

# Competitiveness of Mediterranean Countries in the Olive Oil Market

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## 1. Introduction

Olive and olive oil production, which is widespread throughout the Mediterranean region, plays an important social, economic and environmental role in producing countries. The European Union (EU) is the major producer of olive oil in the world. Worldwide, olive oil production averages 2.7 million tons, of which 76.6% comes from the EU. The other main olive oil-producing countries are Tunisia (172,000 tons) and Turkey (118,800 tons) (IOOC, 2009).

Consumption of olive oil is concentrated in the producing countries. In 2007-2008, consumption in the EU was 1.9 million tons (69.9% of the world's consumption). Apart from the EU, major olive oil consumers are Syria (4.1%), Turkey (2.2%), Morocco (2.1%), and Tunisia (1.6%). With consumption now totalling 246,000 tons in 2007-2008, the USA have become the world's second biggest market in olive oil. There were also appreciable rises in the markets of Australia, Japan, Canada and Brazil, with annual consumption in these countries ranging from 21,000 to 40,000 tons (IOOC, 2009).

Although consumption of olive oil has steadily risen in recent years, production has continued to exceed the demand. Thus, trade has become an important feature of the

## Abstract

This study employs constant market share analysis to determine the competitiveness of Turkey, Spain, Italy, Greece and Tunisia, i.e. the world's primary olive oil producers, in markets in the USA, Australia, Canada, Brazil and Japan in the periods 2000-2004 and 2005-2008. The analysis shows that during the periods covered, Tunisia was the most competitive in the target markets. All countries showed decreased competitiveness during the periods analyzed. In the same period, although Greek export to target markets has increased, the competitiveness of Greece was adversely affected due to a decrease in its market share. The success in achieving sustainable and permanent international competitiveness in the olive oil market depends on production, organization and trade policies. Especially for Turkey, export strategies that consider the consumer demands and expectations in the destination markets should be developed. Finally, Turkey should introduce a new image for its national production.

**Keywords:** constant market share, export performance, international competitiveness, olive oil.

## Résumé

*Cette étude emploie l'analyse de la part de marché constante pour déterminer la compétitivité de Turquie, Espagne, Italie, Grèce et Tunisie, qui sont les principaux pays producteurs d'huile d'olives de par le monde, sur les marchés aux USA, en Australie, au Canada, au Brésil et au Japon dans les périodes 2000-2004 et 2005-2008. L'analyse montre que pendant les périodes couvertes, la Tunisie était le pays plus compétitif sur les marchés cibles. Tous les pays ont diminué leur compétitivité dans les périodes analysées. Dans la même période, bien que l'exportation grecque ait augmenté pour atteindre les marchés internationaux, la compétitivité de la Grèce a été défavorablement affectée par la diminution de sa part de marché. Réussir à être compétitif à l'échelle internationale de manière durable et permanente sur le marché de l'huile d'olive dépend de la production, de l'organisation et des politiques commerciales. Surtout dans le cas de la Turquie, les stratégies d'exportation qui considèrent les besoins et les attentes des consommateurs dans les marchés de destination devraient être développées. Enfin, la Turquie devrait mettre au point une nouvelle image pour mieux mettre en valeur sa production nationale.*

**Mots clés :** part de marché constante, performance d'exportation, compétitivité internationale, huile d'olive.

international olive oil market. The EU accounts for 55.0% of the world's olive oil exports. Other major exporters are Tunisia (21.0%), Turkey (9.6%), Syria (5.3%) and Morocco (2.6%), while the main importers include the USA (36.3%), Australia (5.0%), Japan (4.9%), Canada (4.7%) and Brazil (4.6%) (IOOC, 2009).

Production, consumption and trade figures considerably vary from one year to another in response to developments in the dominant EU market. Moreover, in recent years, increases in both the global supply of and the demand for olive oil have occurred. These developments in supply and demand necessitate a more active export policy in the future, in order to expand the product and diversify exports outside the traditional markets. Thus, Turkey must permanently adjust its political strategies pertaining to

olive oil and implement measures for competition, so as to take advantage of new opportunities arising from free trade. The main objective of such changes is to cope with competition from Spain, Italy and Greece, to increase Turkey's share of olive oil sales in traditional markets, and also to have a market share in the new potential markets, such as the USA, Canada, Japan, Australia, and Brazil. Therefore the objective of this article is to analyze the export performance of Turkey and its competitors Spain, Italy, Greece, and Tunisia in the new potential markets and to i-

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identify the factors responsible for the observed pattern of competitiveness of Turkey and its main competitors. The constant market share analysis (CMS) is used to assess the export performances of countries. Export performance is captured by the changes in market shares of each country's export value in the total import value of its major trading partners (in this case, the USA, Canada, Australia, Japan and Brazil).

CMS analysis is a frequently employed technique in studies of export growth and performance. Using this approach, export growth is ascribed to either structural or competitive forces. The method is easy to apply and has, at least initially, some intuitive appeal (Richardson, 1971a, b). Although this model lacks the ability to provide detailed explanations as to why exports increased the way they did, it is useful in numerically splitting the past export growth into different components. In particular, the model also helps to identify where to look for explanations.

This paper is meant to provide a traditional CMS analysis because of the usefulness of separating and quantifying the contribution of a country's trade pattern (market and product composition) to trade performance as well as qualifying the contribution of other factors. There has been little work conducted on the development of quantitative tools with which to evaluate the Turkish olive oil sector's competitiveness (Abay *et al.*, 2008; Turkekul *et al.*, 2007). The dynamic changes in the world market for olive oil call for the development of better tools that can assist decision makers in making the agricultural policy. The contribution of this study is that it assesses the export performances of not only Turkey, but also individual EU countries and Tunisia.

This paper is structured as follows; Section 1 reviews the problem statement and the objective of the study. Sections 2 and 3 give an overview of the data and CMS analysis; Section 4 presents the empirical findings, and finally, Section 5 offers policy implications and concludes.

## 2. Data

The data are obtained from an international trade statistics database produced by the United Nations (UN) Statistical Office. International trade statistics is constructed from trade data that each country reports to the UN Statistical Office. The data contain annual export and import values organized by country and product. The import values are based on the Standard International Trade Classification (SITC) and provide data at the total and 1- to 4-digit SITC levels. The olive oil considered was virgin oil at the 4-digit level. The data are from the 2000-2008 periods, by country.

Markets are determined according to growth rates in consumption and market potential. The growth in the USA, Canada, Australia, Japan and Brazil's olive oil

imports is five-fold during the period concerned. The average annual growth in these countries' import value is 2.2%.

Spain, Italy and Greece are chosen as competitor countries because of the EU's dominant role in olive oil markets. The EU policy changes that affect the EU's olive oil production, prices and trade have important effects on other producing countries. Tunisia is chosen due to its position in olive oil production and trade. Tunisia ranks second in the world after the EU in the export of olive oil and is fourth following Italy, Spain and Greece, with average annual exports of over 100,000 tons. In 2005, the Tunisian Ministry of Agriculture launched a three-year plan aiming at gradually moving away from the current system of selling olive oil in bulk. In export markets, notably the USA, Canada, Japan and Australia, the market share of Tunisian olive oil has slightly increased.

## 3. Methodology

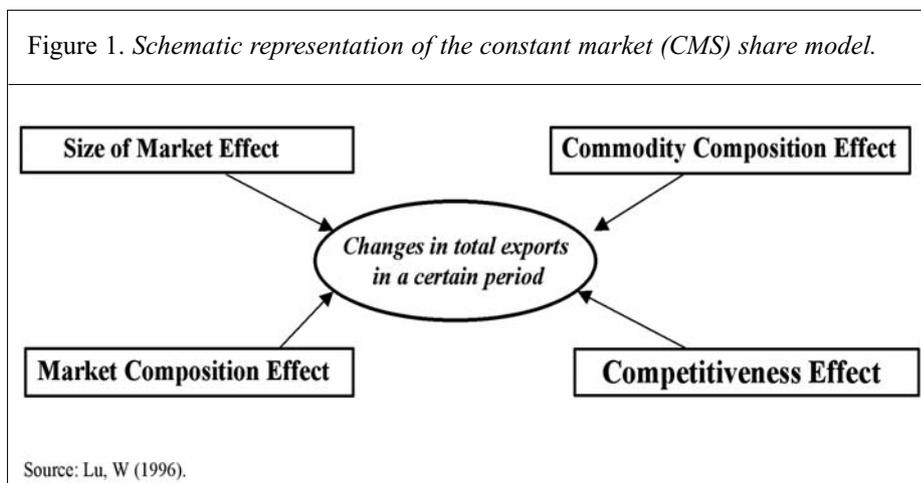
CMS analysis is a technique for the disaggregation of changes in global market shares of a certain country over time. The technique is useful to separate and quantify descriptive purposes rather than explanatory purposes. The method is easy to use, and it identifies key features of the differentiated behaviour of a given variable (Cabral, 2004; Ahmadi-Esfahani, 2006).

CMS analysis is used to identify four components of export performance: the market size effect, the market composition effect, the competitiveness effect and the commodity composition effect (Richardson, 1971a,b; Bowen and Pelzman, 1984; Milana, 1988; Simonis, 2000a) (Figure 1).

Market size effect indicates that part of a country's export growth is attributable to general increases in destination market imports. The magnitude of this effect shows the potential increase of a country's exports if the country were able to maintain its share of destination imports.

The market composition effect indicates a country's ability to concentrate on relatively rapidly growing countries. The change in exports due to market distribution depends on trade policies and income growth in foreign countries (Lu, 1996).

Figure 1. Schematic representation of the constant market (CMS) share model.



The commodity composition effect highlights whether a country has concentrated on the export of commodities for which markets have been rapidly expanding, or on the export of commodities for which markets have been less rapidly expanding. This effect reflects the factor endowment of the export country and the income and price elasticities of demand for the products in which that country specializes.

Competitiveness effect is defined by the residual term of the CMS model. The residual term includes everything not explained by the first three effects. However, this term is taken to indicate the improvement or the deterioration in the competitiveness of exports, depending on whether it has a positive or negative sign. It is usually assumed that the competitiveness effect is independent of the three other effects discussed above, and that it largely reflects the role of domestic factors of the exporting countries.

The underlying assumption of the CMS approach is that base-period export shares are maintained in other market periods. The structural components of the market share are calculated under this assumption. For the purpose of this study, the producer countries' olive oil exports in the period 2005-2008 were analyzed in comparison to those in the base period 2000-2004.

The application of CMS encounters several problems. To provide more information as well as to overcome some existing application problems, Fagerberg *et al.* (1987) and Milana (1988) propose an improved CMS model. Applications of the revised model include Chen *et al.* (2000), Simonis (2000b), Ingco and Kandiero (2002), Klasra and Fidan (2005), Dieter and Englert (2007). On the other hand, some studies still use the traditional model (Richardson, 1971a,b; van Dijck and Verbruggen, 1981; Bowen and Pelzman, 1984; Merckies and van der Meer, 1988; Oldersma and van Bergeijk, 1993; Chai and Riethmuller, 1999).

One of the problems in the application of CMS analysis is the index problem. The results of the CMS analysis depend on the year chosen to calculate the base-year market share and commodity composition. In the following analysis, the period of analysis has been divided into two intervals, 2000-2004 and 2005-2008, and the decomposition is conducted using the average instead of the yearly value within each interval. This has prevented the year chosen as the base year from dominating the results and has thus avoided the index problem.

Based on Ongsritrakul and Hubbard (1996), the simple, traditional CMS model is used,

$$q^1 - q^0 = S^0(Q^1 - q^0) + \sum_i (S_i^0 - S^0) \times Q_i^1 + (q^1 - \sum_i S_i^0 S_i^1), \quad (1)$$

where  $q$  is the quantity of an exporter country's exporters of olive oil to the destination markets;  $S$  is an exporter country's market share of the total exports of olive oil to the destination markets;  $S_i$  is an exporter country's market share of the total exports of olive oil to each destination market, ( $i=1, 2, \dots, 5$ );  $Q$  is the quantity of total exports of olive oil to the destination markets;  $Q_i^1$  is the quantity of total exports

of olive oil to each destination market; and superscripts 0 and 1 represent the base period and subsequent period respectively.

This equation indicates that changes in the quantity of an exporter country's exports of olive oil to the destination markets between the two periods ( $q^1 - q^0$ ) can be decomposed into the three terms on the right-hand side of the equation, representing the market size effect, the market composition effect and the competitiveness effect, respectively. Since the method is applied to one product, the commodity composition effect is dropped.

## 4. Results and Discussion

In this section, the results of the CMS model and the relative importance of destination changes in the performance of Turkey and its competitors during the 2000-2004 and 2005-2008 periods are examined.

Constant market share analysis is applied to olive oil exports for each of the five markets, the USA, Canada, Australia, Japan, and Brazil. As explained above, this analysis will compare Italy, Greece, Spain, Turkey, and Tunisia's export performances in each market. The results are summarized in Table 1.

According to Table 1, Turkey's share of total exports of olive oil to the destination markets decreased over the period from 6.3% to 3.9%, a decrease of 935 tons. The size of the market effect is 4,819 tons, the market composition effect is -184 tons, and the competitiveness effect is -5,569 tons. These results indicate that there has been a loss in the competitiveness of Turkey's exports to the USA, Canada, Australia, Japan and Brazil. The market composition effect for Turkey is also negative, which indicates that Turkey does not concentrate on the countries whose imports grew relatively fast over the period. In contrast, in other studies it has been found that Turkey was able to maintain its share of destination imports for the 1990/2004-2000/2004 period. Also, to a lesser extent, Turkey sustained its competitiveness in the destination markets (Abay *et al.*, 2008, Turkekul *et al.*, 2007).

Spain's share of total exports of olive oil to the destination markets also decreases over the time period studied. The size of market effect is 13,323 tons, the market composition effect is -561 tons, and the competitiveness effect is -4,785 tons (Table 1). Although the market size effect dominates the CMS analysis, the competitiveness effect is negative. This negative effect indicates deterioration in the competitiveness of Spain's exports to the USA, Canada, Australia, Japan and Brazil. Moreover, this deterioration in competitiveness is larger than the results of 1990/2004-2000/2004 period (Table 2).

The same situation is also seen for Italy. The competitiveness effect is negative (Table 1); this result indicates that there has been a decrease in the competitiveness of Italy's exports to the USA, Canada, Australia, Japan and Brazil. The market composition effect for Italy is also negative, which indicates that Italy does not concentrate on the

countries whose imports grow relatively fast during this period. On the contrary, Italy was the most competitive country in the target markets for 1990/2004-2000/2004. All of the effects had a combined positive influence, so the country's share increased from 34.0% to 46.6% from 1990/2004 to 2000/2004 (Table 2).

Greece's share of total exports of olive oil to the destination markets is almost stable. The size of market effect is 2,597 tons, the market composition effect is 153 tons and the competitiveness effect is -989 tons (Table 1). Although the market size effect dominates the CMS analysis, the competitiveness effect is negative. This negative effect indicates deterioration in the competitiveness of Greece's exports to the USA, Canada, Australia, Japan and Brazil. It is also the main driving force behind the stable export market share. Moreover, this effect is accompanied by a low market composition effect.

Table 1. Results of constant market share analysis.

	Market share (%)		Overall gain		Size of market effect		Market composition effect		Competitiveness effect	
	2000-2004	2005-2008	tons	%	tons	%	tons	%	tons	%
Greece	3.4	3.1	1,761.9	100.0	2,597.6	147.4	153.4	8.7	-989.2	-56.1
Italy	46.6	39.3	18,043.0	100.0	35,527.1	196.9	-3,570.8	-19.8	-13,913.4	-77.1
Spain	17.5	15.2	7,977.0	100.0	13,323.2	167.0	-561.1	-7.0	-4,785.1	-60.0
Tunisia	4.4	5.1	5,060.0	100.0	3,317.1	65.6	1,214.2	24.0	528.6	10.4
Turkey	6.3	3.9	-935.1	100.0	4,819.3	-515.4	-184.6	19.7	-5,569.8	595.7

On the other hand, in Tunisia all the effects have a combined positive influence, leading to an increase in its share from 4.4% to 5.1% (Table 1).

This increase is caused by the market size effect, while the positive impact of the competitiveness effect is small. This result also implies that the growth in the country's olive oil exports is attributable to the general increases in the destination markets' imports. However, Tunisia was the least competitive country in these markets for 1990/2004-2000/2004 (Table 2).

Table 2. Comparison of CMS Analysis results for different periods.

Market share (%)		Greece	Italy	Spain	Tunisia	Turkey
		1990-1994	2.6	34.0	17.4	17.3
Overall gain	2000-2004	3.4	46.6	17.5	4.4	6.3
	2005-2008	3.1	39.3	15.2	5.1	3.9
Market size effect	1990/2004-2000/2004	4,214.2	58,411.3	19,602.3	-1,597.4	7,329.8
	2000/2004-2005/2008	1,761.9	18,043.0	7,977.0	5,060.0	-935.1
Market composition effect	1990/2004-2000/2004	2,904.9	37,992.8	19,417.0	19,375.4	6,486.6
	2000/2004-2005/2008	2,597.6	35,527.1	13,323.2	3,317.1	4,819.3
Competitiveness effect	1990/2004-2000/2004	318.9	4,831.6	2,268.1	-1,036.4	166.8
	2000/2004-2005/2008	153.4	-3,570.8	-561.1	1,214.2	-184.6
Competitiveness effect	1990/2004-2000/2004	990.4	15,586.8	-2,082.8	-19,936.4	676.5
	2000/2004-2005/2008	-989.2	-13,913.4	-4,785.1	528.6	-5,569.8

Source : Own calculations and Turkekul *et al.*, 2007.

The improvement between these two periods can be described as the result of a three-year plan launched by the Tunisian Ministry of Agriculture.

In parallel with our results, a previous study (Carri and Sassi, 2007) using different analysis method has shown that all countries in the Mediterranean Basin, apart from Algeria, Egypt, France and Israel, have a relative export advantage in olive oil.

When all of the competitors are considered together, it is seen that, aside from Tunisia, each country has decreased its market share during the period of analysis. However, all of the EU countries have high export value; Italy is the leader in this category, followed by Spain, Turkey and Greece.

The market size effect is the main contributor to the increase in the exports of these countries. However, although this effect positively contributes to each country's export performance, the magnitude of contribution is varied across

the countries. Again, the market size effect is favourable for the suppliers of olive oil during the periods examined. Except for Tunisia and Greece, the countries have lost market share in the USA, Canada, Australia, Japan, and Brazil. When two periods are compared, it is seen that the market size effect is the main contributor to the increase in the exports of these countries, indicating that part of a country's export

growth is attributable to the general increases in destination market imports. Already in these new markets, consumption is rapidly growing and, in the last decade, the new markets' (USA, Canada, Australia, Japan, and Brazil) imports have grown at 2.2 percent per annum.

The market composition effect varies in magnitude for selected markets and has accordingly suggested that exports of Tunisia and Greece are concentrated in fast-growing markets. Tunisia is first in this regard, and the sign of this effect is positive with considerable magnitude. For Turkey,

this effect is negative, which indicates that Turkey has focused to a limited degree on the countries whose imports grew relatively fast.

Finally, the analysis of the competitiveness effect has, on the whole, revealed that all the countries except Tunisia have decreased their competitiveness during the period of analysis.

## 5. Conclusion

The world's olive oil production is concentrated in the Mediterranean countries. Olive

growing is gradually spreading to new countries, such as Argentina, Chile, China, Brazil, Australia and South Africa. As a traditional producer, the EU accounted for 76.6% of world production during 2003-2008. Up to 1980, Italy was the leading olive oil producer worldwide; from 1980 on, Spain was the leading producer. Syria, Tunisia, Turkey are the other important producing countries. In these five countries, production of olive oil has gradually increased.

On the other hand, in the major producing countries, consumption has been progressing fairly steadily, without the fluctuations that are usually a feature of production. Since 1995-1996, the average annual increase in olive oil consumption has been 6%, with even higher relative growth in new markets. This trend is likely to continue in the foreseeable future (Mili, 2004).

These supply and demand conditions also cause a highly competitive environment. In this competitive environment, Tunisia has a competitive advantage relative to the EU members and Turkey in newer markets, such as the USA, Canada, Australia, Japan, and Brazil. According to the analysis results, Greece was second to Tunisia in the case of the competitiveness effect. In the same period, though the quantity of exports increased, the decrease in the market share caused Greece to lose its competitive advantage. The size of the market effect plays an important role in the increase of Greek exports to the new markets.

International competition is affected by domestic factors and external factors. The success that comes with maintaining and increasing market share and achieving sustained, stable competitive advantages in international markets will depend on the production, organization and foreign trade policies adopted.

Achieving sustained and quality production is the key factor in increasing Turkey's market share in the new markets. In order to reduce the effect of alternance on production, and to draw Turkey's production level to the EU's production levels and to increase cheaper and qualified production, cultivation activities such as irrigation and mechanization should be improved.

Alternance and insufficient stocking are two factors that are adversely affecting Turkey's competitiveness. Achieving sustained olive oil production depends on stabilizing the balance among production, domestic consumption and exports. Within the context of licensed storekeeping and the Agricultural Specialized Stock Exchange, olive oil is one of the most adequate agricultural products. Therefore, incentives aimed at stocking should be taken.

On the other hand, exporting 70% of the olive oil as bulk causes value-added losses. This practice also causes Turkish olive oil to continue to be relatively obscure outside of Turkey. To distinguish itself in foreign markets, Turkey should intensify its focus on packaged and branded exports. Export and marketing strategies that consider the consumers' demands and expectations in the destination markets should be developed. Finally, Turkey should introduce a new image for its country's production by participating in

international fairs and organizations. In particular, Turkey requires an organization similar to the one (Common Market Organization) in the EU to improve its country's image in foreign markets. A national olive oil council should be established, in order to consider problems as a whole and to gain competitiveness in the world market.

In Tunisia, most of the olive oil production is also exported in bulk. Most of that exported olive oil is then shipped either to Italy or Spain, where it is either processed or blended with local oil, and then sold with Italian or Spanish labels as a product of Italy or Spain, respectively. In 2005, however, the Tunisian Ministry of Agriculture launched a three-year plan aiming at gradually moving away from the current system of selling olive oil in bulk. To undertake this plan, the Tunisian olive oil sector will need better organization, given that olive production is small-scale and fragmented. Also, quality needs to be raised and the production process will need to be modernized, as the harvesting and pressing methods applied in Tunisia are traditional and inefficient as compared to the EU standards.

Moreover, due the country's lack of a leading olive oil brand name or trade name, the Tunisian olive oil remains relatively unknown and unrecognized on the target markets. In order to improve its competitiveness, Tunisia must capture the world's growing demand on olive oil. It also has to improve its image as an olive oil producer and exporter country.

In the EU, the olive sector is organized among all actors including producers, firms, exporters and consumers. Therefore, the EU is very effective in international olive oil markets. The primary olive oil producing countries in the EU also have a positive image as olive oil producers. The principal EU olive oil brands belong to the world's leading companies. These positive developments in the EU's olive oil sector during the two last decades are also supported by the Common Agricultural Policy (CAP) subsidies paid by means of the Common Market Organization (CMO) for olive oil. These subsidies have made a considerable improvement in terms of the restructuring and modernization of the milling and processing industry. For example, Spanish olive production has experienced a substantial growth since the country's accession to the EU. The increases in output are the result of both an increase in new plantations and an increase in yields per hectare. The increase in yields is the outcome of a series of changes in production methods such as improvements in growing techniques, the replacement of old trees by new ones and, specially, the increase in irrigated olive groves. However, the last CMO reform in 2004 is consolidating the decoupling subsidy payments from production. The new policy aims at promoting more qualitative aspects, such as product quality, food safety and environmental aspects, than qualitative aspects.

Consequently, the world olive oil market is very competitive, and the key driver of the future of the world market of olive oil seems to be the evolution of demand. Additional key drivers in shaping the future of the market are domes-

tic and trade policies. Therefore, countries should adjust their political strategies and implement competitive strategies to take advantage of new developments in the international olive oil market.

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