

# Competitiveness analysis of the tobacco sub-sector in the Republic of Macedonia

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## ABSTRACT

Tobacco production has a long tradition in R. Macedonia. It is an industrial crop with over 70% share in the total industrial crops area, and an average share of some 30%, in total agricultural export. As a labor intensive crop, it provides employment for the rural population and presents a social buffer for the economy and the current high unemployment rate in the country. The aggressive policies against smoking propose reduction of tobacco production, thus solution for its replacement ought to be considered for the tobacco producers in the country. The aim of this research is to investigate the competitiveness of the tobacco sector in the country based on the Porter Diamond competitiveness approach, complemented with the Ballasa index of comparative advantage. Based on the prevailing positive aspects in the competitiveness model, and the high values of the index ranging from seven to over nine for the period 2005-2010; much higher compared to selected countries in the region (Greece, Bulgaria, Turkey), our findings confirm that the country has favorable conditions and competitive advantage for producing tobacco.

**Key words:** Ballasa index, competitive advantage, competitiveness, tobacco, Porter Diamond.

## INTRODUCTION

Tobacco production is an economic activity, which includes agricultural production of tobacco, processing and production of tobacco products. The farmers all over the world find incentives for growing tobacco because the: relative stability of the world demand for tobacco in the past years, the product's easy transportation, its un-perishable nature and higher profit realization when compared to other crops. Along with other specific conditions, tobacco growing is attractive for most farmers in the developing regions or in regions where farmers cannot afford to invest in similar crops which do not assure the same results. The biggest threat to the tobacco industry is the current tobacco control strategy, which continually suggests decreasing of the demand for cigarettes, because of health

implications.

Tobacco production or more specifically the Oriental types of tobacco has a long production tradition in the R. Macedonia. Besides the fact that tobacco is a labor intensive culture, it is also significant because of the use of lower quality (least marginal) lands that are not suitable for other agricultural production, or will have lower economic effects otherwise. Tobacco is one of the most important industrial crops for the country, with approximately 70% of the areas planted with industrial crops, and an average share of around 30%, in total agricultural export. Based on FAO data, the Macedonian production of tobacco in tones would represent over 11% of the total EU tobacco production. Providing income to a great number of households, there is no other crop offering equivalent

employment for the population in the Macedonian rural regions. It is also 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 agricultural product that generates significant earnings for the agriculture and the economy in general.

According to FAO ranking, our country is ranked on the 25th place on the list of biggest tobacco producers (quantity) in 2010 (the last available year in the FAO data base), which is five positions up on the list compared to 2004. China is the biggest world tobacco producer, Turkey is ranked 17th, Bulgaria is on the 20th and Greece is ranked 30th on the same list.

## MATERIAL AND METHODS

This research examines the Macedonian tobacco industry, its comparative advantages and disadvantages. It describes the tobacco market structure in the last decade. Both qualitative and a quantitative analyses were included in determining the competitiveness of the tobacco sector in the country. The qualitative analysis and all the other necessary determinants were preformed, mainly using the competitiveness approach developed by Porter (Porter's diamond). Determining country's position regarding the competitiveness of this industry, comparison differences in the factor endowments and product quality was tested to several neighboring and EU tobacco producing countries. The research mainly concerns oriental tobacco types, as it is the major type of tobacco produced in the country.

Competitiveness is of importance for every government, nation and industry. Our conceptual framework discusses and presents Porter's diamond in answering why some nations succeed and other fall short in the international competition of certain products (Porter, 1990). Significant principle in trade theory is that of comparative advantage. In Ricardo's theory, trade is based on the differences of the labour productivity between nations. According to his concept, a country has a comparative advantage in producing a good, compared to other countries or the rest of the world, if the relative cost of producing the good is lower than it is in the compared countries. Or in other words comparative advantage is seen in the differences in technological efficiency. On the other hand, Heckscher and Ohlin

take cross-country variations in relative factor endowments to be central in shaping the patterns of trade; or, all nations have equivalent technology but differ in their endowments (factors of production-land, labor, natural resources and capital) (Porter, 1990). Regardless of the differences in understanding the concept of comparative advantage, it is generally agreed that both relative and absolute advantages are necessary for trade.

Competition is dynamically changing concept in which new products, new ways of marketing, new production processes, and whole new market segments emerge. 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. On micro level, competitiveness specify how firms compete on international markets, and in this respect, it is first necessary to relate them to their environment. In order to maintain advantage, firms must achieve complex competitive advantage over time, through providing higher-quality products and services or more efficient production. Many forces inside and outside the industry are influencing the firms in the industry, and determining them is of great importance. Furthermore, competition and competitiveness in a certain industry is depending highly on the five basic forces detail described by Porter (Porter, 2004).

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 (Porter, 1990). No nation can be competitive in every aspect because human and other resources are limited. The ideal is that these resources should be deployed in the most productive uses possible. In Porter's view, nations are most likely to succeed in industries or industry segment, in cases where the national "diamond" (the determinants of national advantage connected as a system), is the most favorable). Namely, the "diamond" is considered to be a system in which the role of any determinant cannot be isolated and the effect of one determinant is closely dependent on the state and stage of the others.

The functioning patterns of the "diamond" can be achieved by closely screening of the industry over a certain period, and in that way getting an understanding of the process by which it achieves and maintains international success. (Porter 1990).

We use this approach as a model on which we build the quantitative outline. 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, as well as two external determinants: government and chance).

All nations have some attractive factor pools that have ever been deployed in the appropriate industries or have been used rather poorly. Factor conditions consider arable land, natural resources, labor skills, and its advanced factors knowledge resources, infrastructure, capital necessary to compete in a given industry. 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. 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. Firm strategy, structure and rivalry is a part which describes the conditions in the nation, or the way of how companies are created, organized and managed, and the nature of domestic rivalry.

The rivalry is very important in the global competition if successful firms compete energetically at home and pressure each other to improve and innovate. Related and supported industries express how 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. Two additional variables might 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 (Porter, 1990). Government can influence the competitiveness and the national advantage at all levels. For example, antitrust policy, regulation which alter domestic conditions, investments in education, government purchases, subsidies etc. Chance is an event which is usually outside control of the firms (and usually the nation's government). For example break-through technologies, wars, external political developments, crisis and shifts in foreign market demand. Chance has played an important role in shifting competitive advantage in many industries.

This model is complemented by calculating the Ballasa index as one of the comparative advantage indexes (Hinloopen, Marrewijk, 2001). These indexes enable estimation of benefits independent of all market distortions, caused by interventions in the market, regulations, and protection and taxation regimes. It is an index of revealed comparative advantage, and the most frequently used measure of comparative advantage. Given a group of reference countries, this Index basically measures the normalized export shares, where the normalization is with respect to the exports of the same industry in the World, European Union or group of reference countries.

$$BI = \frac{X_{RM}^{tobacco\ exports} / Y_{RM}^{export\ agriculture}}{X_{world}^{tobacco\ exports} / Y_{world}^{export\ agriculture}}$$

In this research, we used the World tobacco exports as reference for comparison, which was then compared to the same indexes of selected countries in the region: Greece and Bulgaria (EU countries and producers of tobacco) and Turkey as large producer of tobacco in the region. If the Balassa index has higher values than 1, than it considered 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.

## RESULTS AND DISCUSSION

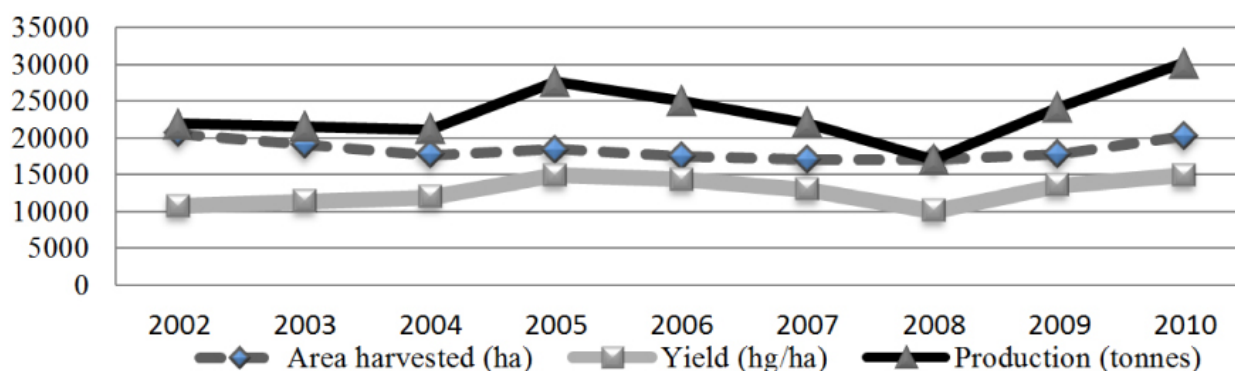
### *Competitiveness of tobacco in R. Macedonia*

Factor condition and farm structure - 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. The country has favorable soil and climatic conditions 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 often grown in poorer soils and in areas with higher aridity. It is known by their

high aroma from the small leaves, being low in both sugar and nicotine. Many of the world largest cigarette manufacturers use this tobacco to enrich the aroma and quality of their cigarettes. The Oriental tobacco types grown in Macedonia are Prilep, Jaka and Jebel and each of them is characterized with specific smoking taste. Tobacco growing in the Republic of Macedonia is divided on several growing regions and areas, with Pelagonia and South-East region as the major producing regions in the country (AAR, 2011). The harvested leaves are mostly sun-cured and the characteristic golden-yellow leaf is widely famous for its quality characteristics.

The annual tobacco production in the country is 23.449 tons on average (in the period from 2002-2010) and it varies depending on the natural conditions and the price for tobacco purchasing set by the tobacco companies. Larger drop of values to 17.087 tons was experienced in the period coinciding with the world crisis in 2008, and a maximum of 30.280 tons was seen in 2010. The total harvested areas were stable during the same period (see the graph below).

Concerning the human resources aspect, tobacco is a labor intensive crop which is produced generally by rural family enterprises. It is rarely that other agricultural crop could create as much employment per hectare of cultivated land as tobacco. Having in mind the country's high rate of unemployment (31, 8% in 2011); it logically emerges as an important source for employment and income for the primary agricultural producers. The tobacco production acts as a social buffer engaging around 30.000 agricultural households in the primary production and approximately 4.000 employees in the tobacco manufacturing. The unfavorable side of this aspect is the tradition which ties the tobacco farmers to this type of production, because of lack of alternative skills for pre-orienting, even when there are bad market conditions and active campaign to reduce tobacco production.



**Graph: Harvested area, yield and total production of tobacco in R. Macedonia (2002-2010)**

Source: FAO (<http://faostat.fao.org/>)

Related and supporting industries - There is a traditionally well-organized network consistency of tobacco producers (farmers), eight registered companies buying raw tobacco and tobacco processing facilities (cigarette factories), well developed tobacco institute and other related institutions. The purchasers had signed contracts for production and purchase of tobacco with 33.234 producers for the 2011 harvest (AMIS, 2011).

The law on Tobacco (Chapter II and III, 2006) defines the details regarding the tobacco primary

production and contracting terms. This includes the conditions for 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. Generally the traditionally experienced problems between the participants in the industry (especially in the farmer/processor part) are showing positive development and one of the reasons is

the increasing governmental support in the last five year period.

*Demand and governance support* - The total tobacco production (99%) is oriented towards the requirements of multinational companies, registered firms for purchase of raw tobacco of (AAR, 2011). Both the rise of the price per kg of tobacco and the adequately rising subsidies, are thought to have positive influence on the production and the rela-

tion between the farmers and processors. It is our opinion that the governmental support is majorly a social measure, since in accordance to WHO's campaign, it is imperative to think about adequate replacement for this crop in the near future.

Tobacco has the higher participation in the total agricultural exports, and one of the few agricultural products with positive trade balance (table 2.). It is worth mentioning that the long existent problem with the well developed black market for cigarette

**Table 1: Demand and prices for purchased tobacco**

Year	Purchased quantity (tones)	Value (in 000 MKD)	Price per kg (in EUR)	Subsidies for purchased tobacco (EUR /kg)
2007	20.522	38.613	1,88	0,49
2008	16.630	40.772	2,45	0,73
2009	20.592	66.822	3,25	0,98
2010	26.212	58.353	2,27	0,98
2011	21.024	56.324	2,68	0,98

Source: SSO, 2011; AAR, 2011

trade is not as expressed, as it was the during first period of the country's transition. The incentives for such illegal activities emerged as a consequence of the uneven tax in the different neighboring countries, leading to differences in the retail prices for cigarettes.

For the purpose of this research, the significance of tobacco's export is determined through the Ballasa index, which was calculated in comparison to the world exports of tobacco. During the period from 2005 to 2008, this index expressed much higher val-

ues than 1 (from six to over nine), and much higher values than the countries which were taken as reference: Bulgaria, Turkey and Greece (note: all of the reference countries are larger in size and tobacco production). The latest data available was for 2008, and there was no data available for 2007.

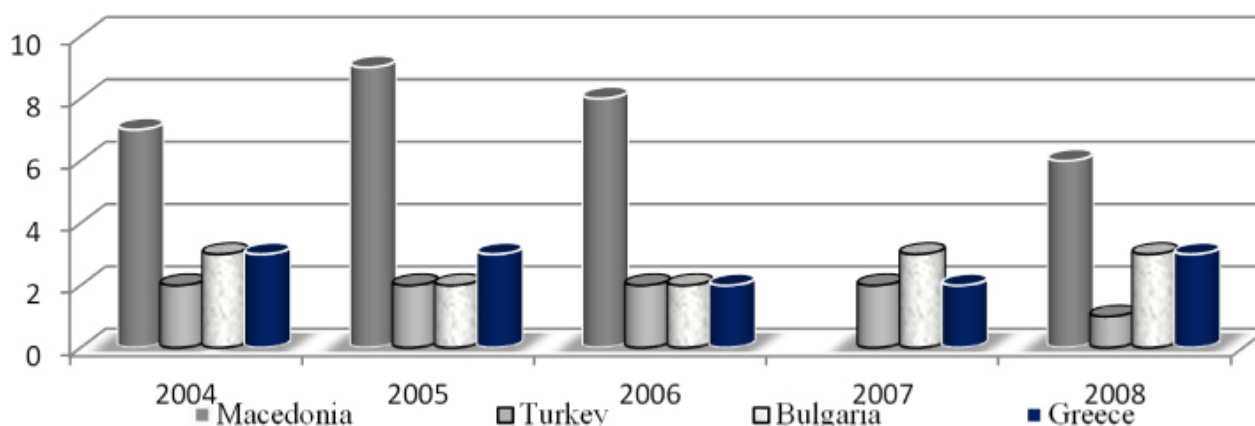
### *SWOT summary*

Based on the presented information for the industry, we summarize the discussion in the form

**Table 2: Tobacco trade balance for 2011**

Tobacco and substitute products	Export			Import			Trade balance
	Quantity (tones)	Value in 1000 €	Participat. %	Quantity (tones)	Value in 1000 €	Participat. %	Value in 000 €
	26.377	111.239	23,74	5.474	21.523	3,47	89.716

Source: AAR, 2011



**Figure: The Ballasa indexes for tobacco exports (R. Macedonia compared to countries in the region);**  
**Source: Own calculations based on FAO data**

of SWOT analysis. This is done in order to have a clear perception on the proportion of the present strengths and weaknesses of the tobacco sub-sector in R. Macedonia. It is evident that the list of strengths is far longer than the list with existent weaknesses, and we can conclude that the qualitative indicator expresses competitiveness and comparative advantage of the tobacco industry in R. Macedonia. The SWOT analysis is presented in the following section:

#### **STRENGTHS**

- High quality oriental tobacco;
- Relatively cheap labor force;
- Experience and tradition in producing tobacco;
- Favorable climatic and soil conditions;
- Well developed and established network of primary producers, firms buying tobacco and processors; Organized buying process and established capacities for tobacco fermentation
- Production process regulated with contracts between the tobacco producers and the firms;
- Relatively satisfactory prices for raw tobacco and government subsidies.
- An export-oriented product, which generate income for the Macedonian economy.

#### **WEAKNESSES**

- Small farm size – low chance for application of mechanized processes;

- Tradition - lack of alternative skills for pre-orienting, even when there are bad market conditions and active campaign to reduce tobacco production;
- Not yet an alternative solution or a crop that would have the same economic and social effect
- No willingness to accept changes;
- Lack of future management strategy and market information;

#### **OPPORTUNITIES**

- Continuity in government subsidies;
- Gradually introducing substitute crops with similar socio - economic effect.
- Bilateral trade agreements, opportunity for further market expansion;

#### **THREATS**

- Changes in the consumption structure and preferences;
- Aggressive campaign against smoking;
- Restriction of smoking in public areas;
- Total and partial restrictions on advertising and smoking;
- Imminent increase in tobacco products taxes;
- Decreasing demand and price on the world market;

#### **CONCLUSIONS**

Based on the qualitative and quantitative analy-

sis we can conclude that the country's tobacco sub-sector and industry in general has comparative advantage and is competitive. Our analysis indicates that there are favorable conditions for tobacco production, regarding all aspects in the Porter's diamond model, necessary for achieving competitiveness on the EU and world markets. Favorable factor endowments, the evident improvements in the overall tobacco supply chain and the assistance by the legal and supporting institutions are only few of the comparative advantages of tobacco in R. Macedonia. Tobacco is the most important crop in the agriculture sector, providing essential income source for significant number of agricultural households. It is also an essential source of government revenues, with the highest participation in the total agricultural exports (23, 74%). The comparative advantage of this crop was also confirmed by the Ballasa index calculations, with twice higher values (from 6 to 9), in comparison to the most significant producers of tobacco in the region; countries much bigger in size and in production of tobacco. Accordingly, being a small country Macedonia can be satisfied with its positions on the World markets, both in the total production of tobacco, and in total value of tobacco exports.

Nonetheless, tobacco is also one of the most controversial agricultural crops. There is an actively ongoing world campaign for reducing or eliminating smoking, and reducing of tobacco production is imminent. Accordingly, we consider the constant increase of subsidies for this crop in the country as a paradoxical governmental decision with purely socio - economic purpose. In our opinion, it is imperative to think about tobacco's adequate replacement in the near future, and begin with gradual introducing of substitute crops with similar socio - economic effect.

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## Analiza konkurentnosti u duhanskom podsektoru u Republici Makedoniji

### SAŽETAK

Proizvodnja duhana ima dugu tradiciju u Republici Makedoniji. To je industrijska biljka s preko 70% udjela na ukupnom broju površina pod industrijskim i s prosječnim udjelom od oko 30% u ukupnom izvozu poljoprivrednih proizvoda. Kao zahtjevna biljka, osigurava posao ruralnoj populaciji i daje socijalnu zaštitu ekonomiji i trenutnoj visokoj stopi nezaposlenosti u zemlji. Agresivne kampanje protiv pušenja predlažu smanjenje proizvodnje duhana, stoga bi se trebalo pronaći rješenje čime bi ga proizvođači duhana u zemlji mogli zamijeniti. Cilj ovoga istraživanja bilo je istražiti konkurentnost duhanskog sektora u zemlji analizom konkurentnosti pomoću Porter Diamondovog modela, nadopunjenog Ballasa indeksom komparativnih prednosti. Na temelju prevladavajućih pozitivnih aspekata u modelu konkurentnosti visoke vrijednosti indeksa su u rasponu od sedam do preko devet za razdoblje od 2005.-2010.; puno više, ako se usporedi s nekim zemljama u regiji (Grčka, Bugarska, Turska). Naši rezultati potvrđuju da zemlja ima povoljne uvjete i kompetitivne prednosti za proizvodnju duhana.

**Ključne riječi:** Ballasa indeks, kompetitivne prednosti, konkurentnost, duhan, Porter Diamond