

Competitiveness and the Trade of Livestock Products: A Comparative Study Between Turkey and its Neighbouring Countries

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Abstract: This study aims at examining the international competitiveness of Turkish exports in comparison to its neighboring countries in the wake of globalize trend. Revealed Comparative Advantage Index of each country remained mixed but with varying degrees with respect to each commodity group. Ukraine and Romania appeared significantly competitive in terms of their export market share both in the world and in the neighboring countries markets. Being high wage economy relative to its neighboring countries, Turkey could increase marginally its export market share only in the markets of its neighboring countries during 2001.

Key words: Revealed comparative advantage, international competitiveness, trade of livestock, Turkey and its neighboring countries

INTRODUCTION

During the past decade, globalization has been a pervasive trend in almost all economies. The world economy has become increasingly interdependent. International linkages, most notably in trade has become more intensified. Consequently, economic growth and trade of many world economies are seen largely effecting and also being effected by their trading partners.

This scenario, in fact, emerged with the launch of the World Trade Organization, where more than one hundred nations committed themselves to open markets for goods and services in a manner compatible with multilateral trading principles. Following the commitments^[1], many governments in their respective economies departed from the strategy of inward looking towards liberalized policies by dismantling excessive restrictions on imports and reducing subsidies on exports. These reforms not only attributed to the openness of economies but also to the changes in their factor endowments. In the past few decades, because of the increased level of multinational activity played by Multinational Enterprises not only the production has moved to its least cost locations but also the factor endowment position has changed due to the spread of technological improvements^[2].

Within this changed environment of globalization, if trading partner of any country experiences such changes, then pattern of specialization (comparative advantage), trade structure and competitiveness of trade is also expected to change.

Against this background, the main aim of this study was to examine the international competitiveness of Turkish exports in comparison with its neighboring countries in the wake of changes taking place in the field of international trade.

Trends in output and trade of livestock and its products:

It is needless to say that the livestock sector plays an important role in the development of national economies. This sector not only provides food (protein), income, and employment to the people but also is a good source of stored wealth. Livestock and livestock products, in the global trade, account for about one sixth, by value, of all agricultural trade. Meat exports make up about half the total value and dairy products are about a third, by value, of livestock and livestock products exports. The poultry meat exports on the other hand have grown annually by 14%^[3].

Developed countries, as a group, account for more than three quarters of world trade in livestock and livestock products, while developing countries, as a group on the other hand, are the net importers. Globally, livestock production is growing faster than any other sector and in the future this sector is predicted to be the most important agricultural sector in terms of added value and have to be more dynamic to meet the rapidly increasing consumption of livestock products in developing countries where per capita meat consumption is expected to double between 1993 and 2020^[4].

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Growth of world output: One of the main reasons for rapid growth in world output over the period since 1951 has been the growth of world trade. During the whole period under study world exports grew in volume terms at a rate of 6% a year or one and half time that of world output. The results of the two periods (i.e. 1951-1980 and 1981-2001) revealed that economic growth has been essentially trade-led-growth, that is, the expansion of trade has led the growth in output rather than driven by growth (Table 1).

Manufacturing sectors has played the leading role in the expansion of trade (Table 1). Throughout the periods, trade in manufacturing has grown faster than world merchandise trade as a whole. This increase in the ratio of trade-to-output growth in manufacturing clearly reflects a process of increasing specialization that was taking place in the world. This ratio also suggested that specialization has been increasing at an accelerating rate especially in recent years. Trade in agriculture, however, has grown slowly. Though the ratio of export growth to production in the case of agriculture also remained higher relative to other sectors during whole period (i.e. 1951-2001), it, however, remained behind when checked for two periods (1950-1980 and 1981-2001) separately.

Livestock sector: In terms of volume, the world production in agricultural and livestock sector together grew at a rate of 2% annually and remained constant during all three periods. Trade growth (export and imports) in these sectors grew rapidly relative to production and the ratio of trade growth to production remained 1.64, 1.88 and 1.38, respectively for the periods 1980-200, 1980-1990 and 1990-2000 (Table 2).

In term of value, livestock and livestock products, though remained fluctuating throughout the period, account for about 19% of all agricultural trade and 1.86% of total merchandise trade. The main contributor to the total value of world exports of livestock has been meat and preparations (53%), then follow dairy products and live animals, respectively contributing 34 and 13% (Table 3).

Export growth of livestock and its products: Trade in Livestock and livestock products has grown rapidly and over the period 1980-2000, an average annual growth of export by value has risen ranging from 2.12% for live animals to over 4.16% for meat and preparations (Fig. 1). The rate of export growth in dairy products and meat and preparations remained higher than the rate of agricultural exports throughout this period.

The average growth of the production and exports for all developing countries during 1981-2001 remained

Table 1: Growth of world production and trade, 1951-2001

	1951-2001	1951-1980	1981-2001
Average annual % change in volume			
Production			
Total	4	5	2
Agriculture	2	3	2
Mining	3	4	1
Manufactures	5	6	3
Exports			
Total	6	7	5
Agriculture	4	4	3
Mining	4	6	2
Manufactures	8	9	6
Ratio of exports growth to production growth			
Total	1.5	1.4	2.5
Agriculture	2	1.33	1.5
Mining	1.33	1.5	2
Manufactures	1.6	1.5	2

Source: WTO^[8]

Table 2: Growth of world production and trade of livestock and products, 1980-2000

	1980-2000	1980-1990	1990-2000
Average annual % change in volume			
Production:			
Total (agriculture and livestock)	2	2	2
Livestock	1.60	1.88	1.33
Trade (exports and imports):			
Total (agriculture and livestock)	3.29	3.77	2.77
Livestock	3.70	5.14	2.10
Ratio of trade growth to production growth:			
Total (agriculture and livestock)	1.64	1.88	1.38
Livestock	2.31	2.73	1.58

Source: FAO^[9]

Table 3: Composition of world exports of livestock and its products by value (Average), 1980-2000

Products	Value (\$ MLN)	% of total
Live animals	7,906.65	13.05
Meat and preparations	32,152.45	53.08
Dairy products	20,512.85	33.87
Total	60,571.95	100

Source: FAO^[9]

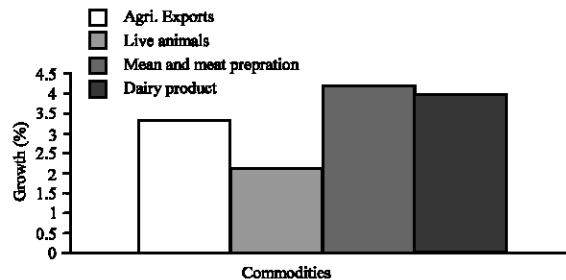


Fig. 1: Average annual growth of export value (MLN\$) by commodity (1980-2000)

respectively, 4.26 and 4.57% (Table 4). During the first decade, exports grew at faster rate than the second decade of the whole period i.e. 1980-2001. Bulgaria is the only country, which showed negative rate of growth in both production and exports during 1980-2001. And the

Table 4: Average annual growth of production (i.e. volume) and trade (exports) of livestock and its products, 1980-2000

Country	1980-2000		1980-1990		1991-2000	
	Production	Exports	Production	Exports	Production	Exports
Egypt	4.13(73820)	11.29(346)	2.77(31141)	8.92(161)	5.20(42679)	14.07(692)
Bulgaria	-1.66(59085)	-6.23(4745)	1.18(36936)	-3.93(3672)	-4.33(22149)	-8.78(1073)
Israel	2.56(28726)	-0.33(1199)	2.75(13060)	0.93(636)	2.38(15666)	-1.76(563)
Iran	3.76(112018)	0.00*(233)	3.69(46743)	0.00*(0)	3.82(65275)	0.00*(233)
Syria	3.51(34359)	25.84(1373)	3.97(15696)	55.86(597)	3.05(18663)	-7.50(776)
Turkey	0.68(239287)	4.98(5389)	0.68(119080)	16.49(3783)	0.68(120207)	-7.81(1606)
Jordan	7.25(4750)	15.07(776)	7.39(1524)	6.80(228)	7.11(3226)	24.26(548)
LDC	4.26(5555802)	4.57(148615)	4.13(2267885)	5.19(59875)	4.38(3287917)	3.87(88740)

Figures in brackets are of production (1000 MT) and Exports (MLN \$). *shows median. LDC denotes all developing countries.

countries like Egypt and Jordan exported livestock at greater rate than their production. Turkey traded at an impressive rate of about 16% during first decade and in the second decade its rate was about 8%. It, however, traded at about 5% during the whole period.

The animal products sector in Turkey is a significant component of the Turkish economy. In 2001, about one ten of primary and processed animal production in Turkey was exported and the total export value of animal product accounted for approximately 11.74% of Turkey's total exports of goods. Turkey's neighboring countries, as a group, were the second largest market for the animal products exports. During the period 1997-2001, about 2% of total animal products exports of Turkey went to neighboring countries. In recent years, animal product exports from Turkey to neighboring countries have increased rapidly. In nominal terms, total export value of Turkish animal products to neighboring countries increased from US\$ 174 million in 1997 to US\$ 323 million in 2001^[5]. Now the question is, "Did the increased exports of the Turkey's animal products over the period 1997-2001 reflect its rising export competitiveness in neighboring countries?" If so, to what extent and in which commodity group? These questions are important given the increased competition among export suppliers to maintain and increase their market shares in the neighboring countries. Such competition has become even more intensive in recent years as the animal product sector in neighboring countries such as Romania, Ukraine, Bulgaria, and the Russian Federation has increasingly relied on exports for growth.

MATERIALS AND METHODS

Data used for descriptive purpose are taken from Comtrade^[5], FAO^[6] and World Bank^[7]. Data used for export share and RCA are obtained from the Comtrade software, produced by the World Trade Organization^[8] and cover five years (1997-2001). The Comtrade database, based on the Harmonize System (HS)^[9], provides the data at the total and two digit HS levels. The four categories of

products are live 1) animals, 2) meat and edible meat offal, 3) dairy product, eggs, honey and 4) products of animal origin, nesc.

From these observed data, besides computing the export and import share, the estimates of the competitiveness of different countries in the trade of livestock are also calculated. Market share for export and import of each country is computed as follows^[10]:

$$S_i = \frac{T_i}{T}$$

Where, S_i: Export/import share of country I, T_i: export/import of country I, T: total export/import of neighboring countries/world countries.

Revealed comparative advantage (RCA)^[11], competitiveness in the trade of each product is estimated by using the following index:

$$RCA_i = \frac{(X_{ij}/X_{wj})}{(X_i/X_w)}$$

Where, X_{ij} denotes country 'I' export of commodity j, X_{wj} is world exports of commodity j, X_i is country 'I' total exports and X_w is total world exports. The higher (lower) the value of the coefficient i.e. RCA, the more (less) comparative advantage in trade performance the country 'I' has in commodity 'j'. In fact, RCA is the ratio of a country's exports in a particular commodity category to its share of the world total. If the value of RCA is above 1.0, it means that the country's export of that commodity is more than the world average. Thus, it implies that the country has a comparative advantage in the production of that commodity. On the other hand, if the value of RCA is below 1.0, it means that the ratio of that commodity is lower than the world average and implies that the country has disadvantages in the production of that commodity relative to other countries.

The countries taken for analysis include; Romania, Israel, Jordan, Ukraine, Turkey, Bulgaria, Russian federation, Iran, Syria, Egypt, Greece, Azerbaijan, Georgia and Armenia.

RESULT AND DISCUSSION

The export share of each country to the market of neighboring countries (as a group) remained mixed as some countries lost their share and some gained more share of export (Table 5). Ukraine and Romania appeared as dominant countries in terms of their export shares and respectively were capturing 77 and 12% of the markets of neighboring countries in 2001. Turkey, though, increased its export share in the neighboring, this share increased in small magnitude from 0.76% in 1997 to 1.60% in 2001.

With the exception of Ukraine, the exports share of each country to the world market remained generally same during 1997 and 2001 (Table 6). Ukraine's exports share increased from about 6% in 1997 to about 8% in 2001. Turkey's exports share to the world market remained insignificant. Besides being high wage economy, Turkey also lags behind in technological innovation relative to high technology EU and other developed countries' firms. This makes Turkish labour cost dynamics to affect export performance negatively^[12].

With the exception of Greece, Azerbaijan and Ukraine, imports share of total animal products from the world market decreased for all countries (Table 7). These shares, however, from the market of neighboring countries given in Table 7 increased significantly in Greece (from 10.30 to 37%), Ukraine (from 1.40% to 13%) and Azerbaijan (from 7.30 to 16%). Russian federation and Syria decreased their respective magnitude of imports from neighboring countries from 2.20% in 1997 to 1% in 2001.

An alternative way of identifying the potential for growing trade competition is to highlight those products in which both regions appear to be relatively efficient producers. The potential for direct competition will be

greater the higher the share of these products in total exports. An index of revealed comparative advantage (RCA) can suggest those products that both regions produce competitively. If index of RCA is greater than 1 then it indicates that a region is relatively efficient in exporting a product or product group to a given market.

While looking at the patterns of RCA in Table 5 and 6, it appears that many countries' revealed disadvantage is mostly in commodity (02) in both the world and neighboring countries market. However, in the world market, revealed comparative advantage (RCA) of many countries lies in commodity (04), then follow both commodities (05) and (01). In the market of neighboring countries, many countries revealed comparative advantage in commodity (05) and then in commodity (04).

In the market of neighboring countries, Syria has maximum number of RCA and its RCA lies in commodities (01, 04 and 05). Turkey's RCA lies in commodities such as (02) and (05). Countries like Azerbaijan, Greece, Romania and Jordan revealed advantage only in (05), (04), (01) and (01) one in number each, respectively. It is worth noting that within those products where Turkey revealed comparative disadvantages at the broader 2-digit product group level (i.e. 01 and 04), its broader sharing countries like Syria, Jordan and Iran revealed comparative advantage. This outcome points out that trade linkages can be created between these countries at cost effective basis.

In the world market, Turkey, Iran and Syria revealed maximum number of comparative advantages (3 each). In looking at the patterns of RCA in Table 6, it appears that RCA of all these countries lie in the same commodities i.e. (01), (04) and (05) and revealed disadvantages also lie in the same commodity (02). From this outcome it appears

Table 5: Export share and RCA of each country in the market of neighboring countries, 1997 and 2001

Harmonize system										
Countries	1997					2001				
	01	02	04	05	Share (%)	01	02	04	05	Share (%)
Romania	2.8960	1.0260	0.1370	0.0630	23.50	7.6920	0.0000	0.1620	0.0000	11.76
Israel	7.1250	0.3230	3.3450	0.6040	0.80	6.3890	0.0450	0.3030	2.6760	0.70
Jordan	1.2680	0.0000	0.0000	149.4510	0.25	5.7590	0.0000	0.5860	0.0000	0.09
Ukraine	0.2590	1.0620	0.8890	0.3170	64.27	0.0290	2.2840	1.1490	0.2110	77.09
Turkey	0.0000	0.2400	6.4190	5.2680	0.76	0.3110	1.2980	0.8250	5.8630	1.60
Bulgaria	1.1880	0.7800	2.4150	1.6580	4.80	0.1040	1.7880	0.4520	2.4050	4.69
Russian Fed	0.5340	0.5190	4.3700	3.5830	1.40	0.0660	0.0240	2.3230	3.2320	0.90
Iran	0.0000	0.7440	3.1890	0.3850	3.05	0.7780	0.0000	1.7420	20.4950	0.72
Syria A. R.	3.5050	0.0000	7.0100	0.0000	0.32	1.7380	0.0000	1.2930	29.8450	0.48
Egypt	8.3610	0.0070	0.0000	20.3230	0.16	0.0000	0.0650	0.0000	0.0000	0.54
Greece	0.6340	0.6950	2.7430	10.6250	0.59	0.0000	0.4590	1.8680	0.0000	0.38
Azerbaijan	0.0000	0.0000	0.0000	158.7300	0.08	0.0000	0.0000	0.0000	135.1350	0.22
Georgia	0.0000	0.9870	0.0000	0.0000	0.02	0.0000	0.0000	0.0000	0.0000	0.00
Armenia	0.0000	0.0000	0.0000	0.0000	0.00	0.0000	0.0000	2.3320	0.0000	0.01

Table 6: Export share and RCA of each country in the world market, 1997 and 2001

Harmonize system										
Countries	1997					2001				
	01	02	04	05	Share (%)	01	02	04	05	Share (%)
Romania	4.3046	1.2300	0.0610	0.0360	2.16	32.2581	0.0000	0.2680	0.0000	1.22
Israel	10.5921	0.3880	1.4960	0.3460	0.07	26.7943	0.0290	0.5030	1.3200	0.07
Jordan	1.8858	0.0000	0.0000	85.5950	0.02	24.1500	0.0000	0.9720	0.0000	0.01
Ukraine	0.3849	1.2730	0.3980	0.1810	5.92	0.1236	1.4740	1.9070	0.1040	7.97
Turkey	0.0000	0.2880	2.8700	3.0170	0.07	1.3049	0.8380	1.3700	2.8920	0.17
Bulgaria	1.7667	0.9350	1.0800	0.9500	0.44	0.4361	1.1550	0.7500	1.1860	0.48
Russian Fed	0.7935	0.6230	1.9540	2.0520	0.13	0.2749	0.0160	3.7030	1.5940	0.09
Iran (Islm.R)	0.0000	0.8920	1.4260	0.2210	0.28	3.2615	0.0000	2.8910	10.1110	0.07
Syria A. R.	5.2121	0.0000	3.1340	0.0000	0.03	7.2900	0.0000	2.1400	14.7240	0.05
Egypt	12.4337	0.0080	1.7990	11.6390	0.01	1.0127	0.0420	3.6380	0.0000	0.06
Greece	0.9425	0.8330	1.2260	6.0850	0.05	0.0000	0.2960	3.1000	0.0000	0.04
Azerbaijan	0.0000	0.0000	0.0000	90.9090	0.01	0.0000	0.0000	0.0000	66.6670	0.02
Georgia	0.0000	1.1830	0.0000	0.0000	0.00	0.0000	0.0000	0.0000	0.0000	0.00
Armenia	0.0000	0.0000	0.0000	0.0000	0.00	0.0000	0.0000	3.8680	0.0000	0.00

Table 7: Import share in the market of neighboring countries and world, 1997 and 2001

Countries	Neighboring countries		World countries	
	1997 Share (%)	2001 Share (%)	1997 Share (%)	2001 Share (%)
Greece	10.30	37.00	2.70	5.70
Syria A. R.	12.00	8.00	3.20	1.30
Jordan	1.60	3.00	0.40	0.50
Egypt	0.40	1.00	0.10	0.10
Turkey	2.20	1.00	0.60	0.10
Russian Fed	42.50	1.00	11.30	0.20
Azerbaijan	7.30	16.00	1.90	2.40
Ukraine	1.40	13.00	0.40	2.00
Georgia	8.90	7.00	2.40	1.20
Armenia	2.10	1.00	0.60	0.20
Romania	5.00	6.00	1.30	0.90
Bulgaria	4.30	5.00	1.10	0.80
Israel	0.10	1.00	0.00	0.20
Iran	1.90	0.00	0.50	0.10

that the trade patterns of these countries reflect similar characteristics (i.e. factor prices etc) and hence, appeared as competitors to each other. Azerbaijan, Greece, Romania and Jordan revealed comparative advantage one each in the world market.

The examination of Table 7 which contains import/export share of each country from world and neighboring countries, reveals that Greece (37%), Azerbaijan (16%) and Ukraine (13) were respectively first, second and third major importers not only in the market of neighboring countries but also in the world market with respective share of 6, 2.40 and 2%.

CONCLUSION

Due to changes in trading policies, Multinational activity and technological improvements, trade structure and the competitiveness of trade have changed. Rapid growth in world output is caused by growth of world trade as the ratio of trade to output remained higher

throughout and this indicates that increased specialization was taking place. Livestock sector did not remain behind this trend and its ratio of trade to growth remained one and half time that of its output. The rate of export growth in meat and preparations and Dairy products remained also higher.

In terms of exports shares, Ukraine and Romania have been significant contributors respectively with 77 and 12% in neighboring countries and with 8 and 1% in the world market during 2001. Turkish exports share, though increased in both markets, but its magnitude remained marginal. This is due to fact that Turkey is a high wage economy relative to its neighboring countries and its firms lag behind the firms of EU and other developed nations in term of technological innovation. This finding supports the indications by other studies^[12-14] that labor cost dynamics and technological innovation seem to affect the export performance.

In response to changed environment of international competitiveness, Armenia and Bulgaria were the only countries that changed their direction of trade. They increased their import share from the market of neighboring countries relative to world market. Bulgaria, however, changed its direction of exports and exported more to the world market rather to neighboring countries.

As far as revealed comparative advantage (RCA) is concerned, in the market of neighboring countries, more number of countries (i.e. 7) revealed comparative advantage in the export of commodity group (05) then follows commodity group (04) where six countries revealed advantage. In the case of commodity groups (01) and (02), there were respectively, 4 and 3 number of countries who revealed advantage.

In the world market, majority (i.e. 8) of the countries under examination revealed comparative advantage in the commodity group (04), during 2001. In the commodity

group (05), 7 countries revealed comparative advantage. Out of these seven, Turkey, Russian federation and Azerbaijan maintained their competitive position in the world whereas Israel, Bulgaria, Iran and Syria emerged as new competitive players during 2001.

It can be seen from the results that Turkey is not an efficient producer of commodity groups (01 and 04) but it can gain benefits by creating an effective trade links with its border sharing countries like Syria, Iran and Jordan which appeared as efficient producers of these commodity groups.

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