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Market dynamics and commercial flows in the fruit and vegetable sector in the Mediterranean area

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Market dynamics and commercial flows in the Mediterranean area

Triangular effects among the EU, the MPCs and Italy in the fruit and vegetable sector¹

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Introduction

In the last few years, obstacles to continue the process of market liberalization at multilateral WTO level have represented an incentive for the realization of a great number of regional trade agreements such as the Euro-Mediterranean Partnership, which was officially born with the Barcelona Declaration in 1995 and aims to set up a stronger collaboration in political, economic, social and cultural field between the EU and the Mediterranean Partner Countries (MPCs) of Asia and Africa. One of the recommended results is the creation of a free trade area among the EU and the MPCs by 2010, considered to be an essential requirement to promote the economic and social development of northern and southern Mediterranean countries.

After the Barcelona Declaration, despite the objective of a free trade area, the EU started to negotiate with single Mediterranean partners (with the exception of Libya that remained out of the process) through a sequence of bilateral agreements, fixing different conditions of mutual concessions. The bilateral dimension has subsequently been strengthened by the new European Neighbourhood Policy (defined in 2004) through the signature of specific Action Plans between the EU and the MPCs (with the Countries that had already signed Association Agreements). According to results reached, there will be the opportunity to involve the most virtuous partners in a new series of international agreements (the Neighbourhood Agreements) in substitution of the current ones (Ismea-MAIB, 2006).

A further step was taken in November 2005, when the ministers of trade of the MPCs and the EU set a new program to concretize the objective of the free trade area (road map of Rabat) (Longo, 2007). At present, bilateral negotiations have quickly proceeded with Jordan, Israel and Egypt, and more slowly with Morocco and Tunisia (CIHEAM, 2008). Syria is a case apart, since with it no Association Agreement has been signed yet. By contrast, Turkey is following a different path with respect to the other MPCs, since it is working to join the EU.

The slowness and difficulty met in the scheduled international agreements constitute a failure compared with the initial intentions of the Barcelona Declaration to liberalize the agri-food trade. Furthermore, the simple signature of this agreement is not enough to increase the trade flows: nations like Tunisia, Jordan, Algeria and Lebanon, for instance, are scarcely using their preferential contingent for agricultural products. It seems to be evident that in trade relationships that are more and more articulated, many other factors besides tariffs and contingents play an essential role: logistic structures, global sourcing, technologies for the preservation of products, infrastructures, and management of the quality standards (Perito, 2006).

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In Countries where institutions and entrepreneurial class cannot face and resolve these challenges related to the needs of the market and the large-scale retail trade, exporting products are difficult, a little competitive and not convenient (or even impossible). By contrast, nations as Egypt, Israel and Morocco, having comparative advantages (natural and induced), can efficiently use the EU concessions. However, the margins of improvement are still high: the trade relationships between Egypt and Italy, for instance, suffer from irregular and slow services of maritime transport, which are inappropriate for perishable commodities as fruits and vegetables.

A still open issue concerns the competition for production between the MPCs and the Euro-Mediterranean countries. According to the theory of comparative advantage, the Mediterranean products (oil and fruit and vegetable products) coming from the MPCs are those that can benefit more from the market liberalization, for the supposed advantage due to climate, low-cost manpower and lax controls on quality; all these elements can guarantee productions at lower costs compared with European farmers. In a recent analysis conducted by INEA (2002), exports from the MPCs are more competitive for Spain, Greece, Italy, and Holland than for other European member states.

This study will deepen the case of the fruit and vegetable trade; the purpose is to introduce the change of the export flows from the MPCs to Europe and Italy, analyzing the dynamics of these markets and assessing possible differences in the growth of specific market sectors. Through such analyses, the study is meant to verify if there has been a growth in the integration of markets and coordination between the productive and commercial areas, recognizable for the whole fruit and vegetable sector or for specific Countries and products. Such integration entails mutual advantages for the exporting Country and for the importing one that, by intercepting the trade flow, supplies its industry of transformation and the connected services (storing, transport), with the subsequent production of added value, employment and growth of the economy, with the possibility of re-exporting the finished product. More specifically, the study wants to verify if Italy, compared with other European Countries, is taking advantage of its geographical position to intercept the trade flows leaving from the MPCs, and if its role of privileged logistic base between the two shores of the Mediterranean Sea is becoming more and more important.

1. Agri-Food Trade Between Italy and Mediterranean Countries

In this paragraph the status and trend of Italian agri-food trade will be shortly introduced, especially with the Mediterranean Countries.

With the world, from 1996-1997 to 2006-2007, the agri-food trade balance shifted from -8,249 million of euros to -7,249 million of euros; the export increased of 64% and the import of 38%. Both for import and export, the number of processed products increased with double percentages with respect to primary products.

The fruit and vegetable sector, which represents the main Italian export sector (both in volume and value), has shown an erosion of the normalized trade balance in the last decade (fresh vegetables have shifted from 0.34 to 0.12 because of limited increases of the exports; in volume the exports of vegetables have decreased). Export of the processed fruits and vegetables is increasing but at lower rate than other important categories as meat (and meat preparations), dairy products, fats and oils, confectionery products and beverages. Consequently, we report a drop of the normalized trade balance (processed fruits balance fell from 0.41 to 0.26).

Table 1
Changes in the normalized trade balance of Italian agri-food exchanges

	Normalized trade balance Italy-World		Normalized trade balance Italy-MPCs	
	1996-1997 Average	2006-2007 Average	1996-1997 Average	2006-2007 Average
Primary products	-0.41	-0.36	-0.72	-0.68
Processed products	-0.14	-0.06	-0.01	-0.38
Total agri-food products	-0.23	-0.14	-0.26	-0.50

Source: Istat

By analyzing the trade relationships between Italy and Mediterranean Partners, it is possible to see how much they are characteristic. Our agri-food trade balance has fallen in ten years from -290 million of euros to -875 million of euros, in evident contrast compared with the trend of the rest of the world. Over the last ten years, imports have increased of 90% and exports of 9%. The trend of the processed food sector is particularly serious with a collapse of exports (-4.7% in value, a trend that is almost exclusively due to the products of the milling industry) and an explosion of imports (+108.7% in value), with the normalized trade balance dropping from -0.01 to -0.38.

In a more detailed analysis, the chief export sector of primary products concerns live trees, flowers and other plants (23 million euros on average in the period 2006-2007), followed by cereals (our principal sector of import at world level with 22 million euros) and fresh fruits (20 million euros). Exports of vegetables are meaningless. These three categories of products had substantial increase in export (each one over 100% in value): while trees and flowers and the cereals have increased more in value than in volume, the fruit sector has increased more in volume.

Table 2
Changes in agri-food trade between Italy and the MPCs

	Exports to MPCs: average of period 2006-2007			Imports from MPCs: average of period 2006-2007		
	Value million of €	Change in ten years	Market share	Value million of €	Change in ten years	Market share
PRIMARY PRODUCTS	109.4	98.7%	2.3%	571.1	69.5%	5.5%
Animals	0.1	-99.3%	0.1%	1.1	15.2%	0.1%
Fresh fish	3.1	2223.0%	1.8%	42.3	61.6%	6.8%
Live trees, flowers and other plants	23.2	118.7%	3.8%	4.3	11.5%	0.8%
Fresh vegetables	0.1	-72.7%	0.0%	84.8	294.4%	12.6%
Dried legumes and vegetables	0.9	202.7%	1.9%	24.2	55.6%	12.3%
Shell fruits	1.9	70.7%	0.9%	182.1	178.2%	34.7%
Fresh fruits	20.2	263.2%	0.9%	81.3	58.3%	6.6%
Coffee, tea and spices	0.7	193.6%	2.1%	1.3	20.3%	0.2%
Cereals	21.6	784.6%	16.8%	55.2	1351.9%	3.1%
Oil seed, oleaginous fruits	10.4	146.4%	6.9%	19.9	44.2%	3.0%
Raw tobacco	13.2	-11.8%	6.6%	1.7	-76.7%	5.2%
Wood	0.5	-28.8%	4.8%	2.0	-47.2%	0.3%
Cotton	0.5	-57.9%	6.3%	41.8	-60.5%	26.3%
Other primary products	13.0	169.8%	7.2%	29.0	74.5%	3.0%
PROCESSED PRODUCTS	334.4%	-4.7%	1.8%	748.1	108.7%	3.7%
Meat and meat preparations	4.2%	3.6%	0.3%	3.6%	110.6%	0.1%
Fish preparation	8.7%	826.5%	2.3%	178.8%	79.7%	5.8%

Milk and dairy products	5.8%	233.9%	0.4%	0.0%	-61.3%	0.0%
Processed rice	18.8%	-12.5%	5.8%	1.0%	23371.0%	5.6%
Products of the milling industry	21.3%	-84.4%	11.1%	0.1%	-64.1%	0.1%
Animal and vegetable fats and oils	14.9%	0.1%	1.0%	406.5%	119.7%	17.2%
Olive oil	6.7%	644.4%	0.5%	398%	116.9%	28.4%
Sugar and cocoa preparations	67.2%	77.4%	6.4%	19.9%	200.0%	1.7%
Confectionery and bakery products	49.3%	67.3%	1.9%	3.2%	244.7%	0.3%
Processed vegetables	26.6%	29.3%	2.0%	20.9%	35.6%	3.2%
Processed fruits	11.2%	237.6%	1.4%	50.8%	88.3%	11.1%
Beverages, spirits end vinegar	14.8%	213.7%	0.3%	18.3%	15911.7%	1.4%
Wine	3.6%	200.0%	0.1%	0,3%	200,0%	0,1%
Other processed products	91.5%	21.4%	4.2%	45.1%	105.8%	1.6%
TOTAL	443.8%	9.3%	1.9%	1319.3%	89.7%	4.3%

Source: Istat

It is also interesting to consider that ten years ago the Italian export of primary products had a composition being completely different from the current one; for instance, the first two sectors were raw tobacco and animals. The trade of animals to the MPCs accounted for 19% of the total Italian exports of this product; nowadays, this trade has completely disappeared (-99% drop). Tobacco exports have drop of 12% in value and this product is nowadays the fourth in importance.

As far as import is concerned, it is evident that fruits and vegetables sector are the first exchanged category (372 million euros, with the considerable importance of shell fruits, followed by vegetables and fresh fruits). Cereals fall behind (55 million euros), then cotton and fresh fish (both about 42 million euros). Imports of fruits and vegetables as a whole increased both in value and volume (with the exception of dried legumes and vegetables). Also fresh fish (+62% increase) and cereals (more than ten times increase) have expanded, while cotton imports had a -60% drop in the last decade.

The main categories of export of processed products are sugar and cocoa preparations (67 million euros), confectionery and bakery products (49 million euros), and processed vegetables (27 million euros). These three categories are in expansion. The export of milling industry products, which in 1996-1997 was the most important category, has collapsed (-84% drop in value). Rice has decreased too.

Among imports, the most important commodities are fats and oils (essentially olive oil, with almost 400 million euros), fish preparations (179 million euros), processed fruits and vegetables (respectively 21 and 51 million euros). All these categories are in expansion. Among the most meaningful categories of import from the MPCs, none has decreased.

Main Mediterranean Partners

The main partner of Italy for agri-food exports is Turkey (28% of exports to MPCs), followed by Libya (15%), Israel (14%) and Tunisia (11%). In general, our exports to the MPCs are relatively well distributed since also the least important partner, Jordan, shares 2% of our exports.

Our export to the majority of the Mediterranean Countries has increased, especially to Turkey (+243%) and Tunisia (+422%), but very negative is the trend with Algeria (-70%), Libya (-22%) and Lebanon (-22%), which in the two-years period 1996-1997 were our first, second and fourth commercial partners, respectively. Concerning imports, our main partner is always Turkey (35% share of imports from MPCs), followed by Tunisia (30%), Morocco (12%) and Egypt (11%). Unlike what happens for export, for import the market shares of the MPCs are much more unbalanced, since the four less important partners (Algeria, Libya, Jordan and Lebanon) globally share 1% of the commercial flow from the Mediterranean to Italy. Libya, Jordan and Lebanon are also the only countries whose value of export has decreased in the last decade, by determining a greater discrepancy between the most important partners and the

negligible ones. Very meaningful is instead the increase of Egyptian) and Tunisian exports (+253% and +118% respectively).

The more important product categories for exports of our partners are: shell fruits for Turkey (representing 39% of its agri-food export to Italy), fats and oils for Tunisia (75%), fish preparations for Morocco (62%), and fresh vegetables for Egypt (41%). In general, all these countries have an export that is very unbalanced and specialized in few categories: for each of the above-mentioned countries, the first five categories of products represent over 70% of the value of exports to Italy, with 95% maximum in the case of Tunisia.

Table 3
Import-export between Italy and the MPCs

	Italian exports: 2006-2007 average			Italian imports: 2006-2007 average		
	Value €	Change in ten years	Market share	Value €	Change in ten years	Market share
Turkey	124,981,842	242.7%	28.2%	457,819,651	92.4%	34.7%
Tunisia	50,295,232	422.0%	11.3%	391,508,584	118.3%	29.7%
Morocco	17,386,830	51.8%	3.9%	160,325,424	44.9%	12.2%
Egypt	32,093,162	-6.2%	7.2%	145,193,861	252.6%	11.0%
Syria	12,750,712	130.4%	2.9%	95,861,916	57.0%	7.3%
Israel	62,942,456	5.9%	14.2%	55,239,579	18.0%	4.2%
Algeria	33,220,475	-70.3%	7.5%	7,132,897	98.2%	0.5%
Libya	65,801,030	-21.6%	14.8%	3,624,412	-19.6%	0.3%
Jordan	10,257,778	5.1%	2.3%	1,580,473	-78.5%	0.1%
Lebanon	34,098,538	-21.9%	7.7%	977,822	-68.4%	0.1%
Total	443,828,053	9.3%	100.0%	1,319,264,618	89.7%	100.0%

Source: Istat

Fruit and vegetable trade between Italy, Europe and the MPCs

The fruit and vegetable sector has been divided in seven subcategories (citrus fruits, shell fruits, fresh fruits, potatoes, tomatoes, other vegetables, processed fruits and vegetables) to analyse import of Italy and of the European Union. Eurostat database (COMEXT), available from 1999 to 2007, was consulted. In this period, the European Union became larger with the adhesion of new countries, a situation that has certainly influenced the trade flows of the MPCs (Malorgio and Camanzi, 2004).

A first element of interest (later useful for the application of CMSA technique) is the change in the relative weight of several fruit and vegetable categories. For Europe (EU27, except Italy), granted that in all sectors imports from the world have increased (in value), from the two-years period 1999-2000 to 2006-2007 it is possible to see a relative increase in the weight of other vegetables (1.24%), fresh fruits (1.42%), and shell fruits (0.71%); also the increase of the tomatoes is significant (0.35%). Potatoes are stable. In relative drop there are the citrus fruits (-0.31%) and especially processed fruits and vegetables (-3.39%).

In Italy, during the same period, the weight of shell fruits has noteworthy increased (+5.33%) by influencing the whole trade structure. The increase of tomatoes (+0.56%) and potatoes (+0.24%) is significant in countertrend with respect to other vegetables (-0.91%). Citrus fruits are modestly decreasing in importance (-1.03%), together with processed fruits and vegetables (-1.26%) and fresh fruits (-2.93%; a remarkable difference with respect to Europe). Even for Italy it is necessary to specify that imports from the all over the world (in absolute value) have increased for all categories.

The MPCs have more frequently access to the Italian market than to the European one; as a consequence, European products entering the Italian market seemed to suffer a stronger contraction than Italian products entering the European market.

Fruit and vegetable exports from the MPCs to Europe increased in value for all the analyzed compartments with the exception of shell fruits (-8%). The highest increase was concerning tomatoes (+85%), other fresh vegetables (+174%), and processed fruits and vegetables (+63%). At the same time, there was also an increase in the Mediterranean export market shares, except for shell and citrus fruits (-8% for both categories) for which competing suppliers evidently exist. The greatest increases in the export market shares are realized with other vegetables (+11%), tomatoes and potatoes (both +7%).

The MPCs exports to Italy increased in all sectors, at higher rates than exports to Europe (except fresh fruits and other vegetables). Nearly all products showed an increase of more than 100%: shell fruits +157%; potatoes +319%; tomatoes +760%; other vegetables +153%; processed fruits and vegetables +107%. Export market shares are them as well rising (with citrus fruits and fresh fruit nearly stable), above all those concerning potatoes (+14%), other vegetables (+6%), and shell fruits (+5%).

At the same time, data show a mutual loss of competitiveness both of the Italian exports in Europe and of the European ones in Italy, although the value of the exports increases in both directions for all fruit and vegetable categories. Concerning Italian exports, only citrus fruits (+0.5%), shell fruits (+1%) and processed fruits and vegetables (-0.1%) have substantially kept unchanged market shares, while losses are considerable in tomatoes (-8.2%), potatoes (-6.2%), fresh fruits (-4.1%) and other vegetables (-3.2%). The total fall is of 2.2% and it would seem to prove the existing competition with the MPCs considering that Italy has gained export market shares (citrus and shell fruit) where they lost it and vice versa.

The result of European exports to Italy was even worse, with a total 6.2% drop of quotas, generalized for all the categories without any exception. The greatest falls concerned citrus fruits (-22.8%) and potatoes (-13.9%). Also in this case, with the exception of citrus fruits (where the MPCs also lost quotas, confirming the existence of a third export market in strong growth), it seems evident that Europe lost export market shares where the MPCs gained them. For instance, in the case of potatoes, Europe lost 13.9% and the MPCs exactly gained 13.9%, or tomatoes (Europe -3% versus the MPCs +3.1%).

Table 4
Changes in European imports from the MPCs and Italy (from 1999-2000 to 2006-2007)

Products	Share change in the composition of total European imports since 1999-2000	European imports (except Italy) from the MPCs			European imports from Italy		
		2006-2007 average (€)	2006-2007 the MPCs export market share	Share change since 1999-2000	2006-2007 average (€)	2006-2007 Italian export market share	Share change since 1999-2000
Citrus fruits	-0.31%	396,631,096	30.4%	-8.2%	123,515,077	9.5%	0.5%
Shell fruits	0.71%	312,818,011	14.0%	-8.5%	148,399,917	6.6%	1.0%
Fresh fruits	1.42%	949,799,801	10.6%	0.7%	1,749,319,217	19.5%	-4.1%
Potatoes	-0.03%	152,944,930	70.2%	6.8%	63,018,957	28.9%	-6.4%
Tomatoes	0.35%	294,894,423	63.2%	7.1%	157,116,085	33.7%	-8.2%
Other vegetables	1.24%	692,351,974	25.8%	11.4%	578,963,234	21.6%	-3.2%
Processed fruits and vegetables	-3.39%	1,100,385,118	18.1%	4.4%	1,429,713,161	23.5%	-0.1%
TOTAL		3,899,825,352	17.8%	1.8%	4,250,045,646	19.4%	-2.2%

Source: Eurostat. First column (share change in the composition of total European imports) designates the relative share change of each category in the fruit and vegetable sector as a whole.

Table 5

Changes in Italian imports from the MPCs and Europe (from 1999-2000 to 2006-2007)

Products	Share change in the composition of total Italian imports since 1999-2000	Italian imports from MPCs			Italian import from Europe		
		2006-2007 average (€)	2006-2007 MPCs exp. market share	Share change since 99-00	2006-2007 average (€)	2006-2007 European exp. market share	Share change since 99-00
Citrus fruits	-1.03%	9,214,403	4.6%	-0.4%	126,002,991	63.3%	-22.8%
Shell fruits	5.33%	182,105,373	34.7%	4.7%	128,036,531	24.4%	-4.5%
Fresh fruits	-2.93%	72,103,446	7.0%	0.7%	468,969,465	45.3%	-3.3%
Potatoes	0.24%	31,999,147	21.4%	13.9%	117,486,739	78.5%	-13.9%
Tomatoes	0.56%	3,155,482	3.9%	3.1%	77,443,379	96.1%	-3.0%
Other vegetables	-0.91%	73,901,748	11.6%	5.6%	379,015,261	59.4%	-0.1%
Processed fruits and vegetables	-1.26%	71,679,492	6.4%	2.3%	861,669,626	77.5%	-4.1%
TOTAL		444,159,088	11.9%	4.4%	2,158,623,991	57.7%	-6.2%

Source: Eurostat. First column (share change in the composition of total Italian imports) designates the relative share change of each category in the fruit and vegetable sector as a whole.

Until now, the analysis seems to show only the competition between products coming from the MPCs and products coming from Italy and Europe. It does not seem to emerge any element that makes hypothesize the existence of preferential logistic bases (in Italy or Europe) re-exporting fruit and vegetable products, with an exception: shell fruits exports from the MPCs to Europe decrease in both their overall value and in their export market share. By contrast, in the Italian market, they considerably increase for both values; in turn, shell fruits exported from Italy to Europe gain market shares. These data seem to demonstrate that Italy is probably playing an increasingly important role in the concentration and distribution of shell fruits from the MPCs towards Europe. Further evidence come from the effects measured by the Constant Market Share Analysis.

As for the import of fruit and vegetable products, the main partners are not exactly the same in case of the European and Italian market. For Italy, the major suppliers are Turkey (68% share of imports from the MPCs), followed by Egypt (17%), Morocco (5%), Tunisia and Israel (both with 4%). For Europe, we always find Turkey (51%), followed by Morocco (21%), Israel (17%), and Egypt (7%).

Europe and Italy also diverge for the origin of some specific products: for instance, potatoes imported by the EU come in almost equal parts from Egypt and Israel (a quota around 45% for both nations, plus about 10% from Morocco); for Italy, 96% of potatoes coming from the MPCs are Egyptian. 61% of grapes the EU imports come from Turkey; for Italy Turkey is almost always the first exporting country with 81% of the quotas. Melons imported by the EU come from Morocco (around 70%) and from Israel (25%); melons imported by Italy come from Morocco (72%) and from Egypt (24%). You can conclude that Italy (as probably other European countries) specializes its import from specific countries and has different preferential relationships with respect to the average European Union's relationships. Particularly Egypt, that is the second Italian trade partner, is only the fourth partner for Europe. Turkey represents the most important supplier of shell fruits (essentially hazelnuts) for both Italy and Europe. Turkey, Morocco, Egypt and Israel have been selected to analyze the export development of the main fruit and vegetable products.

On the European market, all the above-mentioned countries gain market quotas, from the 0.20% increase of Morocco to a maximum 0.73% increase of Egypt. The only product category for which all the MPCs have gained quotas is "other vegetables" while, for other products, trends are not uniform: for instance, only Morocco and Egypt gain quotas in the fresh fruit sector; in the processed fruit and vegetable sector, Turkey and Egypt are improving their commercial penetration.

The MPCs show rather diversified behaviours on the Italian market. Morocco and Israel lose export market shares (-0.01% and -0.14%), while the growth of Turkey (+2.98%) and Egypt (+1.57%) entirely explains the positive trend of the MPCs group.

2. Methods

Through the Constant Market Share Analysis (CMSA), the different degree of MPCs' competitiveness in the European and Italian market will be used to make considerations on the role of the Euro-Mediterranean trade agreements and on the state of logistic relations and partnership with specific Countries. In parallel, the CMSA will also be applied to analyze the mutual competitiveness of Italy in the EU markets (EU27) and of Europe in the Italian market.

The CMSA is a technique that allows to analyze the changes of the export market shares (of a reference Country in a reference market) between two temporal thresholds subdividing it in several terms. Numerous alternative methods have been developed by several authors since the very first application of the CMSA, in order to decompose the quota's changes with more accurate techniques and allow an easy economic interpretation. The formulation by Leamer and Stern has recently been used by Malorgio and Hertzberg (2007) to analyze the competitiveness of the MPCs in the Italian market. For this study, the formulation by Fagerberg and Sollie will be preferred, for it is assumed to be more rigorous and able to provide an explanation for the residual effect (Mastrostefano, 1988; Benedict, 1992).

This algebraic method can be adopted to analyze the exports of a Country to a single market or to several markets of different Countries. In the one Country's approach, the change of the export market share (ΔM^{kl}) is decomposed in three terms:

$$\Delta M^{kl} = \Delta M_a^{kl} + \Delta M_b^{kl} + \Delta M_{ab}^{kl}$$

$$\Delta M_a^{kl} = \sum_i (a_{it}^{kl} - a_{i0}^{kl}) b_{i0}^l$$

It is generally called "Market Share Effect". It is calculated by multiplying the change of the export market share ($a_{it}^{kl} - a_{i0}^{kl}$) (for each category i used to split the total trade flow from County k to Country l) by the weight of each category (at the beginning year: b_{i0}^l) in the world import of the market l .

Practically, this term quantifying the change (between the end and the beginning of the considered period) of market share for every commodity measures the ability of the exporting Country to make each of its commodities enter the reference market. The gain of market share of every commodity (or class of commodities) is added to produce the total gain. Every commodity is however weighed by its importance in the world imports of the reference market.

$$\Delta M_b^{kl} = \sum_i (b_{it}^l - b_{i0}^l) a_{i0}^{kl}$$

Normally called "Commodity Composition Effect". It is calculated by multiplying the weight change of each category ($b_{it}^l - b_{i0}^l$) in world imports of the market l by the initial export market share of the Country k (a_{i0}^{kl}).

Basically, this term by considering the initial export market share of the exporting Country and the weight change of each commodity (or category of commodity) in the importing market, measures how much the total export market share should change just due to a change in the composition of imports in the reference market.

$$\Delta M_{ab}^{kl} = \sum_i (a_{it}^{kl} - a_{i0}^{kl})(b_{it}^l - b_{i0}^l)$$

It is the so called "Residual Effect" that explains the difference between the actual change of the export market share and the sum of the two previous effects. It is calculated by multiplying the change of the export share $(a_{it}^{kl} - a_{i0}^{kl})$ by the change of the weight of each commodity $(b_{it}^l - b_{i0}^l)$.

The residual effect has a precise economic meaning. It depends on the correlation coefficient between the change of the export market share of each commodity and the change in the reference market composition, so it provides a measurement of the country capacity to adjust the commodity composition of its exports to the changes intervened in the structure of the reference market, gaining quotas in commodities with faster growing demand. It must be specified that if the residual effect is equal to zero it does not mean that any market adjustment is operated, but that the reference Country has modified its export structure at the same rate of the average of all the other competing exporting Countries. It is then an effect of relative adjustment.

3. Results

Trade dynamics between Mediterranean Countries, Italy and the European Union

The growth of the MPCs' competitiveness on the European market (1.85% increase) is to be almost only attributed to the market shares effect (1.78%) and in a negligible proportion to the commodity composition effect (0.08%). In this case, the negative effect of the shell fruit (0.71% drop) has been critical to limit a gain that could be still higher. To observe that the shell fruit's decrease cannot be imputed to a market change of European imports; indeed, the EU has notably increased the import of this category: this is well emphasized by the commodity composition effect of shell fruits (0.16%). The negative result must therefore be attributed to the market share effect (-0.81%) and consequently to the residual effect (-0.06%, because the MPCs lost quotas in a growing sector). Also citrus fruits cause a negative effect (-0.60%) but in this case, unlike shell fruits, the sector also deals with a negative composition effect (-0.12%, since the relative weight of citrus fruits has decreased in European imports); all the other sectors have positive total effects (other vegetables have the highest value with +1.57%, especially thanks to greatest competitiveness summarised by the market share effect).

On the Italian market, the MPCs' gain is more significant (4.37% increase), mainly thanks to the share effect (+2.89%) but also to the composition effect (+1.28%), since Italy has notably increased imports in sectors where the MPCs were leaders. A more careful examination shows that the composition effect is exclusively due to shell fruits (+1.60%) for the increasing importance of this sector in Italian imports. Shell fruits coming from the MPCs, unlike what happened in the European market, also grow for the market share effect (+0.41%) and for the adjustment (residual) effect (0.25%), proving that MPCs' shell fruit sector is not in crisis. In general, the shell fruit sector considerably influences (+2.26%) the result of the MPCs' exports. Other sectors with positive effects concern other vegetables (+0.90%), processed fruits and vegetables (+0.64%) and potatoes (+0.57%). The only negative effect is associated with citrus fruits (-0.07%), also in the market shares effect (as it happened in the European market), to confirm the difficulty to withstand the competition of other exporting nations.

In turn, Italy exclusively loses competitiveness into the European market for the market share effect (-2.09%), being the composition effect nearly stable (-0.01%). Looking at specific sectors, the biggest losses can be referred to fresh fruits (-1.34% even if the commodity composition effect is positive) and to processed fruits and vegetables (-0.83% that are affected by negative commodity composition effect). The only positive effect (+0.14%) concerns shell fruits (+0.14%), both for the commodity composition component (+0.04%) and for the market share component (+0.10%). This is of a certain interest: it means that Italy has succeeded in gaining export market shares to the detriment of the MPCs, moreover in a sector that is growing.

Finally, as far as European exports to Italy are concerned, the most meaningful effect is due to the market share (-4.71%), although the commodity composition effect is not negligible (-1.56%, indicating a decrease in the weight of the sectors where the UE was leader). The sectors that have mostly contributed are citrus fruits (-2.10%), fresh fruits (-2.33%) and processed fruits and vegetables (-2.25%). Shell fruits have a significant positive effect (+0.91%), but a clarification is needed: the increase is only explainable for the composition effect (+1.54% due to the strong Italian demand), since also in this sector, alike all others, the market share affect is negative (-0.39%).

Table 6
Results of CMSA: exports of the MPCs, Europe and Italy

Flow	Decomposition of CMSA	Citrus fruits	Shell fruits	Fresh fruits	Potatoes	Tomatoes	Other vegetables	Processed fruits and vegetables	TOTAL
From the MPCs to Europe	Market share effect	-0.51%	-0.81%	0.28%	0.07%	0.13%	1.25%	1.38%	1.78%
	Commodity composition effect	-0.12%	0.16%	0.14%	-0.02%	0.19%	0.18%	-0.46%	0.08%
	Residual effect	0.02%	-0.06%	0.01%	0.00%	0.02%	0.14%	-0.15%	-0.01%
	Total effect	-0.60%	-0.71%	0.43%	0.05%	0.35%	1.57%	0.77%	1.85%
From the MPCs to Italy	Market share effect	-0.02%	0.41%	0.21%	0.52%	0.05%	1.00%	0.72%	2.89%
	Commodity composition effect	-0.05%	1.60%	-0.18%	0.02%	0.00%	-0.05%	-0.05%	1.28%
	Residual effect	0.00%	0.25%	-0.02%	0.03%	0.02%	-0.05%	-0.03%	0.20%
	Total effect	-0.07%	2.26%	0.00%	0.57%	0.07%	0.90%	0.64%	4.37%
From Italy to Europe	Market share effect	0.03%	0.10%	-1.62%	-0.06%	-0.15%	-0.35%	-0.03%	-2.09%
	Commodity composition effect	-0.03%	0.04%	0.34%	-0.01%	0.15%	0.31%	-0.80%	-0.01%
	Residual effect	0.00%	0.01%	-0.06%	0.00%	-0.03%	-0.04%	0.00%	-0.12%
	Total effect	0.00%	0.14%	-1.34%	-0.07%	-0.03%	-0.09%	-0.83%	-2.22%
From Europe to Italy	Market share effect	-1.45%	-0.39%	-1.01%	-0.52%	-0.05%	-0.01%	-1.28%	-4.71%
	Commodity composition effect	-0.89%	1.54%	-1.42%	0.22%	0.56%	-0.54%	-1.03%	-1.56%
	Residual effect	0.23%	-0.24%	0.10%	-0.03%	-0.02%	0.00%	0.05%	0.09%
	Total effect	-2.10%	0.91%	-2.33%	-0.34%	0.49%	-0.55%	-2.25%	-6.18%

Source: our own calculations based on COMEXT database

Results for the main Mediterranean partners

The application of CMSA shows rather diversified results for each single MPC. In the European market, Turkey has been the nation with the more significant market share effect (0.77%, despite the heavy loss of shell fruits whose flow to Europe has decreased), besides a commodity composition effect that is nearly irrelevant (despite the positive contribution of shell fruits making up a sector in strong growth in the European import). By contrast, in the Italian market, Turkey has notably benefited from the commodity composition effect (+1.40%) associated with a good result in the market share effect (+1.41%). The trend of the shell fruit sector is very interesting (+2.18% increase) under the influence of a preponderant commodity composition effect (+1.59%).

Egypt has shown similar general results in the European and Italian markets (although gaining more in the latter): in both cases, the only meaningful effect is the market share, giving evidence of an increased competitiveness in all sectors. While in Europe the most important contributions are due to citrus fruits (+0.20%) and fresh fruits (+0.32%), in Italy they are due to potatoes (0.57%) and other vegetables (0.62%), attesting that the relationship between our Country and Egypt is very specific and sector-based.

In Europe, Morocco is the Country that has more benefited from the commodity composition effect (+0.08%) especially due to the increase of European import of tomatoes, a sector where Morocco is a leader (despite its export market share has dropped). On the contrary, the market share effect has been practically insignificant (+0.03%), symptom of a competitiveness that is poorer than in the other three analysed Countries. In the Italian market, there are not substantial changes (changes are close to zero in all the effects), indicating the existence of a static situation, not comparable to the one of Turkey and Egypt.

Finally, Israel had a fairly good result in Europe thanks to the market share effect (+0.25%) while in Italy it experienced a decrease in both the market share effect (-0.10%) and the commodity composition effect (-0.06%). The most negative contribution concerns citrus fruits (also in Europe), making up a sector where competition from other Countries has grown.

Table 7
Results of CMSA: exports of the main MPCs

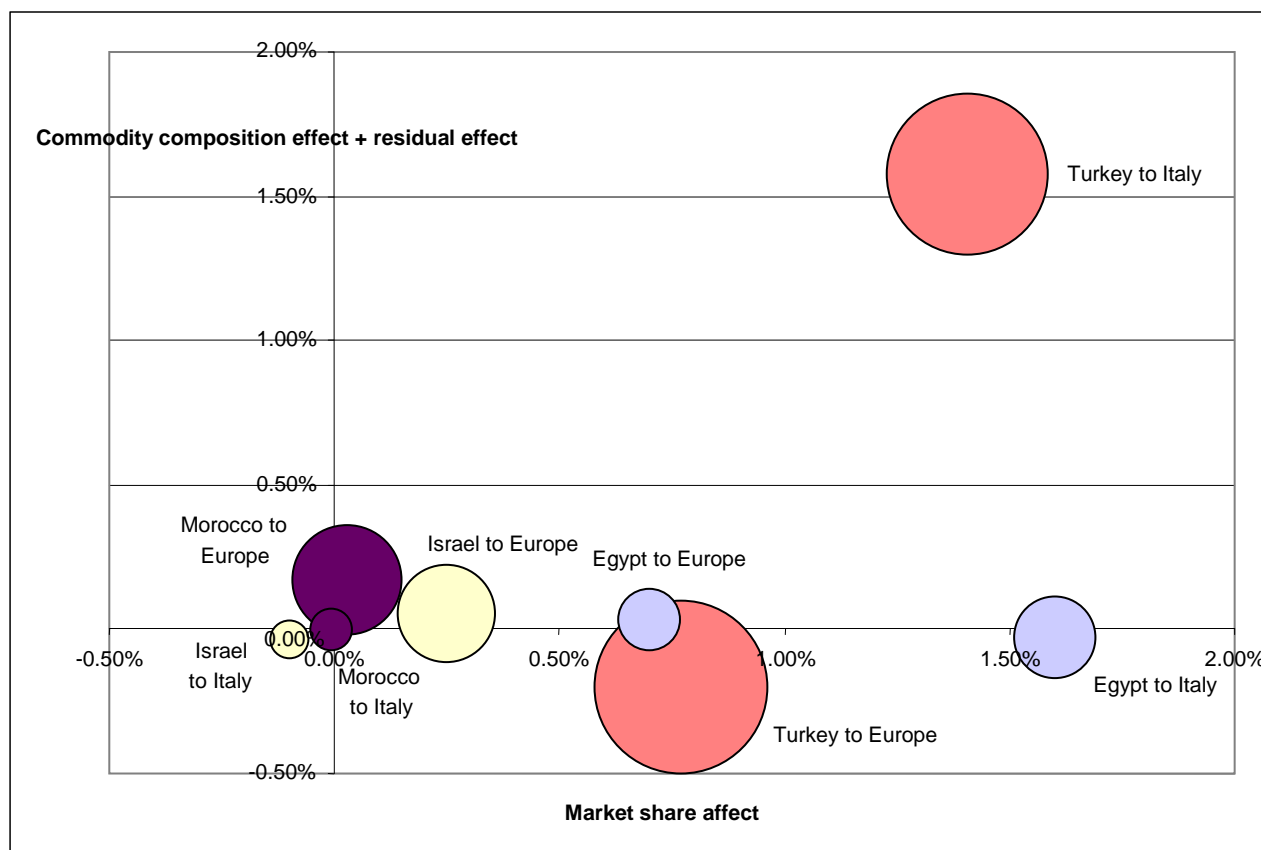
Flow	Decomposition of CMSA	Citrus fruit	Shell fruit	Fresh fruit	Potatoes	Tomatoes	Other vegetables	Processed fruit and vegetables	TOTAL
From Turkey to Europe	Market share effect	0.02%	-0.83%	-0.07%	0.01%	0.14%	0.05%	1.43%	0.77%
	Commodity composition effect	-0.03%	0.16%	0.08%	0.00%	0.01%	0.06%	-0.30%	-0.02%
	Residual effect	0.00%	-0.06%	0.00%	0.00%	0.03%	0.01%	-0.16%	-0.19%
	Total effect	-0.01%	-0.73%	0.01%	0.01%	0.19%	0.12%	0.97%	0.57%
From Turkey to Italy	Market share effect	0.02%	0.37%	0.05%	-0.02%	0.00%	0.30%	0.68%	1.41%
	Commodity composition effect	-0.01%	1.59%	-0.13%	0.00%	0.00%	-0.02%	-0.03%	1.40%
	Residual effect	0.00%	0.23%	-0.01%	0.00%	0.00%	-0.02%	-0.03%	0.17%
	Total effect	0.00%	2.18%	-0.08%	-0.02%	0.00%	0.27%	0.63%	2.98%
From Egypt to Europe	Market share effect	0.21%	0.00%	0.30%	-0.04%	0.01%	0.14%	0.07%	0.70%
	Commodity composition effect	0.00%	0.00%	0.00%	-0.01%	0.00%	0.03%	0.00%	0.02%
	Residual effect	-0.01%	0.00%	0.01%	0.00%	0.00%	0.02%	-0.01%	0.01%
	Total effect	0.20%	0.00%	0.32%	-0.04%	0.01%	0.19%	0.06%	0.73%
From Egypt to Italy	Market share effect	0.06%	0.00%	0.21%	0.53%	0.00%	0.67%	0.14%	1.60%
	Commodity composition effect	0.00%	0.00%	0.00%	0.02%	0.00%	-0.01%	0.00%	0.00%
	Residual effect	-0.01%	0.00%	-0.02%	0.03%	0.00%	-0.03%	-0.01%	-0.03%
	Total effect	0.05%	0.00%	0.19%	0.57%	0.00%	0.62%	0.14%	1.57%
From Morocco to Europe	Market share effect	-0.48%	0.00%	0.13%	-0.10%	-0.06%	0.58%	-0.05%	0.03%
	Commodity composition effect	-0.05%	0.00%	0.01%	0.00%	0.15%	0.05%	-0.08%	0.08%
	Residual effect	0.02%	0.00%	0.00%	0.00%	-0.01%	0.07%	0.01%	0.09%
	Total effect	-0.51%	0.00%	0.15%	-0.10%	0.08%	0.70%	-0.12%	0.20%
From Morocco to Italy	Market share effect	0.00%	-0.01%	-0.02%	0.00%	0.04%	-0.10%	0.08%	0.00%
	Commodity composition effect	0.00%	0.01%	-0.01%	0.00%	0.00%	-0.02%	-0.01%	-0.02%
	Residual effect	0.00%	0.00%	0.00%	0.00%	0.02%	0.01%	0.00%	0.01%
	Total effect	0.00%	0.00%	-0.03%	0.00%	0.06%	-0.11%	0.07%	-0.01%
From Israel to Europe	Market share effect	-0.25%	0.00%	-0.07%	0.24%	0.01%	0.44%	-0.12%	0.25%
	Commodity composition effect	-0.03%	0.00%	0.03%	-0.01%	0.02%	0.04%	-0.08%	-0.02%
	Residual effect	0.01%	0.00%	0.00%	-0.01%	0.00%	0.05%	0.01%	0.07%
	Total effect	-0.26%	0.00%	-0.05%	0.23%	0.04%	0.53%	-0.18%	0.30%

From Israel to Italy	Market share effect	-0.10%	0.00%	0.04%	0.02%	0.00%	0.03%	-0.09%	-0.10%
	Commodity composition effect	-0.04%	0.00%	-0.01%	0.00%	0.00%	0.00%	-0.01%	-0.06%
	Residual effect	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%
	Total effect	-0.12%	0.00%	0.03%	0.02%	0.01%	0.03%	-0.10%	-0.14%

Source: our own calculations based on COMEXT database

Figure 1 summarizes the changes of the export market shares of the four MPCs into the Italian and European market. The different effects are decomposed in abscissa and ordinate. The specificity of the Italian import from Turkey is very evident for the considerable importance of the commodity composition effect; on the contrary, in the relationship between Italy and Egypt, the market share effect is the most significant.

Figure 1
Decomposition of the effects analyzed by CMSA for the exports of the MPCs to Europe and Italy



Source: our own calculations based on COMEXT database. The size of the circle is proportional to the export market share of the MPCs into the reference market (Italy or Europe, average of 2006-2007).

Conclusions

Between 1999 and 2000 and between 2006 and 2007, the Mediterranean Partner Countries (as a whole) gained export market shares both in Europe and in Italy. The MPCs gained greater export market shares in Italy than in Europe; it is interesting to observe that, in the same period, Italy lost export market shares in Europe and that the EU losses in Italy were even greater. This consideration together with the analysis of each single market sector seems to confirm the existence of a competition between the MPCs' fruit and vegetable exports and the Italian and European ones.

The shell fruits sector is the only one to show a very particular pattern. Italy is increasing the import of shell fruits from several world Countries: also imports from the MPCs (hazelnuts from Turkey) are increasing, with higher rates than other suppliers. The analysis makes us suppose that Italy is concentrating Turkey's export, taking the place of other import markets, in order to work as a logistic processing and distribution base.

A detailed analysis of several MPCs allows to display other peculiarities. In Europe, it is possible to see a homogeneous growth of the main MPCs (Turkey, Morocco, Egypt, Israel). Among them, Morocco (that had problems to gain export market shares) benefited from the increased imports of products where it is leader (commodity composition effect for tomatoes).

In Italy, Israel loses quotas and Morocco practically remains at the same level. The whole growth of the MPCs trade must be therefore attributed to Turkey and Egypt. Turkey is facilitated by the growth of its key sector, the shell fruit sector, whose import has conspicuously increased in Italy (commodity composition effect), while Egypt is gaining in two categories (potatoes and other vegetables) that are less dynamic towards the European Union, that indicates the presence of a very specialized and in fast-growing trade relationship.

The better result of the Turkish and Egyptian exports into the Italian market compared with the European average, and the parallel worse result of the Moroccan and Israeli exports, seem to show the existence of privileged relationships of our Country with Turkey and Egypt. These relationships cannot be explained just by the international political agreements, but they apparently hide good entrepreneurial relationships, agreements between private and public players, and good logistic structures. Without ignoring the importance of Morocco and Israel, the situation should be positively considered since Egypt and Turkey are currently the Countries with faster growth. By keeping these privileged relationships, Italy should be able to intercept primary products and provide added value through its agri-food industry before re-exporting processed products; at the same time, the integration with the Mediterranean companies (private firms and producers' associations) would allow Italian operators to get products in quantity and quality (considering also continuity, management of the calendars, trademarks and quality indications) able to meet the demand of the large-scale retail trade (Chirico, 2007).

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