Turkish Journal of Agriculture - Food Science and Technology, 7(9): 1354-1359, 2019
DOI: https://doi.org/10.24925/turjaf.v7i9.1354-1359.2604

Turkish Journal of Agriculture - Food Science and Technology

Available online, ISSN: 2148-127X | www.agrifoodscience.com | Turkish Science and Technology

Competitiveness Analysis of Olive Oil Sector

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ARTICLE INFO

Research Article

Received : 12/04/2019
Accepted : 29/08/2019

Keywords:
Olive Oil
Competition
Comparative Advantage
Competitiveness Index
Competitiveness

ABSTRACT

Aim of the study to analyse the competitiveness of Turkish olive oil sector. For this purpose, leading countries was selected according to their shares in the world olive oil export and evaluated with Revealed Comparative Advantage and Vollrath indexes which are commonly used to measure competitiveness. Based on index results, it was found that Turkey has Revealed Comparative Advantage and Relative Competitive Advantage over Morocco and only Relative Competitive Advantage over Portugal. Except for Morocco and Portugal, international competitiveness of Turkey was found significantly lower than other selected countries. It was concluded that competitiveness of Turkey should be increased by increase quality, supporting producers' organisations and sustainability in production.

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Introduction

Olive oil is a vegetable oil that obtained from mature fruit of olive trees, has liquid form at room temperature and unique sensorial properties and can be consumed without refining process (Sevim, 2011). Olive oil is produced by countries that has adequate conditions for olive tree. Olive is a product that is economically cultivated in 25 countries in the Mediterranean basin or showing the Mediterranean climate characteristic (Tunalıoğlu, 2010). In this sense, olive and olive oil trade is extremely important at global level as this product is scarce resource. Additionally, increasing number of studies on positive effects of olive oil on human health and awareness of the consumers also increased the general interest for the sector (Dokuzlu, 2011). European Union countries (Italy, Spain, Greece and Portugal) and Tunisia, Turkey, Morocco, Syria are the leading countries that have 93% share in production and 90% in export in olive oil market (ITC, 2019).

Turkey is one of the leader global producers with its 10% share in olive oil production. Turkey produced 151 gross ton olive oil production between 2007/8-2017/18 period due to ecologic diversity and suitable agricultural land (IOOC, 2019; Anonymous, 2018). Additionally, Turkey ranks sixth based on long term average among countries that export olive oil (ITC, 2019).

Olive oil is divided into various quality classes by international standards. Two of the most important of these classes are extra virgin and refined olive oils (Extra virgin olive oil: Virgin olive oil which has a free acidity, expressed as oleic acid, of not more than 0.8 grams per 100 grams. Refined olive oil: Olive oil which has a free acidity of not more than 0.3 grams per 100 grams.), traded at stock markets (IOC, 2015). Turkey, which markets olive oil in accordance with these standards, has been well integrated into European Union markets and the International Olive Oil Council (Tunalıoğlu et al., 2013).

Turkey, when viewed from this perspective, it is one of the advantageous country's olive oil production quantity and export, as well as its compliance with international standards and markets and by its suitable ecology to grow olive. However, a question arises that whether Turkey could use this potential adequately. Article is aimed to find the answer of this question both analysing data international competitiveness of Turkish olive oil sector and identify changes in competitive status by years.

In literature, there are various definitions on competitiveness. Competitiveness can be defined as the power to create higher income, market share, export skills and employment of a country in products and services in international trade compared to same products and services of other countries while protecting current markets (Hatsopulos et al., 1988; Çivi, 2001; Gürpınar and Sandıkçı, 2008).

When examining competitiveness, there are various methods and approaches to identify whether a country has competitive advantage over exported product.

Among these approaches, Adam Smith's Theory of Absolute Advantages, David Ricardo's Theory of Comparative Advantages and Hecksher and Ohlin's Factor Endowment Theory have been accepted by many authorities (Karaalp and Yılmaz, 2012; Coronel et al., 2013; Sönmez and Kasımoğlu, 2013). According to Theory of Absolute Advantages, in free trade environment, each country should focus on manufacturing goods that has lower cost - i.e. that has absolute manufacturing advantage - and import products that costs higher to manufacture by exporting products with lower manufacturing cost. Thus, level of welfare can be increased in foreign trade. However, Theory of Absolute Advantages is insufficient to explain transnational trade. Because according to theory, when one of the countries in the model has absolute advantage on all products, this country must specialise on manufacturing of these products and avoid foreign trade. In response to insufficiency of this theory, approximately 40 years later, Ricardo suggested Theory of Comparative Advantage. According to Theory of Comparative Advantage, when a country is compared with other countries, that country should specialise in manufacturing products that this country has advantage, export these products and import products that has high manufacturing cost. Thus, both countries will gain from foreign trade only when domestic prices are different which the result of difference in labour productivity is. Theory of Comparative Advantage fails to emphasise factors that create difference in labour productivity. To fill the gap of this theory, Hecksher and Ohlin suggested Factor Endowment Theory. According to this theory, a country should specialise to manufacture products where rich manufacturing factors are used for manufacturing of goods as these goods will have comparative advantage. It should be noted that each industrial manufacture is formed by factors that are directly used in the industry as well as intermediate goods. Since intermediate goods are outputs of other industries, these goods are separated to factor compounds that form them (Jones, 1956; Schumacher, 2012; Palacıoğlu, 2018).

Therefore, due to insufficient skills of these theories to analyse the competition in a sector or product systematically and some measurement problems, they are considered both complex and time consuming. For this reason, as an alternative, to evaluate competitive power of a country in any product, product group or sector, easy to use Balassa and Vollrath Indexes was developed by using data after trade (Chi and Kilduff, 2010). Today, various institutions including World Bank uses Balassa and Vollrath indexes to analyse international competitiveness of countries and shares those results on their respective websites (Anonymous, 2019).

Material and Method

Secondary data has been used and International Trade Centre (ITC) statistics has been gathered for the competitiveness analysis. Data set between 2008 and 2017 was adopted and 2018 were excluded due to incomplete data. Additionally, other secondary resources such as national/international articles, books etc. were used.

Tunisia, Spain, Italy, Portugal, Greece, Turkey, Morocco and Syria that have the highest share in global olive oil export have been selected as the countries that analysed and these data gathered from Trademap statistics.

In this study, Revealed Comparative Advantage (RCA) and Vollrath Indexes were calculated and competitiveness of Turkey in olive oil sector was measured.

Balassa/Revealed Comparative Advantage Index (RCA)

Mainly, Revealed Comparative Advantage Index aims to determine whether weak or strong position of a country in terms of export by comparing revealed export figures of these countries (Serin and Civan, 2008; Arısoy et al., 2014; Senhaz et al., 2016; Özdemir and Kösekahyaoğlu, 2018).

$RCA_{TR} = (X_{TRj} / X_{TRt}) / (X_{REFj} / X_{REFt})$

RCA_{TR} = Revealed comparative advantage index of Turkey in j good

X_{TRj} = j good export value of i country

X_{TRt} = total export value of i country

X_{REFj} = j good export value of other country

X_{REFt} = total export value of other country

$RCA_{TR} > 0.5$ refers that j good of Turkey has high comparative advantage in export over other country, $-0.5 < RCA_{TR} < 0.5$ refers that j good of turkey is at marginal limit in export over other country and $RCA_{TR} < -0.5$ refers that j good of Turkey has no comparative advantage in export over other country (Khai et al., 2016; Yalçınkaya et al., 2014).

RCA – also known as Balassa – Index is criticised as import in excluded when country size plays an important role and there is double calculation error as country data are included to analysis for two times (Fertö and Hubbard 2003; Sarıçoban and Kösekahyaoğlu, 2017). Therefore, in similar studies, RCA Index and Vollrath Index that fills the gap are frequently applied together.

Vollrath Index

Vollrath (1991) suggested three alternative methods to calculate Revealed Comparative Advantages Index. First of these methods is Relative Trade Advantage (RTA) Index that adopts import data as well as export data. Other two alternatives are Relative Export Advantage and Relative Competitive Advantage indexes (Miral, 2006; Gacener Atış, 2014).

Relative Trade Advantage is defined as the difference between Relative Export Advantage (RXA) and Relative Import Advantage (RMA) and positive value of this index is interpreted as competitive advantage and negative value is interpreted as disadvantage. Formula of RTA indexes are given below (Fidan, 2009; Erkan, 2011; Tripa et al., 2016; Cuc and Tripa, 2018);

RTA_{TR} = $RXA_{TR} - RMA_{TR}$
RTA_{TR} = j good relative trade advantage index of Turkey
RXA_{TR} = $(X_{TRj} / X_{TRt}^{-j}) / (X_{REFj} / X_{REFt}^{-j})$
RXA_{TR} = j good relative export advantage index of Turkey
X_{TRj} = j good export value of Turkey
X_{TRt}^{-j} = total export value of Turkey except X_{TRj}
X_{REFj} = j good export value of other country
X_{REFt}^{-j} = total export value of other country except X_{REFj}
RMA_{TR} = $(M_{TRj} / M_{TRt}^{-j}) / (M_{REFj} / M_{REFt}^{-j})$
RMA_{TR} = j good relative import advantage index of Turkey
M_{TRj} = j good import value of Turkey
X_{TRt}^{-j} = total import value of Turkey except M_{TRj}
M_{REFj} = j good import value of other country
M_{REFt}^{-j} = total import value of other country except M_{REFj}

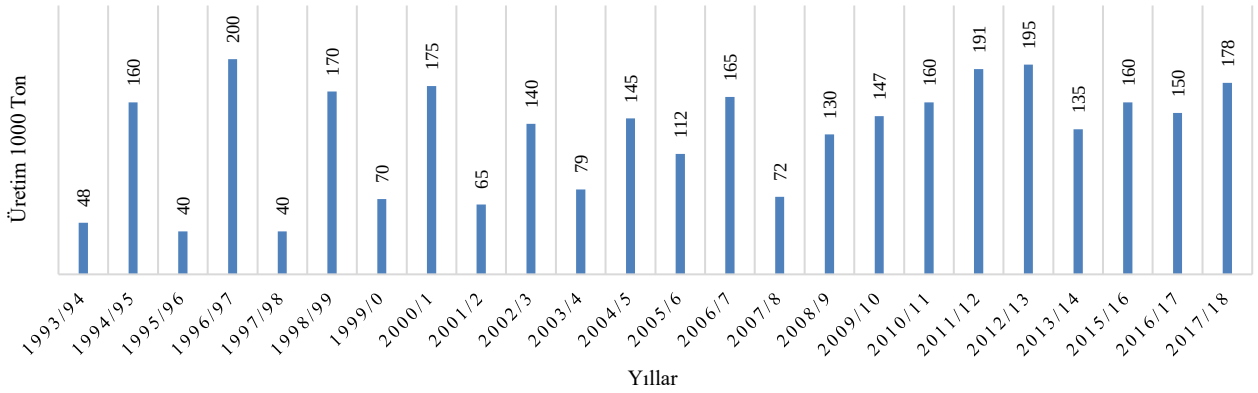
Relative Competitive Advantage Index is equal to difference between logarithmic forms of Relative Export Advantage and Relative Import Advantage indexes. Positive index value indicates that country has comparative advantage in related sector while negative value indicates comparative disadvantage (Altıntaş, 2013; Altay, 2008).

RC_{TR} = $\ln (RXA_{TR}) - \ln (RMA_{TR})$
RC_{TR} = j good relative competitive advantage index of Turkey

According to Vollrath, RC Index is more preferable measurement compared to lnRXA and RTA as this measurement better expressed import and export balance (Şimşek and Sadat, 2009; Bashimov, 2016).

Results and Discussion

Olive oil production of Turkey was more stable in the recent years although there has been slight decrease in olive production due to periodicity (Olive tree produces high amount of product one year and lower amount of product next year. This condition is called periodicity, alternance, year of abundance or year of absence) (IOOC, 2019). While olive oil production that was 72 gross ton in 2008 increased to 150 gross ton in 2017 (Graphic 1).



Graphic 1 Olive Oil Production in Turkey 1993/94-2017/18 Source: IOOC 2019

In Turkey, majority of produced olive oil is consumed in domestic market and only 10% was exported. While olive oil export was 17 gross ton in 2008 ($71,066), export increased to 50 gross ton in 2017 ($200,432). Turkey exports olive oil to various countries such as USA, Spain, Saudi Arabia, Italy and Japan. While Turkey only exported 2 ton in 2008 ($16.000), in 2017 exportation increased to 16 ton ($141.000) (ITC, 2019). Despite Turkey imports a limited quantity of olive oil in scarce years, it is a net exporter country in international olive oil trade. However, it could be stated that Turkey fails to completely utilise existing potential in this field (Çukur et al., 2017). Revealed Comparative Advantage Index (RCA), Relative Export Advantage Index (RXA), Relative Import Advantage Index (RMA), Relative Trade Advantage Index (RTA) and Relative Competitive Advantage Index (RC) results of Turkey has been given in Table 1.

According the results, when RCA index values are examined, although Turkey gained competitive advantage over Argentina (RCA_{2013}= 1.9) and Morocco (RCA_{2008}=1.1; RCA_{2009}=1.3; RCA_{2013}=1.9; RCA_{2017}=1.0) in certain years, Turkey has comparative disadvantage in olive oil trade in general. However, it can be stated that if olive oil trade continues in this trend, Turkey can preserve competitive advantage over Morocco in the following years. This result is supported by Vollrath index results. RXA, RTA, and RC index results of Turkey compared to Morocco has positive results between 2008 and 2017. Based on long-term average, results of these indexes are 0.7, 0.6, and 5.1 respectively.

When Relative Trade Advantage (RTA) and Relative Competitive Advantage (RC) index results were considered for 2015 and 2016, it can be seen that Turkey has competitive disadvantage against Tunisia, Syria, Greece and Argentina. Main reasons of negative values in these years can be listed as; negative climate conditions, effects of periodicity especially at the period of 2013/2014, lack of stocks in 2014/15. Some years high producer prices of olive caused an increase in olive oil prices, this increase had double effects while some companies imported cheaper olive oil, some companies lost their export market due to uncompetitive prices. Additionally, some periods olive oil producers kept their product with the higher price expectation and some companies had to import products in order to prevent to lose their export market (Donat, 2016; Anonymous, 2015.)

Table 1 Competitiveness index results of Turkey in olive oil sector*

Countries		Years										Average
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
TR-Argentina	RCA	0.6	0.8	0.9	0.4	0.8	1.9	0.9	0.2	0.5	0.5	0.7
	RXA	0.6	0.8	0.9	0.4	0.8	1.9	0.9	0.2	0.5	0.5	0.7
	RMA	0.0	0.0	0.0	0.0	0.1	0.2	0.2	5.9	2.8	0.0	0.9
	RTA	0.6	0.8	0.9	0.4	0.6	1.6	0.7	-5.7	-2.3	0.4	-0.2
	RC	4.7	3.5	3.7	2.2	1.7	2.1	1.4	-3.3	-1.8	2.5	1.7
TR-Morocco	RCA	1.1	1.3	0.2	0.1	0.4	1.9	0.3	0.1	0.2	1.0	0.7
	RXA	1.1	1.3	0.2	0.1	0.3	1.9	0.3	0.1	0.2	1.0	0.7
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
	RTA	1.1	1.3	0.2	0.1	0.3	1.9	0.3	0.0	0.2	1.0	0.6
	RC	8.9	8.9	5.6	3.9	4.7	6.7	4.1	-0.2	1.8	7.1	5.1
TR-Italy	RCA	0.2	0.3	0.2	0.1	0.2	0.6	0.2	0.1	0.1	0.4	0.2
	RXA	0.2	0.3	0.2	0.1	0.2	0.6	0.2	0.1	0.1	0.4	0.2
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	RTA	0.2	0.3	0.2	0.1	0.2	0.6	0.2	0.1	0.1	0.4	0.2
	RC	8.9	8.1	8.3	6.5	6.6	7.1	5.8	2.5	3.3	8.0	6.5
TR-Portugal	RCA	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.1	0.1
	RXA	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.1	0.1
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	RTA	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.1	0.1
	RC	8.6	7.7	7.9	6.0	6.2	6.7	4.9	1.7	2.4	7.1	5.9
TR-Spain	RCA	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1
	RXA	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	RTA	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1
	RC	5.8	5.0	5.1	3.3	3.7	5.0	2.4	0.6	0.6	5.2	3.7
TR-Greece	RCA	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
	RXA	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.1
	RTA	0.0	0.1	0.0	0.0	0.0	0.1	0.1	-0.2	-0.3	0.1	0.0
	RC	3.8	3.1	3.6	1.7	1.2	2.5	2.9	-2.7	-2.8	3.1	1.6
TR-Syrian Arab Republic	RCA	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	RXA	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0
	RTA	0.1	0.1	0.1	0.1	0.0	0.0	0.0	-0.1	-0.2	0.0	0.0
	RC	3.4	4.7	2.5	1.8	1.0	2.1	1.3	-2.7	-3.9	1.4	1.2
TR-Tunisia	RCA	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	RXA	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	RMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
	RTA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	0.0	0.0	0.0
	RC	2.5	1.3	1.9	0.6	-0.6	0.9	0.9	-3.9	-1.0	3.1	0.6

*Source: Calculated based on 2008-2017 ITC data. Note: TR indicated Turkey.

Based on long-term average between 2008 and 2017, when Vollrath (RXA, RTA and RC) index results are analysed, it can be seen that Turkey has positive values when compared with other countries. However, these values are significantly low. It would be adequate to analyse Relative Competitive Advantage (RC) index to interpret competitive advantage or disadvantage under this condition. As stated in the previous sections of this study, RC index better reflects export and import balance. Based on RC results, while Turkey has competitive advantage over Morocco and Portugal, it is not possible to impose the same scenario for high valued Turkey-Italy RC index comparison. In order to make a right conclusion in disruption of import policy, foreign trade structure of respective country should be considered. Italy as olive oil producer has high market share in global olive oil production, export as well as import. This is because Italy imports bulk olive oil to process, pack and re-export (Bakırlıoğlu, 2006). When this property of olive oil trade of Italy is disregarded, it would be natural but incorrect to state that Turkey has competitive advantage over Italy.

In this study, it is determined that Turkey has revealed Comparative Advantage and Relative Competitive Advantage over Morocco and only Relative Competitive Advantage over Portugal. Additionally, as net exporter, international competitive power of Turkey is significantly lower than selected countries. According to results, it is highly challenging for Turkey to compete in global markets of olive oil sector. These indexes that can be considered as a prediction for international competitive power does not consider reasons behind these competitive advantages and disadvantages. Therefore, interpretations and recommendations are needed for achieving sustainability in markets that Turkey has competitive advantage and to increase competitive power by considering sectoral conditions.

Although Turkey is one of the leader olive oil producer countries in the world, it was gained low added value from export activities mainly due to exporting olive oils in bulk and non-branded. 70% of Turkish olive oil is exported as bulk or barrel and 30% as packed or branded (Toplu Yılmaz, 2013). Although government incentives for packed and branded olive oil export since 1997, it was not possible to reach expected level. There is a sustainability problem in production quality and quantity. Additionally, negative image in olive oil market due to mixed (adulteration) olive oil export in previous years restricts increase of packed product export (Tunalıoğlu, 2010). Therefore, to overcome unbranded – bulk olive oil problem, licenced storage system should be fully implemented, standards for agricultural practices must be developed and organised producer groups must be created as in important olive oil producers in European Union (EU). In order to change negative image of Turkish olive oil, it should establish powerful producers' organisations and create logo and standards. Supports of NGOs in these processes is important (Özkaya et al., 2010).

EU custom policies is another barrier for Turkish olive oil export. Turkey should identify new target markets with high added value that eliminate quotas, taxes and low profit margin markets that negatively affect export figures and potential (Mete, 2015).

Finally, there are a few studies that consider olive oil sector from economic aspect and these studies are limited with specific regions (Soyyiğit and Yavuzaslan, 2018). Therefore, country wide studies in this area should be supported, cooperation should be established with all shareholders in the sector and existing potential should be utilised.

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