

Growth of citrus production among the Euro-Mediterranean countries: political implications and empirical findings

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Abstract

The agricultural matter has always played an important role in holding back the Euro-Mediterranean integration process due to the strong complementarity of the agricultures of the coastal countries which share excellent products including citrus fruits. The main goal of this paper is to understand the growth dynamics of the citriculture in the countries bordering the Mediterranean Sea. Through the application of the dynamic formulation of the Shift and Share Analysis it has been possible to analyse the trend of the amount of harvested citrus production, in physical and economic terms, in the last fifteen years, and above all which components, structural and competitive, have mainly influenced these performances. The results of the analysis highlight on the whole a positive trend of the citrus fruits sector in the Mediterranean coastal countries which, although characterized by an adequate productive structure, suffer in some cases from competitiveness limits. A clear dualism emerges among the coastal countries: on the one hand, the North-African and the Near-East countries —extra-EU members— show a dynamic and competitive citrus production mainly thanks to the implementation of effective government policies consistent with the aim to increase the competitiveness of the sector; on the other hand, other countries, mainly EU members, are significantly late in competitiveness, showing their inability to reorganize themselves in the direction shown by the demand trend and the agricultural policies.

Additional key words: citrus fruits; production growth; dynamic shift and share analysis.

Introduction

The Mediterranean Sea has always represented an area of strategic interest for several world geopolitical powers and for European Union (EU) in particular, which has made it one of the main protagonists of its foreign policy (Castellini & Pisano, 2009). This has led to intensify the bounds with the coastal countries through the subscription of several kinds of agreements within a political approach which, in the last 50 years, has deeply changed. The agreement signed in Barcelona in 1995 represents, undoubtedly, a historical moment of the Euro-Mediterranean relationships both because it gives a new impetus the integration process

of the area, after a stalemate due to the failures of the previous policies (the Global Mediterranean Policy and the Renewed Mediterranean Policy) and because it launches a new challenge, certainly harder, the liberalization of Euro-Mediterranean trade both in manufactured products and gradually in agriculture. In the early stage of the negotiations the agricultural issue has been deliberately neglected for the high sensitivity of some agri-food production. It became central only on the occasion of the Conference on Agriculture held in Venice in 2003 and then in 2005 when the EU announced to open the agricultural negotiations with the countries from North Africa and the Middle East. More recently, to render the Euro-Mediterranean rela-

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Abbreviations used: AG (Actual Growth); CE (Competitive Effect); DSSA (Dynamic Shift and Share Analysis); EMEA (Euro-Mediterranean Association Agreements); EMP (Euro-Mediterranean Partnership); EPS (Entry Prices System); EU (European Union); IME (Industry Mix Effect); MPC (Mediterranean Partner Country); NES (Not Elsewhere Specified); NGE (National Growth Effect); OPT (Occupied Palestinian Territories); PNDA (National Agricultural Development Program); R&D (Research and Development); SAA (Stabilisation and Association Agreement); SSA (Shift and Share Analysis); TRQ (Tariff Rate Quotas); UfM (Union for the Mediterranean).

tions more concrete, cooperation agreements were re-launched in 2008 as the Union for the Mediterranean (UfM), involving the 27 EU member states and 16 Southern Mediterranean, African and Middle Eastern countries, with the exception of Libya who preferred to be an observer state. In this articulate political scenario, the agri-food trade has played a key role in the delay of the integration process, as we have already said, especially in light of the strong complementarity of the agricultures of the Mediterranean countries which share excellent products among which citrus, vegetables, olive oil and wine.

The citrus fruits, in particular, originated in the Himalaya area and the near South-Central China (Luss, 1931; Andrews, 1961), extended in the Mediterranean basin only later and in different periods (Tolkowsky, 1938; Andrews, 1961) finding ideal conditions for growth in that area, so that today the Mediterranean basin is one of the most important production areas in the world, covering about 12% of the surface area and concentrating 18% of the production and above all exporting slightly more than half of the overall citrus fruits exchanged in the world (FAOstat, 2012).

The main purpose of this paper is to study the growth dynamics of the citrus fruit sector in the Mediterranean countries in the last 15 years (1996-2010) as well as the mechanisms which have regulated them. In particular, the study aims to verify how far the trend of the citrus production of each country has diverged from that of the entire Mediterranean area, and above all which components of the overall growth (in terms of growth of each subsector or of weight that every subsector has in the domestic production) contributed to determine such a gap.

To answer the goal of the research we used a descriptive statistical technique commonly known as *Shift and Share Analysis* (SSA). Introduced in the '60s by Dunn (1960) and Perloff *et al.* (1960), this technique has been applied in many regional empirical analysis in order to study the changes in a certain period of time in the growth performance of several regions concerning one or more business sectors. These empirical studies differ from each other depending on the variables used and on the aim of the studies itself, whether aimed to analyse the sectorial competitive dynamics or to assess the ex-post policies impact or as a forecast instrument.

As Terrasi Balestrieri (1982) states, the growth of a sector or a division can be studied starting from any variable whose data are available. Concerning this, there are many analysis which consider the number of

employees (Curtis, 1972; Esteban, 2000; Li & Haynes, 2011), the production value of the sector (De Benedictis *et al.*, 1980; Cesaretti & Sodano, 1985; Arcuri, 1994; Ascuito & Cirivello, 1998; Ascuito *et al.*, 2001; Belliggiano & Tartaglia, 2001), the volume of the production (Belliggiano & Tartaglia, 2001), the exports (Markusen *et al.*, 1991; Hayward & Erickson, 1995; Gazel & Schwer, 1998; Li & Huang, 2010). These indicators allow to catch the structural changes of a specific business sector or economy of a country. The most specific variables are the ones concerning the number of the researchers employed in the several scientific sectors in order to study the R&D sector in China (Li & Huang, 2009), the benefits for the agriculture in order to study their influence on the structure of the Czech farms compared with the ones of the near EU countries (Stfieleãek *et al.*, 2009), or the tourists going to Vietnam to verify if the growing market of the tourism reflects on the growth of the Thailand's and Chinese ones (Vu & Turner, 2011), which substantially contribute to enrich the wide amount of studies which use the suggested method.

Given the presence of some criticalities in the traditional model, the dynamic formulation of the SSA (Thirlwall, 1967; Knudsen, 2000; Sirakaya *et al.*, 2002) has been adopted in this study as well as the classification proposed by Martellato (1977) and integrated by other authors.

The background

The citrus fruits are perfectly integrated in the Mediterranean landscape as if they came from this region originally. Actually, as we have already said, the citrus fruits are from the Asian South-East countries, like many other fruits which, once imported in the Mediterranean basin, found the best conditions which have allowed their diffusion (Galati, 2005).

The citrus fruits agriculture today is one of the most important of the Mediterranean area with an average land extension, in the two-year period 2009-10, of 1.066 million hectares, that is 12.2% of the world surface area, and a production of 22.5 million tonnes, that is 18.3% of the world supply [Suppl. Table 1 (pdf online)]. To further confirm the importance of Mediterranean citrus production, it is worth emphasizing that they account for 26.6% of the quantities of fruit (except melons) produced in the Mediterranean area; more specifically, they assume a particular weight, in percentage terms, in the island of Cyprus, where repre-

sent the 64.6% of fruit production, in Syria 48.9%, Israel 44.5%, Lebanon 41.0%, Occupied Palestinian Territories (OPT) 39.9%, Jordan 39.8% and Morocco 38.7%.

The 2/3 of the citrus fruits productive area in the Mediterranean basin are concentrated just in four countries: Spain (27.2%), Italy (16.2%), Egypt (14.6%) and Turkey (10.3%). These countries provide about 71% of the entire area supply with Spain at the top (23.7%) followed by Egypt (16.7%), Turkey (15.7%) and Italy (15.6%). Citrus fruits production in value terms amounts on average to 5.3 billion international dollars in the 2009-10 biennium (+25.3% compared to 1996-97), representing 17.3% of the world value. The main contribution is provided by Spain (23.3%), Turkey (16.7%), Egypt (16.5%) and Italy (15.3%).

Overall, the harvested citrus production in the Mediterranean countries consists mainly of oranges (58.6% of the total) and to a lesser extent of small citrus fruits (tangerines, mandarins and clementines) (23.2%), while the contribution of lemon and lime is relatively small (13.6%). In particular, the production of oranges amounted to 13.2 million tonnes, recording an increase of 28.9% compared to 1996-97, and is primarily obtained in Spain (21.7% of total oranges), Italy (18.2%), Egypt (18.1%) and Turkey (12.9%). The small citrus fruit, with a volume of 5.2 million tonnes, are mainly concentrated in Spain (35.7%) and with a lower weight in Turkey (16.3%), Egypt (15.4%) and Italy (10.2%). In addition, these same countries, Turkey for first, concentrate about 80% of the lemon production, which in 2009-10 exceeded 3 million tonnes (+20.3% compared to 1996-97). Finally, grapefruit production has a marginal weight amounting to 662,000 tonnes (-2.6% compared to 1996-97), obtained mainly in Israel and Turkey (respectively, 34.3% and 30.6% of the total) and other citrus fruits production, which amounted to 374,000 tonnes, concentrated in Syria (54.8% of the total) and Tunisia (25.9%).

The analysis of the trade flows highlights the importance of the Mediterranean countries in the world citrus fruits trade [Suppl. Table 2 (pdf online)]. More specifically, exports amounted nearly 7.3 million tonnes on average in 2009-10 (+40.9% compared to 1996-97), representing 50.8% of global exports. Spain is the leading exporter accounting for 46.0% of the total volume, mostly intended for the EU market (Germany, Netherlands, Poland, United Kingdom), followed with a much lower weight by Turkey (16.7%), which mainly exports to Russia, Ukraine and Iraq, Egypt (10.7%), whose target markets are mainly Saudi Arabia, Russia, Ukraine and Iran, and Morocco (7.0%) whose exports are towards Russia, Holland, France and Canada.

Purchases reach a volume of almost 2.0 million tonnes (+37.3% compared to 1996-97), accounting for 15.0% of world imports. France is the largest purchaser of citrus fruits in the Mediterranean basin, absorbing as much as 50.6% of total imports, followed by Italy (18.1%) and Spain (9.6%).

The physical dimension of the flows makes the whole area have a trade surplus, amounting at just over 4 million tonnes. In particular, the analysis of the normalized value of the balance, considered according to the weight that the country has got within the exchanges in the whole area, highlights the role as net exporter of Spain, Egypt, Turkey and Morocco and conversely the strong dependence of France, and more slightly of Italy, Bosnia-Herzegovina, Portugal and Albania.

Within the framework of Euro-Mediterranean relations, trade in agricultural products is regulated through both specific protocols annexed to the Euro-Mediterranean Association Agreements (EMAAs)¹ signed between the EU and individual Mediterranean Partner Countries (MPCs)², and the Stabilisation and Association Agreement (SAA) signed between the EU and the countries of the Western Balkans, candidate countries (Croatia, Montenegro, Turkey³) and

¹ In addition to EMAAs, regulations of major importance in the evolution of agricultural preferences within the Euro-Mediterranean Partnership (EMP) are: the Regulation (EC) No 1981/94, which reformed for the period between 1 July 1994 and 31 December 1996 the provisions relating to imports of fruit and vegetables and other agricultural products subject to quantitative constraints, the Regulation (EC) No 650/98 and the Regulation (EC) No 747/2001 and subsequent amendments (the consolidated version dated 01.10.2012 contains 17 amendments introduced in the period 13.05.2002-12.09.2012), who arranged again in a single text the numerous amendments made to the Regulation (EC) No 1981/94 after its enactment.

² EMAAs are in force with most of the MPCs (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authority and Tunisia), with the exception of Libya (negotiations for a Framework Agreement are currently suspended) and Syria (as steps towards the signature of the initialled Association Agreement are currently suspended).

³ Within the framework of the negotiations for EU membership, Turkey signed a Customs Union agreement which did not affect Turkey's fresh citrus trade with the EU; in fact, agri-food products are subject to preferential conditions laid down in Decision No 1/98 of 25 February 1998 of the EC-Turkey Association Council, whose protocols were modified by Decision No 2/06 of 22 December 2006 of the EC-Turkey Association Council of 17 October 2006.

potential candidates (Albania and Bosnia and Herzegovina).

With regard to the EMAAs, the system of concessions negotiated between the parties relating to certain “sensitive” products⁴ (García-Álvarez-Coque *et al.*, 2006), such as fruit and vegetables, meat and wheat, provides, depending on the products and countries, the total elimination of tariffs, the elimination of only the *ad valorem* part of the duty for products for which there is an Entry Prices System (EPS) (especially for fresh fruit and vegetables), as well as a series of seasonal and quantitative constraints. As regards citrus fruit, the EU trade preferences consist, in general, in setting the *ad valorem* tariff to zero, sometimes limited to certain periods of the year (quota period) depending on the product, but almost always granted within Tariff Rate Quotas (TRQs) and reference quantities (the latter may be imposed on the basis of the annual review of trade). Some important concessions, finally, are provided for specific quotas of clementines from Jordan and Morocco and oranges from Egypt, Jordan, Israel and Morocco, benefiting of a seasonal reduction (1/11-28/2 for clementines and oranges for 1/12-31/5) of the specific quota duty in relation to the level of the entry price of the imported product.

With regard to trade relations with the countries of the Western Balkans, the EU adopted exceptional measures whereby all agricultural products originating in those countries can be imported freely into the EU without customs duties and without quantitative restrictions.

Material and methods

The traditional model of the SSA suggested by Dunn (1960) and Perloff *et al.* (1960) separates the variation of an examined variable in a region over a given time period into three additive components: a national growth effect (NGE), expression of the overall trend in the reference area, and two components, the industry mix effect (IME) and the competitive effect (CE), both results of local characteristics.

As an instrument of regional analysis, SSA is able to offer a lot of advantages related to the overcoming of the limits of the traditional methods of absolute or relative assessment, avoiding to underestimate the

importance of the largest variables, as it happens in the analysis in absolute value, or to overestimate the smallest ones, as it happens in assessments in relative terms (Li & Huang, 2009). Stevens & More (1980) state that it is an effective method to carry out ex-post analysis quickly and cheaply, providing useful indications to policy makers about structural changes of the competitive position of one or more business sectors. The method also allows to make interregional and intertemporal comparisons (De Benedictis *et al.*, 1980). However, despite there are a lot of advantages in using this analysis model, it has not been exempt from criticism ranging from issues related to the reference period to the disaggregation of the sector (Richardson, 1978; Barff & Knight, 1988), to the theoretical content (Buck, 1970; Richardson, 1978; Holden *et al.*, 1987), to its function as a forecasting instrument (Hellman, 1976; Richardson, 1978; Stevens & More, 1980; Kurre & Weller, 1989).

On the basis of the main criticalities, new and different formulations have been proposed, passing from a statistical shape of the model, the original one, to a stochastic one, up to the recent dynamic shape, an extension of the model suggested by Thirlwall (1967). One of the key advantages of this Dynamic Shift-Share Analysis (DSSA) is that it enables changes to be tracked over the years without losing information in those periods and allows unusual years and years of economic transition to be identified (Sirakaya *et al.*, 2002). DSSA provides a solution to the problem of changing industrial mix as well as a correct estimate of national versus regional growth (Knudsen, 2000).

In the traditional formulation of the model the variation of the studied phenomenon in the considered period is the result of three additive effects according to the following formula:

$$\Delta P_{ij} = P_{ij}^t - P_{ij}^0 = NGE_{ij} + IME_{ij} + CE_{ij}$$

where: ΔP expresses the actual growth (AG) occurred in the examined variable, NGE is the tendential component, the effect due to an area’s participation to the growth of the phenomenon observed in the macro-area, IME is the structural component, the effect due to an area’s particular sectorial structure in comparison to that of macro-area, and CE is the competitive component, the effect due to the fact that the growth of the various subsectors within an area may differ from the macro-area growth rates for the same subsectors. More

⁴ The term “sensitive” refers to products whose trade liberalization could significantly harm some categories of producers.

specifically, the three components are determined as shown below:

$$NGE_{ij} = P_{ij}^0 * \frac{P_i^t - P_i^0}{P_i^0}$$

$$IME_{ij} = P_{ij}^0 * \left(\frac{P_i^t - P_i^0}{P_i^0} - \frac{P_i^t - P_i^0}{P_i^0} \right)$$

$$CE_{ij} = P_{ij}^0 * \left(\frac{P_{ij}^t - P_{ij}^0}{P_{ij}^0} - \frac{P_i^t - P_i^0}{P_i^0} \right)$$

where P expresses the production (in terms of volume and value), I the sector (*Citrus*), i indicates the single subsector (orange, small citrus fruit, lemon and lime, grapefruit, etc), and J the country.

In the dynamic formulation of the model the values of the three shift-share effects are calculated for every year of the study period and finally summed up in order to determine the total effect of each component for each country, thereby eliminating the problems associated with comparative static SSA (Barff & Knight, 1988).

For the analysis we referred to the data of the citrus fruits production (destined both to fresh consumption and to processing), expressed in volume and in constant values, taken from the database of the Food and Agriculture Organization of the United Nations (FAO) which distinguishes within the *Citrus* aggregate the following productions: oranges, small citrus fruits (tangerines, mandarins, clementines and satsumas), lemons and limes, grapefruits (including pomelos), Other citrus fruits, not elsewhere specified (nes)⁵, (these ones have not been considered in the analysis of the main products). The use of the gross production

values in constant terms expressed in *international dollars* is due to the need to eliminate the effect of inflation and to make the results concerning the several Mediterranean coastal countries comparable⁶. Data refer to the 1996-2010 period. The reference area includes 22 Mediterranean countries⁷: Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Montenegro, Morocco, OPT, Portugal, Spain, Syria, Tunisia and Turkey.

In order to ease the reading of the results, we used the classification proposed by Martellato (1977), taken up and adapted to the agricultural sector by Terrasi Balestrieri (1982) according to the indication of the international literature (Ashby, 1965, 1970; Beaud, 1966) and applied in some empirical researches (Terrasi Balestrieri, 1982; Arcuri, 1994; Ascuito & Cirivello, 1998; Belligiano & Tartaglia, 2001). In particular, according to the possible combinations of the two local components, structural and competitive, listed in Table 1, each country was placed in a specific group. In the first four groups fall the countries with growth rates higher than those of the reference area; in the last four are instead placed those countries with a dynamics lower than the Mediterranean.

Results and discussion

Citrus fruits

The DSSA results referred to the value of the total production of citrus fruits in the Mediterranean show

Table 1. Classification adopted in the present study

Components combination	Definition
IME > 0, CE > 0 and IME > CE	Group I. Development on structural base
IME > 0, CE > 0 and IME < CE	Group II. Development on competitive base
IME > 0, CE < 0 and IME > CE	Group III. Development with competitive bond
IME < 0, CE > 0 and IME < CE	Group IV. Development with structural bond
IME < 0, CE > 0 and IME > CE	Group V. Recession with competitive opportunity
IME > 0, CE < 0 and IME < CE	Group VI. Recession with structural opportunity
IME < 0, CE < 0 and IME > CE	Group VII. Recession on structural base
IME < 0, CE < 0 and IME < CE	Group VIII. Recession on competitive base

IME: industry mix effect. CE: competitive effect.

⁵ Citrus fruits, nes, include *inter alia* bergamot, citron, chinotto and kumquat.

⁶ Value of production in constant terms is derived using the *International commodity prices* of the average 2004-2006.

⁷ Portugal, Montenegro and Jordan are considered Mediterranean countries though they are not coastal countries, because they signed the institutive document of the Union for Mediterranean; Mauritania and the Principality of Monaco do not fall into the statistical elaborations because, according to the FAO statistics, they are not citrus fruits producers.

Table 2. Citrus production growth in the Mediterranean basin (1996-2010)

Country	Gross production value (1,000 Int. \$)				Production (tonnes)			
	NGE	IME	CE	AG	NGE	IME	CE	AG
Albania	179	-3	1,991	2,167	1,073	316	7,553	8,942
Algeria	23,290	9,566	112,741	145,596	119,402	40,843	504,301	664,546
Bosnia-Herzegovina	25	-51	-295	-320	107	-53	-1,335	-1,281
Croatia	715	-368	8,307	8,654	3,570	-2,430	33,867	35,007
Cyprus	7,601	-2,295	-13,688	-8,382	32,740	-9,875	-53,786	-30,920
Egypt	126,271	25,718	89,439	241,428	588,354	72,376	483,051	1,143,781
France	1,347	9	28	1,384	6,042	-1,455	1,069	5,655
Greece	59,864	6,900	-139,977	-73,213	289,091	28,608	-594,110	-276,410
Israel	40,703	-22,908	-74,260	-56,465	186,406	-109,459	-387,264	-310,317
Italy	158,057	12,143	-134,396	35,804	711,179	92,211	-480,320	323,070
Jordan	8,081	-612	-4,861	2,609	31,840	-664	-12,129	19,047
Lebanon	20,812	-643	-6,662	13,508	87,296	2,848	-23,022	67,122
Libya	3,848	256	-705	3,400	17,353	1,378	-6,730	12,000
Malta	177	7	-375	-191	655	53	-1,068	-360
Montenegro	118	132	1,045	1,295	734	616	5,348	6,699
Morocco	69,639	15,069	-81,539	3,196	351,438	48,839	-434,858	-34,581
OPT	6,171	270	-26,038	-19,597	27,289	343	-122,598	-94,965
Portugal	14,366	2,698	-13,431	3,634	73,221	9,957	-68,808	14,371
Spain	270,115	4,226	-93,696	180,645	1,216,406	44,753	-247,685	1,013,474
Syria	50,207	1,283	25,648	77,137	195,095	22,452	134,344	351,890
Tunisia	18,072	-383	29,457	47,147	72,878	-9,324	70,345	133,900
Turkey	127,462	1,032	314,648	443,142	574,578	12,420	1,165,588	1,752,586

NGE: national growth effect. IME: industry mix effect. CE: competitive effect. AG: actual growth. OPT: occupied Palestinian territories. *Source:* Faostat (2012), our elaboration.

that 16 out of 22 countries studied have a positive actual growth (AG), determined by the sum of the three calculated components (NGE, IME and CE) (Table 2). Turkey, in particular, shows the highest value, mainly determined by the competitive component. Egypt, Spain and Algeria follow at some distance, showing an extremely positive result, although for Spain, the main citrus fruit producing country in the Mediterranean area, this trend is mainly due to the tendential component given that the competitive component shows a high negative value.

The result of Syria, Tunisia and Italy is positive too, but noticeably lower than the previous; however, Tunisia shows a negative sign of the structural component, whose modest importance does not affect the final result in large part due to the competitive component, whereas the lack of positive location factors, as already highlighted for Spain, limits also the actual growth for Italy. Finally, there are positive growth values for Lebanon, Jordan, Portugal, Libya and France, driven by the tendential component, as well as for Croatia, Montenegro and Albania, as a result of competitiveness which characterizes this sector.

Greece, Israel and OPT show, in decreasing order of importance, the worst performance in terms of overall growth, followed at some distance by Cyprus, Bosnia and Herzegovina and Malta; in all six cases the negative results are determined by the competitive component, arising probably not so much from the lack of susceptibility to the growth of the sector, but from the competition from other sectors, agricultural as well as industrial (Terrasi Balestrieri, 1982).

The analysis conducted in terms of production volumes in general confirms the previous results but shows the reversal of sign in Morocco's actual growth, due to a strongly negative value of the competitive component which overcomes the positive effect of the tendential one. Finally, Israel shows the worst results in terms of actual growth for negative values both of the structural component and, above all, of the competitive one.

Structure and competitiveness of the citrus fruits sector

By combining two of the three components studied, the structural and competitive components, and taking

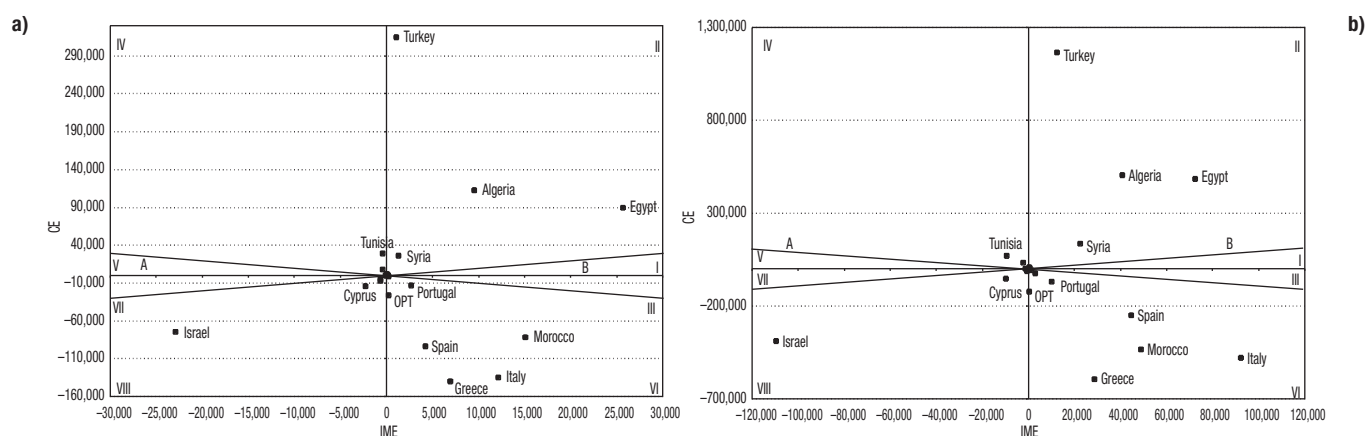


Figure 1. Mediterranean countries distribution by the competitive effect (CE) and industry mix effect (IME) components (a): 1,000 Int. \$; (b): tonnes. OPT: occupied Palestinian territories. *Source:* Faostat (2012), our elaboration.

advantage of the classification adopted in the present study, it is possible to have an immediate perception of the dynamics of citriculture in each country compared with the one recorded for the overall Mediterranean basin.

Results are illustrated in Fig. 1a and b. In addition to the main axes, each chart contains two sloping 45-degree lines, A and B, that work together to identify 8 divisions, corresponding to the groups previously defined in the classification adopted in this paper. Thus, countries placed above and to the right of line A (groups I-IV) have a growth rate higher than the Mediterranean as a whole, while those below and to the left (groups V-VIII) have a growth rate lower than the average of the reference macro-area. The division into octants also allows to state if the growth (or decline) is favoured by the structure and/or the presence of positive location factors.

The results of the analysis, both in terms of value and volume of citrus fruits production, show the good position for Turkey, as well as for Algeria, Egypt and Syria which present a good dynamics mainly due to the positive location factors. In these countries the citrus fruits sector plays a key role in economic terms both because traditionally integrated in the productive and economic texture and because it is effectively supported by national Governments. Turkey, in particular, is one of the most interesting realities in the Mediterranean area because citrus have great importance in terms of both domestic and export consumption (Ozkan *et al.*, 2004) and also for the great growth

potential that characterized the sector⁸. In particular, as Zenginoglu & Dijk (2006) highlight, the development of the sector follow the trends of the world citrus fruit market such as in the case of mandarins, whose increase in production is due to a growing demand for easy-peelers, or grapefruit for which supply growth is attributable to the favourable export opportunities. In this regard, a strong impulse to the positive dynamics of the Turkish sector comes from some Government actions aimed to provide input support programs to farmers (such as direct input distribution, universal input subsidies and targeted market-smart subsidies) that have characterized the policies of the past, and more recently the incentive of exports and implementation of more market-oriented actions including the quality improvement of the productions by providing incentives for farmers using virus-free plants and for the adoption of drip irrigation for water economy (Yeşiloğlu *et al.*, 2007), a good development of the infrastructure (packinghouses, cold and frozen storage, ecc.) as well as of the transportation by sea, by air and by road (Turkish Citrus, 2012).

Algeria also plays an important role in the Mediterranean citrus scenario, though it is characterized by a structural and organizational instability that led to conflicting trends of citrus fruits production (Bessaoud, 2002; Laoubi & Yamao, 2009; Laoubi *et al.*, 2010). In order to support the Algerian citrus farming system in 2000 the Algerian government launched the National Agricultural Development Program (PNDA), which also included the rural dimen-

⁸ Sarigedick (2003) estimated that about half of production took place in large scale orchards with modern technology, including drip irrigation and wind fans.

sion in 2002, aimed for the structural modernization, the intensification and expansion of irrigated areas, the development of agricultural production and productivity (Laoubi *et al.*, 2010) and also accompanied by supporting measures such as supervision, follow up, evaluation, and technical guidance from extension services. Government actions played a key role in the development of the sector, which marked high growth rates of citrus surfaces during the 2000-2006 period, involving areas traditionally suited. This dynamics was also accompanied by changes in the production structure, with a decrease of the areas under grapefruits and certain varieties of oranges and an increase of those planted with small citrus fruits, and in particular clementines, and navel oranges (Bellebas, 2011).

For Egypt, the strong competitiveness of the sector is almost entirely due to the adoption of coherent legislative instruments which regulates the different steps in the chain of production, marketing and export in the citrus sector. Through the 1990s new larger orchards⁹ were established especially in the “New Lands” outside the Delta, on less fertile soil but with drip irrigation systems and extensive use of low cost labour (Siam, 2006). In particular, great attention was paid, on the one hand, to the health of the seedling, by defining a clear production specification, and to the entry conditions of the base materials in the Egyptian market and, on the other hand, to support exports (Salem *et al.*, 2007). All this reflects the countries adherence to subdue many tools and policies, to issue decrees, to facilitate the procedure which would develop export and reach the aspired goals (Salem *et al.*, 2007).

Also in Syria the citriculture has become in the last years one of the most important economic activities thanks to the government actions whose goal was to satisfy the domestic demand, to stimulate the processing and exports; the government, in particular, enhanced the sector to increase both the quantity and the quality of the productions, by introducing, for example, varieties with high yields, realizing remediation programs, encouraging the use of new irrigation systems and adopting, since 1992, a system of biological control in order to contain production costs and to obtain products of a superior quality (Fayez, 2007).

Tunisia presents a positive dynamics due to a good competitiveness not supported however by an adequate structure indicating that the composition of the citrus sector in this country is less suitable, in comparison to the reference macro-area, to fully exploit the potentialities of local growth. Since the ‘80s much attention has been paid by the Tunisian Government to the development of the agriculture sector through the promotion of investment plans in this sector and the use of output-enhancing technologies (Aoun, 2004). With a specific reference to the citriculture, the Tunisian Government, recognizing the importance of the sector in economic terms¹⁰, has been strongly supporting the competitiveness since 1991 and until the more recent development plan adopted by the Ministry which also included action aimed to increase the irrigated surfaces through the rehabilitation of the existing irrigation ditches, and to encourage the use of certification systems and the citrus refrigerated transport. Though many efforts, this sector keeps on being characterized by a high land fragmentation of holdings with 70.0% of the farms having a surface lesser than one hectare (Laajimi & Mimoun, 2007).

There are many countries, among which Italy, Morocco, Spain, Greece, Portugal and OPT, although characterized for a suitable productive structure show a clear competitive deficit, indicating on the one hand the ability of individual countries to adapt to changing conditions of the market and the other the lack of competitiveness resulting in certain cases by the intrinsic weakness of the agricultural sector in general, and more particularly of citrus fruit sector, and in others by the pressure to which the citriculture is subject in terms of costs factors of production and competition from other Mediterranean producers. In almost all of them citriculture represents a traditionally integrated activity in the agricultural productive texture. In Italy, for example, despite innumerable legislative and financial measures —starting from those of the EU— were implemented in the past to straighten the supply chain, there are still a lot of elements which do not allow the Italian farms to adequately compete in the world market: the inefficiency of the whole productive system (*e.g.*, the land fragmentation of holdings accompanied by a little resorting to associations have

⁹ About 80% of total production of citrus in Egypt is produced by large orchards (4.2-42 ha) and 20% is produced by small orchards (0.42-4.2 ha) (Salem *et al.*, 2007).

¹⁰ According to data released by the Centre Technique des Agrumes (2013) of the Ministry of Agriculture and Environment of the Republic of Tunisia, the citrus sector in employs 11,600 producers, is a source of support for more than 18,000 families over to employ about 3 million days casual employment.

an impact on the competitiveness of the whole supply chain), the inadequacy of the commercial structure (unable to face the changing needs of distribution and consumption), and the lack of an effective policy to promote valorisation and promotion of fresh citrus fruits (Schimmenti, 2009). Also in Morocco, where the cultivation of citrus fruits was developed at the beginning of the last century by the French occupants (Ait-Oubahou, 2006), remarkable efforts have been made by the competent authorities to support the sector, firstly through a Citrus National Development Plan set in late 90's by replacing the production in the most suitable areas (Cupo, 2000) with the goal of reaching a supply of 1.85 millions of tonnes in 2010 (in the light of the available data this goal was not achieved), and subsequently encouraging the citrus fruits producers to optimize the use of productive factors such as water, fertilizers and pesticides. Concerning this, direct sustain forms were promoted for the structural adjustments of the farms (irrigation system, farm equipment and agriculture machinery, creation of preparation and packaging stations, etc.) as well as the spread of certification systems in order to overcome the gap which characterized the sector (El-Otmani *et al.*, 2007). Despite the commitment of the Moroccan government, in the country two distinct citricultures continue to exist, the first is modern and export-oriented, the second is designed to meet the domestic demand and consists of small-scale producers who are not able to implement quality and safety standards as well as innovative technologies (Ait-Oubahou, 2006; Trifkovic & Yu, 2010). Referring to Spain, Portugal and Greece, although citriculture is one of the most important sectors in economic terms, it faces today some important challenges increased by the competition even among the Mediterranean countries —which reflects on the prices level— by the shortage of specialized labour and its high cost, and by the regime of the little property; all together affecting the capability of these countries to compete in the international market (Sociedade Portuguesa de Inovação, 2007a,b,c). In regard to OPT, the citrus sector is one of the most affected by Israel occupation and its restrictions in terms of land, water, manpower and the uses of necessary agricultural inputs, having a knock-on effect on movement, marketing and export activities contributing significantly to the reduction of OPT citrus productivity (UAWC, 2011). Furthermore, the citrus sector is facing difficulties in its development process because is non-competitive compared with high-tech and more rewarding

cultivation such as flowers and strawberry (PARC, 1998).

Israel and Cyprus, instead, can be considered recession countries due both to structural fragilities and to the absence of positive location factors. In Israel, in particular, the passage from an economy mainly based on agriculture to an economy of industrial type, as well as the improvement of the population health (Sadka, 2007) and the strong competition from other Mediterranean citrus fruits producers (such as Spain and Morocco), have contributed to the recession of the sector during the last years (IAEA, 2001).

Lastly, nine countries (Albania, Bosnia and Herzegovina, Croatia, France, Jordan, Lebanon, Libya, Malta and Montenegro) present a little dynamic citrus production and therefore are distributed near the origin of the axes, not allowing the graphical interpretation of the results.

The main products

Orange

The analysis carried out for oranges has not highlighted different dynamics in the results obtained in economical and physical terms, allowing, therefore, a common discussion. In particular, by using the classification adopted in the present study emerges that half of the Mediterranean countries record a growth rate higher than the Mediterranean average, resulting characterized by a dynamic related to the presence of positive location factors (group II), with the exception of Italy and, for the production in monetary terms, Spain presenting both a development on a structural basis (group I) (Table 3).

More specifically, Spain, Turkey, Egypt, Italy, Algeria, Syria and Lebanon, the main citrus producing countries in the Mediterranean area during the examined period, show significant values of growth. With the exception of Turkey, Algeria and Syria, whose production is boosted by the competitive component, the dynamics of growth in other countries —Spain, Egypt, Italy and Lebanon— is mainly driven by the tendential component; more specifically, Italy, Egypt and Spain show among the highest growth values on a structural basis, unlike the other countries for which the citrus sector dynamism is only due to the competitive dimension.

Among the countries showing a clear recessive trend (group VI), in all cases caused by the absence of positive location factors despite the more or less consoli-

Table 3. Oranges production growth in the Mediterranean basin (1996-2010)

Country	Gross production value (1,000 Int. \$)				Country	Production (tonnes)			
	NGE	IME	CE	AG		NGE	IME	CE	AG
<i>Group I: IME > 0, CE > 0 and IME > CE</i>									
Spain	97,776	40,242	39,625	177,643	Italy	437,939	176,771	7,850	622,560
Italy	77,345	41,762	1,208	120,315					
<i>Group II: IME > 0, CE > 0 and IME < CE</i>									
Turkey	49,244	29,524	79,800	158,568	Spain	576,573	137,590	205,037	919,200
Egypt	68,634	34,639	48,968	152,241	Turkey	285,831	127,791	406,879	820,500
Algeria	13,867	10,300	73,094	97,262	Egypt	391,703	158,409	237,649	787,760
Syria	19,228	11,071	26,979	57,277	Algeria	81,816	47,586	373,874	503,276
Lebanon	8,153	3,903	5,358	17,415	Syria	112,677	48,657	135,045	296,379
Jordan	1,576	795	1,199	3,570	Lebanon	46,883	15,709	27,516	90,108
Montenegro	118	132	1,045	1,295	Jordan	9,027	3,382	6,066	18,474
Albania	158	92	451	701	Montenegro	734	616	5,348	6,699
Bosnia-Herzegovina	3	2	8	13	Albania	932	417	2,280	3,630
					Bosnia-Herzegovina	21	10	42	73
<i>Group VI: IME > 0, CE < 0 and IME < CE </i>									
Portugal	10,602	3,104	-10,846	2,860	Portugal	57,675	12,456	-55,331	14,800
Libya	1,912	739	-1,588	1,063	Libya	10,953	2,694	-8,147	5,500
Tunisia	4,746	2,396	-6,271	870	Tunisia	27,384	6,562	-29,446	4,500
Malta	53	25	-43	35	Malta	319	94	-232	181
Croatia	26	9	-123	-88	Croatia	144	35	-637	-459
France	35	6	-155	-114	France	190	24	-803	-589
Cyprus	1,992	644	-4,654	-2,018	Cyprus	10,997	2,513	-23,950	-10,440
OPT	3,384	83	-17,695	-14,228	OPT	18,173	22	-91,819	-73,624
Morocco	42,319	15,262	-92,968	-35,388	Morocco	238,775	36,400	-458,288	-183,113
Greece	39,681	11,318	-90,004	-39,005	Greece	223,527	39,037	-464,395	-201,832
Israel	11,975	1,337	-53,600	-40,287	Israel	63,735	3,441	-275,637	-208,461

NGE: national growth effect. IME: industry mix effect. CE: competitive effect. AG: actual growth. OPT: occupied Palestinian territories. *Source:* Faostat (2012), our elaboration.

dated structural framework, Israel, Greece, Morocco and OPT record the worst performance, followed at some distance from Cyprus, France and Croatia. Finally, the positive actual growth for Portugal, Libya, Tunisia and Malta, albeit in some cases modest, indicates growth rates lower than those observed for the whole Mediterranean area.

Small citrus fruits

Referring to the small citrus group, results highlight a rather varied placement of the countries within the groups identified by the combination of the two local components (Table 4).

The analysis in economic terms shows a positive trend in the sector mainly due to competitive asset in

Turkey, Egypt, and to a lesser extent in Morocco and Algeria (group II), followed at some distance from Lebanon and Cyprus. Israel also shows a good performance but due to a consolidated structural framework (group I). Among the other coastal countries more dynamic than the overall Mediterranean basin during the 15-year reference period, Greece, Jordan, Tunisia, and France present a development supported by good structural results (group III) but with competitive constraints to overcome, whereas in Croatia and Albania (group IV) the sector growth is hampered by structural limits.

On the contrary, for Spain, the main producer of small citrus fruits, the growth opportunities in this sub-sector are related to the structural dimension, because the negative competitive component limits the growth rate to values lower than those recorded in the whole Mediterranean (group VI); the same can be applied to

Table 4. Small citrus production growth in the Mediterranean basin (1996-2010)

Country	Gross production value (1,000 Int. \$)				Country	Production (tonnes)			
	NGE	IME	CE	AG		NGE	IME	CE	AG
<i>Group I: IME > 0, CE > 0 and IME > CE</i>									
Israel	7,939	1,192	84	9,215	Israel	34,184	2,493	630	37,307
<i>Group II: IME > 0, CE > 0 and IME < CE</i>									
Turkey	31,008	611	69,339	100,958	Egypt	133,164	1,276	213,718	348,158
Egypt	29,364	5,689	50,950	86,003	Morocco	104,437	15,473	20,924	140,834
Morocco	24,321	929	9,538	34,789	Lebanon	9,013	1,470	5,088	15,571
Algeria	6,516	613	18,926	26,055	Cyprus	8,004	287	6,579	14,870
Lebanon	2,071	540	1,235	3,846					
Cyprus	1,829	250	1,595	3,674					
<i>Group III: IME > 0, CE < 0 and IME > CE </i>									
Greece	6,481	2,556	-1,558	7,479	Greece	28,504	7,785	-6,014	30,275
Jordan	2,606	1,376	-1,235	2,747					
Tunisia	2,016	987	-927	2,075					
France	1,013	247	-200	1,060					
<i>Group IV: IME < 0, CE > 0 and IME < CE </i>									
Croatia	635	-373	8,529	8,791	Turkey	141,277	-13,613	281,035	408,699
Albania	-3	-89	1,148	1,056	Algeria	29,234	-714	76,954	105,474
					Croatia	3,299	-2,470	34,760	35,590
					Albania	9	-345	4,613	4,277
<i>Group V: IME < 0, CE > 0 and IME > CE </i>									
					France	4,552	-440	177	4,289
<i>Group VI: IME > 0, CE < 0 and IME < CE </i>									
Spain	91,746	21,562	-62,817	50,491	Spain	412,277	34,164	-242,040	204,400
Libya	556	175	-336	395	Jordan	11,185	4,703	-4,765	11,123
Syria	1,327	281	-1,319	290	Tunisia	8,609	2,260	-2,469	8,400
Malta	7	1	-19	-11	Libya	2,448	495	-1,343	1,600
Portugal	2,550	473	-3,048	-25	Syria	5,901	665	-5,393	1,173
OPT	760	694	-5,247	-3,792	Malta	29	3	-78	-46
					Portugal	11,759	460	-123,201	-102
					OPT	3,221	2,655	-21,227	-15,351
<i>Group VIII: IME < 0, CE < 0 and IME < CE</i>									
Bosnia-Herz.	22	-53	-306	-337	Bosnia-Herz.	85	-63	-1,386	-1,364
Italy	28,592	-736	-84,901	-57,045	Italy	131,408	-12,595	-349,741	-230,928

NGE: national growth effect. IME: industry mix effect. CE: competitive effect. AG: actual growth. OPT: occupied Palestinian territories. *Source:* Faostat (2012), our elaboration.

Libya and Syria, and also to OPT, Portugal and Malta, but with negative growth performance. Italy has the highest negative value of actual growth and of both local components (group VIII), followed by Bosnia-Herzegovina with a far less negative performance; both of these countries show recessive dynamics on competitive basis. The analysis in physical terms registers few variations among which the change of sign of the

structural component for Algeria and Turkey emerges, determining the transition from a development on a competitive basis to one with structural constraints and revealing an insufficient subsector growth over the examined period. In addition, France, Jordan and Tunisia show a growth less brilliant than in economic terms, but with competitive opportunities for France and structural opportunities for the other two countries.

Lemon and lime

With reference to the group of lemon and lime, the results show a widespread recessive condition, more or less heavy (Table 5). More specifically, the analysis in economic terms points out a strongly negative performance in Spain, Greece and Italy and to a lesser extent in Cyprus, Jordan, Croatia, Malta (group VIII) and France (group VII), in all cases due to the absence of positive location factors, and therefore to the lack

of competitiveness of the sector, accompanied by structural weaknesses. Other countries, such as Egypt, Lebanon (group VII) and OPT (group VIII), although characterized by a recessive trend, have a positive overall growth, albeit with growth rates lower than the average recorded in the reference macro-area; these dynamics are due exclusively to the tendential component. Lastly, a positive growth with a lower rate than the Mediterranean emerges for Morocco, the only coastal country recording a re-

Table 5. Lemons and limes production growth in the Mediterranean basin (1996-2010)

Country	Gross production value (1,000 Int. \$)				Country	Production (tonnes)			
	NGE	IME	CE	AG		NGE	IME	CE	AG
<i>Group II: IME > 0, CE > 0 and IME < CE</i>									
Bosnia-Herz.	0	0	4	4	Albania	131	243	660	1,034
					Bosnia-Herz.	1	0	9	10
<i>Group IV: IME < 0, CE > 0 and IME < CE </i>									
Turkey	41,131	-23,658	135,594	153,067	Turkey	117,572	-73,738	342,229	386,063
Syria	7,853	-3,238	21,945	26,560	Syria	22,580	-7,786	52,197	66,991
Algeria	2,806	-1,278	20,859	22,387	Algeria	7,965	-5,700	54,197	56,462
Israel	3,662	-2,115	13,645	15,192	Israel	10,240	-9,741	37,820	38,319
Tunisia	1,866	-1,120	10,593	11,339	Tunisia	5,555	-3,184	26,230	28,601
Portugal	967	-482	1,503	1,988	Portugal	2,703	-1,178	3,493	5,018
Libya	1,381	-658	1,219	1,942	Libya	3,952	-1,811	2,759	4,900
Albania	24	-5	391	410					
<i>Group V: IME < 0, CE > 0 and IME > CE </i>									
Morocco	1,636	-1,047	401	990	Egypt	62,224	-86,901	30,381	5,704
					Morocco	4,590	-2,398	305	2,497
<i>Group VI: IME > 0, CE < 0 and IME < CE </i>									
					Croatia	127	5	-256	-124
<i>Group VII: IME < 0, CE < 0 and IME > CE</i>									
Egypt	27,882	-14,571	-11,049	2,262					
Lebanon	9,636	-4,289	-3,231	2,116					
France	59	-36	-26	-3					
<i>Group VIII: IME < 0, CE < 0 and IME < CE</i>									
OPT	1,569	-398	-978	193	Lebanon	26,925	-10,557	-11,030	5,338
Malta	59	-27	-77	-45	OPT	4,210	-1,321	-2,401	488
Croatia	54	-4	-99	-49	France	164	-86	-88	-10
Jordan	3,362	-2,271	-4,174	-3,083	Malta	166	-49	-230	-113
Cyprus	2,000	-947	-5,601	-4,548	Jordan	8,955	-6,193	-10,540	-7,778
Italy	50,616	-27,736	-57,487	-34,607	Cyprus	5,410	-2,165	-14,715	-11,470
Greece	13,109	-6,607	-47,482	-40,980	Italy	137,058	-68,422	-155,923	-87,287
Spain	78,541	-55,594	-76,472	-53,525	Greece	34,793	-16,618	-121,534	-103,359
					Spain	219,387	-119,509	-234,878	-135,000

NGE: national growth effect. IME: industry mix effect. CE: competitive effect. AG: actual growth. OPT: occupied Palestinian territories. Source: Faostat (2012), our elaboration.

cession with growth opportunities on competitive basis (group V).

Among the countries with lemon and lime productions characterized by growth rates higher than the Mediterranean, Turkey is the most dynamic country although the performance is mainly due to the competitive component, considering the weak structural component which limits the development (group IV). Syria, Algeria, Israel, Tunisia show the same trend and, with lower values, also Portugal, Libya and Albania. For Bosnia and Herzegovina, however, the subsector growth is only driven by the competitive component (group II).

The analysis in physical terms in most cases does not highlight significant changes compared to the results in economic terms. Nevertheless, it is interesting to refer some cases such as Egypt, which improves its competitive position in comparison to the dynamics illustrated in economic terms, showing more competitiveness in production rather than in commercial terms (group V). On the contrary, Lebanon shows an opposite trend, with a greater weight of the competitive component in the recessive dynamics (group VIII). Lastly, Albania switches from a development with structural constraints to one on competitive basis (group II), whilst Croatia passes from a recession on structural basis in value terms to one with structural opportunities (group VI).

Grapefruit (including pomelos)

As already emerged from the background description, a small number of countries in the Mediterranean region are interested in the production of grapefruits and very few of them show a greater increase than the growth rate recorded in the macro-area during the considered period. In particular, the analysis highlights, both in terms of value and volume, good performance of Turkey and, with gradually decreasing growth values, Tunisia, Spain, Italy, France and Syria (Table 6). Except Syria, this performance is only due to the presence of positive location factors which contribute to generate a good competitiveness of the subsector whose development is, however, hampered by the structural deficit (group IV). A different dynamics features, instead, Syria, where growth is attributable to the good performance of both local components, although the positive location factors outweigh (group II). Structural constraints slow down the subsector

development in Egypt and Greece causing in both cases growth rates lower than the macro-area one. The presence of positive factors of location (group V) is detected in Egypt, not in Greece (group VII). Lastly, the analysis results reveal a detriment of the sector growth mainly in Israel and, in a lesser measure, in Lebanon, Cyprus, Portugal, OPT, Jordan, Morocco, Algeria and Malta; in all these cases the performance of the subsector is due to the negative trend of both local components determining a recession on competitive base (group VIII).

Conclusions

The application of the DSSA allowed us to verify how much the citrus fruits production trend in the Mediterranean coastal countries differs from the one of the overall reference area, highlighting at the same time which components (structural and competitive) determined such a growth gap.

In general, during the observed period, the citrus fruit production, both in volume and value terms, shows a positive trend supported by a well-established structural framework but accompanied in some countries by strong competitive limits, which reduce the growth rate to values lower than the Mediterranean one.

Considering each subsector, the analysis points out the importance of the oranges in positively influencing the processes of productive growth as well as the more modest importance of the small citrus fruit. On the contrary, the positive growth trend of lemons and the negative dynamics of grapefruits are negligible.

The analysis results provide also some interesting insights on the dynamics of the investigated sector. First, the two local components, structural and competitive, have different weights in determining the different trends of citrus production in the Mediterranean countries. In particular, the competitive component is the one affecting mainly the dynamics of citrus in each country, emphasizing the importance of local development factors, such as agricultural policies, in the period examined.

The growth trend of the Mediterranean citrus fruit sector is characterized by the strong presence of extra-EU countries among the most dynamic regions with high competitive capabilities. In contrast, the joint analysis of the two local components of the growth differential highlights some considerable difficulties of

Table 6. Grapefruits production growth in the Mediterranean basin (1996-2010)

Country	Gross production value (1,000 Int. \$)				Country	Production (tonnes)			
	NGE	IME	CE	AG		NGE	IME	CE	AG
<i>Group II: IME > 0, CE > 0 and IME < CE</i>									
Syria	409	265	583	1,257	Syria	2,283	697	2,610	5,590
<i>Group IV: IME < 0, CE > 0 and IME < CE </i>									
Turkey	5,746	-5,502	30,957	31,201	Turkey	29,095	-28,085	137,758	138,768
Tunisia	3,124	-2,370	8,060	8,814	Tunisia	15,720	-12,381	35,861	39,200
Spain	1,283	-990	4,860	5,153	Spain	6,529	-5,207	21,598	22,920
Italy	193	-119	1,235	1,309	Italy	1,042	-702	5,485	5,825
France	240	-208	410	442	France	1,137	-953	1,783	1,967
<i>Group V: IME < 0, CE > 0 and IME > CE </i>									
Egypt	115	-124	61	52	Egypt	567	-598	266	235
<i>Group VII: IME < 0, CE < 0 and IME > CE</i>									
Greece	361	-287	-44	30	Greece	1,732	-1,399	-198	135
<i>Group VIII: IME < 0, CE < 0 and IME < CE</i>									
Malta	1	-1	-3	-3	Malta	4	-4	-12	-12
Algeria	62	-67	-188	-193	Algeria	293	-318	-831	-856
Morocco	139	-46	-543	-450	Morocco	626	-215	-2,411	-2,000
Jordan	538	-511	-650	-623	Jordan	2,674	-2,556	-2,890	-2,772
OPT	282	-328	-1,100	-1,146	OPT	1,249	-1,457	-4,892	-5,100
Portugal	245	-408	-1,050	-1,213	Portugal	1,078	-1,802	-4,671	-5,395
Cyprus	1,741	-2,246	-4,745	-5,250	Cyprus	8,237	-10,512	-21,075	-23,350
Lebanon	953	-798	-10,024	-9,869	Lebanon	4,474	-3,774	-44,595	-43,895
Israel	15,836	-21,981	-33,088	-39,233	Israel	75,148	-102,423	-147,216	-174,491

NGE: national growth effect. IME: industry mix effect. CE: competitive effect. AG: actual growth. OPT: occupied Palestinian territories. *Source:* Faostat (2012), our elaboration.

competitive nature in all the Mediterranean EU countries (with the exception of France) which show, in fact, growth rates lower than the overall. Therefore, the analysis reveals a clear dualism among countries (extra-EU, in particular) which suitably responded to the market with a competitive and dynamic citrus supply, thanks to effective government actions consistent with the aim to increase the competitiveness on both domestic and foreign market, especially in light of the growing prospects of trade liberalization offered within the euro-Mediterranean policy, and countries (mainly belonging to EU) which, on the contrary, accumulated gradually significant delays in competitiveness, proving to be unable to turn in the direction indicated both by the demand trend and by the agricultural policies.

In this context, the presence of Algeria and Syria in a position of competitive advantage close to historic citrus producers such as Turkey and Egypt is exem-

plary, whilst Spain and Italy, two leader countries in citrus production, as well as Greece and Morocco, show strong deficiencies on competitive base which, together with the concomitant trade pressure exerted by the countries previously mentioned, considerably restrict the potential to adapt to the changing market conditions.

In the light of these considerations, it is clear that many North-African and Middle-Eastern countries were able to exploit their own potential, also determined by the comparative advantage held in terms of production costs, implementing effective government policies. However, for the EU-Mediterranean countries is desirable to review legislative instruments to support the sector, providing effective structural policies as well as actions for the enhancement and promotion of citrus productions to fill competitive weaknesses, indispensable to strengthen the citriculture in the area and to boost it on international markets. In the

perspective of a total agri-food trade liberalization in the Mediterranean basin, the realization of an euro-Mediterranean integrated chain for citrus fruit production is a feasible hypothesis by optimizing points of complementarity and reducing the margin for competition through, for example, the agreed managing of production schedules, already tried in previous years, to ensure an uninterrupted supply to non-Mediterranean distribution channels or even the enhancement and qualification of Mediterranean citrus, emphasizing the uniqueness and making them recognizable through a common trademarks. This production and sales strategy would be advantageous to both producers of the two sides in terms of profitability and consumers because of more favourable prices as well as product certification.

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