29

Applicants were required to reduce the end price of the provided planting material per unit by the subsidy amount. The same subsidy rate was paid throughout the Republic of Macedonia without regional differentiation. The grants were funded from the State Budget, through the programmes for instigation of development of the agriculture in 1999, 2000, 2001, 2002 и 2003, and the programmes for activities of the Agriculture Fund in 2002 and 2003.

Except the support mentioned above, in the observed period (1995 – 2004) there were not other applied supportive measures as well as foreign or domestic direct investments to the grape and wine sector. In accordance with the regulations of the World Trade Organization (WTO), Macedonia does not grant export subsidies that refer to the products of the viticulture sector.

The calculation of the protection indexes that is a part of the study supports that statement. Namely, the value of the Nominal Protection coefficient and the Effective protection

coefficient are 0.86 and 0.83 respectively, indicating that there is not set of policies (or prices which result of them) that favour the Macedonian grape production. (Appendix D).

In addition, the Macedonian government with EU support aims to introduce legislation, better control systems and technical modernization of all subjects involved in the ongoing processes of sector reforms. It will strengthen the capacity of MAFWE (as a relevant institution) with its internal services and will ensure a coordinated reform of the current legal framework and policies, required to satisfy the conditions of the EU and WTO membership agreements.

In an effort to help to the (MAFWE), *The European Agency for Reconstruction* (EAR) in Macedonia works on developing an integrated “Vine monitoring and management system“, to introduce the wine industry with new EU standards and approximates Macedonian wines to the selective EU market. The aim of the activities is to register public and private wine yards into one computer-based system so that grapes can easily be traced back to their source. Also in order to help the wineries to improve their quality management, and increase their competitiveness and coordination the project contains a draft for coordinated strategy for the wine sector.

The project is developed for 15 cadastral municipalities with a total area of 22,190 hectares, and it includes about 2000-2500 producers, two wineries, and two regional units of the Ministry of Agriculture, Forestry and Water Economy (including inspection offices). (EU Questionnaire, agriculture)

The activities assume direct support and training to the wineries and grape growers. The proposed activities should enable the participating wineries and their staff to operate the local vineyard monitoring and management systems while local experts (MAFWE officials) to undertake the core central controlling authority responsibilities for regulation, local inspection and related support services for the wine industry.

The wine production and wine by-products are regulated with a *Law on wine* (“Official Gazette of RM” No 69/2004) as well as *Rulebook on regionalization of vine production areas*<sup>11</sup> (“Official Gazette of RM” No 12/80) and *Rulebook on Wine Quality* (“Official Gazette of SFRY” No. 17/81).

- *The Law on Wine* regulates the management and control of the vine plantations, which shall be regulated in detail by secondary legislation.

The Law on Wine is enacted in 2004 and it stipulates the production and trade of grape and wine and other grape and wine products; national registry of vine plantations; rights and duties of natural persons producing and trading wine; and wine description, declaration, labelling, presentation and protection.

The law objective is to protect the producers and consumers’ interests; proper functioning of domestic and foreign markets; quality improvement of wine and grape products; resources adjustment with regard to the market needs and the needs for oenological substances and procedures. The Law on Wine is compatible with EU regulations.

- *The Rulebooks regulate*, in details, vine plantation zoning; grape varieties classification; wine production procedure; wine categorization; conditions of placing wine on the market; specific conditions regarding special and sparkling wine; production and placing alcoholic beverages, and grape and wine by-products on the market; analysis and control procedure; wine declaration and labelling; wine quality and application of oenological substances and procedures. (EU Questionnaire, agriculture, pg. 79).

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<sup>11</sup> Republic of Macedonia is a member of: Conference of the European Vine Plantation, International Wine Organisation O.I.V.

## 5 SWOT analysis

The SWOT analysis is used as a diagnostic tool for identifying the strengths, (sectors' areas that need further development, and area that could seriously impact the ability to stay competitive), and the problematic area, which, need further adjustment to the market conditions.

### 5.1 Strengths and opportunities of the grape and wine sectors

The strengths that give the comparative advantage to the grape and the wine sector come from the sectors factor endowments. In fact, it matches Porters' statement that: "At the natural resource-intensive industries, and in the standardized lower-technology segments of more-intensive industries factor conditions are frequently decisive". The grape and wine sectors can be classified as resource intensive industries. Namely, the long standing tradition, favourable geographic and climatic conditions are positively related to the idea of starting such kind of production and have great impact to the grape and wine quality. Moreover, the basic infrastructure as road networks and irrigation systems, vineyards plantations and the processing capacities are already established. Except the existing old wineries, many newly built facilities give opportunity for production of quality wine.

As a labour intensive agricultural activity, the grape sector has a significant share in the well being especially in the regions where people are largely dependent on the income from grape growing. On the other hand the low labour cost is one of the preconditions for comparative advantage, by making the grape and the wine production cheaper, in comparison to the other competitors. As presented in the results part the coefficient of Domestic Resource Cost, which calculated value is 0,62 also leads to the fact that the cost of factors (land, labour, capital) for grape production is less than the value they generate within the economy, or that the use of the resources produces more if compared with international prices.

The Macedonian grape production is closely related to the wine production industry, meaning that it is the basic raw material to the wineries. The benefit is that the grape growers do not have to search for other markets to sell their production, especially for the processing grape. The price they get for the grape is the lowest in comparison to all of the other wine producing countries in the region and world wide (Table 4-6). Even at the lowest price, the producers still benefit of their production because the average cost of production is 20% lower than the price they get. By merging these facts, it is obvious that the wineries also enjoy favourable conditions by having available cheap raw material.

The structure of the vine varieties is mixed. The most present are the domestic vine varieties, but there is success in growing widely spread varieties known in the world. The processing grape represents 70% of the whole production, but the whole quantity of grape that is processed is about 81% of the total production. The remaining 20% are used domestically or exported at the international market, (mostly in the neighbouring countries). At the domestic market, there is not wines produced from other fruits, thus the wine does not have real competitive substitute product. Moreover, the imported wine quantities represent only 0.5% of the total wine supply.

In Macedonia, there are about 30 wineries, among which the Ministry of Economy registered 21 wineries in 2003 (Table 4-3). It ensures that the Macedonian wine market is working

according to the principles of the market economy. Even though the license requirement is compulsory for starting the winery, products' trading and export, and the procedure for getting it is not complicated. The quality assortment of the Macedonian wine consists of: table wine, regional wine, quality wine and superbly (high quality) wine. Except the table wine all other categories have geographic origin and specified sorts content.

The Macedonian wine industry is export oriented. It is mainly exported in the European and neighbouring countries. The export share of total demanded wine quantity is 81% on average. It enables foreign exchange income, thus firms the competitiveness position among the other market actors, but also contribute to the country's welfare. Other characteristic that clearly proves the specialization of the Macedonian wine production is the value of the Balassa index. It's average value for the observed period is 4.53. According to the results Macedonian wine production is the most specialized in the region, and its value is very close to the Chilean (5.92) and French (4.87) wine industry. The advantage of these two leading countries is that their index value over the years is more stable (Appendix G.2).

Significant impacts for further sectors development give the possibilities for labour education and training. It comes from the fact that in Macedonia there are appropriate institutions that also pay attention on the new world trends, and try to upgrade their human resources and equipment.

Macedonian wineries and the grape growers are also affected by the new world trends of production and the principles of the market-oriented economy. In their attempts to meet the new conditions recently they joined the wine cluster. Even though such association is in emergence the parties see that idea as useful tool for further development and easier market access.

Substantial opportunity of the grape and wine sectors development gives the process of trade integration. Namely, as presented in the results' section after the independence, Macedonia began a process of trade integration at the regional, (Free Trade Agreements FTA's and Central European Free Trade Agreement CEFTA) European (Agreement for Stabilization and Association), and global (the Macedonian membership in WTO) level. All these agreements stipulate the Macedonian grape and wine sector. The regional free trade agreements give opportunity for market expansion while the EU and the global agreements give special trade and product treatments to the Macedonian wine until 2011. EU considers the Macedonian wine as highly sensitive product, which implies that all tariff barriers except tariff-quotas are removed, and there is proposed quota quantities of wine that should be accepted by EU. The quantity of 300,000hl that every year should be exported in EU (starting from 2002) at zero-tariff quota ensures the wineries that at least for the granted period more than 50% of their production will be sold, while the obligation for gradual increase of the bottled wine (6.000hl per year), urge the wine makers to make bigger steps toward increasing the quality of the bottled wine and product standardization. Due to EU enlargement tariff quota for wine export to EU rose to 391,500 hl.

Additional opportunities for the sectors development give the activities undertaken by the Macedonian government and EU. By the foundation of the centre for reproduction of seed and planting material, it is obvious that the grape growers will get certified and sanitary safe domestic grape vine planting materials, thus it will increase the production in qualitative and in quantitative terms. A specific impact to the wine production is the new Law on Wine (2004). It also stipulates the production and trade of grape and wine, but also regulates the management and control of the vine plantations. There are expectation that it will protect

producers and consumers' interests; proper functioning of domestic and foreign markets; quality improvement of wine and grape products; resources adjustment with regard to the market needs and the needs for oenological substances and procedures.

Government cooperation with EU gives opportunity for faster legislation implementation, better control systems and technical modernization of all subjects involved in the ongoing processes of sector reforms. By doing that the sector will easily fulfil the requirements proposed by international agreements, especially those with the EU and the WTO, thus will easily adjust to the competition from the other countries.

## 5.2 Weaknesses and threats of the grape and wine sectors

Even though factor endowments form the base for sectors' strengths, there is still necessity of upgrading the capital and the human resources, thus to strengthen the competitiveness position, or to move forward toward its expansion. Additional capital investments are necessary for the infrastructure such as irrigation systems, road networks, but also for replacement of the old vines in the vineyards with new more competitive sorts. The modernization of the existing wineries storage capacities and building of new grape storage capacities should also be a part of the investment programs. The utilization of the winemaking facilities in the observed period is lower than 50%. Both sectors need further upgrading of the human resources by upper level specialists.

The main problem of such stagnation in the crucial facilities comes with the troubles for getting credits, absence of direct support measures and foreign or domestic direct investments. The credit lines that are offered by the banks are not acceptable for the grape and the wine producers, the interest rate and guarantee are too high. The situation is even more complicated knowing that the grape and wine producers have to fulfil the regulations of the EU and World Trade Organization (WTO). The calculation of the protection indexes also show that there is not direct support measures that favour the grape production.

The categories most affected by the existence of such conditions are the private grape growers. As presented in the results section, they are the most important grape producers with the average share of the total production of 66%. Faced with the difficulties to exist with their business, they often stop to control their production (not to replace the old vines, use adequate chemicals and machinery etc), consciously going toward the decrease of the areas. Total cancellation of the production is not the right move that should be undertaken. The grape is a perennial culture, which needs big investment costs. Moreover, in the grape-growing regions the grape production is a kind of traditional habit.

As presented in the results 80% of the total grape production is used for wine production. The lack of storage capacities for the table grape (refrigerators) forces the grape growers to sell the table grape as processing, therefore to lose their profits. Also the absence of refrigeratory capacities make the table grape supply seasonal, thus the existence of various fruit supply in that period act as its significant competitive substitute products. Since the grape is considered as an industry product the wineries use their power to bargain the grape producers, and benefit of that. In such situation, the grape growers do not have ability for price control, and the worst thing is that they cannot even collect the money for their production.

An additional complicating factor is the weak grape growers organization. It limits them to negotiate for easier input supply, but also to strength their negotiating position by setting a

contract at which the cooperation conditions with the wineries (whether short-term or long-term) will be specified.

Officially in Macedonia, there are not production and marketing monopolies in the food and beverages industry. But, the reality shows that even though within the Macedonia wine industry operate about 25 wineries just few of them control the wine market in terms of capacity, production, and trade (at the domestic and at the foreign market). The relations among the wineries and grape growers are not well regulated, and the rivalry and the non-loyal competition prevail. The “monopoly power” of the biggest wineries is present in the winery sector through ascendancy obtained by closely related interests. In line with this statement are the values of the market concentration indexes showing that the Macedonian wine market is highly concentrated and expresses characteristics of oligopoly structure.

The fact that the Macedonian wine production is export oriented is very satisfactory for the wine producers. At the foreign market the wine is presented with all categories but the wines from the lowest category are much more exported. At the lowest price is exported bulk wine. From the total amount of exported wine, in average 94% is bulk wine, and only 6% belong to bottled wine. Unfortunately its main destinations are our leading trade partners; Germany (54%), Slovenia (12%), SMG (8%), and Bulgaria (8%). The calculations done for the entire period show that the average export price of the Macedonian wine was 22,2 denars (\$0,42). At the lowest price, the wine is sold in Germany (the average price was 21.09MKD; \$0.39) and Slovenia (23.44MKD; \$0.46). The quantity of the exported bottled wine has increasing trend, but the quantity does not fulfil the quota proposed by EU. The import quota for the period 2003 and 2004 was also not fulfilled.

Other problems that appear in the wine market are the wine stocks and the wine production in home conditions. According to the balance sheet on average 500,000hl of wine every year is stored as wine stocks remained from the previous year, for further wine-ageing, and quantities kept by the wineries in order to face the wine demand for the coming year, in case if the grape production do not satisfy the prescribed quality stand. Regularly the quantities of wine reduced by the private producers for self-consumption, and the wine stocks coming from the wineries should be, but are not officially announced. It makes additional problems to the process of the economic planning and projecting of the grape and production.

The management issue for the grape and wine sectors can be assumed as the weakest side. Following the results, almost all of the relationships established for exporting of Macedonian wine are based on the low cost position at the foreign market (EU and Ex Yugoslavian Republics). The Macedonian wine is exported mainly as bulk wine thus big share of the producers profit is lost. The export in EU is focused to one country – Germany, with export average for ten years period of 54% of the total exported quantity. Germany purchases the largest volume of the Macedonian bulk wine (which is considered as undifferentiated product) so its power to lower the wine prices and to set the trading rules is obvious. The only defensible factor to the low cost position is that at the domestic market the wine industry enjoys all of the benefits as powerful grape buyer, thus the most affected category are the Macedonian grape growers that desperately seek for better market conditions. The products differentiation of the Macedonian wine is in early stage, thus fast movement from low-cost to exclusive supplier position for the Macedonian wine sector is not possible. Among the external factors (threats) that additionally burdened the wine sector during the observed period are decrease of the domestic market (after gaining the independence) and the regions’ crisis especially during the period 1998 to 2001.

**Table 5-1: Strengths and weaknesses of the grape and wine sector**

STRENGTHS	vis-a-vis	WEAKNESSES
1. Long-standing tradition.	↔	1. High fixed cost for starting grape production.
2. Favourable geographic and climatic conditions.	↔	2. Production depending of the natural conditions.
3. Established infrastructure: road network, irrigation system, vineyards plantations and processing capacities.	↔	3.1. Lack of capital investments: storage capacities for table grape, modernization of the existing capacities, and human resources; 3.2. Inappropriate credit conditions; 3.3. Absence of foreign direct investments.
4. The vine growing is labour intensive agriculture activity.	↔	4. Low income for the grape growers; decreases the motivation for grape growing.
5. Low factor costs of the grape production;		6.1. Weak grape growers' organization; 6.2. Not specified market conditions at which the grape is sold (signing of contracts with the purchasers is not a practise); 6.3. Low returns for table grape; 6.4. Seasonal supply of table grape, many substitute product.
6. Grape production is closely related to the domestic wine industry.	↔	
7. The grape producers price is the lowest in the region and among the European grape producing countries.		8.1. The production is not standardized; 8.2. It is not planned according to the market needs; 8.3. Over 60% of the vineyards are older than 15 years; 8.4. Vine replacement is not well organized.
8. Mixed vine varieties.	↔	9.1. The wineries enjoy all benefits as powerful buyers, thus the grape growers do not have power to the price control; 9.2. The utilisation of the wine capacities is about 50%.
9. The wineries enjoy favourable conditions by available cheap raw materials.	↔	10. Only few of them control the market.
10. Large number of wineries (30 registered, 21 operating in 2003).	↔	12. The implementation of the international regulative is slow.
11. The procedure of licence issuing is not complicated.		13. 94% of the wine that is exported is bulk wine.
12. Wine quality assortment is specified according to the international roles.	↔	14. Bad management strategy; double mistake, by focusing to the to country at which the export is based on low cost strategy.
13. Macedonian wine industry is export oriented, 80% of the total demand represents the export.	↔	15.1. Slovenia is already a member of EU; 15.2. Bulgaria is waiting for the membership status; the market conditions are uncertain.
14. Established trade relations with the EU (referring the wine);	↔	16. Possibilities are not used.
15. Well organized regional trade relations, (referring the wine and the table grape).	↔	17. The wine producers put lower effort to increase the wine quality at the domestic market.
16. Diversification of high quality wines 17% wine export to the rest of world.	↔	18. Weak government support.
17. Wine import represents 0.5% of the total wine supply, absence of other substitutes.	↔	
18. Governmental support for vine replacement for the period 1999 to 2003.	↔	

**Table 5-2: External factors influencing the grape and wine sectors, opportunities and threats**

OPPORTUNITIES	THREATS
1. Existence of scientific and research institutions, that are in process of technical and resource upgrading.	1. Losing of the traditional markets after the independence.
2. Cluster establishment.	2. The regional crisis decreased the exported wine quantities.
3. Regional free trade agreements (FTA, and CEFTA), opportunity of market expansion.	3. Macedonia doesn't fulfil the EU import and export quotas;
4. European and the WTO give special trade and product treatments to the Macedonian wine.	4. Excess wine supply at the European market.
5. Joint governmental and EU force for adjustment and implementation of the wines' law regulation.	5. High competition at the world market.

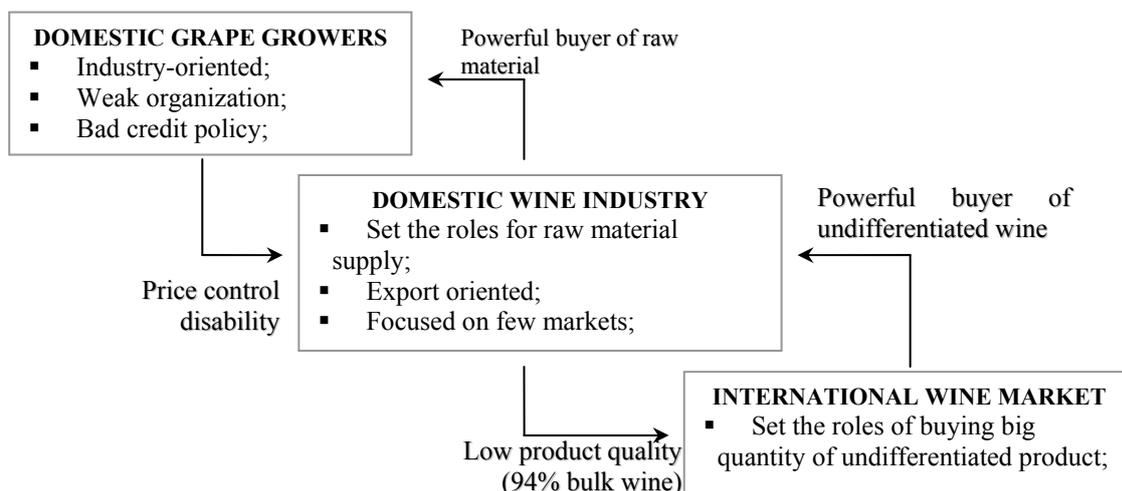
## 6 Conclusion and suggestions

Following the results and the analysis section of the study the general statement is that the Macedonian grape and wine sectors need serious management reconstruction.

During the period analysed in the study, problems emerge at all levels of the supply chain (grape growers, domestic wine industry and the export market). Namely, the grape growers do not have suitable approach to credit lines, they are not well organized, thus the domestic winery use the benefit as powerful buyers of the primary production, moreover that the grape sector is industry-oriented (80% of the total demand represents the export).

Further, the second gap is in the bad management strategy at the foreign market. The wine exports are focused to just few markets, but at low cost strategy. Thus, the international buyers use the power of preferential markets. A graphical presentation of the current market situation is presented in the figure below (Figure 5):

...*Current situation on the grape and wine market...*



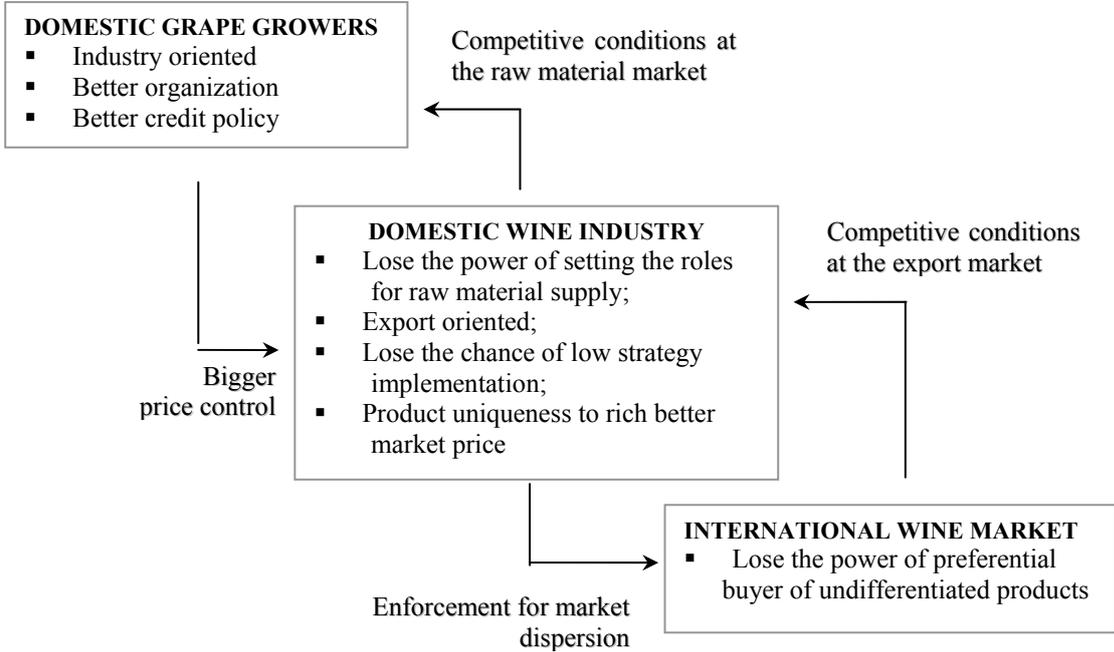
**Figure 5: A summary of the sectors analysis**

The suggestion that could lower such bad market conditions is that the changes should start at the beginning of the chain, initially with the grape growers.

By strengthening the power of the grape growers, through easier funding access and better internal organization and cooperation, the wineries will lose the role of powerful buyers. It means that they will not have a chance to hold on the low position at the focused international market, and will make effort to differentiate the wine production, and disperse on more markets. On the other side the international market will lose the role of powerful buyer of big quantity of undifferentiated product (the Macedonian wine).

A graphical presentation of the possible market changes after the market strategy improvement is presented in the figure below:

*...If the changes take place...*



**Figure 5: Possibilities for sectors improvement**

The proposed adjustment will make both the grape growers and the wine producers less vulnerable category, but also will lift them in a higher position at the wine market. Moreover, it matches the aim of all European and World Trade Organization measures proposed by the trade agreements signed with the Macedonian government.

The fulfilment of the trade agreements approaches the country to the international legislation, thus speed the processes of global market integration.

## Appendix

**Appendix A:** Grape production (1995 – 2004)

**Appendix B:** Grape supply and demand (1995 – 2004)

**Appendix C:** Grape production cost at national level for the harvest 2004

**Appendix D:** Economic, financial, protection and comparative advantage analysis of the private grape production for the harvest 2004

**Appendix E:** Grape prices on the Macedonian market (1995 – 2004)

**Appendix F:** Balance sheet of the Macedonian wine production (1995 – 2004)

**Appendix G:** Balassa index values for the Macedonian wine production and some other competitive countries (1995 – 2004)

**Appendix H:** Wine exports and imports, quantities and prices (1995 – 2004)

**Appendix I:** Calculations of market concentration indexes for 2004

**Appendix J:** Questionnaire

**Appendix K:** Quality control and categories of the wine produced in Macedonia

## Appendix A: Grape production (1995 – 2004)

### A.1. Total grape production

	Source	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St. Dev	Min	Max
Area in ha	State Statistical Office	29,871	28,419	28,077	28,812	28,304	26,530	27,111	26,194	25,692	24,777	27,379	1,581	24,777	29,871
<b>Total production in tons</b>		<b>190,677</b>	<b>214,513</b>	<b>258,360</b>	<b>243,567</b>	<b>230,104</b>	<b>264,256</b>	<b>229,805</b>	<b>118,935</b>	<b>243,821</b>	<b>254,613</b>	<b>224,865</b>	<b>43,226</b>	<b>118,935</b>	<b>264,256</b>
Average yield (kg/grapevine)		1.9	2.3	2.6	2.6	2.4	2.9	2.5	1.3	2.7	3	2.42	0.50	1.30	3.00
Yield (t/ha)		6.38	7.55	9.20	8.45	8.13	9.96	8.48	4.54	9.49	10.28	8.25	1.74	4.54	10.28
Agricultural enterprises production in tons (t)		70,591	89,046	103,229	84,371	82,740	77,626	63,516	62,340	58,638	52,281	74,438	15,780	52,281	103,229
Agricult. enterprises, yield in (kg/grapevine)		2.4	3.5	4.2	3.4	3.6	4	2.8	1.1	2.6	2	2.96	0.96	1.10	4.20
Private producers production in tons (t)		120,086	125,467	155,131	159,196	147,364	186,630	166,289	56,595	185,183	202,332	150,427	42059	56,595	202,332
% Share of total production (private producers)		63%	58%	60%	65%	64%	71%	72%	48%	76%	79%	66%	/	48%	79%
% Share of total production (agricultural enterprises)		37%	42%	40%	35%	36%	29%	28%	52%	24%	21%	34%	/	21%	52%

Source: State Statistical Office, Statistical Yearbooks 1995 – 2004. The statistical calculations are personal.

### A.2. Table grape production

	Source	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St. Dev	Min	Max
<b>Table grape production (in tons)</b>	Department for grape and wine production	<b>72,456</b>	<b>75,355</b>	<b>76,230</b>	<b>74,720</b>	<b>71,281</b>	<b>81,919</b>	<b>68,942</b>	<b>32,000</b>	<b>75,300</b>	...	<b>69,800</b>	<b>14,630</b>	<b>32,000</b>	<b>81,919</b>
In % from the total production		38%	35%	30%	31%	31%	31%	30%	27%	31%	...	31%	3%	27%	38%
Area (ha)		9,152	9,286	9,305	9,420	9,310	...	...	...	...	...	9,295	95.5	9,152	9,420
Yield (t/ha)		7.92	8.11	8.19	7.93	7.66	...	...	...	...	...	7.96	0	7.66	8.19

Source: Petar Hristov, Department for Grape and Wine Production, Faculty of Agricultural Sciences and Food, University St. Cyril and Methodius – Skopje. The statistical calculations are personal. (State Statistical Office doesn't carry out such analysis in its surveys).

## Appendix B: Grape supply and demand (1995 – 2004)

### B.1. Grape supply – demand balance sheet

	Unit measure	Source	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St. Dev
<b>Total grape production</b>	tons	SSO	<b>190,700</b>	<b>214,513</b>	<b>258,360</b>	<b>243,567</b>	<b>230,104</b>	<b>264,256</b>	<b>229,805</b>	<b>118,935</b>	<b>243,821</b>	<b>254,613</b>	<b>224,867</b>	<b>43,224</b>
Imported quantities	tons	SSO	41.0	50.0	51.1	60.6	15.6	2.7	1.8	11.7	27.1	23.2	28.5	21
<b>Total supply</b>	tons	Estimation	<b>190,741</b>	<b>214,563</b>	<b>258,411</b>	<b>243,628</b>	<b>230,120</b>	<b>264,259</b>	<b>229,807</b>	<b>118,947</b>	<b>243,848</b>	<b>254,636</b>	<b>224,896</b>	<b>43,227</b>
Domestic demand (domestic consum. and processing industry)	tons	Estimation	180,583	202,397	238,088	230,986	211,269	251,504	216,107	112,233	227,037	232,343	210,255	39,807
Exported quantities	tons	SSO	10,158	12,166	20,323	12,641	18,851	12,755	13,699	6,714	16,811	22,293	14,641	4,839
<b>Total demand</b>	tons	Estimation	<b>190,741</b>	<b>214,563</b>	<b>258,411</b>	<b>243,628</b>	<b>230,120</b>	<b>264,259</b>	<b>229,807</b>	<b>118,947</b>	<b>243,848</b>	<b>254,636</b>	<b>224,896</b>	<b>43,227</b>
<b>Trade balance</b>		Estimation	<b>0</b>											

**Source:** State Statistical Office, Statistical Yearbooks and Statistical Reviews of Foreign Trade “Commodity International Exchange of Republic of Macedonia”, for 1995 to 2004.

**Note:** The **total supply** is a sum of the produced and imported quantities of the current year.

The **total demand** is a sum of the domestic grape demand and the exported quantities.

The **domestic demand** is a sum of the grape that is used for domestic consumption (fresh grape) and the grape that is processed by the industry.

The **trade balance** shows the difference of the total supply and total demand. The values are zeros because the grape is not storable good.

### B.2. Domestic grape consumption

	Unit measure	Source	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St. Dev
Consumption per member of household	kg/year	SSO	11.2	8.7	6.8	5.6	10.0	13.1	9.6	13.0	30.8	19.9	12.87	7.5
Total consumption	kg/year	Estimation	22,019	17,252	13,580	11,245	20,170	26,541	19,536	26,260	62,432	40,437	25,947	15,188

**Source:** State Statistical Office, Statistical Yearbooks, 1995 to 2004.

# Appendix C: Grape production cost at national level for the harvest 2004

## C.1. Calculation with detailed presentation of the production activities

GRAPE PRODUCTION COST						
Main product	Capacity			Total	Total den/ha	Incomes structure (%)
	Total production	Unit measure	Den/unit measure			
1. Wine grape	15,000	Kg	10	150,000	150,000	100
By products	Total production	Unit measure	Den/unit measure	Total	Total den/ha	Incomes structure (%)
1.				0	0	0
<b>TOTAL INCOME</b>				<b>150,000</b>	<b>150,000</b>	<b>100</b>
I. VARIABLE COSTS						
	Labour	Machinery	Materials	Total	Total per ha	Costs structure (%)
1. Manure loading and transport	0	0		0	0	0
2. Manure spreading	0	0		0	0	0
3. Autumn ploughing	500	3,000		3,500	3,500	2.93
4. Cutting	5,000			5,000	5,000	4.18
5. Straw collection and removing from the field	1,000			1,000	1,000	0.84
6. Digging	5,000			5,000	5,000	4.18
7. Loading and transport of NPK (fertilizer)	500	1,500		2,000	2,000	1.67
8. Spreading of NPK	500	500		1,000	1,000	0.84
9. Surface ploughing	500	1,500		2,000	2,000	1.67
10. Construction maintaining	1,000	0		1,000	1,000	0.84
11. Banding	2,000	0		2,000	2,000	1.67
12. Land disking	500	2,000		2,500	2,500	2.09
13. Ploughings	1,000	3,000		4,000	4,000	3.35
14. Irrigation	3,000	0		3,000	3,000	2.51
15. Harrowing	2,000	0		2,000	2,000	1.67
16. Spraying	2,000	6,000		8,000	8,000	6.69
<b>Inputs used</b>					0	0
- Manure			0	0	0	0
- Fertilizer			8,000	8,000	8,000	6.69
- Pesticides and herbicides			12,000	12,000	12,000	10.04
- Band			500	500	500	0.42
- Water expenses			10,000	10,000	10,000	8.37
<b>Insurance</b>					0	0
<b>Total preparation and production</b>				<b>72,500</b>	<b>72,500</b>	<b>60.67</b>
Grape picking	10,000			10,000	10,000	8.37
Transport to the cellars	0	10,000		10,000	10,000	8.37
Interest					0	0
Other variable costs					0	0
<b>Total variable costs</b>				<b>92,500</b>	<b>92,500</b>	<b>77.41</b>
<b>Total income – variable costs</b>				<b>57,500</b>	<b>57,500</b>	
II. FIXED COSTS						
		Unit measure	Total	Total per ha	Costs structure (%)	
Insurance				0	0	
Land leasing				0	0	
Amortization			25,000	25,000	20.92	
Interest			0	0	0	
Taxes			2,000	2,000	1.67	
Other fixed costs				0	0	
<b>Total fixed costs</b>			<b>27,000</b>	<b>27,000</b>	<b>22.59</b>	
<b>TOTAL COSTS (1 + 2)</b>			<b>119,500</b>	<b>119,500</b>	<b>100</b>	
<b>GROSS PROFIT = Total income – Total costs</b>			<b>30,500</b>	<b>30,500</b>		

**Source:** Department for Economics and Organization of the Agricultural Production, Faculty of Agricultural Sciences and Food, University St. Cyril and Methodius – Skopje.

**Note:** The production cost is obtained through a survey in which were included fifteen private grape growers, from different grape growing regions.

## C.2. Calculation used in the model (classified expenses)

	Units	Quantity	Unit Price	Unit cost	Private payment	Private TBLS	Private NTBLS	Private cost	Indirect TX/SUBSY TBLS	NTBLS	Social cost
<b>TRADABLE COSTS</b>											
Seed (purchased)	denars/ha	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals	denars/ha	1.00	12,000.00	12000.00	12 000,00	0.00	0.00	12000.00	0.00	0.00	12000.00
Band	denars/ha	1.00	500.00	500.00	500.00	0.00	0.00	500.00	0.00	0.00	500.00
Fuel	denars/ha	1.00	10,000.00	10000.00	10,000.00	0.00	0.00	10000.00	0.00	0.00	10000.00
Fertiliser (NPK)	denars/ha	1.00	8,000.00	8000.00	8,000.00	0.00	0.00	8000.00	0.00	0.00	8000.00
<b>Total tradable costs</b>	denars/ha				<b>30,500.00</b>			<b>30500.00</b>			<b>30500.00</b>
<b>NON-TRADABLE COSTS</b>											
Labour	denars/ha	1	34,500.00	34500	34,500.00	0	0	34500	0	0	34500
Social Contributions (fees and taxes)	denars/ha	1	2,000.00	2000	2,000.00	0	0	2000	0	0	2000
Depreciation	denars/ha	1	25,000.00	25000	25,000.00	0	0	25000	0	0	25000
Land and machinery	denars/ha	1	17,500.00	17500	17,500.00	0	0	17500	0.00	0	17500
Miscellaneous (water supply)	denars/ha	1	10,000.00	10000	10,000.00	0	0	10000	0	0	10000
<b>Total Non-tradable Costs</b>	<b>denars/ha</b>				<b>89,000.00</b>			<b>89,000.00</b>			<b>89,000.00</b>
<b>TOTAL COST</b>	<b>denars/ha</b>				<b>119,500.00</b>	<b>119,500.00</b>	<b>119,500.00</b>	<b>119,500.00</b>			
<b>NET COST OF PRODUCTION</b>	<b>denars/ha</b>				<b>119,500.00</b>	<b>0.00</b>	<b>0.00</b>	<b>119,500.00</b>	<b>0</b>	<b>0</b>	<b>119,500.00</b>
<b>YIELD</b>	<b>kg/ha</b>	<b>15,000</b>									
<b>Costs per kg</b>	<b>denars/kg</b>				<b>7.97</b>	<b>0</b>	<b>0</b>	<b>7.97</b>	<b>0</b>	<b>0</b>	<b>7.97</b>
<b>SALE PRICE</b>	<b>denars/kg</b>				<b>10.00</b>	<b>0</b>	<b>0</b>	<b>10.00</b>	<b>0</b>	<b>0</b>	<b>11.6</b>
<b>GROSS PROFIT</b>	<b>denars/kg</b>				<b>2.033</b>	<b>0</b>	<b>0</b>	<b>2.03</b>	<b>0</b>	<b>0</b>	<b>3.63</b>

**Source:** Department of Economy and Organization of the Agricultural Production, Faculty of Agricultural Sciences and Food, University St. Cyril and Methodius – Skopje.

**Note:** The production cost is obtained with a survey in which were included fifteen private grape growers, from different grape growing regions.

## Appendix D: Economic, financial, protection and comparative advantage analysis of the private grape production for the harvest 2004

05-May-06			
YEAR OF PRICES	2004		
LOCATION	National		
CROP	<b>GRAPE</b>		
YIELD (GRAPE)	15,000 kg/ha		
BY PRODUCT	/		
MANAGEMENT TYPE	Individual		
CURRENCY	Denars (MKD)		
EXCHANGE RATES	61.29 den/€		
<b>OUTPUT PRICES</b>			
	Market	Domestic Prices	Units
Farm gate	Aquis. Price	10.00	Denars/kg
Premia		0.00	Denars/kg
Export parity price - farmgate	fob	11.60	Denars/kg
<b>ECONOMIC AND FINANCIAL ANALYSIS</b>			
<b>ANALYSIS OF PRIVATE PROFITABILITY</b>			
Private Output Price	Pf		10.00
Private Value of Tradable Inputs	Ef		2.03
Private Value Added	$V Af = Pf - Ef$		7.97
Total Value of Non-Tradable Factors	VNf		5.93
Gross Private profitability			
per kilo	$BFN = V Af - VNf$		2.03
per hectare	$BFH = BFN \times R$		30,500
<b>ANALYSIS OF SOCIAL PROFITABILITY</b>			
Adjusted Border Price 2004 (social output price)	Ps		11.6
Social Value of Tradable Inputs	Es		2.03
Social Value Added	Vas		9.57
Social Value of Non-Tradable Inputs	VNs		5.93
Gross Social Profitability			
per kg	$BEN = VAs - Vns$		3.6
<b>PROTECTION AND COMPARATIVE ADVANTAGE ANALYSIS</b>			
<b>PROTECTION COEFFICIENTS</b>			
<b>NOMINAL PROTECTION on PRODUCT</b>			
NPC <sub>p</sub> = $Pf/Ps$			0.86
<b>EFFECTIVE PROTECTION COEFFICIENT</b>			
EPC = $V Af/VAs$			0.83
<b>DOMESTIC RESOURCE COST</b>			
DRC Ratio = $VNs/VAs$			0.62

**Source:** Own calculation.

**Note:** The Producers Price is taken from the survey conducted by the Department of Economics and Organization, Faculty for Agricultural Sciences and Food – Skopje.

## Appendix E: Grape prices on the Macedonian market (1995 – 2004)

Unit measure		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St Dev
<b>GRAPE PRODUCER PRICE</b>													
Processing grape	den/kg	...	8.16	8.34	9.36	11.02	11.63	10.10	11.11	11.02	11.00	10.19	1.29
Table grape	den/kg	18.34	12.91	15.64	16.24	16.63	16.68	18.18	20.34	18.20	13.20	16.64	2.32
<b>DOMESTIC MARKET PRICE OF TABLE GRAPE</b>													
Whole sale price	den/kg	...	...	8.16	17.72	25.03	23.78	27.208	27.42	19.55	18.18	21.74	4.72
Retail price	den/kg	...	...	25.3	26.5	33.1	28.8	30.4	40.3	31.77	25.3	30.17	5.05
<b>EXPORT AND IMPORT PRICE OF TABLE GRAPE</b>													
Export price	den/kg	12.08	12.76	11.97	10.06	9.77	9.50	9.76	9.94	11.60	11.36	10.88	1.19
	US\$	0.32	0.32	0.24	0.19	0.17	0.14	0.14	0.15	0.21	0.23	0.21	0.07
Import price	den/kg	...	56.0	19.4	16.9	42.7	21.7	30.3	21.5	15.8	19.4	27.06	13.69
	US\$	...	1.40	0.39	0.31	0.75	0.33	0.45	0.33	0.29	0.39	0.52	0.36

**Source:** State Statistical Office, Statistical Yearbooks and Statistical Reviews of Foreign Trade “Commodity International Exchange of Republic of Macedonia”, for 1995 to 2004.

## Appendix F: Balance sheet of the Macedonian wine production (1995 – 2004)

	Unit measure	Source	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St Dev
Beginning inventories	hl	SSO	/	261,637	256,399	403,181	513,413	547,029	477,576	741,551	948,870	546,356	798,385	549,440	224,845
Produced quantity	hl	SSO	880,240	910,530	1,010,300	957,620	1,227,100	911,870	1,237,650	1,192,510	447,130	940,660	272,570	910,794	319,991
Imported quantity	hl	SSO	460	4,611	21,721	14,160	7,500	8,620	3,656	3,277	1,394	1,448	2,897	6,928	6,503
<b>Total supply</b>	<b>hl</b>		<b>880,700</b>	<b>1,176,778</b>	<b>1,288,420</b>	<b>1,374,961</b>	<b>1,748,013</b>	<b>1,467,519</b>	<b>1,718,882</b>	<b>1,937,338</b>	<b>1,397,394</b>	<b>1,488,464</b>	<b>1,073,852</b>	<b>1,467,162</b>	<b>268,347</b>
Domestic consumption	hl	SSO	101,188	108,972	85,621	91,459	79,783	101,188	95,351	110,918	88,968	78,858	52,832	89,395	16,931
Exported quantity	hl	SSO	443,405	695,696	714,198	685,560	1,025,780	831,765	824,090	803,320	725,690	551,271	566,164	742,353	138,544
Wine for grape brandy	hl	SSO	74,470	115,710	85,420	84,530	95,420	56,990	57,890	74,230	36,380	59,950	71,167	73,769	22,630
<b>Total demand</b>	<b>hl</b>		<b>619,063</b>	<b>920,378</b>	<b>885,239</b>	<b>861,549</b>	<b>1,200,983</b>	<b>989,943</b>	<b>977,331</b>	<b>988,468</b>	<b>851,038</b>	<b>690,079</b>	<b>690,163</b>	<b>905,517</b>	<b>150,846</b>
Ending stocks	hl		<b>261,637</b>	<b>256,399</b>	<b>403,181</b>	<b>513,413</b>	<b>547,029</b>	<b>477,576</b>	<b>741,551</b>	<b>948,870</b>	<b>546,356</b>	<b>798,385</b>	<b>383,689</b>	<b>561,645</b>	<b>210,331</b>

**Source:** State Statistical Office, Statistical Yearbooks and Statistical Reviews of Foreign Trade “Commodity International Exchange of Republic of Macedonia”, for 1994 to 2004.

**Note:** The **total supply** is presented as sum of the beginning inventories (the stocks of the previous year), produced quantity and imported quantities of the current year.

The **total demand** is a sum of the domestic wine demand, exported quantities and wine that is further processed into grape brandy.

The **ending stocks** show the difference of the total supply and total demand.



## Appendix G: Balassa index values for the Macedonian wine production and some other competitive countries (1995 – 2004)

### G.1. Total export values (agro processing industry), and the wine export values of the observed countries, in US\$

	Source	1998	1999	2000	2001	2002	2003
Total export value of the <b>MACEDONIAN</b> agri-processing industry	SSO	210	227	195	186	200	229
Value of the <b>MACEDONIAN</b> wine export		39	28	29	28	27	28
Total export value of the <b>WORLD</b> agri-processing industry		438,240,578	417,198,260	411,995,703	413,644,373	442,288,965	523,884,525
Value of the <b>WORLD</b> wine export		13,806,905	14,077,664	12,708,284	12,671,166	14,206,813	17,318,151
Total export value of the <b>ROMANIAN</b> agri-processing industry		435,085	488,255	363,681	446,042	463,090	603,430
Value of the <b>ROMANIAN</b> wine export		37,580	22,285	17,741	19,655	23,015	24,713
Total export value of the <b>BULGARIAN</b> agri-processing industry		704,482	609,445	472,369	583,602	733,427	798,997
Value of the <b>BULGARIAN</b> wine export		126,581	81,100	62,869	66,465	60,798	69,600
Total export value of the <b>CROATIAN</b> agri-processing industry		433,485	395,759	377,165	408,776	499,637	672,610
Value of the <b>CROATIAN</b> wine export	FAO	9,663	8,657	7,374	7,925	9,657	11,634
Total export value of the <b>HUNGARIAN</b> agri-processing industry		2,706,933	2,256,081	2,178,649	2,394,151	2,634,793	3,231,140
Value of the <b>HUNGARIAN</b> wine export		91,949	76,737	64,356	59,053	63,959	70,864
Total export value of the <b>GREEK</b> agri-processing industry		2,979,153	3,015,795	2,577,316	2,414,245	2,517,404	2,973,361
Value of the <b>GREEK</b> wine export		75,782	69,447	58,058	45,125	47,659	72,792
Total export value of the <b>CHILEAN</b> agri-processing industry		2,762,364	2,779,855	2,849,417	3,197,324	3,475,048	3,654,760
Value of the <b>CHILEAN</b> wine export		510,422	523,652	576,822	645,010	603,772	662,990
Total export value of the <b>AUSTRALIAN</b> agri-processing industry		14,365,748	14,626,744	15,455,193	15,731,171	16,023,801	15,172,987
Value of the <b>AUSTRALIAN</b> wine export		611,429	793,650	903,594	997,803	1,272,366	1,539,094
Total export value of the <b>FRENCH</b> agri-processing industry		38,253,810	36,812,838	33,390,182	31,327,671	34,838,921	42,127,408
Value of the <b>FRENCH</b> wine export		5,890,723	6,101,171	5,044,348	4,787,033	5,397,735	6,562,663

### G.2. Calculated Balassa indexes for the observed countries

<b>WINE BALASSA INDEX</b>	1998	1999	2000	2001	2002	2003
Macedonia	5.96	3.64	4.79	4.90	4.19	3.72
Romania	2.74	1.35	1.58	1.44	1.55	1.24
Bulgaria	5.70	3.94	4.31	3.72	2.58	2.64
Croatia	0.71	0.68	0.67	0.67	0.60	0.44
Greece	0.81	0.68	0.73	0.61	0.59	0.74
Hungary	1.08	1.01	0.96	0.81	0.76	0.66
Chile	5.86	5.58	6.56	6.59	5.41	5.49
Australia	1.35	1.61	1.90	2.07	2.47	3.07
France	4.89	4.91	4.90	4.99	4.82	4.71

Source: Own calculation

# Appendix H: Wine exports, and imports, quantities and prices (1995 – 2004)

## H.1. Export and import quantities and prices by type of wine

Unit measure	Source	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average	St Dev	
<b>Wine: Producers, Wholesale and Retail prices</b>														
Producers price of bulk wine	den/lit	25.31	24.97	24.74	26.84	29.61	28.50	30.05	28.35	38.50	38.60	30	5.10	
Retail price of bulk wine	den/lit	46.10	51.96	55.21	52.50	48.84	50.36	51.76	54.49	67.33	76.45	56	9.28	
Bottled wine	den/lit	...	...	...	...	84	59	54	51	88	81	69	16.53	
<b>WINE EXPORT</b>														
<b>Total export</b>	<b>hl</b>	<b>Estimat.</b>	<b>695696</b>	<b>714198</b>	<b>685560</b>	<b>1025780</b>	<b>831765</b>	<b>824090</b>	<b>803320</b>	<b>725690</b>	<b>551271</b>	<b>566164</b>	<b>742353</b>	<b>138,544</b>
BULK wine	hl		693726	714169	632140	993980	807465	768163	706334	668053	486757	511833	698,262	145,057
	value		280889	331695	261310	365200	255350	244620	223450	216370	208540	242379	262,980	50,566
BOTTLED wine	hl		...	...	53420	31800	24300	55927	94777	57188	64514	54290	54,527	21,248
	value		...	...	38780	29360	23360	44046	55144	52030	73180	83731	49,954	20,711
SPARKLING wine	quantity		1970	29	0	0	0	0	2209	449	0	41	470	867
	value		510	4	0	0	0	0	918	173	0	96	170	308
<b>WINE IMPORT</b>														
<b>Total import</b>	<b>hl</b>		<b>4,611</b>	<b>21,721</b>	<b>14,156</b>	<b>7,500</b>	<b>8,620</b>	<b>3,656</b>	<b>3,276</b>	<b>1,394</b>	<b>1,448</b>	<b>2,897</b>	<b>6,928</b>	<b>6,503</b>
Bulk WINE	hl		4450	21378	13390	6200	7190	1999	2031	598	386	1204	5,883	6,752
	value		1646	8319	4990	2930	2100	893	663	182	207	604	2,253	2,597
Bottled WINE	hl		...	54	360	450	580	626	787	388	519	1193	551	315
	value		...	109	600	830	990	959	769	680	1056	2226	913	568
Sparkling WINE	hl		161	289	406	850	850	1031	458	408	543	500	550	275
	value		211	617	497	1340	950	1007	581	713	958	1363	824	368
<b>EXPORT PRICE</b>														
Bulk WINE	\$/lit		0.40	0.46	0.41	0.37	0.32	0.32	0.32	0.32	0.43	0.47	0.38	0.06
Bottled WINE	\$/lit		...	...	0.73	0.92	0.96	0.79	0.58	0.91	1.13	1.54	0.95	0.29
Sparkling WINE	\$/lit		0.26	0.46	...	...	...	...	0.42	0.39	.../	2.34	0.77	0.88
<b>IMPORT PRICE</b>														
Bulk WINE	\$/lit		0.37	0.39	0.37	0.47	0.29	0.45	0.33	0.30	0.54	0.50	0.40	0.08
Bottled WINE	\$/lit		...	...	1.67	1.84	1.71	1.53	0.98	1.75	2.03	1.87	1.67	0.32
Sparkling WINE	\$/lit		1.31	2.13	1.22	1.58	1.12	0.98	1.27	1.75	1.76	2.73	1.58	0.53
<b>Exchange rate</b>														
<b>Exchange rate</b>	<b>US\$</b>	<b>National bank</b>	37.95	39.99	49.87	54.18	56.70	65.85	67.84	64.66	54.23	49.44	54.07	10.24
Total exported quantities	hl		695696	714198	685560	1,025,780	831,765	824,090	803,320	725,690	551,271	566,164	742,353	138,544
Export value	(00) US \$		281399	331690	300090	394560	278710	288666	279512	268573	281720	326206	303112.6	38304.4
Export price	US \$		0.40	0.46	0.44	0.38	0.34	0.35	0.35	0.37	0.51	0.58	0.42	0.08
Export price	denars	Estimat.	15.35	18.57	21.83	20.84	19.00	23.06	23.60	23.93	27.72	28.49	22.24	4.05
Producers price	denars	Estimat.	25.31	24.97	24.74	26.84	29.61	28.50	30.05	28.35	38.50	38.60	30	5.10

**Source:** State Statistical Office. Statistical Reviews of Foreign Trade “Commodity International Exchange of Republic of Macedonia” from 1995 to 2004.

## H.2. Destinations of the exported wine quantities for the period 1995 to 2004

WINE EXPORT BY COUNTRIES		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average quantity	Min export	Max export
Unit measure														
<b>TOTAL EXPORTED WINE QUANTITIES</b>	hl	<b>695,696</b>	<b>714,198</b>	<b>685,560</b>	<b>1,025,780</b>	<b>831,765</b>	<b>824,090</b>	<b>803,320</b>	<b>725,690</b>	<b>551,271</b>	<b>566,164</b>	<b>747,538</b>	<b>551,271</b>	<b>1,025,780</b>
<b>WINE EXPORT to the EUROPEAN COUNTRIES (total amount)</b>		<b>451,923</b>	<b>433,524</b>	<b>427,586</b>	<b>581,236</b>	<b>600,703</b>	<b>527,429</b>	<b>520,110</b>	<b>495,240</b>	<b>362,830</b>	<b>350,505</b>	<b>477,685</b>	<b>350,505</b>	<b>600,703</b>
<b>% Share of the total export</b>		<b>65%</b>	<b>61%</b>	<b>62%</b>	<b>57%</b>	<b>72%</b>	<b>64%</b>	<b>65%</b>	<b>68%</b>	<b>66%</b>	<b>62%</b>	<b>64%</b>	<b>57%</b>	<b>72%</b>
1 Germany	hl	333,029	303,532	392,442	451,807	452,944	478,628	474,420	444,140	322,780	325,088	397,881	303,532	478,628
2 Austria	hl	65,894	9,944	4,526	2,522	0	1	110	10	2,780	58	9,538	1	65,894
3 UK	hl	26,663	16,893	19,493	16,191	2,419	242	0	20	120	23	9,118	20	26,663
4 Switzerland	hl	15,736	130	1,363	6,717	6,287	1,374	150	320	30	342	3,245	30	15,736
5 Poland	hl	5,294	2,118	2,316	10,548	16,618	239	1,420	110	110	109	3,888	109	16,618
6 Hungary	hl	3,140	7,586	2,609	8,111	6,022	1,479	0	0	0	0	4,825	1,479	8,111
7 Nederland	hl	523	953	785	972	948	5,148	830	640	520	483	1,180	483	5,148
8 Belarus	hl	500	0	197	20,764	14,752	0	0	580	0	230	6,171	197	20,764
9 France	hl	337	585	81	1,448	65,380	17,642	1,810	50	30	45	8,741	30	65,380
10 Greece	hl	278	90,432	168	1,992	203	7,791	300	220	0	21	11,267	21	90,432
11 Ukraina	hl	267	0	0	34,972	424	1,473	2,710	1,640	8,830	...	7,188	267	34,972
12 Danmark	hl	162	308	610	598	492	761	350	260	100	401	404	100	761
13 Russia	hl	100	81	0	0	30,961	650	460	10050	1220	1,231	5,594	81	30,961
14 Belgium	hl	0	0	0	0	0	0	70	20	20	28	35	20	70
15 Czech Republic	hl	0	746	2,003	8,244	1,735	9,592	34,970	34,750	24,850	20,225	15,235	746	34,970
16 Cyprus	hl	0	0	0	0	0	0	80	0	0	54	67	54	80
17 Estonia	hl	0	0	0	0	0	0	400	300	140	272	278	140	400
18 Italy	hl	0	0	1	0	239	0	0	0	0	1,280	507	1	1,280
19 Moldova	hl	0	0	0	11,237	0	0	0	840	0	0	6,039	840	11,237
20 Norway	hl	0	0	0	0	0	0	0	40	20	0	30	20	40
21 Romania	hl	0	0	0	4,254	0	0	0	0	0	0	4,254	4,254	4,254
22 Sweden	hl	0	216	992	859	1,279	2,409	600	80	80	73	732	73	2,409
24 Finland	hl	0	0	0	0	0	0	1,430	1,170	1,200	542	1,086	542	1,430
<b>TOTAL EXPORT to the EXS YU and other NEIGHBOURING COUNTRIES</b>		<b>241,293</b>	<b>280,283</b>	<b>223,275</b>	<b>390,843</b>	<b>193,723</b>	<b>283,195</b>	<b>261,620</b>	<b>191,810</b>	<b>158,070</b>	<b>206,319</b>	<b>243,043</b>	<b>158,070</b>	<b>390,843</b>
<b>% Share of the total export</b>		<b>35%</b>	<b>39%</b>	<b>33%</b>	<b>38%</b>	<b>23%</b>	<b>34%</b>	<b>33%</b>	<b>26%</b>	<b>29%</b>	<b>36%</b>	<b>33%</b>	<b>23%</b>	<b>39%</b>
1 Slovenia	hl	122,848	232,190	169,988	64,416	58,953	111,475	49,100	29,250	40,010	14,221	89,245	14,221	232,190
2 Bulgaria	hl	78,689	6,342	11,817	301,788	102,495	38,383	0	1,480	10	0	60,112	0	301,788
3 Albania	hl	28,506	20,540	6,554	2,057	2,417	558	810	1,560	2,180	1,909	6,709	558	28,506
4 Croatia	hl	10,346	17,058	18,440	5,199	6,839	8,038	27,180	29,010	36,740	64,356	22,321	5,199	64,356
5 SMG	hl	499	3,343	16,324	17,120	22,318	122,534	184,470	129,460	78,520	124,854	69,944	499	184,470
6 BIH	hl	405	810	152	263	701	2,207	60	1,050	610	979	724	60	2,207

WINE EXPORT BY COUNTRIES		Unit measure	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average quantity	Min export	Max export
No	<b>TOTAL EXPORT IN ASIA</b>		<b>0</b>	<b>0</b>	<b>808</b>	<b>37,295</b>	<b>26,155</b>	<b>4,817</b>	<b>9,970</b>	<b>10,780</b>	<b>5,000</b>	<b>3212</b>	9,804	0	37,295
	<b>% Share of the total export</b>		<b>0.0%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>3.6%</b>	<b>3.1%</b>	<b>0.6%</b>	<b>1.2%</b>	<b>1.5%</b>	<b>0.9%</b>	<b>0.6%</b>	1.17%	0.00%	3.64%
1	China	hl	0	0	397	0	0	0	0	0	560	110	107	0	560
2	Hong Kong	hl	0	0	0	0	0	0	600	80	80	56	82	0	600
3	Japan	hl	0	0	411	37295	26155	4817	9280	10700	4360	3,046	9,606	0	37,295
4	Singapore	hl	0	0	0	0	0	0	90	0	0	0	9	0	90
No	<b>TOTAL EXPORT IN AFRICA</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>150</b>	<b>100</b>	<b>0</b>	<b>0</b>	25	0	150
	<b>% Share of the total export</b>		<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.02%</b>	<b>0.01%</b>	<b>0.00%</b>	<b>0.00%</b>	0.00%	0.00%	0.02%
1	Cameroon	hl	0	0	0	0	0	0	150	0	0	0	15	0	150
2	Kenya	hl	0	0	0	0	0	0	0	100	0	0	10	0	100
No	<b>TOTAL EXPORT in Australia and Oceania</b>		<b>255</b>	<b>134</b>	<b>267</b>	<b>583</b>	<b>480</b>	<b>129</b>	<b>390</b>	<b>710</b>	<b>640</b>	<b>164</b>	375	129	710
	<b>% Share of the total export</b>		<b>0.04%</b>	<b>0.02%</b>	<b>0.04%</b>	<b>0.06%</b>	<b>0.06%</b>	<b>0.02%</b>	<b>0.05%</b>	<b>0.10%</b>	<b>0.12%</b>	<b>0.03%</b>	0.05%	0.02%	0.12%
1	Australia	hl	255	91	173	547	453	129	390	710	640	164	355	91	710
2	New Zealand	hl	0	43	94	36	27	0	0	0	0	0	20	0	94
No	<b>TOTAL EXPORT IN AMERICA</b>		<b>252</b>	<b>132</b>	<b>2233</b>	<b>4849</b>	<b>4737</b>	<b>6462</b>	<b>2280</b>	<b>3530</b>	<b>1400</b>	<b>914</b>	2,679	132	6,462
	<b>% Share of the total export</b>		<b>0.04%</b>	<b>0.02%</b>	<b>0.33%</b>	<b>0.47%</b>	<b>0.57%</b>	<b>0.78%</b>	<b>0.28%</b>	<b>0.49%</b>	<b>0.25%</b>	<b>0.16%</b>	0.34%	0.02%	0.78%
1	Canada	hl	240	132	1909	4259	3255	3566	2150	2380	710	682	1,928	132	4,259
2	USA	hl	12	0	324	590	1482	2896	130	630	200	232	650	0	2,896
3	El Salvador	hl	0	0	0	0	0	0	0	520	490	0	112	0	520

Source: State Statistical Office. Statistical Reviews of Foreign Trade "Commodity International Exchange of Republic of Macedonia" from 1995 to 2004.

### H.3. Average Wine Export Prices for the period 1996 – 2004

Wine export by countries		Average export price in US \$	Average export price in denars
1.	Norway	6.50	396.58
2.	Belgium	2.26	126.97
3.	UK	2.05	92.49
4.	France	1.66	92.41
5.	China	1.68	84.54
6.	Australia	1.45	82.72
7.	Denmark	1.45	81.65
8.	USA	1.43	79.08
9.	Switzerland	1.36	77.03
10.	Greece	1.41	73.95
11.	Cyprus	1.27	72.95
12.	Nederland	1.25	70.43
13.	Estonia	1.19	68.50
14.	Sweden	1.17	64.70
15.	Russia	1.07	61.26
16.	Austria	1.07	60.75
17.	Finland	0.97	56.86
18.	Hong Kong	1.07	54.92
19.	Bosnia and Herzegovina	0.94	53.96
20.	Singapore	0.78	52.76
21.	Poland	0.92	51.18
22.	Canada	0.72	40.18
23.	Cameroon	1.13	38.44
24.	Serbia and Montenegro	0.63	35.52
25.	Croatia	0.58	32.23
26.	Bulgaria	0.80	32.12
27.	Albania	0.60	31.81
28.	Japan	0.49	27.07
29.	El Salvador	0.44	25.78
30.	Slovenia	0.46	23.44
31.	Germany	0.39	21.09
32.	Moldova	0.35	20.66
33.	Czech Republic	0.37	20.65
34.	Ukraine	0.34	20.30
35.	Belarus	0.45	19.49
36.	Hungary	0.43	14.76
37.	Italy	0.21	10.60

**Source:** Own calculation.

**Note:** As basic data for the calculation are used values and quantities of the exported wine, published by the State Statistical Office in its Statistical Reviews of Foreign Trade “Commodity International Exchange of Republic of Macedonia”, for 1995 to 2004. The export values are originally given in US\$. The transaction is done according to the exchange rate of the National Bank.

## Appendix I: Calculations of market concentration indexes for 2004

Wineries	Capacity in hl	Shares	Shares*shares	Exported in hl in 2004	Shares	Shares*shares	Average production in hl	Shares	Shares*shares
<b>Tikvesh</b>	<b>560,000</b>	<b>22.51</b>	<b>506.82</b>	<b>200,000</b>	<b>35.33</b>	<b>1247.89</b>	<b>350,000</b>	<b>38.43</b>	<b>1476.71</b>
<b>Povardarie</b>	<b>300,000</b>	<b>12.06</b>	<b>145.45</b>	...	...	...	...	...	...
<b>Lozar</b>	<b>240,000</b>	<b>9.65</b>	<b>93.09</b>	...	...	...	...	...	...
<b>Skovin</b>	<b>160,000</b>	<b>6.43</b>	<b>41.37</b>	...	...	...	...	...	...
Djumajlija	150,000	6.03	36.36	...	...	...	...	...	...
Vinal	135,000	5.43	29.45	...	...	...	...	...	...
Vinojug	125,000	5.03	25.25	...	...	...	...	...	...
Vizba Valandovo	120,000	4.82	23.27	...	...	...	...	...	...
Kumanovo	115,000	4.62	21.37	...	...	...	...	...	...
Strumicko pole	110,000	4.42	19.56	...	...	...	...	...	...
Imako vino	80,000	3.22	10.34	...	...	...	...	...	...
Radovisko pole	75,000	3.02	9.09	...	...	...	...	...	...
Rigo Impeks	70,000	2.81	7.92	...	...	...	...	...	...
Eko invest	60,000	2.41	5.82	...	...	...	...	...	...
Lozar pelisterka	60,000	2.41	5.82	...	...	...	...	...	...
Agropin	40,000	1.61	2.59	...	...	...	...	...	...
Ezimit Vino	35,000	1.41	1.98	...	...	...	...	...	...
Sileks Kratovo	30,000	1.21	1.45	...	...	...	...	...	...
Bovin	8,000	0.32	0.10	...	...	...	...	...	...
F Vino	3,000	0.12	0.01	...	...	...	...	...	...
Pivka	3,000	0.12	0.01	...	...	...	...	...	...
Dudin	3,000	0.12	0.01	...	...	...	...	...	...
Vinarija Popov	2,000	0.08	0.01	...	...	...	...	...	...
Vinarija Gorchev	1,000	0.04	0.00	...	...	...	...	...	...
Kitvin	1,000	0.04	0.00	...	...	...	...	...	...
Kamnik winery	500	0.02	0.00	...	...	...	...	...	...
Vinarija Iliev	200	0.01	0.00	...	...	...	...	...	...
Chekorovi	200	0.01	0.00	9	0.00002	0.00	...	...	...
Vinar	200	0.01	0.00	...	...	...	...	...	...
Pal-Kris	100	0.00	0.00	...	...	...	...	...	...
Vinaris	100	0.00	0.00	...	...	...	...	...	...
Eros Trejd	100	0.00	0.00	...	...	...	...	...	...
Mojsoff	100	0.00	0.00	...	...	...	...	...	...
<b>Total:</b>	<b>2,487,500</b>	<b>100.00</b>	<b>987.16</b>	...	<b>35.33</b>	<b>1247.89</b>	...	<b>38.43</b>	...
Total wine export in 2004 in hl				566164					
Average wine production in hl							910794		
<b>Herfindahl index</b>		<b>987.16</b>			<b>1247.89</b>				
<b>Market concentration ratio</b>	<b>(CR04)</b>	<b>50.65</b>		<b>(CR01)</b>	<b>35.33</b>		<b>(CR01)</b>	<b>38.43</b>	

**Source:** Own calculation.

**Note:** Due to the lack of data (confidential character) the Concentration ratio for the export share is calculated as CR01. The presented winery has announced the exported quantities and the average production on its web:

[www.tikves.com.mk](http://www.tikves.com.mk)

## Appendix J: Questionnaire

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### A. Entry into the grape and wine business, and keeping on sustainable position

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**Topic 1 Expanding of the vineyards area, renewing of the existing plantations, and infrastructure.**

1. Do you think that the Macedonian grape growers are interested for increasing of the vineyards plantations, renewing of the existing plantations and the infrastructure?
- 

**Topic 2 Starting a business into the grape processing sector, modernization of the equipment and the technology.**

1. Do you think that in Macedonia there are favourable conditions for starting wine production business, as well as renewing of the existing capacities, building new capacities, and technical modernization.
- 

**Topic 3 Licensing requirement for grape and wine production, and export and import license procedure;**

1. Can you tell me something about the legislation referring to the licences requirement for setting up new vineyards, wine production and trade licences for wine import and export?
2. What is the procedure for receiving of that licence, and who is responsible for issuing of such documentation.
- 

**Topic 4 Market access (domestically and internationally) possibilities (whether the market is opened and works according to the market economy principles or there are certain limitations);**

1. Do you think that the wine business works according to the principles of market economy (the market is opened in domestically and in the international framework)?
2. If you think that it is not a case, can you mention what kind of obstruction are taking place?
- 

**Topic 5 Access to raw materials (for the wineries), contracts that should be signed with the grape producers, and the period for the contracts' validity - or the supplier power;**

1. How do you provide grape for processing?
2. If you don't have your own vineyards, and you buy grape from other producers, do you use to sign a kind of contract for purchasing?
3. If signing a contract is a practice, can you tell me for the validity period for that contract? (a year or few years period)
- 

**Topic 6 Getting credits;**

1. Do you think that in Macedonia there are acceptable conditions for getting credits, precisely for your business?
- 

**Topic 7 The intense of the rivalry among the existing wineries;**

1. What kind of the relationship exists among the Macedonian wine producers?
2. Can you specify the positive and the negative features?
3. Do you think that the rivalry exists, or all of the producers aim to product differentiation (establishing a brand with noticeable characteristics)?
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**B. Having lower prices and/or fulfilling quality standards can administer to sector competitiveness.**

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**Topic 8 Grape and wine quality standards and controls;**

1. Do you know if in Macedonia there are proposed grape and wine quality standards?
  2. If it is case, can you tell me which office is in charge for control and products certification?
- 

**Topic 9 Product differentiation issue;**

1. Do you think that the wine producers aim to produce differentiated products?
  2. Do you thing that there are appropriate conditions for that, even though the law for regionalization is in force recently, since 2004.
- 

**Topic 10 The competence of the technical and expert staff – oenologists, and managers;**

1. Do you think that in the grape and wine sector there are competent technical and expert staff, especially oenologists and managers?
- 

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**C. Government policy affecting the sector**

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**Topic 11 Tax payments issue;**

1. What kind of tax legislation is working for production and trade of grape, wine and grape brandy?
- 

**Topic 12 Supports;**

1. What kind of governmental and non-governmental (domestic and international) support is devoted to the grape and wine sector?
- 

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**D. Substitutes issue**

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**Topic 13 Grape and wine substitutes at the Macedonian market**

1. What do you thing about the grape and wine substitutes, knowing that in Macedonia there are production only from wine grape, 80% of that grape is processed and the share of wine import is minor in comparison with the wine export?
- 

**Note:** The questionnaire is presented in its basic version.

All of the contacted persons were allowed to pick topics and questions for which they are the most informed, and ready to answer.

In the study the questionnaire is used as supplement to the other information.

## Appendix K: Quality control and categories of the wine produced in Macedonia

Quality control of Macedonian wine is performed by the Institute of Agriculture – the Department for Viticulture in Skopje. It is compulsory for each producer to make wine samples analysis at the Institute, and after the analysis the Institute issues a certification for quality. The entire control of quality is executed in the Institute according to the wine Law. ([www.mlrc.org.mk/ZAKONI/z2004101.ht](http://www.mlrc.org.mk/ZAKONI/z2004101.ht) – Full text of the wine Law; only Macedonian version).

A body responsible for sensory evaluation of wines is the State Tasting Committee (formed by the MAFWE). The procedure of evaluation starts after the harvest. Wines that according to the Committee's statute satisfy estimation, further on acquire the category quality wine. The Committee statute is harmonized in accordance to the O.I.V. (International Wine Organisation). (Petkov).

Further are presented and explained the wine categories and their essential characteristics that determine the wine category.

**Table wine** is without geographic origin label, exclusively made by wine grapes, and the true alcohol amount is not less than 9%.

**Regional wine** is a table wine with geographic labels, which area of origin is a region, and its name is in the list of protected names for regional wines regulated by MAFWE. It is made by recommended grape sorts from the specified region according to the sorts list; at least 85% of the grapes comes from the region with its name; natural minimum alcohol amount of 9,5% vol. and should be passed through analysis and sensory evaluation by the Tasting Committee”.

**Quality wine** is a wine with geographic origin, which area of origin is precisely marked within frames of the vineyard area, or the frames of a smaller geographical unit of the same one, and its name is in the list of protected names for quality wines determined by the MAFWE, and also fulfills all characteristics determined for quality wines including at least the following: at least 85% of the grapes comes from the region with its name; grape sorts are recommended “*Vitis vinifera*” and belong to a previously defined classification for quality wine in accordance to the law; methods of growing vineyards are in accordance with defined regulations for quality wines; processing is done within the frames of a marked area, or it is allowed to be processed (by the MAFWE) nearby that area only if wine is going to be processed separately; natural minimum alcohol amount of 10 %; determined maximum harvest stated in grape tones or wine hectolitres per hectare; passed through analysis and sensory evaluation by the Tasting Committee.

**Superbly wine** is a wine with geographic labels, recognizable for its specific characteristics and high quality, and its area of origin is precisely marked within the frames of one or several localities, or smaller geographic units. Its name is on the list of protected names of superbly wines determined by MAFWE, and owns the following characteristics of superbly wine: 100% of the grapes originates from the marked area which name it has; grape sorts are recommended *Vitis vinifera* and belong to a previously defined classification for superbly wine in line with the law; methods of growing vineyards are in accordance to defined regulations for superbly wines; processing is done on the vineyard, or it is allowed (by the MAFWE) to be processed nearby that area only if wine is going to be processed separately; natural minimum alcohol amount of 11 %; passed through analysis and sensory evaluation by the Tasting Committee. (Extracted from the Law of wine [www.mlrc.org.mk/ZAKONI/z2004101.ht](http://www.mlrc.org.mk/ZAKONI/z2004101.ht).)

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*Distribution:*

Sveriges lantbruksuniversitet  
Institutionen för ekonomi  
Box 7013  
750 07 Uppsala  
Tel 018-67 18 00

Swedish University of Agricultural Sciences  
Department of Economics  
P.O. Box 7013  
SE-750 07 Uppsala, Sweden