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Comparison for international competition power between Turkey and European Union (EU)-27: Wheat example

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The International Competition Power (ICP) for a firm or a country is the indicator of suppression over other firms or countries with which it is competing in domestic and/or international markets. It is, however, bind to demand and supply conditions in domestic and international markets (e.g. technology, productivity, production cost, domestic and international marketing conditions, etc.) and economic policies such as foreign trade, money and financial policies. The main reason of measuring ICP for a firm or country is to show its economic performance (Özağ, 2000). In this study, competitive powers of Turkey and EU-27 for wheat were measured by using Revealed Comparative Advantage Index (RCA Index, Balassa Index) and analyses have been performed by the data based upon wheat export values between Turkey and EU for 2004 - 2008. According to results obtained from this study, the international competitive power of Turkey for international wheat market is less than that of Malta, Portugal, Italy, and Belgium whereas she has more competitive power than other EU countries.

Key words: International competition power, revealed comparative advantage index, Turkey, EU-27.

INTRODUCTION

Agriculture has always been treated as special and important sector in any country regardless of developed, least developed, and developing one. The major reason for privileged treatment is that food security through which very basic needs of human beings are provided has always been one of the top priorities of any time for any country. Production factors have never had homogeneous structures in any country regardless of development level. Production factors include in this context not only natural resources, labor, capital, and entrepreneur but education, technological level, social - cultural structure, law enforcement, and institutional capacity. Since production factors are not homogeneous, agricultural structure constructed by production conditions varies country to country. This variation, however, leads to flourish trade activities amongst countries in the world. Agricultural sector has been out of international

trade regulations for a long time because of the fact that its political and social dimensions have been heavily considered and thus protected against international competition. General Agreements on Trade and Tariffs (GATT) rounds never contained agriculture, though Uruguay round attempted to do so. World trade Organization (WTO), continuation of GATT, considered agricultural sector seriously in Doha round. Nonetheless, that round has not been finalized yet. We see first time international trade regulations for agricultural products in Rome agreement in 1957 among first European Economic Community countries allowing free trade for agricultural products within the community. Due to high employment in Agriculture, the need of being self-sufficient for food, having different social and economic structures among countries and other similar reasons in Europe, Common Agricultural Policy (CAP), first common policy of Europe, was required to implement. CAP has aimed to pay the way for equal market competition conditions, structural policies, etc. in agriculture sector among member states.

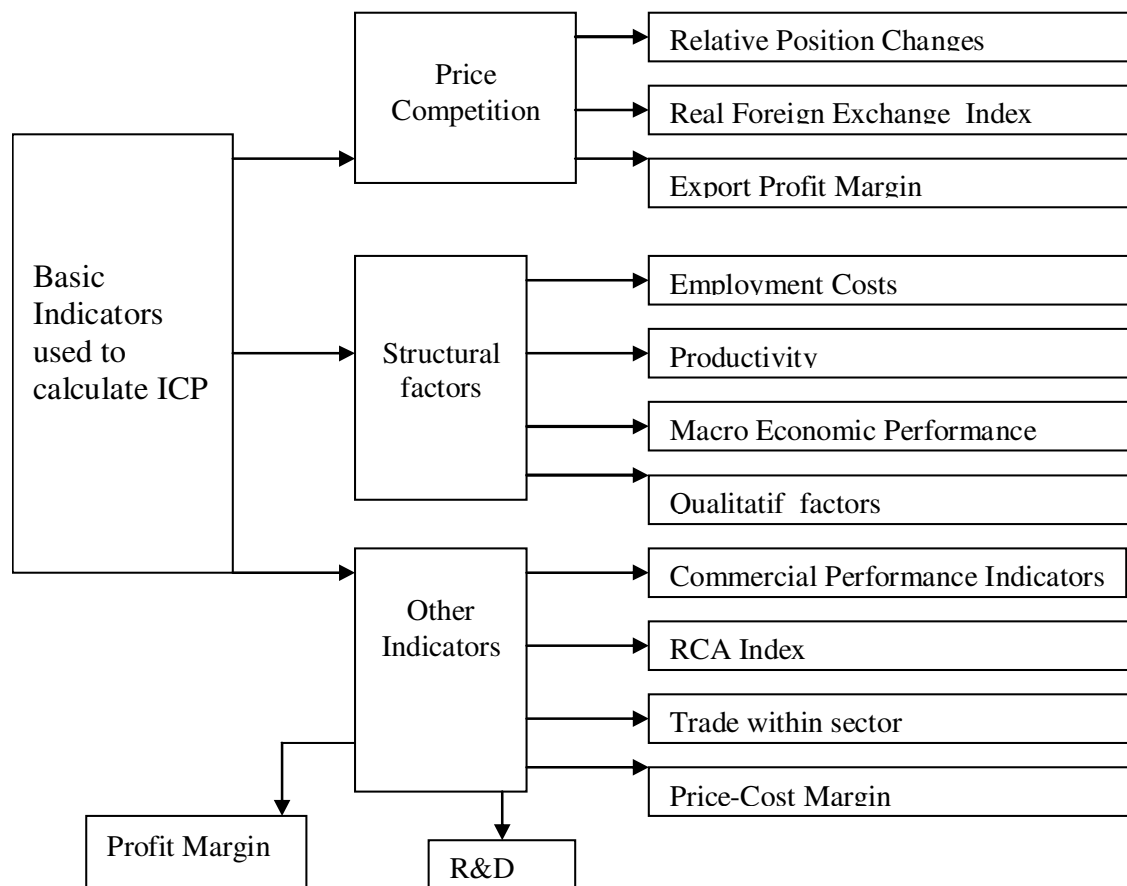*Corresponding author: E-mail: sabrier46@yahoo.com.

Figure 1. Basic Indicators used to calculate ICP.
Source: Kesbiç, Y. 2005.

Turkey for which agriculture is still its dominant sector in its economy is a developing country. As every country on developing stage, external trade and income generated through it and investment essential for capital accumulation and thus for development are vital for Turkey. Turkey's total export earning in 2004 was nearly 63 billion dollars and agriculture constituted 4% of this earning whilst total export earning of the country was 132 billion dollars in 2008 and the contribution of agriculture was only 3%. Turkey's most intense external trade relation country group is EU. Consequently, it is worth examining ICP between Turkey and EU for external trade of wheat. International Competition Power is generally considered at firm, sector, and country level. As far as a firm is concerned, ICP reflects whether the firm is going to be at the same or at better or at worse position in the future in comparison with domestic as well as international firms with respect to product price and quality(Türkekul and Abay, 2000). It is, therefore, worth examining competitive ability and comparative advantage of Turkey for wheat in this competitive climate. In this study, Turkey's ICP for external trade of wheat is targeted to reveal between Turkey and EU countries. In this study,

Revealed Comparative Advantage Index (RCA Index) has been used to determine competitive power of countries in international wheat market. RCA Index for a country is calculated thereby dividing the value of a single product in external sale over the total value of external sale of agricultural products. Figure 1 shows the most important factors affecting ICP. According to Ricardo, ICP can be calculated either by the method showing international technological differences for foreign trade or by the Balassa Index commonly used to find ICP. The structure of trade, factors other than price, and cost differences for the stated product are the key elements to explain comparative advantages for the countries in consideration. Assuming there is no production and external selling support by the government, a country has the greater comparative advantage for a product if the country can achieve high trade performance for the product. This condition now is supported by the last developments being observed in the liberalizing trade (Leishman, 1999). Balassa and other authors have used production, consumption, import and export values in order to calculate trade performance indicators. RCA Index based on external sale is preferred, since it is the

Table 1. Correlation coefficient.

Correlation coefficient	
Between 0.00 - 0.25	Very weak relationship
Between 0.26 - 0.49	Weak relationship
Between 0.50 - 0.69	Medium relationship
Between 0.70 - 0.89	High relationship
Between 0.90 - 1.00	Very high relationship

Source: Anonymous.

most appropriate one for the statistics of many institutions (Türkekul and Abay, 2000).

MATERIAL

The material used in this study is composed of wheat external sale values compiled for Turkey, and 14 countries in EU between 2004 and 2008 gotten from United States Department of Agriculture (USDA) statistical database. Since RCA Index has been used in this study and data from FAO and USDA is the most convenient for RCA Index, these data resources have been used (Türkekul and Abay, 2000). In addition, various materials from Ministry of Agriculture and Rural Affairs of Turkey, TURK STAT, State Planning Organization and General Secretariat of EU have been reviewed.

METHOD

In this study, RCA Index depended upon wheat external sale values have been calculated for Turkey and EU for the time period between 2004 - 2008. The RCA Index can be found by the following formula;

$$RCA_{ijt} = \left[\frac{X_{ijt}}{X_{iwt}} \Big/ \frac{\sum X_{ajt}}{\sum X_{awt}} \right]$$

RCA_{ijt} : Revealed Comparative Advantage Index value for the product i in the country j at year t
X_{ijt} : External Sale Value for the product i in the country j at year t
X_{iwt} : Total World External Sale Value for the product i at year t
$\sum X_{ait}$: Total Agricultural External Sale Value for the country j at year t
$\sum X_{awt}$: Total World Agricultural External Sale Value at year t

In case of RCA > 1, the export value for a product is greater than import value of the product and the country dealing with external trade of the product has comparative advantage and thus has high competitive power (Bedir, A ?). Pearson correlation coefficient and t-test values have been calculated by using RCA index series for Turkey and EU between 2004 and 2008. Pearson correlation coefficient has been used to explain the degree, direction and whether statistically significant of trade relationship between Turkey and EU. Correlation coefficient(r) displays the degree of relationship between two variables and takes values from -1 to +1. If r≥-1, there exists opposite but linear relationship between two variables while r≤+1, there exists linear positive relationship between two variables. If r = 0, however, there is no relationship between two variables at all.

The intensity and influence of trade relationship between two countries can be shown by correlation coefficient as displayed on Table 1. In econometrics, choosing 95% confidence interval is common application. That means that the parameters of population will be certain limits with 95% probability. The hypothesis of the study is;

H0: No difference between two countries with respect to RCA Index
H1: There is difference between two countries with respect to RCA Index

If P (Sig.) <0,005, then H0 is rejected.
If P (Sig.) >0,005, then H0 is accepted.

SPSS statistic package has been used for this study.

EMPERICAL RESULTS

The wheat production of Turkey in 2008 is 17.5 million tones, nearly 15% less than that of 2006 due to draught in 2007 and 2008. The decrease in wheat production has led wheat export to fall 55% in 2008. External sale value of wheat to EU was 235 million dollars in 2004 whereas this value diminished by 8% in 2008. In this study, competitive power in international wheat market has been analyzed for Turkey and EU by considering external sale values.

The RCA values displayed on Table 2 for EU countries as well as Turkey are less than 1 indicating weak competitive power in wheat international market. The positive values of the RCA index indicate that a country has an advantage of a product being exported in international market (Bedir, 2004). Because the RCA values of Turkey and EU are all positive, they have an advantage on exporting wheat. Both external sale values and RCA indices indicate that EU has superiority over Turkey for wheat sale in an international market. Özağ (2005) reached the same conclusion in the study he conducted in 2000.

The RCA indices of France, Germany, Greece, Holland, Ireland, Finland, and Sweden is less than 1 indicating that they have weak competitive power in wheat international trade. The RCA values for Belgium in 2007, for Cyprus in 2004, for Portugal in 2005, 2007 and 2008, for Spain in 2007, for Malta and Italy between 2004 and 2008 are greater than 1 indicating that those countries have competitive power in wheat international market. As mentioned above, positive RCA index of a country shows an advantage in exporting of a particular product.

All RCA indices analyzed are displayed on Table 3 show an export advantage for those countries whose RCA values are positive. As seen on the Table 3, there is a positive relationship between Turkey and EU, Spain, Belgium, Holland, Romania, Cyprus, and Germany. In Table 3, after computing RCA indices of Turkey and EU for wheat between 2004 and 2008, t and F values have been used to explain the differences among countries. The definition and meaning of intervals of correlation

Table 2. Wheat RCA Index for Turkey, EU-27, and some members of EU-27.

Countries	RCA INDEX				
	2004	2005	2006	2007	2008
Belgium	0.571	0,479	0,268	1,061	0,285
France	0.000	0,000	0,000	0,096	0,094
Germany	0,001	0,000	0,000	0,000	0,000
Greece	0,000	0,000	0,054	0,000	0,000
Italy	2,209	3,033	2,934	2,435	1,254
Holland	0,061	0,000	0,000	0,126	0,001
Cyprus	1,618	0,000	0,000	0,000	0,000
Ireland	0,000	0,000	0,000	0,000	0,242
Finland	0,000	0,157	0,009	0,000	0,003
Malta	4,412	10,059	10,848	6,597	3,685
Portugal	0,214	1,307	0,235	1,639	1,382
Romania	5,089	0,000	0,000	0,000	0,000
Spain	0,434	0,831	0,265	1,845	0,531
Sweden	0,000	0,000	0,159	0,186	0,000
EU-27	0,407	0,430	0,273	0,626	0,257
Turkey	0,162	0.046	0,000	0,085	0,034

of correlation coefficient have already been given on Table 1. According to intervals, Turkey has very weak relationship with Spain, weak relationship with EU, medium relationship with Holland, and Belgium, high relationship with Romania, Germany, and Cyprus. When external wheat sale of Romania, Germany, and Cyprus increases, the wheat external sale of Turkey also rises. Furthermore, Turkey has negative relationship with Portugal, Finland, Italy, France, Sweden, Ireland, Malta, and Greece.

F and t tests have been used in order to confirm accuracy of comments made. t test was used to find direction among RCA index average differences between two countries and whether these differences statistically significant. Study results have been found statistically significant at 95% confidence interval. H0 is rejected, since P (Sig.) < 0,05 for Belgium, Italy, Malta, Portugal, and EU. There is a difference for RCA indices between Turkey and Belgium, Italy, Malta, Portugal, and EU and this can be interpreted as existence of competition between Turkey and those countries. Since RCA indices of Malta, Italy, and Portugal are higher than 1, these countries have significant competitive power. H0 is accepted, since P (Sig.) > 0, 05 for France, Germany, Greece, Holland, Cyprus, Ireland, Finland, Romania, Spain, and Sweden. Because there is no difference for RCA indices between Turkey and France, Germany, Greece, Holland, Cyprus, Ireland, Finland, Romania, Spain, and Sweden, There is no competition between Turkey and stated countries for external wheat sale.

CONCLUSION AND RECOMMANDATION

Competition power refers to consistent rise in the ability and capacity of production of a country. In other words, competition power at the international arena is to get consistent and steady increase in the production of goods and services of a country and hence to improve living conditions of people of the country. This is the general definition of the competition power. It as also possible to make a definition specifically for a firm, industry, etc. In short, competition power is not only empower the ability of export but improve and enhance income level, employment opportunities, and living conditions of people (Kesbiç, 2000). Production volume, high productivity and quality, natural resources, population, effective resource usage, high technology usage rate, cheap input prices and thus cheaper production cost, government policies, research and development activities are major factors to make decision on a country that is more competitive than others at the international market. Nevertheless, external trade, money and finance policies of some countries leading products to be sold at cheaper price in the world market and result in losing competitive power of other countries and thus lower those countries' ICP. It has been concluded that Turkey's rivals at the wheat international market are Belgium, Italy, Malta, Portugal, and EU. Turkey's ICP is in the same direction with that of Belgium and EU meaning that they do not affect each other very much. However, Turkey's ICP is in the opposite direction with that of Italy, Malta, and Portugal

Table 3. The analyses of RCA indices of wheat between Turkey and EU.

Countries	Turkey						
	Pearson correlation coefficient	t-test	Average difference	Standard error	P (significance level)	95% Confidence interval	
						Min.	Max.
Belgium	0.503	- 3.534	- 0.467	0.132	0.024	- 0.834	- 0.100
France	- 0.083	0.728	0.027	0.038	0.507	- 0.077	0.132
Germany	0.872	2.368	0.065	0.028	0.077	- 0.112	0.142
Greece	- 0.590	1.552	0.055	0.035	0.196	- 0.043	0.152
Italy	- 0.164	- 7.110	- 2.308	0.325	0.000	- 3.209	- 1.407
Holland	0.601	1.174	0.028	0.024	0.306	- 0.038	0.094
Cyprus	0.872	- 0.861	- 0.258	0.300	0.438	- 1.090	0.574
Ireland	- 0.283	0.273	0.017	0.062	0.798	- 0.156	0.190
Finland	- 0.218	0.691	0.032	0.046	0.528	- 0.095	0.159
Malta	- 0.579	- 4.818	- 7.055	1.464	0.000	- 11.120	- 2.989
Portugal	- 0.186	- 2.873	- 0.890	0.310	0.045	- 1.750	- 0.030
Romania	0.872	- 0.958	- 0.952	0.994	0.392	- 3.711	1.807
Spain	0.179	- 2.577	- 0.716	0.278	0.062	- 1.487	0.055
Sweden	- 0.287	- 0.063	- 0.000	0.057	0.953	- 0.162	0.155
EU	0.470	- 5.660	- 0.333	0.059	0.005	- 0.497	- 0.170

* 0, 05 significance level.

meaning that increase in external sale of wheat in one country causes decrease in other country. Turkey's ICP is lower than that of Italy, and Malta at the international wheat market. Because; they have lower production cost in producing wheat and hence they are able to dump wheat to international market cheaper than Turkey does.

It has also been concluded that Turkey is not rival to France, Greece, Ireland, Malta, Portugal, and Sweden at the international wheat market. Because; the production cost of wheat is almost the same for those countries and thus they summit wheat to international market at very similar prices. Improving infrastructural facilities, preventing land partition, expanding agricultural insurance implementations, improving effective resource usage, training producers about international competition, increasing technology usage and thus decrease production cost of products are some major steps that are supposed to be taken in order to improve and increase the ICP of Turkish agriculture. Moreover, agricultural production has to be directed based upon marketing research activities for domestic as well as international markets. In addition to these factors, all actors placed from field to kitchen have to be informed for EU rules and regulations and possible pros and cons that will emerge with EU integration and take precautions in advance to convert disadvantages to the advantages. The production cost and amount of a product are important factors affecting international competition and countries have impact on little or big one and other in this competition. Therefore, weak and strong points of a country (or countries) with which we are competing are supposed to be scrutinized and known to be successful in this competition environment.

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