



# *The tobacco sector in The Republic of Macedonia*

## *- Competitiveness analysis*

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*The tobacco sector in The Republic of  
Macedonia  
- Competitiveness analysis*

*Tobaksbranchen i Republiken Makedonien  
– Konkurrensanalys*

*Emelj Tuna*

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

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Analysing an entire sector requires a lot of data and information. This study is focused on the tobacco industry in the Republic of Macedonia. It includes data on the primary production of raw tobacco, as well as the outcomes processed. By deciding to describe such a specific component of the Macedonian agricultural complex. I was confronted with a lot of difficulties including inconsistencies in data and in times lack of statistical information. This is the reason, why I want to thank all the people that helped me to accomplish the task that seemed to be very difficult at the beginning. First I thank the Department of Economy at SLU-Uppsala, The Department of Economics and Organisation – Faculty of Food and Agricultural Science and the Swedish International Development Agency (SIDA) for all the support during the whole period of the studies and along this project. I am also thankful to my supervisors Professors Yves Surry and Nenad Georgiev for the constructive and helpful suggestions.

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## Abstract

The tobacco sector is an important part of the Macedonian agriculture and the economy in general. This project is giving an overall prospective of the Macedonian tobacco industry, and it points out its comparative advantages and disadvantages. The core question at the beginning was “Whether Macedonian tobacco industry is competitive or not?” In order to determine the answer to this question, both descriptive and empirical approaches are used. The essential part of this study was the approach developed by Porter or the determinants of national advantage. The description of this sector was developed following the concept of Porter’s Diamond model with an overall aim of determining this sector’s strengths, weaknesses, threats and opportunities in a so called SWOT analysis. This study also includes some competitiveness index calculations.

Tobacco is regarded, as a good of public well being by the Law on tobacco. It is a source of employment and net income for the population. The sector is an important part of the Macedonian agriculture, and it has much strength in the factor conditions it possesses. It is an export-oriented high quality product, which generates important incomes for the Macedonian agriculture and the economy as a whole. This sector’s weakest sides are mostly originating from the problem of badly developed relations producer/buyer and the insufficient Law enforcement on the government behalf. The biggest challenge that the tobacco industry faces is the active campaign against smoking that causes an over all decrease in the demand for tobacco. The tobacco is declared to be a hazard for people’s health and many pro-health policies are proposed against it.

The tobacco is a significant crop for the Macedonian agriculture and economy since it is an essential income sources for many families and essential source for government revenues, and it is foreseen that it will continue to exist on the Macedonian fields for the years to come.

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

## Sammanfattning

Tobak utgör en viktig sektor i det makedonska jordbruket och i ekonomin i stort. Den här uppsatsen ger en övergripande bild av den makedonska tobaksindustrin och pekar ut dess komparativa fördelar och nackdelar. Kärnfrågan som ställs i början av uppsatsen är huruvida Makedoniens tobaksindustri är konkurrenskraftig eller inte. För att besvara den frågan används både beskrivande och empiriska ansatser eller metoder. Den essentiella delen av den här uppsatsen är baserad på den metod som utvecklats av Porter om de avgörande faktorerna bakom nationella fördelar. Beskrivningen av Makedoniens tobakssektor bygger på Porters Diamant modell I syfte att fastställa sektorns styrkor, svagheter, hot och möjligheter I en så kallad SWOT-analys. Uppsatsen innehåller även beräkningar av konkurrenskraftsindex för Makedoniens tobakssektor.

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Nyckelord: Druv- och vinproduktion, konkurrenskraft, komparativ fördel, konkurrenskraftsstrategier, SWOT analys.

## Abbreviations

*at al.* – Et alia (and others)

B & H – Bosnia and Herzegovina

ESTC – European Strategy for Tobacco Control

EU – European Union

FAO – Food and Agriculture Organization

FCTC – Framework Convention on Tobacco Control

FTA – Free Trade Agreement

IFAD – International Fund for Agricultural Development

ILO – International Labour Organization

MFN – Most Favorite Nations

MKD – Macedonian Denar (Macedonian currency)

PREDAS – Prilep Region Enterprise Development Agency

R.M – Republic of Macedonia

R. Macedonia – Republic of Macedonia

SAA – Stabilization and Association Agreement

SSO – State Statistical Office

USA – United States of America

WHO – World Health Organization

WTO – World Trade Organization

€ – European Union currency

\$ – United States currency

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# 1 Introduction

Competitiveness is the ability of a country to obtain higher share of the domestic and export markets. Being competitive is an initial goal of every market-oriented economy. The Republic of Macedonia has faced many problems in the period of its transition from a centrally planned economy to an open market economy. Until 1991, the Republic of Macedonia was a part of Yugoslavia. This meant that R. Macedonia presented all its products on a significantly larger market <sup>1</sup>, which at that time became a foreign market. The transition from the former socialistic system to an open market economy brought deep structural changes to the Macedonian agriculture. After gaining its independence in 1991, R. Macedonia needed to establish new goals and mechanisms for regaining those new old markets as well as gaining access the European and world markets. Also, new market tools for realizing these goals in the new internationally oriented economy were required.

Tobacco production, or more specifically the Oriental types of tobacco has a long production tradition in the Republic of Macedonia. Besides the fact that tobacco is a labour intensive culture, it is also significant in using the low quality (least marginal) lands that are not suitable for other agricultural production, or will have lower economic effects. Tobacco is one of the most important industrial crops for R. Macedonia, possessing around 60% of the areas planted with industrial crops, and an average share of around 35-40%, in total agricultural export. It is a crop providing income to a great number of households, and there are no other agricultural products that provide so much employment as the tobacco production and the tobacco industry in the Macedonian rural regions. Also, tobacco is a dominant product for the agricultural complex (besides fruits and beverages) and one of the few agricultural products that has a positive external trade balance. It is the leading exporting Macedonian product that generates significant earnings for the agriculture and the economy in general. An average export value from the tobacco industry export is \$57.3 millions. Just for comparison, in 2004 the tobacco had an export value of \$61.7 while the wine, which is ranked on the second position in the total agricultural export had an export value of \$32.6 millions (*PREDA, 2006*).

The tobacco is the most controversial agricultural plant in the world. There is an actively ongoing anti-smoking campaign, which affects both cigarette consumption and consequently the tobacco production. The Warsaw declaration for a Tobacco-free Europe from 2002, identifies tobacco as a great threat to people's well being and proposes aggressive policies against it. The declaration states that health is a priority over tobacco production and therefore a solution for its replacement should be considered. All future regulations will concern lowering the volumes of tobacco production and the producing areas in all EU member countries. This imposes a threat to R. Macedonia, which recently gained a pre-accession status as a EU candidate member, and these regulations could have an economic and social impact on the Macedonian tobacco sector when it officially enters the EU union. Until then, the tobacco will continue to exist on the agricultural fields for the years to come, since so far there is no visible alternative agricultural primary product that will provide the same economic and social effects for R. Macedonia.

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<sup>1</sup> Today Macedonia has a market of 2 million inhabitants

## 1.1 Aim

The aim of this study is to study the competitiveness aspects of the Macedonian tobacco industry by comparing its strengths, weaknesses, opportunities and threats.

## 1.2 Delimitation

This thesis deals with the Macedonian tobacco industry and its comparative advantages and disadvantages. It shows the tobacco market structure in the transition period of the Macedonian economy (the years after the independence), or a period of 10 years (1995 – 2004). Also, it refers to the competitiveness of this industry towards the neighboring, European and World markets compared to some differences in the factor endowments and product quality. It mainly concerns the oriental tobacco types, or the major type of tobacco produced in R. Macedonia. The comparisons are mainly made with countries, producing oriental tobaccos. This study is limited with only few aspects of the cigarette production (only the export values and destinations are included) due to the difficulties with finding data. The capacities for producing cigarettes in each cigarette factory are also not part of this study.

## 2 Method

This investigation uses both a qualitative and a quantitative analyses in the process of determining the competitiveness of the tobacco sector in the Republic of Macedonia. The qualitative analysis of the tobacco sector in R. M and all the other necessary determinants was performed, mainly using the competitiveness approach developed by Porter. It focuses on the current states of competitiveness described through Porter's diamond, as an essential and central part of this section of the study. The part of the quantitative analyses are conducted, using specific methodology made up of several tools that are descriptive and internationally recognized: Comparative advantage indexes as DRC – Domestic Cost Ratio, Balassa index; Coefficients of protection including the nominal protection coefficient (NPC), and the effective rate of protection (EPC). Then market concentration measures such as the Herfindahl index and Concentration Ratio are also included. The Herfindahl index is only presented as applicable measure for concentration.

Standard statistical tools (percentages, indexes, indicators, structures, comparisons etc) are used through the study. Calculations performed by the Department of Economics and Organization (Faculty of Agricultural Sciences and Food - Skopje) are also included in the results section and are also used as a basis for some of the calculations in this study. Interviewing some key persons of the tobacco sector (personal and e-mail contacts) is also conducted in the determination of the sector competitiveness.

This is done in order to get a real inside of the situation, viewed and experienced by the people directly involved in these sector and its competitiveness issues.

### 3 Literature review

The literature review in this study contains written materials originating from different sources: books, journal articles, and Internet materials, explaining all the aspects of competitiveness used in this research. First, some competitiveness definitions and comparative advantages of the nation are presented. The trade performance index measuring the comparative advantage (Domestic resource cost - DRC), Balasa index and The Nominal Protection Coefficient (NPC) are then defined. In better explaining the competitiveness, the literature review explains in details the Porter's diamond model and its components in details. Two measures commonly used by economists to judge the relative amount of concentration in an industry are also included and explained: the Concentration Ratio and the Herfindahl Index.

#### 3.1 Competitiveness and comparative advantage of the nation and firms

The question of competitiveness is of great importance for every government, nation and industry. Many explanations are offered in answering *why some nations succeed and other fail in the international competition* (Porter, 1990). This literature review discusses and presents some of them.

The central principle in trade theory, which helps understand the concept of competitiveness, is that of **comparative advantage**, a notion with a special meaning for the economists all over the world. Adam Smith is promoting the notion of **absolute advantage**, in which a nation exports an item if it is the world's low-cost producer (M. Porter - 1990). In Ricardo's theory, trade is based on the differences of the labour productivity between nations. According to 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 good is lower than it is abroad.

While Ricardian trade theory identified differences in *technological 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. Their idea was that all nations have equivalent technology but differ in their endowments (factors of production-land, labour, natural resources and capital). (M. Porter – *The Competitive Advantage of Nations* 1990).

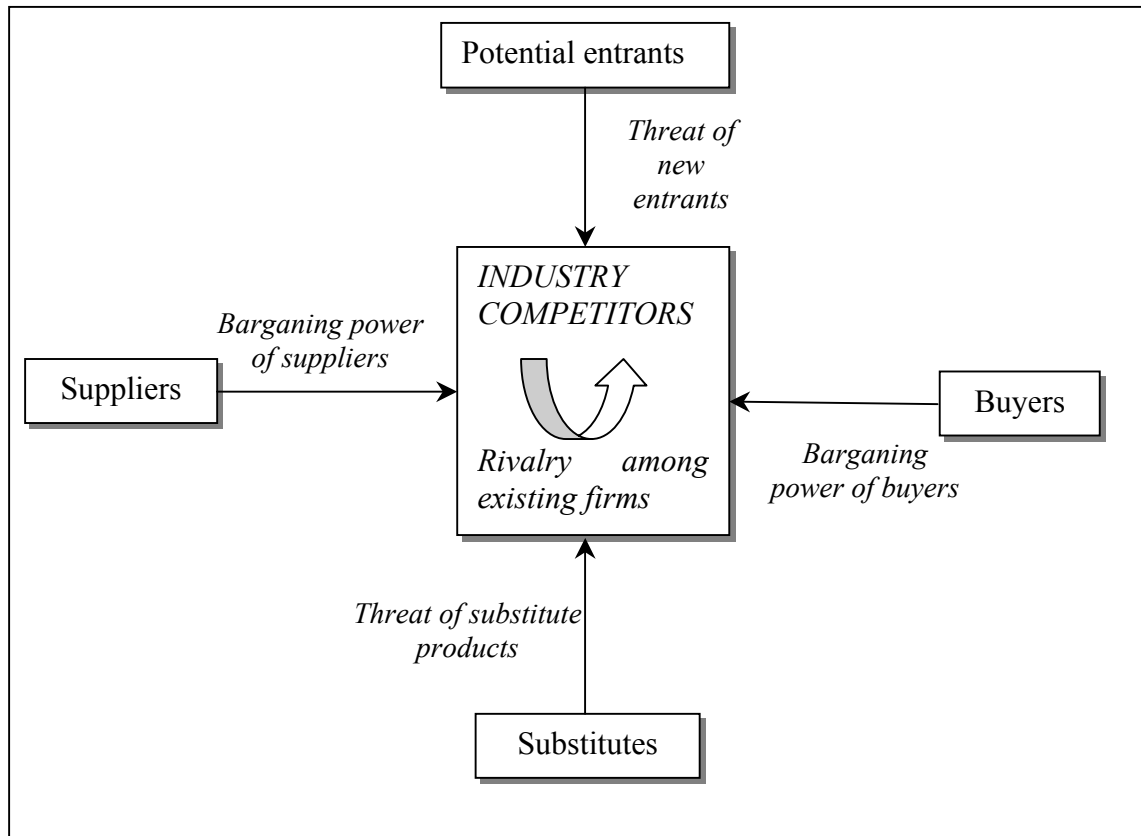
Although there are differences in understanding the concept of comparative advantage, all economists agree that both relative and absolute advantages are necessary for trade.

Competitive advantage of a nation is created and maintained through a highly localized process such as differences in national economic structures, values, cultures, institutions, and histories contributing to competitive success. Also, to sustain advantage, firms must achieve sophisticated competitive advantage over time, through providing higher-quality products and services or producing more efficiently. Competition is dynamically changing in which new products, new ways of marketing, new production processes, and whole new market segments emerge.

Porter states that the firms are the economic actors competing on the international markets. So, in order to gain better understanding of how the firms create their competitive advantage

it is necessary to relate the firm to its environment. Many forces inside and outside the industry are influencing the firms in the industry, and determining them is of great importance.

The competition and competitiveness in a certain industry is depending highly on five basic forces described by Porter (*Figure 1; Porter, 2004*). The conclusion is that the company goal would ultimately be to find its best position in an industry where it can efficiently defend itself from those forces, or will have the best ability to influence them in its best interests.



**Figure 1: Forces driving industry competition (Porter, 2004; pg. 4)**

All these five competitive forces: entry, threat of substitution, bargaining power of suppliers and rivalry among current competitors are the determinants of the industry competition and profitability. They are also crucial for the strategy formulation.

**Threat of entry** – gaining larger market shares often require building a firm market position. This intentions of the firms are viewed as entry, even when no entirely new entry is created. The threat of entry depends of the barriers to entry like:

- economies of scale (decline in unit costs f product as the production volume increases);
- product differentiation (brand identification, costumer loyalty or tradition);
- capital requirements (need to invest large financial resources in order to compete);
- switching costs (costs for switching the production of one product to another);
- access to distribution channels (conquer the existing distribution channels and create new);

- cost disadvantages independent of scale (costs of the established firms that are not encountered by the other entrants in the market, regardless of their size);
- government policy (limiting entries with licensing requirements, limits to raw material access etc);
- prevailing structure of the prices on the market.

**Intensity of rivalry among existing firms** – manifested using tactics like price competition, advertising, product introduction, increased customers services and warranties. All of the activities are undertaken in order to gain a better or improved market positions.

**Pressure from substitute products** – A substitute product is matter of searching for other products that can perform the same function as the product of the industry. The substitute products limit the profitability of the industry by placing a ceiling on the prices that the firms can charge.

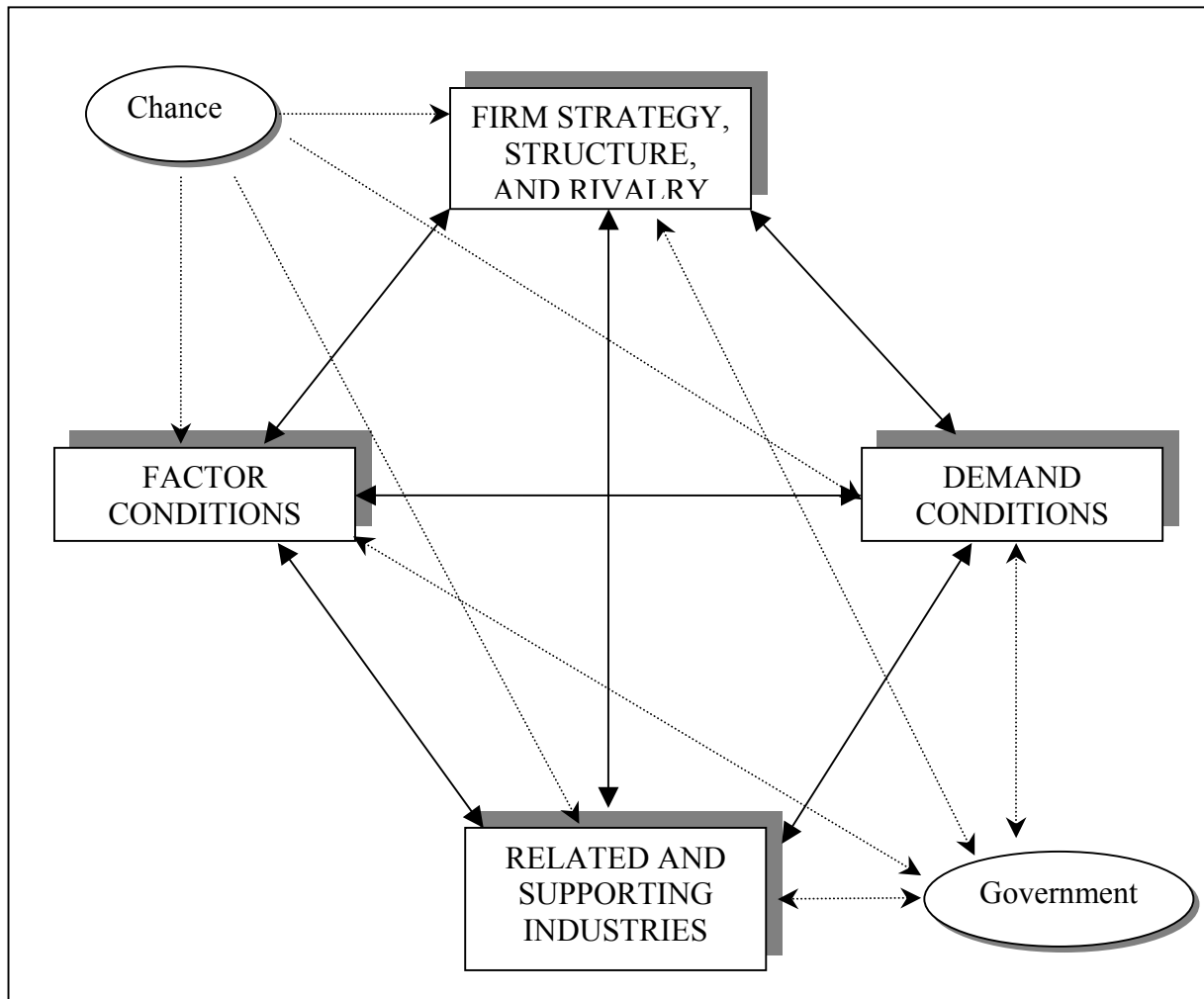
**Bargaining power of buyers** – buyers compete with the industry by forcing down prices, bargaining for higher quality or more services, and forcing the competitors (firms) to compete among each other. Buyers have power when they purchase large volumes relative to seller sales, they represent a significant fraction of the buyer's cost or purchases, products are standard and undifferentiated, the buyer has full information etc.

**Bargaining power of suppliers** – bargaining power of the suppliers can be exerted by threat of rising prices, reducing the quality of the goods and services. Suppliers are powerful when the market is controlled by few companies (concentrated), or when they are not obliged to contend with other substitute products for sale in the industry, when the industry is not an important customer of the supplier group, etc.

## 3.2 Porter's Diamond – theory

The competitive advantage of a country or region is the set of activities in which enterprises based in the country tend toward international competitive advantage (*M. Porter, 1990*).

Porter's opinion is that the nations are most likely to succeed in industries or industry segment, in the cases where the national “diamond” (term referring to the determinants of national advantage connected as a system), is the most favourable. Namely, the “diamond” is a mutually reinforcing system in which the role of any determinant cannot be isolated and the effect of one determinant is closely dependent on the state of the others.



**Figure 2: The complete Porter's Diamond system (*Porter, 1998, pg 127*)**

By closely screening of the industry over a certain period, and understanding the process by which it achieves and maintains international success we can explain the functioning patterns of the “Diamond”. But no nation can be competitive in everything, because human and other resources are limited. The ideal is that these resources should be deployed in the most productive uses possible. (*M. Porter 1990*)

The complete Porter's Diamond system is based on four basic factors: (1. factor conditions, 2. demand conditions, 3. firm strategy, structure and rivalry, 4. related and supporting industries), and two external determinants (5. government and 6. chance). These elements are explained below (see also figure 2).

### 3.2.1 Factor conditions

Each nation's position in factor's of production, or inputs necessary to compete in an industry, such as the country's basic factors (arable land, natural resources, unskilled and semiskilled labour), and its advanced factors (knowledge resources, infrastructure, capital necessary to compete in a given industry. Factors can be grouped into a number of broad categories defined as follows:

Basic factors – inherited by the nation

**Physical resources** – the abundance, quality, accessibility and cost of the nation's land, water and other resources, the climatic conditions, nation's location and geographic size (the location has a great effect on the transportation costs and on the cultural and business interchange).

**Human resources** – the quantity, skills and cost of personnel

Advanced factors – necessary to achieve higher order competitive advantage, and creating differentiated products and appropriate production technology.

**Knowledge resources** – the nation's stock of scientific, technical and market knowledge bearing on goods and services. Knowledge resources universities, government research institutes, government statistical agencies, business and scientific literature, market research reports, databases etc.

**Capital resources** – the amount and costs of capital available to finance the industry.

**Infrastructure** – the type, quality and user cost infrastructure available and affecting the competition, including the transportation system, the communication system, mail and parcel delivery etc.

The mix of factors employed (known as factor proportion) differs widely among industries. Competitive advantage from the factors depends on how efficiently and effectively they are deployed. Still, the mere availability of factors is not sufficient to explain the competitive success; virtually all nations have some attractive factor pools that have ever been deployed in the appropriate industries or have been used rather poorly.

### 3.2.2 Demand conditions

The demand conditions show the nature of home demand for the industry's product or service. It is the composition of home demand, the size and pattern of growth of home demand, and the mechanisms by which a nation's domestic preferences are transmitted to the foreign markets. So, nations gain competitive advantage in industries or in industry segments where the home demand gives local firms a clearer or earlier picture of buyer needs than foreign rivals can have. There are three characteristics of the composition of home demand, that are significant to achieving national competitive advantage:



*Segmented structure of demand* – Demand in most industries is segmented, and some segments are more global than others. But one implication of the importance of segments which represent an important share of local demand but a small share of demand elsewhere, even if the absolute size of the segment is greater in other nations.

*Sophisticated and Demanding buyers* – A nation's firm gain competitive advantage if the domestic buyers are sophisticated or demanding buyers for products or services. This kind of buyers put pressure to local firms to meet high standards in terms of product quality, features, and services. There is also the fact that buyers tend to be more demanding when facing competition than if they are tightly regulated or hold a monopoly.

*Anticipatory buyers needs* – A nation's firms gain advantages if the needs of home buyers anticipate those of other nations.

Also there are some other determinants of the domestic demand that influence some aspects of the national competitiveness. First there is the *size of the home demand and market* or, as an example if there is a limited local demand, the local firms will be forced to export the goods (important to competitive advantage in global industries). *The number of independent buyers* is also important. The presence of a number of independent buyers in a Nation creates better environment for innovation, than is the case where one or two customers dominate the home market for a product or a service. And in the case we are dealing with, the existence of *mobile or multinational buyers* is of great importance. If nation's buyers for a product or service are mobile or a multinational companies, an advantage is created for the nation's firms because the domestic buyers are also foreign buyers.

### 3.2.3 Related and supported industries

The related and supported industries show the presence or absence in the nation of supplier industries and related industries that is internationally competitive. Related industries are those in which firms can coordinate or share activities in the value chain when competing.

### 3.2.4 Firm strategy, structure and rivalry

This part describes the conditions in the nation, or the way of how companies are created, organized and managed, and the nature of domestic rivalry. The goals, strategies, and ways of organizing firms in industries vary widely among nations. National advantage results from a good match between these choices and the sources of competitive advantage in a particular industry. The rivalry is very important in the global competition if successful firms compete energetically at home and pressure each other to improve and innovate. (*M. Porter-1990*)

Also, two additional variables can influence the national system in important ways and they are very important parts that complete the “diamond” and the theory. Those internal factors are government and chance.

### 3.2.5 Government

The government can influence the competitiveness and the national advantage at all levels. Its role is seen most clearly by examining how policies influence each of the determinants. There are many policies that can influence each of the determinants in different ways. For example, antitrust policy (prevents the companies from unfairly controlling prices) affect domestic rivalry; regulation can alter home conditions; investments in education can change the factor condition; Government purchases can stimulate related and supporting industries. On the other hand, some policies implemented without consideration of their outcome and impact can have opposite and undermining effects on the national advantage. It is evident that the influence of the underlying determinants of national competitive advantage can be either positive or negative, and the national competitive advantage will fail if the government policy remains the only source of competitiveness.

### 3.2.6 Chance

Chance events are usually outside control of the firms (and usually the nation's government). It can appear as pure inventions, breakthroughs in the basic technologies, wars, external political developments, and major shifts in foreign market demand. Chance has played an important role in shifting competitive advantage in many industries.

## 3.3 Comparative advantage indexes

Comparative advantage analysis allows the estimation of benefits independent of all market distortions, caused by interventions in the market, regulations, protection and taxation regimes. In other words, it permits a comparison of the real or economic costs of production to international price references in order to determine what the activity's profitability would be in the absence of those policies which cause local prices to be different from international prices. Consequently, private (or "financial") cost-benefit analyses reflect competitiveness, and social (or "economic") cost-benefit analyses show comparative advantage. This study will include two comparative advantage indexes: the domestic resource cost (DRC) and the Balassa index or Revealed Comparative Advantage.

### 3.3.1 The Domestic Resource Cost (DRC)

The domestic resource cost coefficient measures the efficiency, or comparative advantage, of a given (agricultural) product production. If the social returns to land cannot be identified clearly because full information about alternatives is lacking, the DRC may be calculated with respect to labor and capital only. The DRC serves as a proxy measure for social profits. It is calculated by dividing the cost of labor and capital by value-added at social prices<sup>2</sup>.

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<sup>2</sup> S. Pearson; C. Gotsch

<http://www.stanford.edu/group/FRI/indonesia/courses/manuals/pam/pam-book/Output/chap5.html>

DRC for the farming system as:

$$\text{Domestic Resource cost} = \frac{(\text{Labour Cost} + \text{Capital Cost} + \text{Land Cost}) \text{ in Social Prices}}{(\text{Revenues} - \text{Cost of Tradable Inputs}) \text{ in Social Prices}}$$

Social prices of tradable goods are derived export prices (Converted into local currency using an official exchange rate-assumed not to be over or undervalued), and adjusted for domestic transport costs between the border and farmgate locations.

The social prices of land, labour and capital are derived by classifying the costs in to tradable inputs, domestic inputs, and non – tradable inputs. The *tradable inputs* have an existing world market price, and those are inputs which are or could be traded. The *domestic factors* are also called primary factors of production and they include land, labour and capital on which there is no world price. Their social prices are based on their opportunity costs. Non-tradable inputs are inputs such as domestic transport, electricity, insurance services, which can contain both traded and non-traded domestic factors in their own costs of production, but, can not be traded (FAO, 1992).

DRC is calculated as follows:

$$DRC = \frac{VNs}{VAs} ,$$

where:

$VNs$  is the social value of non-tradable inputs;

$VAs$  is the social value added.

When DRC index expresses values less than 1, it means social profitability and indicates a comparative advantage in the product of interest.

### 3.3.2 The Balassa Index

Although Liesner (1958) was the first to introduce the index of revealed comparative advantage, the most frequently used measure in this respect is called the “Balassa Index”, after its popularization by Balassa. Given a group of reference countries the Balassa Index basically measures normalized export shares, where the normalization is with respect to the exports of the same industry in the group of reference countries.

The Balassa index for the tobacco sector is formulated as follows:

$$BI = \frac{X_{RM}^{tobacco} / X_{RM}^{Agricult}}{X_{World}^{tobacco} / X_{World}^{Agricult}}$$

Where:

$BI$  – Balassa Index;

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

$X_{RM}^{Agricult}$  – total value of agricultural production exported from Macedonia (same year);

$x_{World}^{tobacco}$  – value of tobacco export from the world in the certain year;

$X_{World}^{Agriculture}$  – value of total agricultural export from the world year;

If the *Balassa index* exceeds 1, then it is said that the country has a comparative advantage in the industry (tobacco industry), since this industry is more important for this country's exports than for the exports of the compared countries<sup>3</sup>.

### 3.4 Coefficient of protection

Protection coefficients compare domestic prices to border prices. They indicate the rate to which the domestic price policy protects domestic producers from the direct influence of foreign markets and in that process generates incentives to domestic consumption. (*I.Tsakok; 1990*). The indicators of protection measure market distortions due to trade policy interventions.

#### 3.4.1 The Nominal Protection Coefficient (NPC)

The NPC is the simplest coefficient used to assess the level of protection resulting from market distortions. It measures the ratio between the domestic price actually received by farmers and the *economic* parity price of a commodity, both taken at the farm-gate level. The NPC can be applied to both exportable and importable goods<sup>4</sup>.

$$\text{Gross NPC} = \frac{\text{Domestic price (farm-gate level)}}{\text{Export price (farm-gate level)}}$$

$\text{NPC} > 1$  indicates that domestic producers or intermediaries are receiving a higher price after the intervention, than they would without intervention-*positive intervention*.

$\text{NPC} < 1$  indicates the reverse structure. Protection is negative. Here the consumer is being favoured.

$\text{NPC} = 1$  indicates that structure of protection is neutral. All the participants are facing domestic prices that are equal to the border prices they would face without intervention.

#### 3.4.2 The Effective Protection Coefficient (EPC)

The effective protection coefficient, defined as the ratio of value added in private prices to value added in social prices, more completely measures incentives to farmers. The EPC indicates the combined effects of policies in the tradable commodities markets. This is a useful measure because input and output policies, such as commodity price supports and

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<sup>3</sup>J. Hinloopen; C. Marrewijk; 2000

<http://people.few.eur.nl/vanmarrewijk/eta/pdf%20files/balassa%20wwa.pdf>

<sup>4</sup> S. Pearson; C. Gotsch

<http://www.stanford.edu/group/FRI/indonesia/courses/manuals/pam/pam-book/Output/chap5.html>

fertilizer subsidies, often constitute part of a comprehensive policy package. For example, governments frequently reduce the price of outputs but then subsidize inputs in an effort to encourage the adoption of new technology.

The EPC index can be expressed through the following equation:

$$EPC = \frac{VA_f}{VA_s} = \frac{\text{Private Value Added}}{\text{Social Value Added}}$$

An EPC greater than 1 indicates positive incentive effects of commodity policy (a subsidy to farmers) whereas an EPC less than 1 shows negative incentive effects (a tax on farmers). Both the EPC and the NPC ignore the effects of transfers in the factor market and therefore do not reflect the full extent of incentives to farmers<sup>5</sup>.

### 3.5 Market concentration measures

Market concentration indexes measure the degree to which a market is dominated by just a few firms. Increase in concentration decreases the competition, leaving the consumers with poorer choices for goods, services etc. Economists commonly use two measures to judge the relative amount of concentration in any industry. They are the Concentration Ratio and the Herfindahl Index.

#### 3.5.1 Herfindahl Index

In economics the **Herfindahl index** is a measure of the size of firms in relationship to the industry and an indicator of the amount of competition among them. It is defined as the sum of the squares of the market shares of each individual firm. As such, it can range from 0 to 1 moving from a very large amount of very small firms to a single monopolistic producer. Decreases in the Herfindahl index generally indicate a loss of pricing power and an increase in competition, whereas an increase indicates the opposite<sup>6</sup>.

The formula for this index is as follows:

$$H = \sum_{i=1}^n (s_i)^2$$

where:

$s_i$  is the market share of firm  $i$  in the market and  $n$  the number of firms.

The market concentration ratio on the other hand is defined as the sum of the market share of the largest firms. Usually, the four largest firms are considered

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<sup>5</sup> S. Pearson; C. Gotsch <http://www.stanford.edu/group/FRI/indonesia/courses/manuals/pam/pam-book/Output/chap5.html>

<sup>6</sup> "[http://en.wikipedia.org/wiki/Market\\_concentration](http://en.wikipedia.org/wiki/Market_concentration)"

In economics, the concentration ratio of an industry is used as an indicator of the relative size of firms in relation to the industry as a whole. This may also assist in determining the market form of the industry. One commonly used concentration ratio is the *four-firm concentration ratio*, which consists of the market share, as a percentage, of the four largest firms in the industry. In general, the N-firm concentration ratio is the percentage of market output generated by the N largest firms in the industry.

Market forms can often be classified by their concentration ratio. Listed, in ascending firm size, they are:

*Perfect competition*, with a very low concentration ratio,  
*Monopolistic competition*, below 40 percent for the four-firm measurement,  
*Oligopoly*, above 40 percent for the four-firm measurement,  
*Monopoly*, with a near-100 percent four-firm measurement.

The concentration ratio is expressed in the terms  $CR_x$ , which stands for the percentage of the market sector controlled by the biggest  $x$  firms. (Internet site: Oligopoly watch; 20.05.2006). The market concentration ratio on the other hand is defined as the sum of the market share of the largest firms.

The concentration ratio has a fair amount of correlation to the Herfindahl index, another indicator of firm size. As an economic tool market concentration is useful because it reflects the degree of competition in the market.

## Conclusion

The notion of competitiveness has an essential meaning and place for the industry and the government in every nation all over the world. The literature review chapter describes all the important factors that have influence one nation's competitiveness, and the conditions in which the industry or in this case the sector functions. All the information and explanations presented in the literature review chapter are used as a basis and incorporated in the following chapter (results).

## 4 Results

The results in this study include data describing the competitive advantages and disadvantages of the tobacco industry using Porter's Diamond methodology. It also gives some insights for the tobacco production trends and quantities in the World and the European markets.

### 4.1 Tobacco production in the World and the European Union

Tobacco (*Nicotiana tabacum*) is a unique plant with a characteristic commercial component, nicotine, contained in its leaves. Tobacco production is an economic activity, which includes agricultural production of tobacco, processing and production of tobacco products. Today in the developing nations farmers find many incentives for growing tobacco: relative stability of the world demand for tobacco, easy transportation, not so perishable product and higher profit realization when compared to other crops. These conditions makes tobacco growing attractive for most farmers in the developing regions or in regions where farmers cannot afford to invest in crops that bring unsteady prices or unpredictable demand. So, as long there is a demand for tobacco, the production will continue<sup>7</sup>. The biggest threat to the tobacco industry is the current tobacco control strategy, which suggests decreasing of the demand for cigarettes, because of the health impact it has on people.

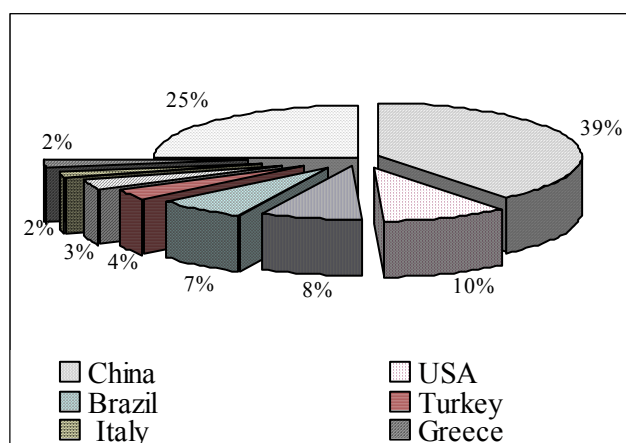
Although cotton is grown on more surface area, tobacco is the most widely grown non-food crop in the world. It is produced in more than 100 countries and on every continent, but just five countries – China, USA, India, Brazil and Turkey – account for almost two-thirds of tobacco global production. Only two countries – Malawi and Zimbabwe – are significantly dependent on export earnings from tobacco<sup>8</sup>.

The biggest world tobacco producers in the world are China with an average annual production of around 2.9 million tons (around 40% of the world annual production), then USA with an average annual production of 0.7 million tons (9% participation in the world annual production), India with 0.57 million tons/annual production (8 % of the world production), Brazil 0.5 million tons/annual production (share of 7%), Turkey 0.25 million tons /annual production (3,5 % of the world annual production), Zimbabwe 0.2 million tons (3% of the world annual production), and Greece and Italy with 0.15 million tones/annual production (2% of the world annual production) etc. (Appendix 3)

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<sup>7</sup> “The social and economic impact of tobacco” - [www.forces.org/assorted/tob.dev.htm](http://www.forces.org/assorted/tob.dev.htm)

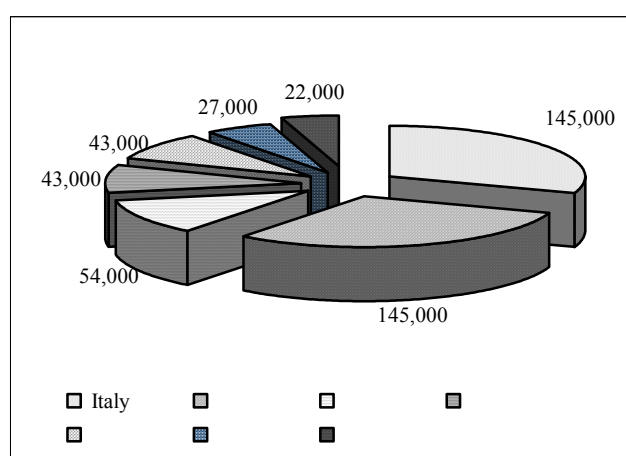
<sup>8</sup> “Tobacco in the developing world” <http://www.ash.org.uk/html/factsheets/html/fact21.html>



**Figure 1: Biggest participants in the world annual tobacco production in %**

(Source: Quality management in production of tobacco)

Turkey has the largest share of total oriental type tobacco output in the world. It ranks fifth in the global world tobacco production and sixth in the total exports. (*Appendix*). The Republic of Macedonia occupies 30<sup>th</sup> place in the world production of tobacco by quantity, and 15<sup>th</sup> place in the world by total value of export. It is listed in the top eight countries producers of Oriental tobacco (*PREDA, 2006*).

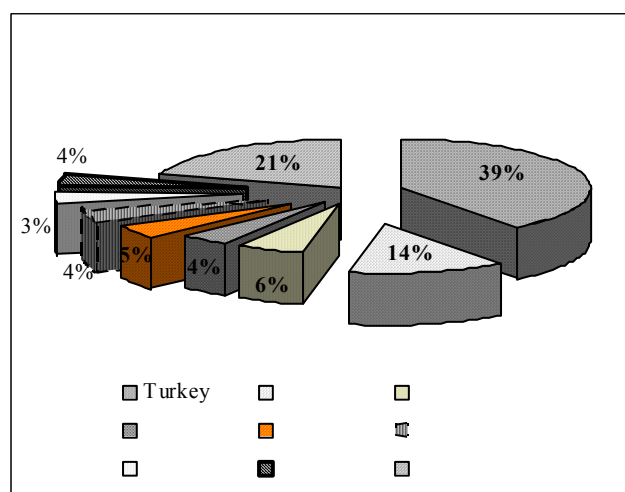


**Figure 2: The biggest tobacco producers in EU compared with R. Macedonia**

(Source: “Quality management in production of tobacco“ Scientific paper/2005)

According to the data published in the Tobacco Journal, Europe’s biggest tobacco producers are Greece and Italy (average annual production of 145,000 tons-1991/1997) or 2 % of the world production.

Then, 54,000 tons are produced in Bulgaria, 43,000 tons in Poland and Spain, France 27,000 tons, and Macedonia with 22,000 tons on annual basis. (Figure 2)



**Figure 3 : The share of the biggest producers of oriental tobacco**

(Source: “ILO; January 2003”)

The data in figure 3 give the global picture of world production of oriental tobacco. Greece, Bulgaria and Turkey - Macedonia’s nearest neighbours, account as the largest producers of oriental tobacco. They are also our largest competitors. The Balkan countries (Macedonia, Greece and Bulgaria) plus Turkey are the biggest tobacco producers in the region. They are known and famous for the production of oriental tobaccos.



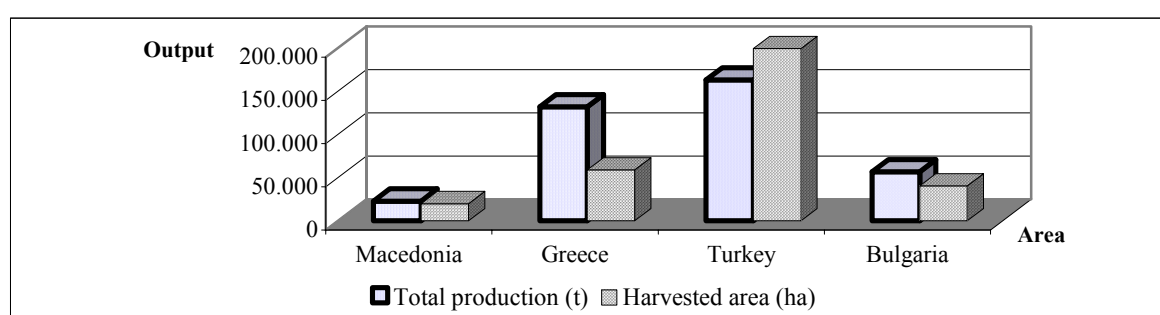
Table 1, presents average production, harvested area and average yield for some of these countries for the period 2000-2004.

**Table 1: Average tobacco production in Balkan countries and Turkey (2000-2004)**

	<b>Macedonia</b>	<b>Greece</b>	<b>Turkey</b>	<b>Bulgaria</b>
Total production (t)	22,784	131,897	163,035	56,695
Harvested area (ha)	19,824	58,866	199,276	40,393
Average yield (kg/ha)	1,149	2,241	818	1,404

Source: FAO/Food and Agriculture organization – Statistical database and SSO for R.M

Turkey has the highest quantity of production and harvested area. But, in the case of average yields, Greece exhibited the highest numbers for the period 2000/2004. In this respect, though Macedonia has relatively small harvested area (proportional with the country's size) it has average yields of 1,149 kg/ha, higher than Turkey and very close to the Bulgarian (figure 4).



**Figure 4: Presentation of the average production in Macedonia and some neighbouring countries**

Note: The data for Greece, Turkey and Bulgaria include all the produced types of tobacco in those countries, while the data for Macedonia only include oriental tobacco

Compared with the neighboring countries, Bulgaria has the largest land area devoted to tobacco growing, while Macedonia has the highest proportion of land devoted to tobacco farming (compared to the size and arable land). (*I. Bozevic, at all-March 2004*)

**Table 2. Land devoted to growing tobacco (Macedonia and some neighboring countries)**

<b>Country</b>	<b>Land devoted to growing tobacco (hectares)</b>	<b>Agricultural land devoted to tobacco farming (%)</b>
Albania	7,300	0.9
B & H	2,000	0.3
Bulgaria	42,000	0.3
Croatia	6,100	0.5
Macedonia	25,000	1.7
Romania	10,970	0.1
Serbia and Montenegro	9,858	0.3

Source: Meckay J, Eriksen M, The Tobacco Atlas; WHO; Geneva 2002

The global changes happening all over the world have an impact on the production of oriental tobacco in the Balkans and Turkey. There are many changes in the EU policies and the decision for abolishing the premiums for the tobacco production, and the European Union policy up to 2010, is unattainable for the producers in the entire Union, since 50% of these funds are going to be transferred towards the funds for regional developments. (*K. Filiposki*) There is trend for a decrease in the tobacco areas in the EU countries, and so it is expected that the decoupled Greek subsidy will lead to a significant reduction of their tobacco production volume. Also there is the fact that after the privatisation of the biggest tobacco company “TEKEL”, there is stagnation in the level of tobacco production of the Turkish tobacco.

Given the facts, Macedonia should take advantage of the situation and rise and re-establish its production in the coming years to its perennial average of 25-27000 tons. (Experts opinion)

Knowing that the replacement of oriental tobaccos in the structure of the World brand cigarettes is fairly difficult, the biggest tobacco companies are beginning the search for new countries or areas suitable for production of oriental tobaccos, and covering their needs by lower costs. Experiments for oriental tobacco production are conducted in the former Russian republics, countries in Africa, some provinces in China, Thailand, Brazil etc. (*K.Filiposki*).

An additional threat to the oriental tobacco production can be the eventual change in the percentage of oriental tobacco used in the American-Blend cigarettes. This percentage has already decreased over the years, and can be further reduced due to the technological improvements and changes in the production technology.

## 4.2 Model Application – Porter’s Diamond

### 4.2.1 Factor conditions - Physical resources and growing

Each country possesses specific conditions that determine its comparative advantages. The inter-relation among this factor conditions contribute to the competitiveness of the sector in a positive or a negative sense. The factors influencing the tobacco industry’s competitiveness are described in the result section.

Tobacco production, or more closely the production of the oriental types of tobacco has a long tradition in the Republic of Macedonia. It was introduced in Macedonia by the Ottoman Empire in the 16<sup>th</sup> century (1574). The country possesses good conditions for growing tobacco, which resulted in constant broadening of this crop’s production. At the end of the 18<sup>th</sup> century 20,000 families had earnings from tobacco growing. After 1884, Europe started to process tobacco into cigarettes that caused a growing demand for this product and tobacco was spread almost all over Macedonia. The first facility (warehouse) for buying out tobacco was established in 1873 in Prilep. (PREDA, 2006).

In the last 10 years it was planted on an area of around 18,000 ha. (V. Usaleski, 2006)



Picture: Typical extensive way of drying tobacco in RM

Tobacco is a plant compatible for growing on soil conditions, not suitable or profitable for growing other types of agricultural products. As a sun-loving plant, tobacco can tolerate wide variations in rainfall patterns, and poor, sandy soil conditions while still reaching high yields. Oriental tobaccos are often grown in poorer soils and in areas with higher aridity.

The Republic of Macedonia has favourable soil and climatic conditions (see appendix 1) and tradition for growing mostly small-leaf oriental or aromatic types of tobacco, than semi-oriental (additional) type of tobacco and very small quantities of big-leaf types of tobacco. Oriental tobaccos are known by their high aroma from the small leaves, being low in both sugar and nicotine. Usually, the larger is the leaf, the milder is the aroma. Many of the world largest cigarette makers use this tobacco to enrich the aroma and quality of their cigarettes. The harvested leaves are mostly sun-cured and the characteristic golden-yellow leaf is widely famous for it’s quality characteristics.

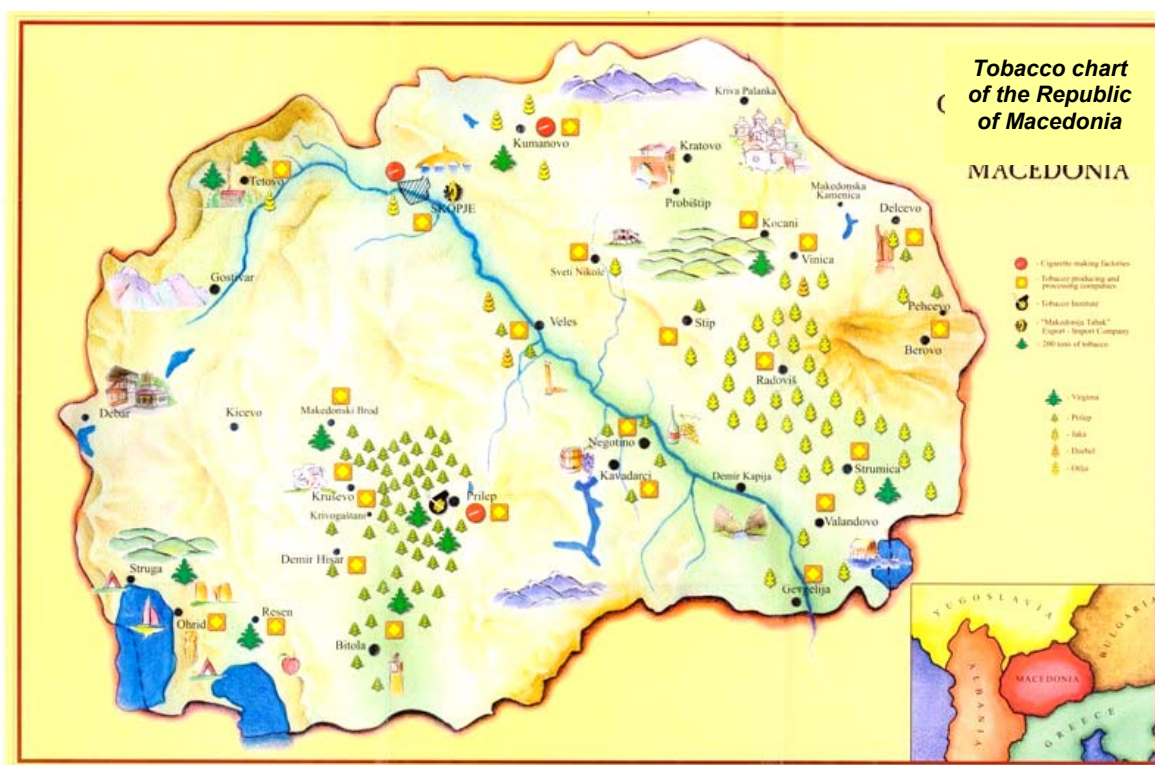
The suitable soil and climatic conditions are the first of the tobacco’s competitive elements in R. Macedonia and the experts involved in the interviews conducted in this study pointed

out the importance of these conditions as comparative advantage for our tobacco quality and competitiveness on the world markets.

The Oriental tobacco types grown in Macedonia are Prilep, Jaka and Jebel and each of them is characterized with specific smoking taste.

*Tobacco growing structure of Macedonia:* Oriental tobaccos have an average share of 86.72%; semi-Oriental 5.61%, Virginia types 7.27%, and Burley types have a share of 0.40%. Prilep type is the leading type of tobacco in the production structure of Macedonia. Together with Jaka, they make up for more than 81% of the total production of raw tobacco in Macedonia (Appendix 2, table 2-2). Prilep as an oriental type of tobacco is famous for its quality characteristics. It is a tobacco type with specific and intensive aroma (sweet, pleasant and refreshing), used for cigarette spicing in the cigarette blends of many World cigarette-making factories. This type is a protected type with registered geographic origin. It is the best-known and most demanded Macedonian tobacco type on the world market.

Tobacco growing in the Republic of Macedonia is divided on several growing regions and areas: North-East Region, Western Region, South-West Region, Central-East Region and South-East Region. (Tobacco Institute-Prilep; 2006).



**Figure 5: Tobacco chart of the Republic of Macedonia**

(Source: Tobacco chard of the Republic of Macedonia"-Tobacco Institute Prilep - Appendix 2)

**North-East** growing Region includes the areas of Skopje, Kumanovo and Kriva Palanka. The region's climate is Mediteranian-continental. Common types of tobaccos grown in this region are: *Jebel*, *Otlia*, *Virginia* and *Prilep*. This region also includes two of the three processing factories (Cigarette factories) in Skopje and Kumanovo.

The **Western region** consisted of the Polog area (Tetovo and Gostivar), Ohrid, Struga, Kicevo, Debar and Resen area. Here *Virginia*, *Burley* and *Otlia* (semi- oriental) and *Jabel* (oriental) types of tobacco are grown. This region is known for growing big-leaf types of tobacco. The climate is continental.

The **South-West** region enclose the areas of Prilep, Bitola, Demir Hisar, Krusevo and Makedonski Brod. This region has also mainly continental climate. *Prilep* is the type of tobacco grown in this region and this it represents 95% of the total tobacco production, the rest 5% goes to small area planted with *Virginia and Jabel*. The third tobacco-processing factory is located in this region, in the town of Prilep.

**Central-East Region** has variation in the climatic conditions depending on the region. It varies from Mediteranian to continental. Tikves-Veles and Ovce Pole Kocani-Vinica and Delcevo-Pehcevo are the areas that belong to this region and *Prilep, Jaka , Jebel, Burley* and also *Virginia* are the types of tobacco grown in this areas.

The last region for tobacco growing is the **South-East Region**: Gevgelija-Valandovo, Strumica-Radovis. This district is typical in growing the famous oriental type of tobacco – *Jaka*, but *Virginia* is also grown in some parts of this region.

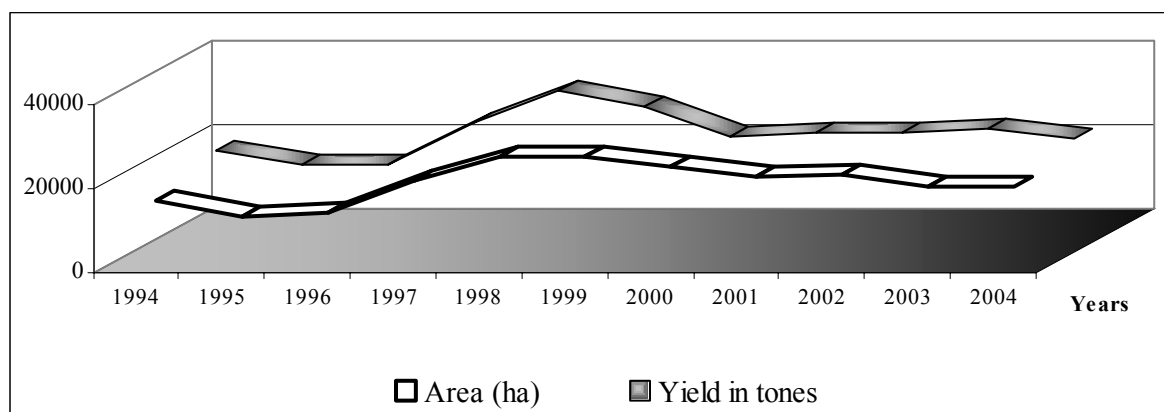
**Table 4. Planted area and yield**

Year	Planted area (ha)	Production in tons	Production kg/ha
1994	14,569	18,862	1,269
1995	10,894	15,683	1,44
1996	11,734	15,412	1,313
1997	19,296	25,308	1,312
1998	25,014	32,746	1,309
1999	24,965	29,368	1,189
2000	22,785	22,175	973
2001	20,31	23,217	1,157
2002	20,538	22,911	1,116
2003	18,008	23,986	1,332
2004	17,716	21,63	1,221
<b>Average</b>	<b>18,712</b>	<b>22,845</b>	<b>1,239</b>

The annual tobacco production in Macedonia is an average of 22,845 tons (in the period used in this research) and it varies depending on the natural conditions and the price for tobacco purchasing set by the tobacco companies. Minimum values are 15,412 tons in 1996, and maximum in 1998 (32756 tons). The standard deviation is 5,049.46 and the Coefficient of variations (CV) is 21.72. The total areas planted with tobacco show fluctuations during the same period, with a higher tendency to decrease from 1998 to 2004 (around 30%).

Source: State Statistical Yearbook of the Republic of Macedonia-RM Statistical Office

Yield have also shown oscillations, and again a decreasing tendency from 1998 but, the average yields on the other hand are quite stable and the values are presented in intervals between 973 kg/ha and 1,440 kg/ha.



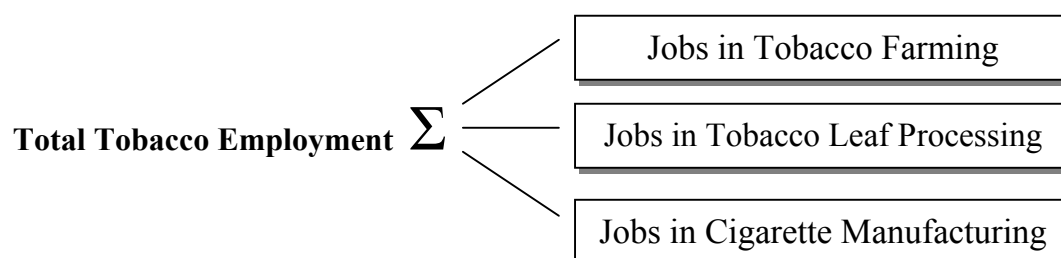
**Figure 6: The Area planted with tobacco and yields in tones**

#### 4.2.2 Human resources

According to International Labor Organization (ILO), the annual unemployment rate in R. Macedonia varies from 28.1% in 1995, to 38.2 % in 2002 (rising over the years). The participation of the agricultural labour force in the total labour force was 16% in 1995 and 2003, and had stable trend with the highest values in 1998 of 17.6%. (Appendix 3)

As a more labour-intensive product to harvest, oriental tobacco is carried out generally by rural family enterprises. Namely, no other agricultural crop creates so much labour per hectare of cultivated land as tobacco. Knowing that Macedonia has a very high rate of unemployment, it emerges as an important source for employment and income for the primary agricultural producers. Also the smaller properties of arable land owned by the producers in this country are favourable for tobacco producing and using more labour force in the process. Most of its labour requirements for the tobacco primary production are met through family labour and it also involves child labour and labour of elderly people in the initial phases of tobacco leaf- processing. Despite technological progress, tobacco cultivation remains one of the most labour-intensive operations in the agriculture<sup>9</sup>.

The following model presents the structure of total employment in the tobacco industry:



**Figure 7: Tobacco Employment within the tobacco industry**

(Source: "Data for Economic Analysis"-C. M. Ciecierski; F. J. Chaloupka)

**Table 5: Number of people involved in the tobacco industry**

Year	Employees in production and processing of tobacco	Number of tobacco growers
1994	6,032	35,416
1995	5,66	24,752
1996	4,984	27,11
1997	4,708	33,05
1998	5,246	54,661
1999	6,058	44,822
2000	5,814	37,617
2001	5,182	35,442
2002	4,702	34,247
2003	4,848	33,873
2004	4,156	31,871
<b>Average</b>	<b>5,217</b>	<b>35,714</b>

Source: SSO of RM.

Table 5 presents the number of employees in the production and in tobacco processing. Also it gives the number of tobacco growers (contracts) in the period of 1994-2004. The data show that there are oscillations in the number of tobacco growers during the period from 1998 to 2004. This is strongly correlated with the decreasing of planted are and quantity of produced tobacco in the same period. The realized tobacco production per grower was an average of 627.97 kg per grower, with a highest value in 1997 (718.94 kg/grower), and the lowest in 1994 (532.58 kg/grower) Tobacco is a crop providing existence for a big number of around 27-55,000 households.



This number is approximately from 150,000 to 200,000 individuals (10% of the total population in R. Macedonia; 14-25 % of the total active population and 20-35% of the total agriculture population, depending on the year and on the number of contracts signed with the tobacco primary producers). The explanation of this high number of people involved in the primary tobacco production process is quite simple and it refers to the fact that every registered person represents an entire family.

In contrast to farming, tobacco manufacturing is a mechanized production process that generates less labour employment. The number of employees in the manufacturing of tobacco products is on average 5,271 or approximately 3.5% of the total number of the employees in the industry. The productivity per employee and per hour worked (on annual base) is on average 422.5 thousands of MKD. The production of tobacco products has productivity values ranging in the middle of the list for the agricultural processing industry. The top positions are held by more mechanized processing industries such as the manufacture non-distilled fermented beverages, manufacture of food, ice cream etc.

The *average net monthly salary* on state level (R. Macedonia) is 11,800 denars or around 195 €. The average salary in the agriculture is 9,700 denars or 160 €. (SSO)

Seen from the prospective of comparative advantages, it can be presumed that R. Macedonia offers cheap labour force for the tobacco and cigarette production, which can be one of the essential aspects for the competitiveness of those two products on the EU and World markets.

Macedonia has many established facilities for agricultural education and training such as a Faculty for Agriculture and Food Sciences in Skopje, offering specialist studies in various agricultural areas, including tobacco. Than, there are ten specialized High schools and many institutes developed for educating competent, professional and capable personnel in the field of Agriculture and tobacco producing in R. Macedonia.

#### 4.2.3 Sector and Farm Structure, and Management Strategy

The collapse of the communism and the end of the conflicts in 1990s has led to major changes in the region's tobacco industry. Until 1991, the Republic of Macedonia was a part of Yugoslavia and the Yugoslavian economic region. This meant that R. Macedonia sold all its products on a significantly larger market of 22 million inhabitants (than known as domestic market), which became a foreign market after the Macedonian independency in 1991. The Yugoslavian agricultural trade policy used very high levels of protection (high custom duties on import), for protection of the agricultural sector from foreign competitions. The process of trade liberalization started after the Macedonian independency. In that process the country signed a series of Free trade Agreements (FTA's), with its neighbouring countries, and other traditional partner countries. Further more, the trade liberalization was reinforced by the signing of the Stabilization and Association Agreement (SAA) with the EU, an agreement signed in 2001. Macedonia gained a membership in the WTO (World Trade Organization) in February 2003, and our country is working on the adjustments for the regulation that should meet the international competitiveness requirements. (*EU Questionnaire, 2005*).

In the previous agricultural structure, the entire agriculture production was preformed by large Agro Kombinats that had a key role in the entire agricultural production. Now, after the privatization, the individual farmers own or lease about 80% of the cultivable land. The rest is owned or leased by agriculture enterprises (privatized or still non-privatized agriculture Kombinats and cooperatives)(*Agricultural Report 2003*). Tobacco production, especially processing and trade of tobacco products, had long been under state monopoly in many countries. Eventually, most of these countries (including Macedonia) partly or totally abandoned that monopoly.

In 2002, there were about 180,000 individual agricultural holdings encompassing some 464,000 ha of cultivable land with an average size of 2.6 ha. Agricultural companies and cooperatives that were formerly part of the socially owned Kombinats and cooperatives, farmed an additional 113,000 ha of cultivable land. Although difficult to extract from the latest available census (1994), as many as 40% of the individual farmers could be classed as part-time farmers (*Annual Agricultural Report 2003*). This small firm size causes many obstacles in the production such as: low mechanisation use in the working processes, higher expenses on small sized fields (farms), lack of management strategy of the farmers etc. The land market is not well structured and organized, therefore is not functioning properly, and there is a bad distribution of rental state agricultural lands.

Tobacco is exclusively produced by smallholder farmers, and most of the farms are viewed as small-scale farmers. It is a crop grown in rural regions with high fragmentation and wide dispersion of the land. Therefore tobacco growing can be seen as the only logical choice, as mechanisation for other alternative crops may be impractical or even impossible to use.

In the nineties, the Macedonian tobacco industry recorded decrease in the cigarette production and export. This was a consequence of some subjective weaknesses in that 10-year period. The negative dynamic was mainly caused by the disintegration of the

Yugoslavian market and the incompatible transition from the old type of economy, unfavourable credits, prolonged privatization and economic blockades. These specified conditions and the exhausted tobacco Kombinats, with an absence of favourable credit lines for coverage of the seasonal stocks continually followed and are still present in the tobacco



industry. The same situations also reflected in the primary production, which has a significant decreasing trend over the years (*"Tobacco Association report"*).

The credit policy in R. Macedonia is very unsuitable for the agricultural population. Macedonian banks are offering mortgage loans with a rate of approved value (maximum approved value 30,000 €) towards real estate of 3:1 and 2:1, which does not include agricultural land as credit guarantee. The mortgage credit lines have an interest rate from 9% to 13% depending of the bank (*Macedonian commercial banks*<sup>10</sup>). According to the calculations done by the World Bank, the measures on credit information sharing and the legal rights of the borrowers and lenders in R.M, showed an index value of 3 (three). The Legal Rights index ranges from 0-10, and higher index values indicate that those Laws are better designed to expand access to credits (*"World Bank"*).

MAFWE (Ministry of Agriculture Forestry and Water management) in collaboration with IFAD (International Fund for Agricultural Development) has developed a commercial credit line for the agricultural sector, specially aiming at increasing the incomes of rural households and medium sized firms. This credit line was covering almost all of the agricultural production except for the tobacco. Even though tobacco is grown in the rural regions, it was not a part of this credit fund. (*Agricultural report 2003*).

The biggest firms realizing the highest production value in the tobacco industry are presented in the following table. The table includes two of the three existing factories and the three biggest companies buying raw (dry) tobacco.

#### 4.2.4 Infrastructure

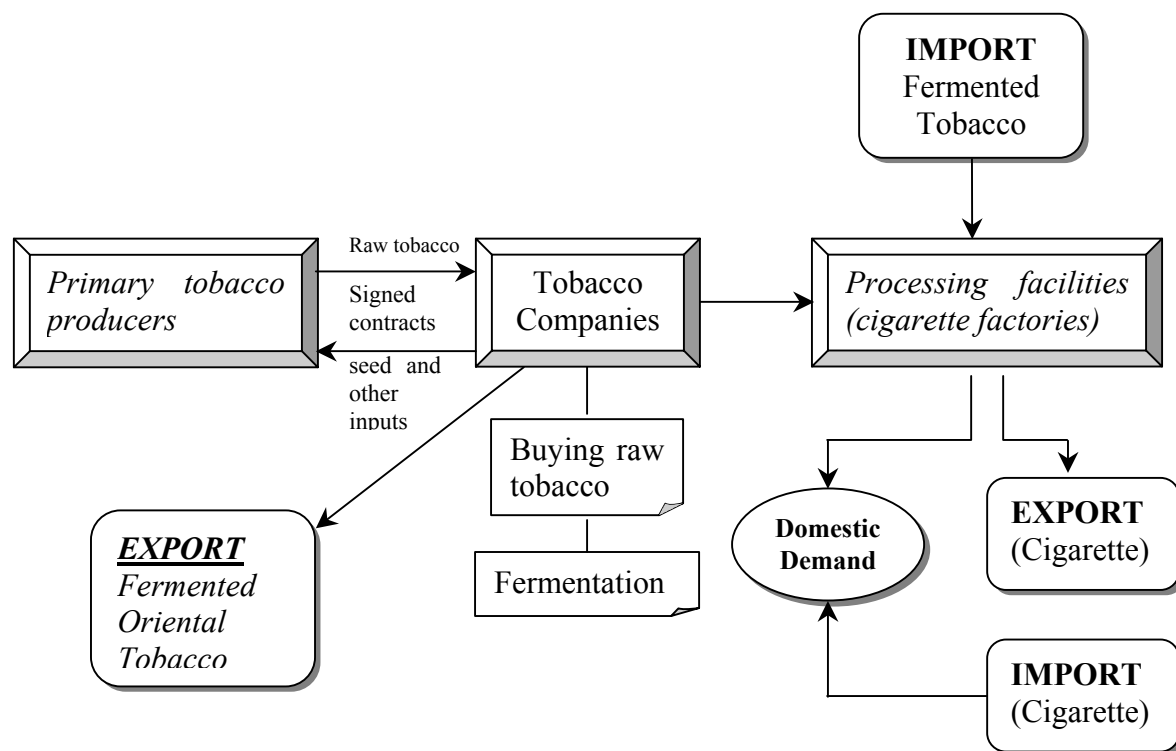
It is estimated that Macedonia possesses the required infrastructure for producing 30 – 35,000 tons raw tobacco (*Filiposki K*). The tobacco is an annual agricultural crop, which doesn't require specific investments in machinery, equipment and storage capacities in the primary production.

##### Tobacco Industry Structure

There is a traditionally well-organized network consistency of the producers, many registered companies buying raw tobacco and tobacco processing facilities (cigarette factories). The overall picture of all the participants in the tobacco industry is presented in the following graphical figure.

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<sup>10</sup> Komercijalna Banka (04.06.2006) <http://www.kb.com.mk/>  
Tutunska Banka (04.06.2006) [www.tb.com.mk/](http://www.tb.com.mk/)  
Stopanska banka (04.06.2006) [www.stb.com.mk/](http://www.stb.com.mk/)



**Figure 8: Graphical presentation of the tobacco industry segments**

The law on Tobacco (Article 3 of the Law on tobacco) defines the tobacco primary production as production of tobacco seedling, growing the tobacco plants on the field, collecting the tobacco leaves from the plant, tobacco leaf drying and the primary (home condition) manipulation of the raw tobacco. Tobacco producers are obligated by the law to use seed from the tobacco types planned for the various production regions and areas. They are also obligated to purchase this seed from registered producers of tobacco seed. (Article 9; Law on tobacco 1996). The seed is mainly purchased from the Tobacco Institute is to the tobacco companies buying tobacco who supply it to the tobacco producers.

Buying the tobacco by the firms is defined as taking and estimating the quality of the raw tobacco in leaves. (Article 6 of the Law on tobacco) The processing of raw tobacco considers industrial tobacco processing (industrial manipulation and fermentation), for developing fermented tobacco as a final product. (Article 7 of the Law on tobacco). Article 14 of the Law on Tobacco regulates that (“Official Gazette of the Republic of Macedonia” No. 69/96 and 15/98), the tobacco producer is required to sell the produced tobacco to the purchaser with whom he had previously signed a contract for production and purchase of tobacco. This is an “inter parties” type of contract regulating the mutual rights and obligations. The tobacco purchasing of tobacco produced in the current year is done until 31th of March the next year. The contract signed between the producers and the companies buying tobacco regulate their rights and their obligations, the areas and the type of tobacco produced. Then it sets the price of the tobacco, the time frame of the contract existence etc. (Article 31 of the Law on tobacco). Also, the purchasing price should not be lower than the price agreed upon the contract.

But, these obligations are not always fulfilled by the contractors. Macedonia’s tobacco companies buying tobacco often delay the beginning time of the buy out, and also there are to long delays between the sale of the crop and its payment. The buying process is unstable and the price per kilo of tobacco is not the price regulated with the contract (the price is

usually lower for the producers). On the other side, the primary producers are not always consistent with the obligations towards the tobacco companies. The presence of distorted variety structure caused by uncontrolled use of low quality seed materials is also a big problem for the tobacco production. (*PREDA, 2006*). This worsens the quality of the raw tobacco and weaken our position on the World tobacco markets (*Experts opinion*). All these relational problems exist for many years now, resulting in lack of confidence between the primary producers and the buyer/processor companies.

#### 4.2.5 Related and supporting industries

Tobacco Institute. Macedonia possesses the necessary scientific/research resources for development, following and controlling this production. In accordance to the Law on Tobacco (“Official Gazette of the Republic of Macedonia” No. 69/96 and 15/98), the Institute for Tobacco is a registered scientific institution that produces certified tobacco seed materials, and the Institute is required to sell it to the tobacco purchasers who supply this seed to the tobacco producers. It also performs control of the tobacco production process, in order to ensure good quality and quantity of tobacco production; furthermore, it controls the quality of fermented tobacco in the Republic of Macedonia, and for export purposes specifically, it performs a permanent control of the quality of tobacco products (cigarettes) and issues certificates for tobacco authenticity and origin. The Tobacco Institute in Prilep is authorized for laboratory testing of entomological, phytopathological, vegetative and biological testing. It also works on developing improved varieties and seeding materials for the tobacco growers.

Tobacco Associations. There is a registered Union of Associations of Tobacco Producers that protects the interests of the individual tobacco producers, pursuant to the Law on Tobacco (“Official Gazette of the Republic of Macedonia” No. 69/96 and 15/98); it gives an opinion on the content of the contract before it is signed by the tobacco producers and tobacco purchasers, it is present at the process of assessment of the raw tobacco at point of sale, and provides advise related to production and sale of tobacco.

Companies buying-out and processing (fermenting) tobacco. According to the State Statistical Office, there were 32 registered firms in the tobacco industry (31 in 2000, 33 in 2001, 37 in 2002 and 32 in 2003); (*EU Questionnaire, May 2005<sup>11</sup>*). They are licensed for tobacco purchasing and processing (fermentation). According to the Law on tobacco (Article 20 and 21/2006), the companies should have at their disposal: space for purchasing, storing, and industrial processing (fermentation) of the tobacco. The main tobacco companies are: Tutunski Kombinat-Prilep, Tutunski Kombinat-Kumanovo, Jugoutun-Sveti Nikole, Strumica Tabak-Strumica, Tutunski kombinat Sokomak-Bitola, Vele Tabak-Veles, Mosa Pijade-Hegotino, Tutunski Kombinat-Skopje, Dajmond MD-Kavadarci etc (*Ministry of Economy*).

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<sup>11</sup> <http://www.sei.gov.mk/download/Questionnaire/3-15%20-%20Industrial%20policy.pdf>

**Table 7: Structure of the firms, by output (in thousands MKD) and number**

Manufacture of tobacco products	Size of the firm	2000		2001		2002		2003	
		Gross output	Number of firms	Gross output	Number of firms	Gross output	Number of firms	Gross output	Number of firms
	Small	184	9	159	9	239	16	217	17
	Medium	2,492	16	2,321	17	100	1	1,463	10
	Big	7,413	6	6,4	7	8,408	20	5,012	5

Source: EU Questionnaire, Industry policy (chapter 15)

The biggest tobacco firms (Both cigarette factories and purchasing/exporting firms) by gross production value in thousands denars are presented in the following table:

**Table 8: Biggest tobacco firms**

Firm	Gross production value in thousands MKD	Number of employees	Ownership
Skopje "Tobacco kombinat (Tutunski kombinat)"-AD (Cigarette factory)	1,546,861	247	PRIVATE
Sokomak Bitola (Buying tobacco)	1,038,481	467	
Tutunski kombinat-Prilep (Buying tobacco)	1,031,195	986	
Cigarette factory-Prilep (Cigarette factory)	873,587	809	
Jaka Tabak (Buying tobacco)	682,501	297	
<b>Total</b>	<b>5,172,625</b>	<b>2806</b>	

Source: Ministry of Economy

Tobacco processing factories (Cigarette producers). There are three tobacco Corporations in Prilep, Kumanovo and Skopje. Three factories exist within this Corporation: Tutunski Kombinatski A. D. DOOEL - Prilep, Tutunski Kombinatski A.D. Boro Petrusevski Papucar – Kumanovo and Tutunski Kombinatski Blagoja Despotovski Shovelj – Skopje, with a capacity for producing 15.000 tons cigarettes (*Tobacco Chard of RM*). Due to property ownership problems in the tobacco factory in Kumanovo, this factory is not functioning; so only two of those three factories are operating in the recent years.

**Table 9: Participation of the cigarette producing companies (recent years)**

Name of the company	Town	%
Tutunski kombinat A.D. DOOEL – Cigarettes	Prilep	44,6
Tutunski kombinat AD. Boro Petrusevski – Papucar	Kumanovo	3,1
Tutunski kombinat Blagoja Despotovski Shovelj	Skopje	52,3

Source: Ministry of economy

There was a problem in finding relevant data for the installed and used capacities of tobacco production (cigarette production), or for the quantities of tobacco purchased by the firms. The presented data in table 9 is from the Ministry of Economy and it shows the participation of the existing factories in the recent years, after their privatization. The concentration rate, CR3 shows high concentration in the cigarette production, and exerts market power.

The role of the *Ministry of Agriculture, Forestry and Water Economy* is described MAFWE) in the tobacco production is described in the government support chapter No 5.

### Investments in the tobacco industry

The tobacco industry faced many problems in the period of transition. The bad conditions caused by bad credit policy, depressive exchange rate, inflation etc, led to problems in the tobacco purchasing. During those years, the prices received by the tobacco primary producers were constantly held lower than the price guaranteed by the government and the MAFWE (Ministry of Agriculture, Forestry and Water management). In 1996, the tobacco buy-out was performed in significantly changed market conditions. This was a consequence of the finishing privatisation in most of the firms, and some of the firms were bought by foreign investors. (*Yugotutun; 1999*)

Before the privatization, all tobacco-processing companies in the Republic of Macedonia were state-owned. From 1996, the privatization was completed and foreign capital entered the tobacco firms. Table 10, shows the amount of direct foreign investments for the period 1997 to 2002.

**Table 10: Foreign direct investments in the tobacco industry in R. Macedonia (\$)**

Year	1997	1998	1999	2000	2001	2002
<b>Total amount in US \$</b>	1.430.263	1.172.565	4.331.217	444.981	264.580	55.837
<b>Money investments for buying shares of tobacco companies</b>	1430263	-	-	-	141.568	55.837
<b>Investments in tobacco goods</b>	-	-	-	444.981	123.014	-

Source: Additional answer on the EU questionnaire/document

The data of the investments done in the manufacture of tobacco products and their percentage share in the total industry are presented in the following table.

**Table 11: Investments in fixed assets for the tobacco industry (in 000 MKD and %)**

	2000	2001	2002	2003
<b>Value of an investment</b>	188,339	389,238	136,042	225,389
<b>% share in the total industry</b>	0.72	1.61	0.48	0.85

Source: EU questionnaire; Industry policy (Chapter 15)

#### 4.2.6 Tobacco supply and demand

The production and the purchasing of tobacco was in accordance to the areas planted with tobacco besides all of the difficulties in the production, the purchase, the late payment of the purchased tobacco, lower prices etc.

**Table 12: Sales or tobacco production**

<b>Unfermented, dried tobacco</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Quantity (tons)	20.880	32.398	28.212	20.097	21.401	23.000	19.839
Value in million denars	2.725	2.809	2.892	2.316	2.636	1.798	2.718

Source: Tobacco association of R.M (Report)

The average tobacco producer price is 100,98 den/kg (1995-2004). The price was highly dependant on the tobacco quality and the demand on the World market. The low quality of the tobacco yields in 2002 (III and IV class) caused by the high humidity in the leaves (unfavourable weather conditions), in 2003 there indicated a price drop of 40% relatively to the purchasing price in 1998. The highest price obtained in 1998 (130,29 den/kg) was a result of the foreign capital entrance in the Macedonian tobacco companies and their interest to obtain higher share of the tobacco market. The lowest price was obtained in 1995 (54.78 den/kg). The standard deviation (SV) is 24.38, and the coefficient of variation (CV) is 24.14.

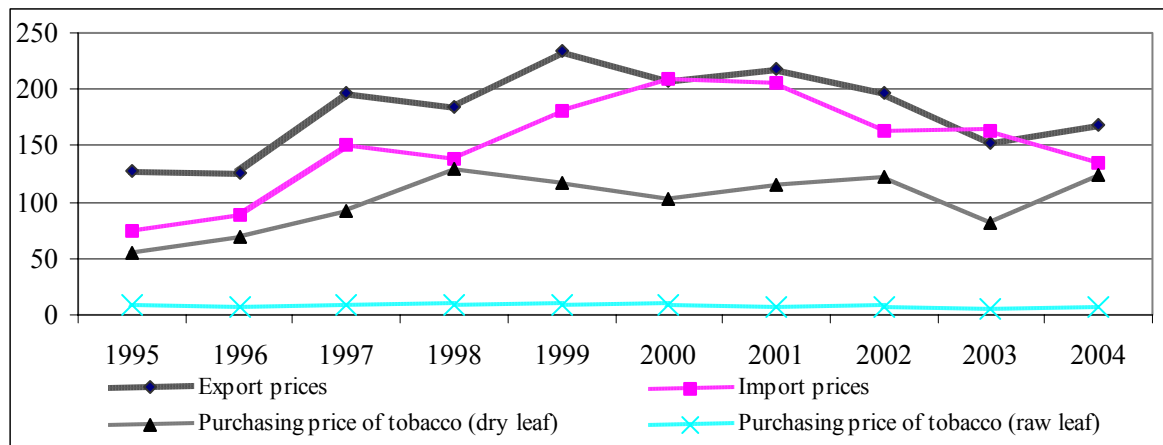
**Table 13: Average prices of tobacco in denars per kg**

<b>Indicator</b>	<b>Years</b>										<b>Average</b>
	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	
Purchasing (producer) price of tobacco (dry leaf)	54,78	69,42	91,96	130,29	117,57	102,51	115,22	123,18	81,32	123,6	<b>100,98</b>
Purchasing price of tobacco (raw leaf)	8,16	7,53	8,29	8,77	8,34	8,03	7,87	7,23	5,48	7	<b>7,67</b>
Export prices	128,44	125,86	197,22	184,92	233,96	207	217,98	196,9	153,19	169,12	<b>181,46</b>
Import prices	75,24	88,6	151,24	138,31	181,5	209,61	205,52	162,91	163,99	134,4	<b>151,13</b>

Source: State Statistical Office of RM

Some of the primary producers sell the raw tobacco in green leaves to the firms that own fermentation capacities, and by doing so they get an average price of 7.67 den/kg in the period of 1995-2004. This price is much lower than the price they get when they sell dry tobacco leaves.

The export price on the other hand is in average of 181.46 denars /kg, and it exhibits an increasing trend over the period from 1995 to 1999, after which it shows a decreasing trend. The same trend applies for the import price, which was on average 151.31 den/kg.

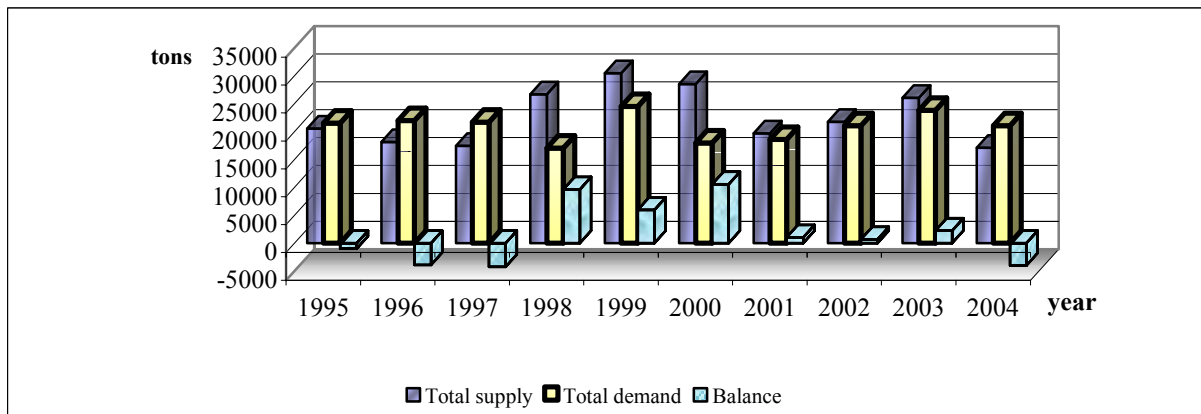


**Figure 9: Tobacco price trends (Export, Import and producer price in den/kg)**

Developing a supply-demand balance sheet for tobacco is more complicated compared to the rest of the agricultural product, due to the fact that the tobacco is a raw material that goes through several phases until it reaches the consumers, and because of the fact that after the phase “industrial fermentation” can be successfully stored for 4-5 years. On the other hand, when preparing the balance sheet on tobacco there is also the problem that the official statistic doesn’t publish data on tobacco consumption. All these problems cause great variation in the data available and presented. Fermented tobacco production in R. Macedonia is on average 18,271 tons. This production shows variations (See Appendix 4, for a detailed view on the fermented tobacco balance sheet)

The balance sheet for fermented tobacco (Appendix 4), showed that an average total supply of 22,622 tons with maximum in 1999 of 30,466 tons, and minimum in 2004, 17,074 tons. The total demand was on average 20,918 tons (maximum 24,494 tons-1994; minimum 17,039 tons-1998). The balance expressed negative values for several years.

Note: Values presented in the balance sheet for fermented tobacco (Appendix 4)



**Figure 10: Graphical presentation of the balance sheet for fermented tobacco (quantities/tons)**

**Table 14: Producers price and production cost of production for small and big leaf tobacco (2004)**

Tobacco type	Price denar/kg		Difference
	Producer price (purchasing)	Cost of production	
Small leaf	125.46	106.29	19.17
Big leaf	101.48	82.88	18.60

Source: Calculation performed by the Department of Economics-FASF/Skopje; R.M.; 2004.

The farmers included in this calculation performed an average price of 125.46 denars for the production of small leaf (oriental) tobacco, and compared to the production costs this price induced difference of 19.17 den/kg, (15.28% higher prices). Those farmers that produced big leaf tobacco realized a higher relative difference (18.33%) between the producer price and production cost.

This study includes DRC (Domestic Cost Resources) index calculation (See appendix 8), with an expressed value of 0.51. The DRC index measures empirically the existence or non-existence of comparative advantage in the production of tradable commodities, or in this case tobacco. Index value below 1 indicates comparative advantage and international competitiveness. (See calculation in appendix 8; table 8-3).

Compared to the producer prices among the main tobacco producers in the region, and some of the European countries Macedonia has fairly high tobacco producers price (101.00 den/kg) (Appendix 6). Our country's producer price is higher than the prices in Bulgaria and Greece, and lower than France, Germany and Italy. Not all of the countries presented in the table, produce the same type and quality of tobacco, thus the prices can't be considered as an adequate comparative measure.

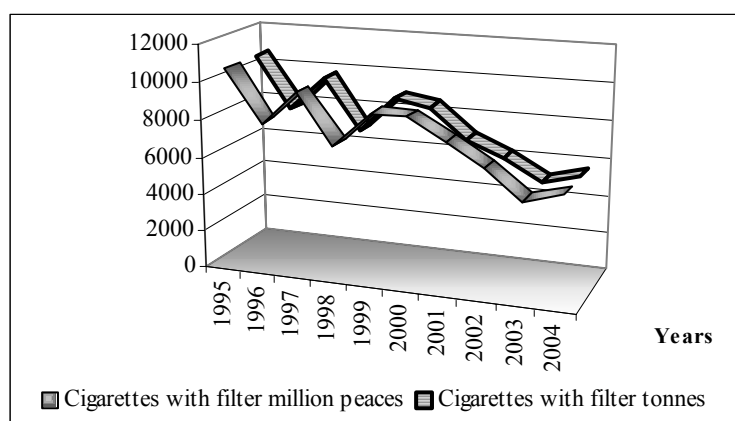
#### 4.2.7 Cigarette production in R. Macedonia

The cigarette production in the Republic of Macedonia is presented in table. 14 An important note in the case of cigarettes is that, it was very difficult to find data for cigarettes and most of the data is unavailable and confidential.

**Table 15: Cigarettes production (cigarettes with filter in million pieces and tons)**

Product	Unit measure	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Cigarettes with filter	million pieces	10615	7851	9678	7009	8870	8883	7766	6567	5120	5654
Cigarettes with filter	tons	10626	7865	9691	7022	8882	8569	7001	6241	5152	5656

Source: State statistical office; Statistical review: industry in the Republic of Macedonia 6.4.3.1.03; 6.4.4.03;6.4.1.03 6.4.01;6.4.5.03



The figure presents the dynamics in Macedonia's cigarette production in the period 1995-2004. The graph lines show that highest quantities of cigarettes are produced in 1995 (10,615 tons/ 10626 million peaces). The cigarette production has reduced by almost 50% over the period 1995-2004. In 2004 it had value of 5,654 tons or 5,656 million peaces (Table 14).

**Figure 11: Trend of cigarette production in R. Macedonia (quantity/tons)**

(Source: S.S.O: Statistical review: industry in the Republic of Macedonia)



#### 4.2.8 Export and Import of tobacco and tobacco products in R. Macedonia

Many of the Developing countries rely heavily on the export of agricultural products as one of the few and main sources for exchange earnings. The tobacco exports are of great significance and have great share in the total export of agricultural products. The exported quantities of tobacco are on average 17,020 tons in the period 1995-2004. (Data included in the balance sheet, appendix 4).

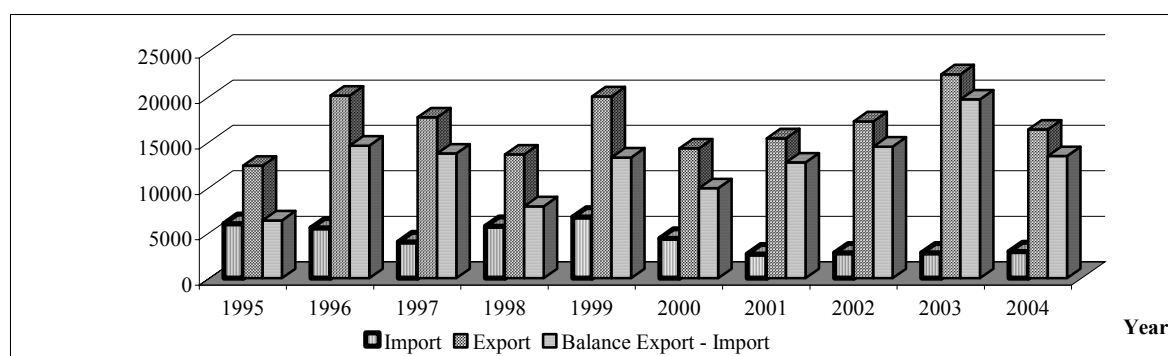
Tobacco was and will continue to be an important product for R. M, in the years to come. The significance of the tobacco exports economy is expressed through the large values it generates for the Macedonian. Table 16 presents all the Export and Import values of the tobacco industry.

**Table 16: Export and Import values of the Macedonian tobacco industry (US\$)**

	2000	2001	2002	2003	2004	Average
<b>Export</b>	47,695,000	48,585,000	58,176,000	70,233,000	61,657,000	<b>57,269,200</b>
<b>Import</b>	14,429,000	8,759,000	8,411,000	10,196,000	9,798,000	<b>10,318,600</b>
<b>Net export</b>	33,266.000	39,826,000	49,765,000	60,037,000	51,859,000	<b>46,950,600</b>

Source: PREDA 2006.

The average export value for the period of 2000-2004, is \$ 57,269,200 while the import expressed an average value of \$ 10,318,600 for the same period. which lead us to the conclusion that R. Macedonia is net exporter of tobacco (\$ 46,950,600). These values placed tobacco on the high 6<sup>th</sup> place among 40 products ranked according to the values of the total country's export. In the total value of agricultural exports tobacco holds the first position. (PREDA,2006).



**Figure 10: Tobacco export, import and balance (Quantity/tons)**

Note: The values are presented in the balance sheet for fermented tobacco in appendix 4

Tobacco's share in the total Macedonian agricultural export is very high (Appendix), which is confirmed by the Balassa index calculations performed in this study. As the literature review explained, a value of this index over 1 shows comparative advantage, and the country should specialize in producing the product. In the case of the Macedonian tobacco, the Balassa index expressed values much greater than 1 (in average 8.19 for the period 1998-2003), which is a lot higher index value than our direct competitors Greece 2.43, Bulgaria 2.47 and Turkey 1.97. This means that the export share of the tobacco industry in the total agricultural exports is more significant for the Macedonian agriculture, than it is for the exports of those, other countries used as comparison. The computed Balassa values are expressed in Table 17.

**Table 17: Balassa indexes for Macedonia and some of it's main competitors**

Balassa index	1998	1999	2000	2001	2002	2003	Average
Macedonia	6.84	9.39	8.04	8.03	8.29	8.59	<b>8.19</b>
Greece	2.60	3.15	3.09	2.68	2.68	0.38	<b>2.43</b>
Bulgaria	2.79	2.79	2.85	2.25	1.85	2.28	<b>2.47</b>
Turkey	0.22	2.52	2.50	2.12	2.29	2.10	<b>1.96</b>

Source: Calculation based on FAO data (See appendix 8; table 8-1)

For comparison, the Balassa index for the wine industry calculated for the same period expressed average value of 4.53 (*G.M.Tasevska, 2006*). The tobacco and wine industry are the highest rated industries in terms of specialization and export shares in the total Macedonian agriculture.

Macedonia's major exports are in fermented tobacco. The export of fermented tobacco leaves have 86 % share in the total exports of the tobacco industry. The rest of the export (14%) belongs to cigarettes (*Agricultural Report, 2003*). Macedonia exports the fermented tobacco to USA (average of 20% of the total exports in quantity, and around 30% of the total values, and over 90% of the Macedonian agricultural product exports to that destination), Greece (average of 10% export quantity and value), Serbia and Montenegro (10%), Germany, Switzerland etc. The average export price obtained in the tobacco export to USA, was \$ 4.55 million. The highest prices were gained in the exports towards Argentina and Japan, and the lowest in the case of Russia. (For detailed data see appendix 6).

The tobacco import in Macedonia is realized by importing small quantities of un-manufactured tobacco. The biggest import of un-manufactured tobacco is from the EU countries (28%), Turkey (16%), Brazil (14%), Tanzania (6%) etc. (*V. Usaleski, 2006*).

Macedonia is also a net cigarette exporter. In the case of cigarettes, our major exporting markets are Serbia and Montenegro with the highest percentage (78% of the total cigarette export in 2003), Bosnia and Herzegovina (around 20% of the total cigarette export in 2003) etc. The major Macedonian partners in the cigarette import are Switzerland (around 54%), other EU countries (around 21%), Croatia (22%) and 3% from the rest of the World (*Agricultural Report, 2004*).

The average value of the total export is 20,948,800 \$, and the import value is 2,460,400. The values (in \$) of the total Macedonian cigarette export for the period from 2000 to 2004 is presented in table 17.

**Table 18: Cigarette export and import (2000-2004) in \$**

	2000	2001	2002	2003	2004	Average
<b>Export</b>	37,151,000	27,662,000	17,888,000	11,077,000	10,966,000	20,948,800
<b>Import</b>	1,659,000	1,829,000	1,985,000	3,095,000	3,734,000	2,460,400

Source: PREDA, 2006

## Cigarette smuggling

Avoiding excise taxes on goods by evading border controls is considered as smuggling. Cigarettes are often subject of smuggling because taxes often take a large share of their price, making them a highly profitable product to smuggle. As the tax rates increase, the quantity of smuggled cigarettes is also likely to increase. Both price differences and high cigarette taxes create an incentive for smuggling—even when tax systems are harmonized.

Cigarette smuggling causes major harm. It increases cigarette consumption, lowers the price of cigarettes, creates unfair competition for legal cigarette sellers and local manufacturers, promotes corruption and most of all reduces government tax and import revenue. The degree of smuggling varies across the markets and regions. According to some international estimates the rate of smuggling in Macedonia is 40%. This percentage varies in our country's surrounding from 25% in Croatia, 38% in Bulgaria, 37% in Serbia and Montenegro, 47% in Bosnia and Herzegovina and the highest rate in the region of 80% in Albania. (*I. Bozicevic, et al, March 2004*).

Cigarette smuggling is a serious problem for the Balkan region including the Macedonian. Recently there were many affairs connected with the cigarette smuggling in the country, which made data finding even more delicate and difficult.

### 4.2.9 Government role and support

Historically, tobacco has been one of the most heavily taxed consumer products in the world, consequently collecting big share of government revenues. (*The social and economic impact of tobacco*)

The industrial plant-tobacco is declared as a commodity of public interest for the Republic of Macedonia, pursuant to Article 3 of the Law on Tobacco ("Official Gazette of the Republic of Macedonia" No. 69/96 and 15/98). The development of its production is supported in various ways and by various measures. It is mainly supported with the Budget of the Republic of Macedonia, and based on many legislatives such as: The Law for tobacco (Official newspaper of R.M, No. 69/96 and 15/98), The Law for agriculture development (Official newspaper of R.M, No. 24/94, 32/92, 83/92, 78/93 and 14/96), Low for protection and using of agriculture land (Official newspaper of R.M, No. 7/86, 51/88, 36/91, 83/92 and 62/93), Low of the Agricultural Funds (Official newspaper of R.M, No. 11/02) and the Low of the R.M's Government (Official newspaper of R.M, No. 38/90).

There are guaranteed prices for purchasing the tobacco, as well as the one time non-returnable finance assistance for tobacco purchasing and for the total quantity of sold row tobacco for the firm purchasing the tobacco.

Guaranteed price serves as a basis for determination of the purchase price by types and classes of tobacco for concluding production and purchase agreements between producers and tobacco companies. In accordance with the Law on Trade ("Official Gazette of RM" No 23/95), the goal of this measure is protect the production of the

oriental small leaf aromatic tobacco in the Republic of Macedonia from eventual monopolistic behavior of the purchasers, and to ensure stability and competitiveness on the domestic and foreign tobacco markets. The calculation of the guarantee price of small leaf tobacco was made in line with the provision regulating that the guaranteed price of tobacco for each consecutive year should not exceed 70% of the average three-year global prices

plus the amount of shipping and handling charges to Skopje in the last three years. The provision was harmonized with the World Bank. (Additional answers to the EU questionnaire)

**Table 19: Guaranteed tobacco prices from 1994 to 2000**

Measure \ Year	1994	1995	1996	1997	1998	1999	2000	The guaranteed price was phased out in 2000
Guaranteed price for tobacco (MKD/kg)	82	82	82	82	106	111	111	

Source: State Statistical Office

In accordance with the Law on Tobacco, tobacco as declared goods of public well being and subsidized by a state aids, through allocation of funds in the State Budget. If the company-purchaser is incapable of making the payment due to a bankruptcy or liquidation, the state takes over the contracts obligations.

Tobacco development is also encouraged with other indirect measures (intervention purchase of industrial tobacco classes), and subvention on the costs for certain inputs in the process of tobacco production.

The budgetary support of the tobacco in Macedonia through the Program for agricultural development and through the other indirect measures is presented in Table 20.

**Table 20: Total support for agriculture and tobacco in 000 denars (1995-2004)**

Year	Support in 000 denars		
	Total agriculture support	Total plant production	Tobacco
1995	91,500	18,600	-
1996	-	-	-
1997	366,990	180,490	-
1998	233,000	55,062	5,000
1999	244,000	51,900	5,500
2000	244,000	68,000	6,000
2001	234,000	30,500	329,109
2002	211,690	28,500	320,660
2003	476,569	70,000	411,935
2004	537,000	267,000	69,668

Source: Official gazette of R.M No. 17/95, 96, 10/97, 16/98, 28/99, 40/00, 29/01, 23/02, 30/03, 30/04

Detailed structure of tobacco support over the years by type and amount of tobacco support in R. Macedonia is presented in appendix 10.

The EPC is an index measuring the incentives to farmers. In the case of the Macedonian tobacco producers, the Effective Protection Coefficient was calculated on data for only one year (2004) (Appendix 8, table 8-3). That year the EPC index for the tobacco growers in R. Macedonia had a value of 0,67. An EPC with a value less than 1 shows negative incentive effects and it indicates that input and output policies, such as commodity price supports and fertilizer subsidies are not present (the tobacco producers are not subsidized). The same results are obtained from the calculation of NPC index. The NPC index calculates the level of protection but this time as a ratio between the price received by the farmers and the export price. The NPC index value of 0,67.

It is expert opinion that the government role in the tobacco sector during the past period was insignificant, but after the implement of the Law on Tobacco there are some improvements in regulating the important issues concerning tobacco (Appendix). The Law on tobacco was enforced and 1996. (*Official Gazette of R. Macedonia 69/96; 23 December 1996*).

General conclusion is that the accession to the EU is many years away for Macedonia. The local economy is stagnant while the currency continues to be stable, and local interest rates are still too high to allow local credit borrowings, which could stimulate investments and spending in the tobacco industry. All the people that were interviewed for the purpose of this survey share the opinion that the farmers involved in the tobacco production should receive some kind of support.

### Tobacco export policy measures

The tobacco development is promoted by the Free Trade Agreements with numerous neighbouring countries and countries from South East Europe. The tobacco export is without tariff in the cases of EU, Croatia and Montenegro (only for the cigarettes), Ukraine, Croatia. In the tobacco trade over the export quotas Macedonia applies preferential custom rates for Bosnia and Herzegovina (50%), Croatia (30%) from the MFN (Most Favorite Nations) custom rates. The tobacco import has non-tariff quotas with Serbia and Montenegro, Croatia, EU, and in the case of over quotas from Bosnia and Herzegovina and Croatia Macedonia has 50% and 30% from the MFN. When the import of raw tobacco from all the other countries is discussed, Macedonia imposes maximum tariff rate in accordance with WTO; 20% ad valorem for Oriental tobacco types, 10% ad valorem for Virginia and 60% ad valorem for the cigarette. MFN duty rate for tobacco for 2004 is 10-20% depending on the sort and type of tobacco (*M.Pesevski, 2006*).

### Excise and Value Added taxes

There are several types of taxes on cigarettes. An excise tax is a tax on tobacco produced for sale within the country or imported and sold to that country. It can be either specific (a set amount per pack), or ad valorem (an amount proportional to the cost of the pack). Value added tax (VAT) may be charged in addition and most countries that have VAT impose it on a base that includes an excise tax and custom duty. Demand for tobacco tends to be income elastic, which means that consumption will rise more than proportionally than with an increase of income (*I. Bozicevic, et al, March 2004*).

The excise tax of cigarettes in Macedonia is different for the domestic cigarettes and the cigarettes from import. The excise rate for domestic cigarettes is computed as 35% of the cigarette pack value (from 1998-2000), and 33% of the pack value (from 2001-2004). In the case of foreign cigarettes or the cigarettes for import, the excise tax was computed by kg, or 1250 denars per imported kg (from 1998 to 2000), and from 2001 to 2004 it was changed into 1,35 denars per cigarette (average of 27 denars per pack). It is a tendency to gradually equalize those differences in the excise taxes for the domestic and foreign cigarettes until 2007. The Value Added Tax (VAT) in the Republic of Macedonia is 19%. (*Ministry of Finance, 2006*).

The excise tax in the Macedonia's surrounding countries varied from 33% to 49%, and the import duties vary even more, from 15% in Albania, Bosnia and Hercegovina and Serbia and Montenegro, up to 98% in Romania. Macedonia has an Import duty of 60% (See table 21) (*I. Bozicevic, at all, March 2004*).

**Table 21: Cigarette taxation rates in Macedonia and neighbouring countries**

Country	Excise tax (% of the retail price)	VAT (%)	Import duty (%)
Albania	38	20	15
B & H	35	20	15
Bulgaria	44	20	50
Croatia	49	22	49
Macedonia	35	19	60
Romania	33	19	98
Serbia and Montenegro	40	21	15

Source: The tobacco epidemics in South-East Europe – Consequences and policy responses - March 2004

### Advertising of tobacco products

Macedonia has partial restrictions on local newspaper and magazine advertising. Billboard advertising is completely banned. Indirect advertising such as tobacco product placement on television or film is also completely banned in Macedonia. In restaurants and public places there is a partial restriction. (*I. Bozicevic, at al, March 2004*). From the beginning of 2006, Macedonia finally started the enforcement of the anti-smoking law, which has been largely ignored many years back.

### Warsaw declaration

Warsaw declaration for a Tobacco-free Europe (2002) acknowledges tobacco as a toxic and addictive substance and that it causes epidemic. WHO's European region declares tobacco to be the greatest challenge it's facing, and therefore needs to be considered with great care and joined efforts. It suggests that protecting the health of individuals (specially children and young people) is important and people should be informed about the lethal and addictive nature of tobacco consumption. Also, as part of the measures against tobacco, aggressive policies should be undertaken in the region: high taxes, bans on tobacco advertising, sponsorship and promotion, protection against passive smoking in public places and workplaces, strict controls on smuggling. And the most important reference in the document states: "Public health protection has priority over tobacco production, therefore viable alternative economic activities to tobacco production should be promoted, as well as the gradual transfer of subsidies for tobacco growing to other activities".

The production of tobacco and cigarettes and their consumption is influenced by the WHO through the EU health policy, based on the principles of Warszawa declaration and the EU strategy for tobacco control (ESTC-European Strategy for Tobacco Control). All these principles are harmonized with the Framework Convention for tobacco (FCTC), under guidance of the WHO, and signed by all EU, and some countries in development. Macedonia is a signatory country of this Warsaw declaration.

An experts opinion (contacted persons from the tobacco industry) that this declaration is misinterpreted in R. Macedonia. (Appendix)

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.

## 5 SWOT Analysis

Compared to its size The Republic of Macedonia has a significant position on the World market for tobacco. Macedonia holds the 30<sup>th</sup> place in the world production of tobacco by quantity, and 15<sup>th</sup> place in the world by total value of export. It is listed in the top eight countries producers of Oriental tobacco. R. Macedonia and its nearest neighbours Greece, Bulgaria and Turkey, account for the largest oriental tobacco producers in the world, and the biggest tobacco producers in the region. These countries are also Macedonia's closest competitors. Except for Greece, Macedonia has the most favourable conditions for growing high quality oriental tobacco, which is known and demanded on the world markets. There is an assurance of constant demand on the world market, since replacement of oriental tobaccos in world brand cigarettes structure is fairly difficult, although it is decreasing.

The relatively stable price and demand on the world market give incentives and motivation for tobacco growers all over the world. This and the fact that tobacco is non-perishable good, easy to transport, and store make it even more luring for the risk-averse agricultural producers in the rural and developing regions where farmers cannot afford to invest in crops that bring unsteady prices or unpredictable demand.

### 5.1 Strengths

All nations have different skill and resource endowments, and different approach in their exploitation. (*M. Porter, 1990*). Nations are most likely to succeed in an industries or industry segments, in the cases where the determinants of national advantage are most favourable. Macedonia has many incentives and favourable resource endowment for producing tobacco.

There is a *century long experience and tradition* in producing high quality oriental tobacco in R. Macedonia. The *good soil and climatic conditions* are the first of the basic factors crucial for the tobacco production in Macedonia. Tobacco utilizes (cultivates) sandy soils of poor quality, where no other plant shows equal profitable outcomes for the producers. It tolerates wide variations of climatic conditions and still reaches respectable yields. Oriental tobaccos are often grown in poorer soils and in areas with higher aridity, which makes them very suitable for the growing conditions for most of the regions in Macedonia. There are a number of tobacco varieties compatible for the climatic differences in the country, and many different regions in which they are cultivated. Each oriental tobacco type produced in Macedonia (Prilep, Jebel and Jaka) has specific characteristics and smoking taste, therefore our country's tobacco is known to be of high quality and rich aroma.



Regardless of the fact that tobacco production in R. M is experiencing a declining trend, it offers employment and existence for a larger part of the population. Having a high rate of unemployment, this kind of labour-intensive crop, is suitable for many regions, and especially significant for the rural (undeveloped) parts of the country. The smaller properties of arable land owned by the producers in this country requiring high portions of labour only emphasize this crop's *social importance*. Macedonia has relatively cheap labour force indicating a possibility for obtaining lower producer prices, and consequently higher market competitiveness.

Macedonia possesses experienced tobacco producers, and tobacco expert educated in the agricultural schools (High-schools, Faculties, Institutes). Also, competent, professional and capable personal is employed in the specialized Tobacco Institute -Prilep, working on developing and controlling the tobacco production process. Their goal is to ensure good quantity of the tobacco production and the fermented tobacco in R. Macedonia.

The tobacco production processes are regulated with contracts between the producers and the firms. There is an existence of many registered and licensed firms for tobacco buying and exporting assures better environment for market competition, and allows the primary producers to chose their best option for contract negotiation and signing.

Buy-out process is organized and possessing the necessary facilities to perform it. There is a well-developed and established net of primary producers, firms buying tobacco, processors (cigarette producers) and science. Also there are capacities for tobacco fermentation in the firms buying and exporting the tobacco as well as existence of established factories for tobacco processing (cigarette producing);

The Macedonian tobacco is an export-oriented product, which generates significant earnings for the Macedonian economy. Generally the exports are destined to countries like the USA, Greece, Germany, Switzerland etc. The tobacco's participation in the total export of agricultural products is around 35-40%. The Balassa index for the tobacco industry indicates our country's comparative advantage in producing tobacco.

Macedonia is also a net exporter of cigarettes. Most of the cigarette exports are to Serbia and Montenegro, Bosnia and Herzegovina etc.

## 5.2 Weaknesses

The tradition, which was listed on the top of the “Strength” section, is also a weakness when it is considered from a farmer’s point of view. Tradition is one of the things that tie the people living in the villages to their fields and to the hard process of growing tobacco, even when the market conditions are harsh and unpromising. “Their lack of alternative skills, leave them with no choice and makes them more addicted to the tobacco than smokers will ever be”. This indicates that there is no visible strategy that will provide the tobacco producers with valuable market information before planning the production, or how to improve the quality of the product and thus secure better prices.

Small farm (land) size owned by the farmers in Macedonia cause big problems in achieving low production costs, and applying more mechanization in the production process. The Macedonian tobacco producers are mostly small-scale farmers, with lack of possibilities to expand their land due to the undefined structure of the land market, and the bad distribution of rental state agricultural land.

The badly developed relations between the producers and the buyers are caused by many factors. The tobacco purchasing firms don’t always fulfil their obligations imposed by the contract. The late start of the raw tobacco purchasing, lower prices for the producers and prolongation of the purchase payment caused a confidence problem between the producers and the firm (purchasers/exporters). All this problems lower the interest for producing tobacco, a fact that is reflected and can be seen by the decreasing in the areas planted with tobacco.

Worsening of the tobacco sort structure and lowering the quality is a problem from the opposite side of the contract. Tobacco primary producers sometimes use seed material with low quality characteristics (not produced and certified by registered producers of tobacco seed). Also there is low control on the seed materials. All this lowers the quality of the tobacco and corrupts the traditional quality of the Macedonian tobacco. All these things should be carefully considered and enforced by the existing Law on Tobacco. Measures performing frequent control of the tobacco quality should be undertaken.

Non-existence of agricultural credit lines for the tobacco producers makes further investments impossible. The mortgage credits offered by the banks are mostly rigid (high interest rates, impossible conditions) and unsuitable for the agricultural producers.

Almost every year there is a kind of government aid through the Ministry of Agriculture, Forestry and Water management (MAFWE), with some resources assigned for one time unreturnable aid for the individual agricultural tobacco producers (some of the years), and other supporting some other types of activities concerning tobacco. It is a general opinion that the government support on tobacco is insufficient, and some activities should be taken in this direction. This study’s calculations (EPC and NPC indexes) made for 2004, confirmed that there is no direct government support for the tobacco producers in that period.

In the case of cigarettes, their production shows a decreasing trend caused by many problems including transitional period and difficulties in the privatization processes. Those factors interrupt the full employment of the established capacities. In addition, a big problem in the tobacco processing industry is the smuggling, which is strongly infiltrated in affecting the primary production and the production of cigarettes. This not only a problem for the

tobacco industry, but it represents a serious problem for the Macedonian economy as a whole. The black market is well structured and “legally” functioning, and it is extremely important that the government undertakes some kind of actions to restrain it.

## 5.3 Threats

The changes of the consumption structure of the tobacco products consumers, along with the campaign against smoking lead by USA and Western Europe will have a great impact on all the tobacco producers, including Macedonia. Tobacco is concerned and seen as a great threat to people’s health, and a lot of aggressive measures are proposed against it. The decrease in the smoking is starting to have an influence on the tobacco demand and the quantities of tobacco produced in Europe and all over the World. Many changes happened in the EU policies towards tobacco, and the decision for abolishing the premiums for the tobacco production, and the European Union policy up to 2010, is unattainable for the producers in the entire Union. The lowering of premiums in Europe is also a threat for the Macedonian tobacco in the case when the country will enter the European Union. Until then, this decision for abolishing the premiums for the tobacco production and lowering of the quantities of tobacco produced can be seen and will be listed in the part where opportunities are described.

Macedonia has partial restrictions on local newspaper and magazine advertising. The billboard advertising is completely banned, and indirect advertising such as tobacco product placement on television or film is also completely banned in Macedonia. In restaurants and public places there is a partial restriction.

Knowing that the replacement of oriental tobaccos in the structure of the World brand cigarettes is fairly difficult, the biggest tobacco companies are beginning the search for new countries or areas suitable for production of oriental tobaccos (mostly developing countries such as Former Russian countries etc), and covering their needs by getting tobacco on lower costs. Also there is a threat of lowering the percentage of oriental tobaccos in the American-Blend cigarettes by future technological improvements and changes in the cigarette producing technology.

Also there is the threat of lowering the quality of the tobacco variety structure, which will cause losing of our market positions and losing the competitiveness characteristics on the World markets.

## 5.4 Opportunities

Providing government regulations for appropriate functioning of the land market will provide an opportunity for the enlargement of the farms. This enlargement on the other hand will offer an opportunity for developing management and marketing strategies (and planning the production based on the available market information).

The global changes happening all over the World, have impact on the production of oriental tobacco on the Balkan and Turkey. It is expected that the Greek subsidy decoupling will lead to a significant reduction of their tobacco production volume, but this tendency of decreasing the tobacco areas is expected in all EU countries. The changes in the ownership structure of the Turkish biggest tobacco company “TEKEL”, caused stagnation in the level of tobacco production and in the tobacco quality. All this events are suggested and considered as a good opportunity for re-establishing the tobacco production to a capacity of 25-30.000 tons. Promoting and initializing credit lines available and suitable for the tobacco producers and subsidising the tobacco production can be the first step.

An important opportunity for the Republic of Macedonia on a macro-economy level is the stability of the region, an issue that caused great problems in establishing a positive business environment in the past.

Seen from a prospective of trade liberalization, the agreements, signed by Macedonia and the neighbouring countries, the EU, and WTO are also a good opportunity for further market expansion.

## Suggestions

Inevitably, deeper government involvement in the Tobacco law enforcement is a high necessity. Regulating the obligations of the tobacco purchasing firms will encourage the unmotivated primary producers and will regain the confidence between them (producer-buyer). Better control of the seed material and tobacco quality will lead to maintenance of the high quality recognisable on the World market.

The tobacco producers should try to consider enlargement of the land they cultivate (bigger farms). This will promote better management, implementation of innovations, lower production costs, higher motivation for the workers, and stronger position in the bargaining processes with the purchasing firms. They should also start by gradually introducing some other additional farm activities. The big struggle against tobacco is having an global impact on the tobacco industries all over the World This and the fact that Macedonia will become a part of the European Union some day, impose the urgent need for adequate tobacco replacement in the future of the Macedonian agricultural production.

## Conclusion

Being a small country R. Macedonia can be pleased with its positions on the World markets, both in the total production of tobacco, and in total value of tobacco exports. Although there is an actively on going World campaign for reducing or eliminating smoking, and tobacco is one of the most criticized agricultural plant, a general opinion is that it's production on the Macedonian fields will continue in the future. It is an essential income source for many households and essential source for government revenues. There is no adequate replacement for this crop in the near future.

**Table 22: Strength and Weaknesses of the tobacco sector in R. Macedonia (SWOT)**

<i><b>STRENGTHS</b></i>	<i><b>WEAKNESSES</b></i>
<ul style="list-style-type: none"> <li>➤ High quality oriental tobacco;</li> <li>➤ Experience and tradition in producing tobacco;</li> <li>➤ Favourable climatic and soil conditions;</li> <li>➤ Number of tobacco varieties, compatible for the climatic differences in the country;</li> <li>➤ High social importance: Employment and existence of large part of the population (households);</li> <li>➤ Relatively cheap labour force - possibility for obtaining lower producer prices;</li> <li>➤ Experienced tobacco producers, and educated tobacco expert (competent, professionals);</li> <li>➤ Well developed and established network of primary producers, firms buying tobacco, processors (cigarette producers);</li> <li>➤ Production process regulated with contracts between the tobacco producers and the firms;</li> <li>➤ Organized buying process and established capacities for tobacco fermentation;</li> <li>➤ Number of firms buying out tobacco – good competition environment;</li> <li>➤ Existence of factories for tobacco processing (cigarette producing);</li> <li>➤ An export-oriented product, which generate income for the Macedonian economy.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Small farm size – low chance for mechanization appliance;</li> <li>➤ Tradition - lack of alternative skills for pre-orienting, even when there are bad market conditions;</li> <li>➤ No willingness to accept changes;</li> <li>➤ Lack of management strategy and market information;</li> <li>➤ Badly developed relations between the producers and buyers;</li> <li>➤ Worsening of the tobacco sort structure and lowering the tobacco quality – low control of seed materials;</li> <li>➤ Late start of the raw tobacco purchasing and prolongation of the purchase payment-confidence problem producer/buyer;</li> <li>➤ Lower prices for the producers;</li> <li>➤ Low enforcement of the Law on Tobacco from all the parties (producers, buyers, government);</li> <li>➤ Unmotivated tobacco producers;</li> <li>➤ Banks offering rigid and unsuitable credits;</li> <li>➤ Partly employment of the tobacco processing capacities (cigarette producing);</li> <li>➤ Smuggling – well organized black market for cigarettes, functioning parallel to the actual one;</li> <li>➤ Insufficiently developed government institutions</li> </ul>

**Table 23: Opportunities and Threats of the tobacco sector in R. Macedonia (SWOT )**

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>➤ Providing government regulations for appropriate functioning of the land market and better rental distribution of the state agricultural lands;</li> <li>➤ Promoting and initialising credit lines available and suitable for the agricultural producers;</li> <li>➤ Regional stability creating a positive business environment;</li> <li>➤ Trade liberalization agreements, opportunity for further market expansion;</li> <li>➤ The abolishing of the tobacco premiums in EU, lead to lowering of the quantity produced, and at the moment open an opportunity to increase the level of production.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Changes in the consumption structure and preferences;</li> <li>➤ Aggressive campaign against smoking;</li> <li>➤ Total and partial restrictions on advertising and smoking;</li> <li>➤ Lowering of the oriental tobacco percentage in the American-blend cigarettes;</li> <li>➤ New developing countries adding up to the list of oriental tobacco producers;</li> <li>➤ Decreasing demand and price on the World market;</li> <li>➤ No law enforcement;</li> <li>➤ Damaging and worsening the structure variety and tobacco quality – losing a major comparative advantage;</li> </ul>

## Appendix

**Appendix 1: Climatic elements and areas**

**Appendix 2: Tobacco growing regions in R. M**

**Appendix 3: Balance sheet for fermented tobacco**

**Appendix 4: World biggest tobacco producing countries**

**Appendix 5: Producer prices in R.M and in some other European countries**

**Appendix 7: Data used for Indexes calculation**

**Appendix 8: Questionnaire**

**Appendix 9: The structure of tobacco support trough the years (type and amount of tobacco support in R. Macedonia)**



## Appendix 1: Climatic elements and areas

Climatic elements	AREAS													
	Skopje	Kumanovo	Kriva Palanka-Kratovo	Polog	Ohrid Struga	Kicevo	Resen	Prilep	Bitola	Makedonski Brod	Tikves Veles	Ovce Pole-Stip	Kocani Vinica	Delcevo Pehcevo
Middle annual air temperature in C°	12.0	11.8	10.1	10.9	11.1	10.7	9.6	11.2	11.2	10.5	13.4	12.6	13.0	10.6
Total annual temperature in C°	4410	4310	3720	3956	4050	3938	3513	4105	4101	3834	4935	4624	4724	3901
Total temp. in the vegetative period in C°	3123	3027	2691	2870	2780	2783	2525	2931	2943	2707	3336	3177	3163	2836
Total annual precipitation in mm	501.7	542.8	666.4	774	751	762	717	557	602	672	468	477	523	515
Total precipitation in veg. period in mm	211	238	286	235	197	227	206	222	208	218	185	198	225	250

## Appendix 2: Tobacco growing regions in R. M

Tobacco chart of the Republic of Macedonia

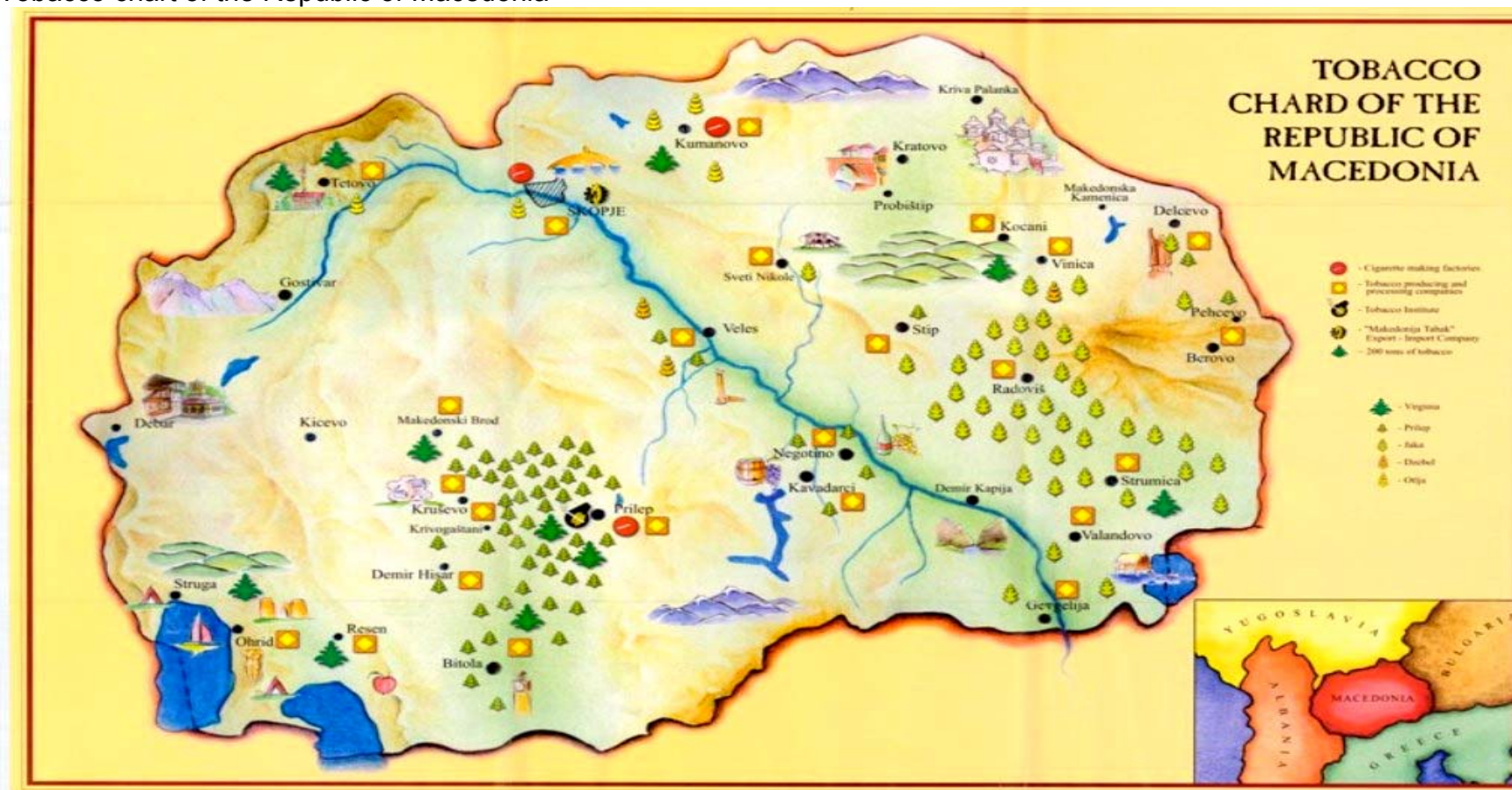


Table: 2-1. Tobacco growing regions and tobacco types in RM

North-East growing Region	Skopje Area	Jebel and Otlia
	Kumanovo Area	Jebel, Otlia , Virginia and Burley
	Kriva Palanka Area	Jebel and Prilep
Western region	Polog (Tetotovo–Gostivar) area	Virginia, Burley and Otlia (semi-Oriental) and Jabel (Oriental types)
	Ohrid–Struga and Kicevo area	Virginia, Burley and Jebel
	Debar area	Virginia, Burley and Otlia (semi-Oriental) and Jabel (Oriental types)
	Resen area	Virginia, Burley and Jebel
	Prilep	
South-West region	Bitola	
	Demir Hisar	Prilep (95%)
	Krushevo and	
	Makedonski Brod	
Central-East Region	Tikves-Veles and Ovce Pole	Prilep, Jaka and Jebel, and also Virginia and Burley
	Kocani-Vinica and	Virginia
	Delcevo-Pehcevo	Prilep
South-East Region	Gevgelija-Valandovo	Jaka
	Strumica-Radovis	Jaka and Virginia

(Source: “Tobacco chard of the Republic of Macedonia”-Tobacco Institute Prilep)

Table 2-2. Share of the tobacco types in the tobacco production in RM.

Type of tobacco	Tons	Percentage of types
Prilep	10.729	49,87%
Jaka	6.904	32,09%
Jebel	1.024	4,76%
Otlia	1.207	5,61%
Virginia	1.565	7,27%
Burley	86	0,40%
Total	21.515	100,00%

(Source: “Tobacco chard of the Republic of Macedonia”-Tobacco Institute-Prilep).

### Appendix 3: General data for R. Macedonia

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1 Population in R. M (,000)	1966	1983	1997	2008	2017	2026	2023	2020	2027	-
2 Unemployment (%) according to ILO	28,1	31,8	36,0	34,5	34,9	38,7	35,4	38,2	-	-
3 Participation of the agricultural labour force in the total labour force (according to ILO in %)	16,0	16,6	16,4	17,6	17,4	17,2	16,9	16,3	16,0	-
4 Annual average value of the euro € (in denars) – annual average (NBRM)	-	-	-	-	60,6	60,8	61,0	61,1	61,3	61,3
5 Annual average value of the euro \$ (in denars) – annual average (NBRM)	38,0	41,4	55,4	51,8	60,3	65,3	69,2	58,6	49,1	45,1

Source: 1. State Statistical Office of RM

2. NBRM (National Bank of The Republic of Macedonia)

3. ILO (International Labour Organization)

#### Appendix 4: Balance sheet for fermented tobacco

Indicator	Year										Average
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
Production	14537	12582	13414	20967	23731	24089	16997	18960	23286	14148	18271
Import	6007	5529	4000	5703	6735	4389	2660	2785	2774	2926	4351
I) Total supply	20544	18111	17414	26670	30466	28478	19657	21745	26060	17074	22622
Consumption	9140	1886	3964	3422	4483	3024	3199	3778	1351	4708	3896
Export	12371	20107	17708	13617	20011	14290	15399	17260	22455	16353	17020
II) Total demand	21511	21993	21672	17039	24494	17944	18598	21038	23806	21061	20918
<b>Balance (I-II)</b>	<b>-967</b>	<b>-3882</b>	<b>-4258</b>	<b>9631</b>	<b>5972</b>	<b>10534</b>	<b>1059</b>	<b>707</b>	<b>2254</b>	<b>-3987</b>	<b>1704</b>
<b>Balance Export - Import</b>	<b>6364</b>	<b>14578</b>	<b>173708</b>	<b>7914</b>	<b>13276</b>	<b>9901</b>	<b>12739</b>	<b>14475</b>	<b>19681</b>	<b>13427</b>	<b>12669</b>

Source: Calculation made by Prof. Mile Pesevski; The Department of Economics and Organization; Faculty of agricultural and food sciences

## Appendix 5: World biggest tobacco producing countries

Country	1995		1996		1997		1998		1999		2000	
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
<b>China</b>	2326685	37,00	3234000	43,37	4251000	48,18	2365000	34,84	2480000	35,94	2406000	36,77
<b>United States</b>	576020	9,16	688258	9,23	810154	9,18	671257	9,89	586355	8,50	453600	6,93
<b>India</b>	566700	9,01	562750	7,55	623700	7,07	633200	9,33	644600	9,34	661600	10,11
<b>Brazil</b>	455277	7,24	365900	4,91	485100	5,5	373150	5,50	498400	7,22	452150	6,91
<b>Turkey*</b>	204440	3,25	230949	3,10	302471	3,43	261890	3,86	251070	3,64	216090	3,30
<b>Zimbabwe</b>	198380	3,15	207767	2,79	192144	2,18	223997	3,30	198872	2,88	207533	3,17
<b>Others</b>	1961878	31,19	2166672	29,05	2157927	24,46	2260333	33,28	2240547	32,48	2147020	32,81
<b>World Total</b>	6289380	100,00	7456296	100,00	8822496	100,00	6788827	100,00	6899844	100,00	6543993	100,00

Source: Employment rates in the tobacco sector

## Appendix 6: Producer prices in R.M and in some other European countries

State	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average €/ton	den/kg
<b>fr France</b>	3788	3836	3959	3894	3870	4002	4180	4097	4040		3963	245,7
<b>de Germany</b>	3963	3878	3825	3974	3971	3994	3982	3465	3300	3310	3766	233,5
<b>it Italy</b>	-	-	-	-	-	-	2906	2850	2983	3040	2945	182,6
<b>mk Macedonia*</b>	<b>904</b>	<b>1142</b>	<b>1507</b>	<b>2132</b>	<b>1940</b>	<b>1686</b>	<b>1889</b>	<b>2016</b>	<b>1327</b>	<b>2016</b>	<b>1656</b>	<b>101,0</b>
<b>bg Bulgaria</b>	-	-	-	-	1507	1410	1530	1555	1552	1614	1528	94,7
<b>sk Slovakia</b>	1358	1281	1311	1207	1276	1186	1077	2367	1273	857	1319	81,8
<b>gr Grcece</b>	592	1153	1742	1548	-	-	-	-	-	-	1259	78,0
<b>hu Hungary</b>	-	-	-	1130	1117	1096	1185	1475	1014	798	1116	69,2
<b>at Austria</b>	905	878	904	932	1042	1074	1103	1103	1116	1135	1019	63,2
<b>ro Romania</b>	-	-	-	992	801	916	903	1089	957	958	945	58,6
<b>pt Portugal</b>	593	280	310	478	375	453	492	507	514	530	453	28,1
<b>es Spain</b>	188	368	512	458	521	487	487	-	-	-	432	26,8
<b>Average</b>	<b>1536</b>	<b>1602</b>	<b>1759</b>	<b>1675</b>	<b>1642</b>	<b>1630</b>	<b>1794</b>	<b>2052</b>	<b>1808</b>	<b>1584</b>	<b>1700</b>	<b>105,41</b>
<b>MAX</b>	3963	3878	3959	3974	3971	4002	4180	4097	4040	3310	3963	246
<b>MIN</b>	188	280	310	458	375	453	487	507	514	530	432	27
<b>Stdev</b>	1483	1438	1402	1286	1284	1302	1317	1141	1187	1009	1200	74
<b>Cv%</b>	96,5%	89,8%	79,7%	76,8%	78,2%	79,9%	73,4%	55,6%	65,7%	63,7%	70,6%	70,6%

Data source: Eurostat

\* Data source for the Republic of Macedonia: State Statistical office

## Appendix 7: Tobacco (export) in 000 denars by country (quantity, value and price)

Country	1996			1997			1999			2000			2001			Average Quantities	Average Values	Average Prices	Share in the total quantity (%)	Share in the total value (%)
	tons	Value	Price	tons	Value	Price	tons	Value	Price	tons	Value	Price	tons	Value	Price					
USA	6302	21698	3,44	3783	19272	5,09	4812	24975	5,19	1934	8325	4,30	2703	12709	4,70	3.906,80	17.395,80	4,55	20,67%	28,43%
Greece	5437	16468	3,03	391	1237	3,16	1642	7023	4,28	2443	7663	3,14	951	2546	2,68	2.172,80	6.987,40	3,26	11,50%	11,42%
Serbia and Montenegro	918	2673	2,91	1083	3393	3,13	1240	3441	2,78	2165	5338	2,47	2877	6921	2,41	1.656,60	4.353,20	2,74	8,77%	7,11%
Japan	606	2330	3,84	201	930	4,63	80	356	4,45	326	1281	3,93	750	2730	3,64	392,60	1.525,40	4,10	2,08%	2,49%
Italy	500	2037	4,07	1136	2847	2,51	724	3791	5,24	143	528	3,69	613	1718	2,80	623,20	2.184,20	3,66	3,30%	3,57%
Bulgaria	926	1666	1,80	334	626	1,87	-	-	-	-	-	-	-	-	-	630,00	1.146,00	1,84	3,33%	1,87%
Crotaia	531	1516	2,85	450	2261	5,02	800	4366	5,46	991	4148	4,19	163	494	3,03	587,00	2.557,00	4,11	3,11%	4,18%
Slovenia	450	1349	3,00	360	729	2,03	-	-	-	670	1715	2,56	-	-	-	493,33	1.264,33	2,53	2,61%	2,07%
Switzerland	476	1240	2,61	959	3223	3,36	651	2827	4,34	228	1068	4,68	3082	7722	2,51	1.079,20	3.216,00	3,50	5,71%	5,26%
B&H	264	942	3,57	312	1424	4,56	271	960	3,54	336	1206	3,59	3541	1023	0,29	944,80	1.111,00	3,11	5,00%	1,82%
Germany	289	869	3,01	1273	5679	4,46	1257	4766	3,79	1726	4884	2,83	834	3308	3,97	1.075,80	3.901,20	3,61	5,69%	6,38%
The Netherlands	211	849	4,02	816	3431	4,20	558	2944	5,28	-	-	-	197	646	3,28	445,50	1.967,50	4,20	2,36%	3,22%
France	245	828	3,38	152	306	2,01	170	434	2,55	141	695	4,93	8	21		143,20	456,80	3,10	0,76%	0,75%
England	307	742	2,42	-	-	-	-	-	-	-	-	-	-	-	-	307,00	742,00	2,42	1,62%	1,21%
Czech Republic	256	649	2,54	356	998	2,80	270	713	2,64	-	-	-	323	1102	3,41	301,25	865,50	2,85	1,59%	1,41%
Ukraine	450	569	1,26	-	-	-	113	249	2,20	-	-	-	194	649	3,35	252,33	489,00	2,27	1,34%	0,80%

Note: Continues on the next page



**Tobacco (export) in 000 denars by country (quantity, value and price)**

Country	1996			1997			1999			2000			2001			Average Quantites	Average Values	Average Prices	Share in the total quantity (%)	Share in the total value (%)
	tons	Value	Price	tons	Value	Price	tons	Value	Price	tons	Value	Price	tons	Value	Price					
Hungary	258	542	2,10	213	424	1,99	623	1192	1,91	136	248	1,82	252	636	2,52	296,40	608,40	2,07	1,57%	0,99%
Belgium	183	568	3,10	1072	2815	2,63	440	1143	2,60	59	118	2,00	161	367	2,28	383,00	1.002,20	2,52	2,03%	1,64%
Egypt	200	468	2,34	243	360	1,48	2226	5565	2,50	1333	3534	2,65	-	-	-	1.000,50	2.481,75	2,24	5,29%	4,06%
Austria	197	445	2,26	164	474	2,89	-	-	-	-	-	-	-	-	-	180,50	459,50	2,57	0,96%	0,75%
Russia	136	246	1,81	-	-	-	256	402	1,57	344	501	1,46	225	414	1,84	240,25	390,75	1,67	1,27%	0,64%
Poland	-	-	-	315	877	2,78	193	854	4,42	130	483	3,72	-	-	-	212,67	738,00	3,64	1,13%	1,21%
N.Korea	-	-	-	673	2194	3,26	-	-	-	-	-	-	-	-	-	673,00	2.194,00	3,26	3,56%	3,59%
Spain	-	-	-	93	555	5,97	139	753	5,42	116	585	5,04	190	967	5,09	134,50	715,00	5,38	0,71%	1,17%
Uzbekistan	-	-	-	176	359	2,04	-	-	-	-	-	-	-	-	-	176,00	359,00	2,04	0,93%	0,59%
North Korea	-	-	-	16	52	3,25	-	-	-	-	-	-	-	-	-	16,00	52,00	3,25	0,08%	0,08%
Indonesia	-	-	-	-	-	-	118	340	2,88	50	238	4,76	164	674	4,11	110,67	417,33	3,92	0,59%	0,68%
Ireland	-	-	-	-	-	-	111	-	-	100	266	2,66	-	-	-	105,50	266,00	2,66	0,56%	0,43%
Portugal	-	-	-	-	-	-	60	-	-	32	91	2,84	126	588	4,67	72,67	339,50	3,76	0,38%	0,55%
Slovakia	-	-	-	-	-	-	19	-	-	38	106	2,79	73	197	2,70	43,33	151,50	2,74	0,23%	0,25%
Taiwan	-	-	-	-	-	-	157	-	-	163	457	2,80	61	128	2,10	127,00	292,50	2,45	0,67%	0,48%
Argentina	-	-	-	-	-	-	-	-	-	79	459	5,81	-	-	-	79,00	459,00	5,81	0,42%	0,75%
Iran	-	-	-	-	-	-	-	-	-	37	104	2,81	-	-	-	37,00	104,00	2,81	0,20%	0,17%
Total	21138	58694	2,78	16568	54466	3,29	18929	67094	3,54	15720	44041	2,80	19489	45560	2,34	18.899,40	61.192,77	2,95	100,00%	100,00%

## Appendix 8: Data used for Indexes calculation

Table 8-1. Data on tobacco production in various countries (oriental tobacco producers) used in the Balassa indexes calculations

	Year					
	1998	1999	2000	2001	2002	2003
World Agricult.Products,Total Exports - Val (1000\$)	438240578	417198260	411995703	413644373	442288965	523884525
World Tobacco Exports - Val (1000\$)	24571882	22126032	22341908	20728555	20374412	21662819
Greece Agricult.Products,Total Exports - Val (1000\$)	435056,00	503295,00	432131,00	323824,00	360092,00	46924,00
Greece Tobacco Exports - Val (1000\$)	2979153,00	3015795,00	2577316,00	2414245,00	2517404,00	2973361,00
Bulgaria Tobacco Exports - Val (1000\$)	110,39	90,26	73,06	65,72	62,37	75,41
Bulgaria Agricult.Products,Total ; Exports - Val (1000\$)	704,48	609,45	472,37	583,60	733,43	799,00
Turkey Tobacco Exports - Val (1000\$)	58716	561955	491419	435367	367114	418643
Turkey Agricult.Products,Total Exports - Val (1000\$)	4788051	4209740	3620538	4093693	3476769	4830543
R. Macedonia Agricult.Products,Total Export- Val (1000\$)	281841	244381	234200	212078	264497	295367
Tobacco(R. Macedonia)Export (USA \$)	80482	112986	85115	74966	76215	81325

Source: FAO data

Table 8-2. Calculation for tobacco production costs  
PRODUCTION COST for Tobacco (Type Prilep)

				Capacity(ha)		0,7
Main product	Total production	Unit measure	Den/unit measure	Total	In total per kg	Income Structure(%)
Dry tobacco	1062	kg	123,34	131987	188553	100
Total income				131987	188553	100

1.VARIABLE COSTS	Labor cost	Mechanisation	Materials	Total	Total / ha	Structure of costs (%)
Deep ploughing		5600		5600	8000	5,41
Furrow preparation				0	0	0
Sowing and coverage with plastic material	1240			1240	1771	1,2
Material used for coverage			1500	1500	2143	1,45
Fertilizers			1000	1000	1429	0,97
Weeding and watering	4500			4500	6429	4,35
Picking up seedlings	4040			4040	5771	3,91
Mechanized seedling planting and ploughing				2800	4000	2,71
Workers for seedling planting	3240			3240	4629	3,13
Seedling treatment	3780			3780	5400	3,65
Total preparation of the production				27700	39571	26,78
Tobacco leaf harvesting(picking)	15920					15,39
Lining up tobacco on a string	27440					26,53
Cutting of the string, tying and hooeking the tobacco	3360					3,25
String for tobacco lining up						0,87
Plastic material for the drying construction						1,64
In total for tobacco harvesting						47,69
Manipulation	18260			18260	26086	17,66
Land leasing				0	0	0
Water costs				0	0	0
Interest on capital				0	0	0
Insurance and membership costs				4620	6600	4,47
Other costs in total				22880	32686	22,12
Total variable costs				99900	142714	96,59
Total income minus variable costs				32087	45838	

2. FIXED COSTS	Total	Total / ha	Structure of costs (%)
Insurance of basic assets	0	0	0
Amortization of basic assets	2133	3047	2,06
Interest on basic assets	0	0	0
Taxes	300	429	0,29
Other fixed costs	1560	1560	1,06

<b>Total fixed costs</b>	<b>3993</b>	<b>5036</b>	<b>3,41</b>
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<b>TOTAL COSTS (1+2)</b>	103893	147750	100
<b>Gross income minus the total costs</b>	28094	40803	

Marginal price in the total variable costs	94,11
Marginal price in total costs	97,43

Source: Department of Economics and Organization – Faculty of Food and Agricultural sciences; 2004.

Note: This calculation is used as a base for the Production cost analysis-sheet for tobacco in calculating the comparative advantage indexes (DRC, NPC, EPC).

**Table 8-3: Production cost analysis: Calculation sheet for tobacco**

LOCATION	National		
CROP	Tobacco		
CURRENCY	Macedonian denar		
YEAR OF PRICES	2004		
YIELD Tobacco	1,517.14	kg/ha	
EXCHANGE RATES	61.29	Denars/\$	
OUTPUT PRICES	Market	Domestic Prices	Units
Farm gate	Aquis. Price	124.34	Denars/kg
Export parity price - farm gate	fob	185.40	Denars/kg grain
ECONOMIC AND FINANCIAL ANALYSIS			
ANALYSIS OF PRIVATE PROFITABILITY			
Private Output Price	Pf	124,34	
Private Value of Tradable Inputs	Ef	4,80	
Private Value Added	VAf = Pf - Ef	119,54	
II Total Value of Non-Tradable Factors	VNf	93	
	per tonne BFN = VAf - VNf	26,95	
	per hectare BFH = BFN x R	40.890	
ANALYSIS OF SOCIAL PROFITABILITY			
Adjusted Border Price (social output price)	Ps	185,40	
Social Value of Tradable Inputs	Es	4,80	
Social Value Added	VAs	180,60	
Social Value of Non-Tradable Inputs	VNs	92,59	
Gross Social Profitability			
	per ton BEN = VAs-Vns	88,01	
COMPARATIVE ADVANTAGE ANALYSIS (DRC, NPC and EPC indexes)			
PROTECTION COEFFICIENTS			
NOMINAL PROTECTION on PRODUCT (NPC)			
	NPCp =	Pf/Ps	0,67
EFFECTIVE PROTECTION COEFFICIENT (EPC)			
	EPC =	VAf/VAs	0,66
DOMESTIC RESOURCE COST (DRC) Ratio			
	DRC=	VNs/VAs	0,51

Table 8-4. Detailed structure of the production costs

								INDIRECT		
	UNIT		UNIT	Private	Private	Private	Private	TX/SUBSY		SOCIAL
	UNITS	PRICE	COST	PAYMENT	TBLS	NTBLS	COST	TBLS	NTBLS	COST
TRADABLE COSTS										
Chemicals	Den/ha	1,429.00	1,429.00	1,429.00	0.00	0.00	1,429.00	0.00	0.00	1,429.00
Plastic material for coverage	Den/ha	2,143.00	2,143.00	2,143.00	0.00	0.00	2,143.00	0.00	0.00	2,143.00
Plastic material for trestel	Den/ha	1,286.00	1,286.00	1,286.00	0.00	0.00	1,286.00	0.00	0.00	1,286.00
Total Tradable Costs	Den/ha	2,429.00	2,429.00	2,429.00	0.00	0.00	2,429.00	0.00	0.00	2,429.00
Rope for tobacco lining	Den/ha	7,287.00	7,287.00	7,287.00	0.00	0.00	7,287.00	0.00	0.00	7,287.00
NON-TRADABLE COSTS										
Labour	Den/ha	116,829	116,829	116,829	0.00	0.00	116,829	0.00	0.00	116,829
Social Contributions(fees and taxes)	Den/ha	429	429	429	0.00	0.00	429	0.00	0.00	429
Depreciation	Den/ha	3,047	3,047	3,047	0.00	0.00	3,047	0.00	0.00	3,047
Insurance and membership	Den/ha	8,160	8,160	8,160	0.00	0.00	8,160	0.00	0.00	8,160
Land and machinery	Den/ha	12,000	12,000	12,000	0.00	0.00	12,000	0.00	0.00	12,000
Total Non-tradable Costs	Den/ha	140,465	140,465	140,465			140,465	0.00	0.00	140,465
TOTAL COSTS										
		147,752.0	147,752.00	147.752,00	0.00	0.00	147.752,00	0.00	0.00	147.752,00



## Appendix 9: Questionnaire

- 1. Which are the competitive elements in the Macedonian tobacco production?**
  - 1. 1. How does the quality of the Macedonian tobacco affect its competitiveness towards the other countries producing the same type of tobacco?**
- 2. Which countries are the biggest competitors of the Macedonian tobacco production?**
  - 2. 1. Whether, and in what degree these countries increase their competitiveness with the aid the help they get from the European Union?**
- 3. In which way and form the primary producer unions' function?**
- 4. How big is the influence of the institutions that affect the activities of the primary producers' production improvement (productivity, profitability, information flow for the news and happenings in the markets for tobacco and tobacco products).**
- 5. Are there organizations for the firms purchasing tobacco, and is there any connection and feed back link to the primary producers?**
- 6. How big is the government's role in the tobacco industry?**
- 7. What effect would government support have on tobacco production?**
- 8. How do you evaluate the credit policy in R. Macedonia (in the agriculture) and can farmers use some kind of credit lines?**
- 9. Do you consider tobacco growing as profitable and attractive for the farmers?**
- 10. Your opinion on the new European regulative towards tobacco, and the influence it would have on the primary producers and tobacco purchasing companies?**
- 11. Which reasons cause competitiveness decrease of the tobacco and the tobacco products?**
- 12. Your opinion and suggestions. What should be done for improving Macedonia's tobacco and cigarette competitiveness?**
- 13. What do you think should be done in the future, when EU regulative will require reducing tobacco production? What will be a logical, alternative tobacco replacement?**



## Appendix 10: The structure of tobacco support trough the years (type and amount of tobacco support in R. Macedonia)

Year	Type of support	Amount
1995	<b>Protected price</b> is granted (small leaf oriental row tobacco); price of 74 den per kg is referred only to the small leaf oriental row tobacco, and if quantities of 15,000 tones	average amount of 82 den per kg
1996	<b>Protected price</b> (for small le oriental row tobacco)	average amount of 82 den per kg
1997	<b>Protected price</b> (for small leaf oriental row tobacco)	average amount of 82 den per kg
1998	Production of quality seed for big leaf tobacco types (Virginia and Burley)	1,000,000 den
	Implementation of the Program for tobacco disease, pest and weed protection for 1998 year and its field application	1,500,000 den
	Forming a laboratory for tissue culture (in vitro)	2,500,000 den;
	Total	<b>5,000,000 den</b>
	Decision for the quantities of row tobacco that were going to be produced in 1998 year: - Total Oriental <b>24,965 toni</b> (Jaka-9,605t; Dzebel-922t; Prilep-14,438t); - Total Semi-Oriental (Otlja) <b>1,565toni</b> ; - Total big leaf tobacco 3,387 toni (Virginia 3,387t; Berley 136t)	
	<b>Protected price</b> (for small leaf oriental row tobacco in leaves from the yield 1998)	average of 106 den/ha
1999	Regionalization and micro-regionalization (in case of irrigation and dry conditions), of the existing and acknowledged oriental types of tobacco and introducing the newly created types of tobacco in the tobacco producing regions in the Republic of Macedonia.	1,500,000 den
	Financial support of the Program for tobacco disease, pest and weed protection	2,000,000 den
	Equipment to complete the laboratory for tissue culture (in vitro)	2,000,000 den;
	Total	<b>5,500,000 den</b>
	<b>Protected price</b> (for small leaf oriental row tobacco from the yield of 1999)	111den/ha
2000	Financial support of the Program for tobacco disease, pest and weed protection	1,500,000 den
	Systematic control of tobacco soils fertility in the Republic of Macedonia	2,000,000 den
	Regionalization and micro-regionalization (in case of irrigation and dry conditions), of the existing and acknowledged oriental types of tobacco and introducing the newly created types of tobacco in the tobacco producing regions in the Republic of Macedonia.	1,500,000 den
	For confirming the identity of the acknowledged oriental types-Jaka type	1,000,000 den
	Total	<b>6,000,000 den</b>
	<b>Protected price</b> (for small leafed oriental row tobacco from the yield of 1999)	111den/ha
2001	Resources are assigned for one time un-returnable aid for the individual agricultural tobacco producers, tobacco produced in 2001 for tobacco purchasing - 15 den/kg	329,108,911 den
		315,660,000 den

2002	Resources are assigned for one time un-returnable aid for the individual agricultural tobacco producers, tobacco produced in 2001 for tobacco purchasing - 15 den/kg (subvention quantities of row tobacco are around 21,044 tones -yield of 2001 year) Control of tobacco buy-out through the agricultural associations	315,660,000 den
2002	Resources are assigned for tobacco soils-fertility aid for the individual agricultural tobacco producers, tobacco produced in 2001 for tobacco purchasing - 15 den/kg (subvention quantities of row tobacco are around 21,044 tones -yield of 2001 year) Control of tobacco buy-out through the agricultural associations	500,000 den
2003	Supporting the project (subvention quantities of row tobacco are around 21,044 tones -yield of 2001 year) Control of tobacco buy-out through the agricultural associations	550,000,000 den
	Financial resources for purchasing the tobacco from the individual agricultural producers-15 den/kg (subvention quantities 27,389 tones)	410,835,000 den
		69,667,978.10 den
		20,900,329.29 den
		6,966,798.40 den
		41,800,784.10 den

Source: Official Gazette 1995-2004

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