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International Competitiveness of the Turkish Olive Oil Sector

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ABSTRACT

Turkey, with its olive oil production and export potential, is one of the leading countries in the world. For this reason, it is a direct contribution to the economy of the country which helps Turkey maintains the sustainable competition superiority in changing international trade conditions in the olive oil sector. The objective of this study was to analyze the international competitiveness of the Turkish olive oil sector with different indicators. Balassa and Vollrath Indexes were used for measuring the international competition level of Turkey in the olive oil sector. In addition to these indexes, other indicators such as the export/import ratio, import penetration ratio, openness to international competition, net export ratio and specialization coefficient were also used in the study. The aforementioned indicators were also used for making comparisons with important producer countries. One of the main results of the analyses was that Turkey has important advantages in the global olive oil trade. Turkey's openness to international competitiveness was 0.10% which is a figure lower than those of all the other countries. This is a finding which proves that the olive oil industry in Turkey has almost zero dependency to other countries. However it does not have sufficient international competitive advantage when compared with other leading countries in olive oil production and exportation.

1. Introduction

Turkey is among the most important olive oil producer countries in the world and has a huge potential for the production and trade of olive oil. In global olive oil production, Turkey ranks 5th after Spain, Italy, Greece and Tunisia. Of the total global olive production areas 8.06% belongs to Turkey in addition to 8.24% of the olive production ratio and 6.21% of olive oil production. Olive oil exportation amount of Turkey in the year-2013 was equivalent to 92.097 tons and exportation value reached 294.543 thousand dollars. As of 2013, 5.41% of the cumulative global olive oil exportation ratio and 4.38% of the exportation value belonged to Turkey (FAO, 2016). Turkey ranks 4th with a capacity of 115.003 thousand dollars globally

with respect to value of the exportation activities performed by table-olive exporter states. With a natural olive oil export value of 141.079 thousand dollars, Turkey is ranked 6th after Spain, Italy, Greece, Tunisia, and Portugal with respect to natural olive oil exportation value. USA, Australia, Bahrain, United Arab Emirates, Brazil, China, Indonesia, the Philippines, South Africa, South Korea, India, Japan, Canada, Qatar, Kenya, Colombia, Malaysia, Mexico, Russian Federation, Senegal, Chile, Thailand, Ukraine, and Jordan are listed among the countries that Turkey exports olive oil to (GTHB, 2014).

The objective of this study was to analyze via

various indicators the competitive power of Turkey which has a noteworthy position among the strongest olive oil exporters by virtue of its tremendous potential in production as well as exportation in the olive oil sector.

2. Material and Methods

Key material of the study was comprised of statistics acquired from FAO. Turkish olive oil export has two different varieties that export of both extra virgin and refined olive oils. Because the data for this study were obtained from FAO, virgin olive oil export data was analyzed.

This study, which extended to a decade between 2004/2013 was prepared on the basis of relevant studies within the national and international literatures.

A significant number of studies have already been executed in which a variety of methods were applied in order to put forth a comparative analysis on the competitiveness prevalent among different sectors and products in Turkey.

A range of indices have been harnessed to detect competitive power. Of particular note are indices in the studies of Liesner (1958), Balassa (1965 and 1977), Kunimoto (1977), Donges & Riedel(1977), Bowen(1983), Balassa & Noland(1989) and Vollrath(1991) utilized to measure international competitive power. Indices that were most widely applied in studies measuring competitiveness in different sectors in Turkey were Ballassa and Vollrath (Çakmak, 2005, Tosun & Demirbaş, 2008; Fidan 2009, Çoban *et al.*, 2010; Filiztekin & Karaata, 2010; Gülmez, 2012; Öztürk *et al.*, 2013; Tunalioglu *et al.*, 2013; Arısoy 2014; Erkekoğlu, 2014; Yurttançıkmaz *et al.*, 2014). It has also been noted that the Balassa Index is the most applicable method for the analyses of standard and non-durable consumer goods (Saraçoğlu, 2015). Hence the primary method was that of Balassa's Revealed Comparative Advantages Index (RCA) in this method that examined a standard food product; but a number of other indices were also utilized alongside it. Balassa's RCA approach hypothesizes that actual form of comparative advantage can only be obtained from the data collected after commercial exchange (Balassa 1965; Şahinli, 2011).

(BI) $RCA_{ij} = (x_{ij} / X_j) / (x_{iw} / X_w)$

x_{ij} : exports of product i by country j

X_j : total exports of country j

x_{iw} : world exports of product i

X_w : total world exports

RCA_{ij} shows Revealed Comparative Advantages Index for product i by country j. If RCA>1: it means that country j has a comparative advantage in terms of product i. To put it in other words, the share of this product in the total exportation share is greater than its share in global trade. If RCA<1: it means there is a comparative disadvantage in this particular product.

This method which failed to incorporate the role of importation was criticized in some circles since it could lead to misleading conclusions particularly for specific cases in which the size of a country also mattered. A novel index was thus designed on the basis of logarithmic form of RCA Index, which was later revised by Balassa to stave off the aforementioned criticisms which was then readjusted by taking into consideration the importation volume of the country as well. In this equation, X and M alternately stand for exportation and importation, i stands for the country, j stands for product/industry, whereas t stands for product/industry group (Seymen, 2009).

$BI2 = \ln ((X_{ij} / X_{nj}) / (X_{ir} / X_{nr}))$

Vollrath (1991) on the other hand claims data net trade effect should also be accounted for when computing the exportation and importation indices. Providing three alternative definitions for Revealed Comparative Advantages Vollrath described the first indicator which encompassed not only exportation but importation as well as Relative Trade Advantage (RTA). This index is computed as the difference between Relative Exportation Advantage (RXA) that is equal to Balassa Index and Relative Importation Advantage (RMA).

(VI) $RMA_{ij} = (M_{ij} / M_{nj}) / (M_{ir} / M_{nr})$

$RXA_{ij} = BI = (X_{ij} / X_{nj}) / (X_{ir} / X_{nr})$

(VI2) $= \ln RXA = \ln BI = \ln ((X_{ij} / X_{nj}) / (X_{ir} / X_{nr}))$

$RTA_{ij} = RXA_{ij} - RMA_{ij}$

(V13) $RC_{ij} = \ln (RXA_{ij}) - \ln (RMA_{ij})$

RTA_{ij} = relative trade advantage of country j in product i

RXA_{ij} = relative export advantage of country j in product i

RMA_{ij} = relative import advantage of country j in product i

RC_{ij} = relative comparative advantage of country j in product i

X = export

M = import

n = expectancy of all of the products

r = expectancy of world

Vollrath argues that positive values of the three aforementioned indices (RTA, RXA and RC) point to a comparative advantage while negative values indicate a comparative disadvantage (Çakmak, 2005).

Other indicators (DPT, 2007) stated below were used in this study for measuring competitiveness in a more detailed format. These were;

a. Specialization coefficient: this coefficient is defined as the ratio of domestic production in the ith industry/sector to domestic consumption of the ith good, including imports.

b. Import penetration ratio: (import / domestic consumption) *100,

c. Openness to international competition:(export/production)+(1-export/production *(import / domestic consumption),

d. Net export ratio: (export -import)/ (export +import) and,

e. Export / import ratio

3. Results and Discussion

The first step in this section was to prepare competitiveness indices according to Balassa and Vollrath. Other particular indicators were measured afterwards in the method section of the study. Comparisons were conducted in this study with respect to Spain, Italy, Greece, Tunisia and Turkey which were collectively ranked as the global olive oil exportation leaders as was evidenced by the mean scores collected between 2011/2013.

When BI and VI2 table values for the period between 2004/2013 were examined it can be observed that Tunisia and Spain have quite a high value of comparative advantage but it also appears that this advantage fluctuated with respect to years and slumped down eventually (Table 1). On the other hand it was identified that Greece's comparative advantage tended to increase in recent years. As of year 2013, Tunisia (BI=64. 890 and VI2=4.173) was ranked the first in terms of comparative advantage which was subsequently followed by Greece (BI=20.171 and

VI2=3.004), Spain (BI=11.101 and VI2=2.407), Italy (BI=7.760 and VI2=2.049) and Turkey (BI=3.477 and VI2=1.246).

Other indicators related to competitive power of vital exporters in the olive oil sector were as displayed in Table 2. Import penetration ratio as of 2013 was 82.362 % in Italy, which indeed is quite a high percentage. In Spain, despite being one salient exporter country, nearly one hundred percent of domestic demand in olive oil is met through importation which is an evidence putting forth that Spain olive oil industry is importation-intensive and outward-oriented. In import penetration ratio Italy is followed by Spain with a percentage of 23.410 %. As of the very same year import penetration ratio was 2.782 % in Greece and 1.082 % in Tunisia. Turkey, with its 0.097 % import penetration ratio, has the lowest value compared to the rest of the analyzed countries which proves that olive oil importation of Turkey has a negligible position in domestic demand.

Turkey's openness to international competition was 0.10 % which is a figure lower than those of all the other countries. This is a finding which proves that the olive oil industry in Turkey has almost zero dependency to other countries. However this ratio was highest in Italy with a percentage of 82.40 % and this high figure is an indication that olive oil industry in Italy is remarkably outward-oriented. Italy is followed by Spain with a ratio of 23.40 %, Greece with a ratio of 2.80 % and Tunisia with a ratio of 1.10 %.

The country with the highest net export ratio as of the year 2013 was Turkey with a ratio of 99.798 % followed by Tunisia with a ratio of 99.411 %, Greece with a ratio of 95.350 % and Spain with a ratio of 70.605 %. Italy with a ratio of (-) 14.146 % was the country with the lowest export ratio. The same results are also available for export-import ratios of the countries.

Tunisia ranks the first with a specialization coefficient of 4.654. This is an indication that Tunisia is self-sufficient and has a high level of specialization in the olive oil industry. Greece comes after Tunisia with a figure of 2.141; Spain with a figure of 2.125 and Turkey with a figure of 1.959. Italy had the lowest (0. 796) specialization coefficient.

Table 1

Competitiveness Indexes of Important Exporting Countries in the Olive Oil Sector (2004-2013) (www.fao.org)

Countries		Years									
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
SPAIN	BI	10.124	9.136	8.899	11.528	12.364	12.254	13.914	13.855	12.776	11.101
	BI2	1.804	1.580	1.329	2.406	2.496	2.651	2.808	2.852	2.520	1.561
	VI	1.727	1.957	2.481	1.057	1.037	0.855	0.827	0.802	1.053	2.327
	VI2	2.315	2.212	2.186	2.445	2.515	2.506	2.633	2.629	2.548	2.407

Table 1 (Continuation)

Competitiveness Indexes of Important Exporting Countries in the Olive Oil Sector (2004-2013) (www.fao.org)

Country	Index										
	VI3	1.768	1.541	1.278	2.389	2.478	2.663	2.822	2.850	2.496	1.562
ITALY	BI	8.202	8.380	8.070	6.796	7.457	7.439	8.082	8.772	8.625	7.760
	BI2	4.866	4.912	4.810	5.035	5.209	5.375	5.415	5.597	5.611	5.466
	VI	7.918	7.367	7.162	6.683	7.104	6.333	7.027	7.173	7.233	6.399
	VI2	2.104	2.126	2.088	1.916	2.009	2.007	2.090	2.172	2.155	2.049
	VI3	0.035	0.129	0.119	0.017	0.049	0.161	0.140	0.201	0.176	0.193
GREECE	BI	5.871	12.577	11.840	12.975	11.334	11.907	10.833	12.624	15.673	20.171
	BI2	2.370	3.919	4.304	4.015	4.386	4.198	3.851	4.528	5.050	4.203
	VI	0.569	0.260	0.168	0.238	0.144	0.177	0.227	0.137	0.103	0.301
	VI2	1.770	2.532	2.472	2.563	2.428	2.477	2.383	2.536	2.752	3.004
	VI3	2.334	3.880	4.253	3.998	4.369	4.209	3.865	4.525	5.026	4.205
TURKEY	BI	2.700	4.469	2.376	2.269	1.152	1.711	1.082	0.769	1.153	3.477
	BI2	7.053	6.696	7.601	7.743	8.370	7.476	7.716	5.984	6.072	6.353
	VI	0.002	0.006	0.001	0.001	0.000	0.001	0.000	0.002	0.003	0.006
	VI2	0.993	1.497	0.865	0.819	0.141	0.537	0.078	-0.262	0.142	1.246
	VI3	7.017	6.656	7.549	7.727	8.353	7.487	7.730	5.982	6.048	6.355
TUNISIA	BI	70.608	43.866	72.599	62.707	68.040	60.370	52.891	38.839	56.852	64.890
	BI2	10.794	11.107	10.780	10.694	11.662	12.038	12.067	11.634	12.902	11.597
	VI	0.182	0.079	0.164	0.215	0.102	0.066	0.059	0.076	0.032	0.116
	VI2	4.257	3.781	4.285	4.138	4.220	4.100	3.968	3.659	4.040	4.173
	VI3	5.963	6.325	6.090	5.676	6.502	6.824	6.791	6.237	7.467	6.324

Table 2

Other Indicators Related to Competitive Power of Vital Exporters Countries in the Olive Oil Sector (2004-2013) (www.fao.org)

Countries	Indicators	Years									
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
SPAIN	Import penetration ratio	23.196	27.888	17.663	9.563	11.600	7.594	6.962	6.082	9.419	23.410
	Openness to international competition	0.232	0.279	0.177	0.096	0.116	0.076	0.070	0.061	0.094	0.234
	Net export ratio	71.509	64.860	58.963	82.437	84.479	86.398	89.110	89.398	83.649	70.605
	Export- import ratio	6.020	4.692	3.874	10.387	11.886	13.704	17.366	17.865	11.232	5.804
	Specialization coefficient	2.164	2.029	1.508	1.898	2.263	1.965	2.139	2.026	1.964	2.125

Table 2 (Continuation)

Other Indicators Related to Competitive Power of Vital Exporters Countries in the Olive Oil Sector (2004-2013)

(www.fao.org)

ITALY	Import penetration ratio	65.321	70.199	72.624	63.610	61.484	67.580	75.476	76.495	74.311	82.362
	Openness to international competition	0.653	0.702	0.726	0.636	0.615	0.676	0.755	0.765	0.743	0.824
	Net export ratio	-23.629	-13.588	-16.929	-25.943	-23.091	-22.840	-24.386	-23.261	-19.281	-14.146
	Export- import ratio	0.618	0.761	0.710	0.588	0.625	0.628	0.608	0.623	0.677	0.752
	Specialization coefficient	0.750	0.832	0.790	0.738	0.769	0.749	0.704	0.711	0.760	0.796
GREECE	Import penetration ratio	2.964	1.288	0.775	1.575	0.809	1.401	1.882	0.918	0.605	2.782
	Openness to international competition	0.030	0.013	0.008	0.016	0.008	0.014	0.019	0.009	0.006	0.028
	Net export ratio	67.215	92.682	95.941	92.866	94.840	93.273	89.820	95.593	97.900	95.350
	Export- import ratio	5.100	26.331	48.277	27.035	37.757	28.729	18.647	44.380	94.244	42.007
	Specialization coefficient	1.122	1.326	1.366	1.410	1.297	1.388	1.332	1.398	1.564	2.141
TURKEY	Import penetration ratio	0.028	0.457	0.011	0.009	0.002	0.005	0.003	0.017	0.007	0.097
	Openness to international competition	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
	Net export ratio	99.891	99.764	99.955	99.955	99.977	99.960	99.956	99.543	99.890	99.798
	Export- import ratio	1838.222	846.861	4464.700	4459.889	8580.500	4947.500	4585.250	436.621	1819.538	990.290
	Specialization coefficient	1.520	4.863	1.483	1.391	1.208	1.256	1.127	1.074	1.129	1.959
TUNiSIA	Import penetration ratio	-0.730	0.255	-0.458	3.547	-6.945	2.315	0.437	3.484	0.314	1.082
	Openness to international competition	-0.007	0.003	-0.005	0.035	-0.069	0.023	0.004	0.035	0.003	0.011
	Net export ratio	99.445	99.531	99.690	98.840	99.308	99.722	99.470	99.132	99.838	99.411
	Export- import ratio	359.141	425.568	644.929	171.413	287.971	719.228	376.374	229.506	1235.282	338.643
	Specialization coefficient	-1.613	2.082	-1.948	7.044	-18.930	17.628	2.641	8.961	4.870	4.654

Turkey is among the top-ranking states in the production and exportation within the global olive oil sector. Irrespective of its superior position, Turkey still falls short in sufficiently benefiting from its advantage in the global olive oil exportation activities. According to the findings of this study, Turkey has rather significant advantages in many respects in the global olive oil exportation with respect to the analyzed comparative advantages criteria. According to the literature, Turkey's olive oil exports are directly affected by domestic, foreign prices and exchange rate fluctuations. It is stated that the floating exchange rate policy implemented since 2001 in Turkey is more advantageous for exporting olive oil (Tunalıoglu et al., 2013).However, it still lags behind in terms of competitive advantage when compared with international leaders in the global olive oil production and exportation in spite of such advantages. Therefore, factors that affect exportation performance should also be analyzed so as to further increase Turkey's current position and robust potential in olive oil exportation within that context. Turkey should set its olive oil production and trade policies (Türkekul *et al.,* 2010) by taking into account the advantages against global market and rival countries. Turkey should boost its quality-focused activities (Çukur *et al.,* 2015; Özden & Dios-Palomares, 2016) in order to reach this objective and sustain its competitive power in international markets. In line with this objective, it is suggested to pay particular attention to the required technical (and financial studies, R & D in particular, and that all key measures are taken to trigger a boost in the overall efficiency.

5. References

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