

# The role of the economic crisis on the competitiveness of the agri-food sector in the main Mediterranean countries

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**Abstract:** The world economic crisis that, since 2008 has also struck the real economy, cannot be attributed only to the United States bubble which in 2007 involved the mortgage credit market, but it is the result of a series of factors among which the imbalance of the financial market, of the public accounts of the main economies and the real sector. Also agriculture, which has always been considered an anti-cyclic sector, has seen a strong slowdown with a plunge in the trade flows. This paper analyses the changes which happened to the competitive position in the world market of some Mediterranean countries and of France, Italy, Spain and Turkey in particular trying, moreover, to understand the vulnerability of the countries belonging to the EU concerning their integration into an economic and monetary union. The results show how much the crisis has involved all the countries bringing, on the whole, a reduction of the competitive potential in the international market which has been less strong in Turkey, the country characterized by a low per capita income and a low public debt. It can be seen, in particular, how the sectors with a strongest commercial specialization have showed a better resistance to the pressure of the recessive trend.

**Key words:** agri-food trade, financial crises, France, Italy, Spain, Turkey

Since the second half of 2008, the global economy has been involved in one of the worst recessions of the last decades. The causes, often ascribed to the United States' speculative bubble which, in the summer of 2007, struck the mortgage credit market, are actually the result of the imbalance between the public finance of the largest economies and the real economy accrued in the years before the crisis burst in 2007. Thus, if we assign a key-role to the financial crisis, we can say that it contributed to the generalization and amplification of the crisis making it stronger, both in terms of intensity and extent, than the previous ones, the depression of 1930 and the 1997 South-East Asia crisis (Dhameja 2010). The intense processes of trade liberalization and financial globalization have been the channels through which the crisis itself has spread, not only in the advanced economies but in the emerging and developing countries as well. The latter are becoming more and more integrated into the world economy but they are strongly dependant on the developed countries; this has triggered a recession process that is globally synchronized but also strongly asymmetrical, due to the differences in the

productive structures of the countries, in the wealth accumulated and in the degree of their integration into the world economy.

The effects of the crisis have shown themselves through a slowdown in economic growth which has involved all economic activities. Furthermore, agriculture, which has always stood out as being very resilient compared to other sectors, has shown a significant slowdown both from the point of view of demand, due to the contraction of the household purchasing power, with the consequent decline in trade flows, and of agricultural incomes, due to the sharp contraction of producer prices caused by the strong imbalances between demand and supply. The origins of this increase in vulnerability can be traced back to the growing integration of the agri-food sector into the world economy and the financial system.

The Mediterranean area is one of the most ancient cradles of agriculture in the world where, from times past, there have always been intense cultural and commercial exchanges. The latter basically refer to the agri-food trade, the result of which is the series of common habits whose highest expression

today is the Mediterranean diet (García Álvarez-Coque et al. 2012). In many countries bordering the Mediterranean, the agriculture and food sector plays a significant role for the demographic component present in rural areas and in the contribution that agriculture still makes to the GDP of these countries (Crescimanno et al. 2013). Of these, the importance of France, Italy, Spain, members of the EU, is significant as is that of Turkey, the candidate member of the EU who the Custom Union Agreement has been in force since 31st December 1995 (EC 1996). In fact, these countries alone account for more than 70% of the value added produced by the agri-food sector, 86.7% of export and 70.0% of the agri-food import flows of the countries bordering the Mediterranean (FAOSTAT 2013). However, these same countries differ in their economic conditions, e.g. the per capita Gross Domestic Product (GDP) of Turkey is on average about 1/3 of that of the EU member countries considered, but also in their economic stability, e.g. the public debt in Turkey (48.5% of GDP) is much lower than that in France (76.4%), Italy (111.3%), but higher than in Spain (38.7%) (World Bank 2013).

Considering, on the one hand, the importance of the above mentioned countries in the Mediterranean agri-food trade, and on the other the lack of studies analysing the effects of the recent economic and financial crisis on said trade, the main objective of this study is to provide a comprehensive analysis of the effects of this crisis on the four Mediterranean countries, which are similar in respect to some agricultural characters but differ in respect to others, by taking the approach of the revealed comparative advantage.

More in detail, this study attempts to answer the following questions. What is the agri-food situation and competitiveness of France, Italy, Spain and Turkey in the global agri-food market? What effects has the economic and financial crises had on the competitiveness of the agri-food sector in each of the countries studied and what are the main differences between these countries? Has the crisis had a more significant impact on Turkey, the candidate member of the European Union (EU), than on France, Italy and Spain, which are well integrated into the communitarian market and theoretically less vulnerable to exogenous shocks? What are the productive sectors that show the highest or the most vulnerable competitive levels in each country? And which of the sectors regarding agricultural commodities or products of the food processing industry has the crisis had the most significant impact on?

In order to reach these objectives, this paper has been organised as follows. The first section is a study of the literature review related to the analysis of the crisis in the agri-food sector. In the second section, we present an analysis of the economic and financial crisis in the Mediterranean countries considered. The third section shows the working method used to address the aims of this research. The results of the analysis of the agri-food trade and its competitiveness are presented and discussed in chapter five. This paper ends with some closing remarks by the authors.

## LITERATURE REVIEW

Several empirical contributions, made through the analysis of specific countries, activity sectors or social and economic aspects have enriched the discussion on the causes, nature and effects of the economic and financial crisis, both today and in the past. Terazi and Şenel (2011), for example, have studied the effects of the global financial crisis on the new member countries of the EU, through the analysis of some macroeconomic indicators – real GDP growth, unemployment rate, general government revenues, general government expenditures, net consolidated government lending, revealing a significant impact above all on the economy of those countries involved in changing their regime, in civil disorders or in ineffective policies of the past. Other papers have focused on the negative impact of the world recession on the inbound and outbound touristic flows not only in Asia (Song and Lin 2010), but also in Australia, Canada, the USA, Japan and the EU-15 as well (Smeral 2010). As far as trade is concerned, the results of a study carried out by the UNCTAD (2009) show, on the one hand, a greater difficulty on the part of exporter countries in facing the crisis and, on the other hand, a less negative impact on trade flows in terms of volume and the local currency than in terms of value, due to the conversion of the local currency into the US dollars.

The agri-food sector has never been taken into much consideration in the economic literature dealing with the effects of the crisis, because it has been traditionally seen as an anti-cyclic sector which, on account of its characteristics, is able to absorb and soften the microeconomic shocks. Among the empirical contributions, Shane and Liefert (2000) examine the effects of the financial crisis on the agricultural sector in some countries through the changes in exchange rates, consumer income, interest rates, trade

balance linked to the price of agricultural products, production, consumption and trade. Furthermore, they point out that financial crises lead to the currency depreciation and cause the consumer income to fall, the interest rates to rise and the decline in agricultural trade. Romano (2010) studies the impact of the crisis on the Italian agricultural sector through the analysis of the principal available short-term data regarding agricultural production. He points out that the agricultural sector, in relative terms, has weathered the effects of the crisis better than the others, while in absolute terms, the sector has registered a negative performance due to its structural characteristics and the intermediaries' market power, to be referred to their influence on the price transmission along the supply chain. Suchada et al. (2000) analyse the effects of the financial crisis on some agricultural commodity imports through measures of the exchange rate volatility, pointing out that there is a significant influence of the exchange rate risk on specific commodity exports. Diao and Roe (2000), using a general equilibrium model, examine the effects of the Asian financial crisis on the world agri-food trade and on the bilateral flows, in particular in the North American regions, detecting significant direct effects on agricultural production and returns to sector specific resources, and indirect effects, strictly dependent on the general economic crisis. Other studies focus on foreign labour in agriculture. Chan (2010) in particular pays attention to migrant workers in China, pointing out that, as already shown by Fix et al. (2009) who explore the myriad impacts of this crisis on migration flows, the financial crisis has hit Chinese migrants in this sector more than in other activity sectors, because of both the high unemployment rate and the lack of social security cover. An interesting research branch has studied the impact of the financial and economical crisis on food consumption, nutrition and the wealth of the populations of the developing countries, highlighting that a relevant number of families has reduced their consumption, both in the terms of quality and quantity, thus increasing the risk of malnutrition and food insecurity (Brinkman et al. 2010; FAO 2010).

An interest in different geographical areas and/or particular aspects of the agri-food sector also emerges from the study of this literature review. Furthermore, the authors have considered different variables and adopted different methodological approaches to analyse the cause and effects of the economic crisis on the same sector.

## THE ECONOMIC CRISIS IN THE MAIN MEDITERRANEAN COUNTRIES

In 2008 the crisis, by then systematic, brought the global economy to a slowdown. Its effects, as already stated, have been more or less influential depending on each country's productive structure and the different degree of integration into the world economy. As regards the Mediterranean countries, as in the case of other European countries, the crisis became apparent in 2009, two years after the burst of the United States speculative bubble, determining negative variations in the real GDP which, for the EU member countries, was the highest among those observed since the institution of the Economic and Monetary Union (Romano, 2010) (Table 1). In particular, the most important contraction was recorded in Italy, where the recessive phase struck an already weak economic system and influenced its subsequent recovery (Daniele 2010). The sharp fall in GDP was followed by a weak recovery, which was, however, stronger in Turkey, showing that Turkey was able to respond to the shocks coming from the financial and real economies. In fact, a set of structural reforms embarked on by the Turkish government, and sound macroeconomic policies under the new Economic Programme launched in 2001, have determined a greater resilience on the part of Turkey towards both domestic and external shocks (Macovei 2009).

The reduction of the real GDP also went hand in hand with the contraction of the industrial production, which occurred in 2008; this reached its sharpest peak in 2009 and only showed weak signs of recovery in the aftermath. Moreover, the reduction in the household purchasing power between 2008 and 2009 determined a decrease in the household consumption expenditure in Italy, Spain and, in particular, in Turkey. In the subsequent period, there was a slight increase in trend in the first two countries and a higher increase in Turkey. Even employment levels have undergone a slowdown in economic growth with an increase in unemployment rates which, unlike other variables, are not giving signs of slowing down in spite of the weak recovery of the last years. This is also true for Turkey, because the dynamics of this country are to be referred to the population's growth rate which is higher than that recorded for employment (Macovei 2009). In addition, it should be noted that among the countries studied, France is showing a slower recession.

The economic crisis has, moreover, influenced the goods and services trade which, between 2008

Table 1. Evolution of some socio-economic indicators (percent change over corresponding period of previous year)

|                       |        | 2004 | 2005 | 2006 | 2007 | 2008 | 2009  | 2010 | 2011 |
|-----------------------|--------|------|------|------|------|------|-------|------|------|
| Real GDP              | France | 2.3  | 1.9  | 2.7  | 2.2  | −0.2 | −2.6  | 1.4  | 1.7  |
|                       | Italy  | 1.7  | 0.9  | 2.2  | 1.7  | −1.2 | −5.5  | 1.8  | 0.4  |
|                       | Spain  | 3.3  | 3.6  | 4.1  | 3.5  | 0.9  | −3.7  | −0.1 | 0.7  |
|                       | Turkey | 9.4  | 8.4  | 6.9  | 4.7  | 0.7  | −4.8  | 9.0  | 8.5  |
| Industrial production | France | 2.0  | 0.1  | 0.8  | 1.5  | −2.8 | −12.3 | 5.7  | 0.6  |
|                       | Italy  | −0.2 | −0.7 | 3.6  | 1.8  | −3.4 | −18.8 | 6.7  | 0.1  |
|                       | Spain  | 1.5  | 0.8  | 3.9  | 2.3  | −7.5 | −15.5 | 0.9  | −1.4 |
|                       | Turkey | –    | –    | –    | –    | –    | –     | –    | –    |
| Unemployment rate     | France | 8.9  | 8.9  | 8.8  | 8.0  | 7.4  | 9.1   | 9.3  | 9.2  |
|                       | Italy  | 8.0  | 7.7  | 6.8  | 6.1  | 6.8  | 7.8   | 8.4  | 8.4  |
|                       | Spain  | 10.9 | 9.2  | 8.5  | 8.3  | 11.3 | 18.0  | 20.1 | 21.3 |
|                       | Turkey | 10.3 | 10.2 | 9.9  | 10.2 | 11.0 | 14.0  | 11.9 | 9.8  |
| Household consumption | France | 1.7  | 2.4  | 2.2  | 2.4  | 0.3  | 0.2   | 1.4  | 0.3  |
|                       | Italy  | 0.8  | 1.2  | 1.3  | 1.1  | −0.8 | −1.8  | 1.0  | 0.3  |
|                       | Spain  | 4.2  | 4.1  | 4.0  | 3.5  | −0.6 | −4.4  | 0.8  | −0.1 |
|                       | Turkey | 11.0 | 7.9  | 4.6  | 5.5  | −0.3 | −2.3  | 6.7  | 7.7  |
| Propensity to export  | France | 0,2  | 0,2  | 0,7  | −0,2 | 0,1  | −3,6  | 2,2  | 1,4  |
|                       | Italy  | 0,8  | 0,7  | 1,7  | 1,2  | −0,4 | −4,7  | 2,8  | 2,3  |
|                       | Spain  | −0,4 | −0,3 | 0,6  | 0,6  | −0,4 | −2,6  | 3,3  | 3,1  |
|                       | Turkey | 0,6  | −1,7 | 0,8  | −0,3 | 1,6  | −0,6  | −2,1 | 2,5  |
| Dependence degree     | France | 0,7  | 1,3  | 1,1  | 0,3  | 0,6  | −3,9  | 2,5  | 2,0  |
|                       | Italy  | 0,6  | 1,4  | 2,5  | 0,7  | 0,2  | −5,0  | 4,2  | 1,8  |
|                       | Spain  | 1,2  | 1,0  | 1,7  | 1,0  | −1,3 | −6,5  | 3,6  | 1,7  |
|                       | Turkey | 2,1  | −0,8 | 2,2  | −0,1 | 0,9  | −3,9  | 2,3  | 5,9  |

Source: Our elaboration on International Monetary Fund (2012)

and 2009, recorded negative variations in all four countries leading to a reduction in their propensity to export; this was more pronounced in Italy and France and less in Turkey. In the latter country, the negative performance recorded also characterized the following period. The dependency degree, which expresses the need to import goods and services used by the production units having a certain level of GDP, shows a decrease between 2008 and 2009 in all four countries and then an immediate recovery.

## METHODOLOGICAL APPROACH

In the last few decades, there has been an explosion of interest in the concept of competitiveness. Several methods have been proposed by researchers to measure the competitive advantage, which diverges

in relation to the aim of the analysis (competitive performance, competitive potential and management process), the level of the analysis, the number of dimensions involved (i.e. whole economy, industry, firm and product levels), and the space-time analysis. For the industry level analysis, the most appropriate definition as regards the objectives of this study has been proposed by Kim and Marion. These authors maintain that competitiveness is the “sustained ability of a nation’s industries to compete with its foreign counterparts in foreign markets as well as in domestic markets under the conditions of free trade” (Kim and Marion 1997). There are a wide variety of indicators that measure the weak and strong sectors of a country; consequently a sole measure does not exist.

In this study, the competitiveness of the main Mediterranean countries (France, Italy, Spain and Turkey) in the international market of agri-food prod-

ucts is evaluated through the analysis of trade flows using indicators based on comparative advantage, traditionally used in the economic literature to measure the sectoral specialization and competitiveness in the international market. As suggested by Frohberg and Hartmann (1997), the advantage of using the trade data to measure international competitiveness is that demand and supply responses are considered simultaneously and that the costs of marketing and transport are taken into account. These indicators do not have the prerogative of identifying the exogenous or endogenous factors, which may affect the competitive performance of a country or sector, also because they do not take into consideration the government policies or interventions implemented by each single country or geographic area, which would reflect both on exports and imports; nevertheless, they do offer a measure of the ability of a country to compete in the international market.

The concept of the revealed comparative advantage was put forward in 1965 by Balassa who proposed a measure based on a certain country's export performance (RCA) of a sector or of commodities compared to the same set of other countries. In fact, Balassa maintains that the comparative advantage can be "revealed" starting from the models of commerce observed, which, it is presumed, reflect both relative costs and differences in factors other than cost. The RCA measure has undergone a number of revisions and modifications since it was first formulated.

An alternative measure of the revealed comparative advantage made use of in this study was proposed by Vollrath (1991). The Relative Trade Advantage index (RTA) expresses the net trade advantage or disadvantage and it is calculated as the difference between the Relative Export Advantage Index (RXA) and its counterpart the Relative Import Penetration Index (RMP). The RTA is preferred to the index proposed by Balassa, or to other indexes of competitiveness, both because it takes into consideration the export and import activities and it eliminates the double counting of country and commodity contemplated in the RCA, which falsifies the calculation. Consequently, the RTA index is considered to be a more appropriate measure of competitiveness in this study. The Vollrath indices have been widely used in the economic literature in several empirical studies that explore the international competitiveness of specific sectors or products (Traill and Da Silva 1996; Bavorová 2003; Fertő and Hubbard 2003; Havrila and Gunawardana 2003; Ivankovič et al. 2005; Hambalková 2006; Ascuito et al. 2008; Crescimanno et al. 2011; Crescimanno

and Galati 2012), but they have never been used to evaluate the effects of the financial and economic crisis on the competitive position of a nation.

Specifically, the RXA index is defined as the relation between the export ratio of a certain sector of the given country in the world market and the export ratio of all the other sectors of the same country in the world market, with the exception of the sector and the country analyzed. The RXA index is expressed as:

$$RXA_{ij} = \left( \frac{X_{ij} / \sum_{l \neq j} X_{il}}{\sum_{k \neq i} X_{kj} / \sum_{k \neq i} \sum_{l \neq j} X_{kl}} \right)$$

where:  $X$  and  $M$  stand for exports and imports, the indices  $i$  and  $k$  mean the product category, and  $j$  and  $l$  represent the countries. A value of  $RXA_{ij}$  greater than one (less than one) indicates that the country has a competitive advantage (competitive disadvantage) for the sector studied.

The counterpart RMP index is expressed as the ratio between the share of imports of certain sectors of the given country in the world market and the import ratio of all the other sectors of the same country in the world market, with the exception of the sector and the country analyzed. The RMP index is calculated as follows:

$$RMP_{ij} = \left( \frac{M_{ij} / \sum_{l \neq j} M_{il}}{\sum_{k \neq i} M_{kj} / \sum_{k \neq i} \sum_{l \neq j} M_{kl}} \right)$$

A value of  $RMP_{ij}$  greater than one (less than one) indicates that the country has a competitive disadvantage (competitive advantage) for the sector studied.

The  $RTA_{ij}$  index is expressed as:

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

The index  $RTA_{ij}$  is positive (negative) if the country has an advantage (disadvantage) in the sector studied.

In this paper, we used the version of the Vollrath' index that expresses the RXA and RMP indices in the logarithmic form. According to Vollrath, the Revealed Competitiveness index (RC) may be preferable because of the supply and demand balance embodied in the index. Therefore, it provides a better picture of the actual comparative advantage of a commodity/country. Furthermore, the application of this index is inadequate when there is no exchange between countries, when the trade flows are low, and when a high level of aggregation can hide the competitive advantage or disadvantage of a single division of a sector or of a single commodity. RC is expressed as follows:

$$RC = \ln RXA - \ln RMP$$

A value of the RC index greater than zero indicates that the sector has a comparative advantage; vice versa, if the RCA is less than zero, the sector analyzed does not have a comparative advantage; finally, if RCA is equal to zero, the sector does not have either a comparative advantage or a disadvantage.

In this study, the analysis is based on the annual export and import data at current value extracted from the United Nations Commodity Trade Statistics (UN Comtrade) database, considering the total trade, the agri-food trade and the 24<sup>1</sup> product groups pertaining to the agricultural and food sector (according to the two digits classification of the Harmonized System – HS). The use of trade flow data at current value comes from the need not only to capture the increase in a country's weight in terms of trading volume but also in terms of price impact. In fact, as Iapadre (2006) maintains, by using data at constant exchange rates

Table 2. Importance of the agri-food trade in the main Mediterranean countries (average 2004–2011 period, value express in %)

|        |        | Agri-food trade on total trade | Agri-food trade on World agri-food trade |
|--------|--------|--------------------------------|------------------------------------------|
| Export | France | 12.1                           | 7.0                                      |
|        | Italy  | 7.4                            | 3.7                                      |
|        | Spain  | 14.8                           | 3.9                                      |
|        | Turkey | 9.7                            | 1.3                                      |
| Import | France | 8.6                            | 5.3                                      |
|        | Italy  | 9.4                            | 4.7                                      |
|        | Spain  | 9.9                            | 3.5                                      |
|        | Turkey | 3.8                            | 0.7                                      |

Source: Our elaboration on UN Comtrade data

you cannot evaluate the increase in unit values of the consequent trade flows or the quality upgrade associated with product image, distribution, quality of the product itself and other factors that influence the value of the product.

As regards the aim of this paper, the analysis refers to the period 2004–2011, and verifies the change in the competitive position of the four countries considered in the global agri-food market before and after the onset of the crisis.

## RESULTS AND DISCUSSIONS

### The agri-food trade of the main Mediterranean countries

The importance of the agri-food sector for the economy of the four main countries bordering the Mediterranean sea stands out also in terms of the weight of the agri-food flows in the total trade, which is particularly significant in Spain (14.8% of the total exports and 9.9% of imports), but also in France (12.1% of exports and 8.6% of imports), Italy (7.4% of exports and 9.4% of imports) and Turkey (9.7% of exports and 3.8% of imports) (Table 2). This importance becomes even greater when referred to the contribution of these countries' agri-food trade to the global agri-food trade; indeed, these four countries alone account for significant shares, with a weight of 15.9% for exports and 14.1% for imports.

The agri-food trade flows analysis of the studied Mediterranean countries for the period 2004–2011 highlights, on the one hand, the greater or lesser trade specialization, and, on the other hand, changes in the structure of trade. In particular, what emerges from the analysis of the dynamics is a sharp fall both in exports and imports in 2009, although at different

<sup>1</sup>Product groups by the two digits classification of the HS: 01 (Live animals), 02 (Meat and edible meat offal), 03 (Fish and crustaceans, molluscs and other aquatic invertebrates), 04 (Dairy produce, birds' eggs, natural honey, edible products of animal origin not elsewhere specified or included), 05 (Products of animal origin, not elsewhere specified or included), 06 (Live trees and other plants, bulbs, roots and the like, cut flowers and ornamental foliage), 07 (Edible vegetables and certain roots and tubers), 08 (Edible fruit and nuts, peel of citrus or melons), 09 (Coffee, tea, maté and spices), 10 (Cereals), 11 (Products of the milling industry, malt, starches, inulin, wheat gluten), 12 (Oil seeds and oleaginous fruits, miscellaneous grains, seeds and fruit, industrial or medicinal plants, straw and fodder), 13 (Lac, gums, resins and other vegetable saps and extracts), 14 (Vegetable plaiting materials, vegetable products not elsewhere specified or included), 15 (Animal or vegetable fats and oils and their cleavage products, prepared edible fats, animal or vegetable waxes), 16 (Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates), 17 (Sugar and sugar confectionery), 18 (Cocoa and cocoa preparations), 19 (Preparations of cereals, flour, starch or milk, pastrycooks' products), 20 (Preparations of vegetables, fruit, nuts or other parts of plants), 21 (Miscellaneous edible preparations), 22 (Beverages, spirits and vinegar), 23 (Residues and waste from food industries, prepared animal fodder), 24 (Tobacco and manufactured tobacco substitutes).

Table 3. Comparative analysis between total and agri-food trade (% change over corresponding period previous)

|        |        |           | 2004 (million of \$) | 2005 | 2006 | 2007 | 2008 | 2009  | 2010 | 2011 |
|--------|--------|-----------|----------------------|------|------|------|------|-------|------|------|
| Export | France | total     | 413 708.4            | 5.0  | 10.3 | 12.7 | 10.1 | –21.9 | 10.2 | 13.7 |
|        |        | agri-food | 47 834.4             | 2.2  | 7.7  | 17.8 | 16.7 | –15.8 | 6.2  | 20.4 |
|        | Italy  | total     | 353 543.1            | 5.5  | 11.9 | 19.9 | 8.3  | –25.0 | 9.9  | 17.1 |
|        |        | agri-food | 24 553.2             | 6.0  | 8.7  | 18.5 | 16.5 | –11.1 | 5.7  | 13.7 |
|        | Spain  | total     | 182 727.4            | 5.5  | 11.0 | 18.5 | 10.0 | –20.1 | 10.4 | 21.1 |
|        |        | agri-food | 27 140.9             | 2.8  | 6.9  | 18.0 | 15.9 | –9.8  | 3.7  | 14.1 |
|        | Turkey | total     | 63 121.0             | 16.4 | 16.4 | 25.4 | 23.1 | –22.6 | 11.6 | 18.4 |
|        |        | agri-food | 6 009.1              | 30.3 | 2.8  | 13.6 | 18.6 | –1.3  | 12.6 | 19.7 |
| Import | France | total     | 434 241.9            | 9.6  | 11.4 | 15.4 | 13.7 | –22.2 | 10.9 | 17.0 |
|        |        | agri-food | 37 938.3             | 3.4  | 6.3  | 19.1 | 17.9 | –9.2  | 1.2  | 14.0 |
|        | Italy  | total     | 355 266.9            | 8.3  | 15.0 | 15.6 | 9.6  | –26.1 | 17.4 | 14.5 |
|        |        | agri-food | 34 286.7             | 3.5  | 8.5  | 15.3 | 13.0 | –10.7 | 4.3  | 15.2 |
|        | Spain  | total     | 259 264.8            | 11.7 | 13.9 | 18.6 | 7.0  | –31.3 | 9.8  | 15.0 |
|        |        | agri-food | 25 365.0             | 8.3  | 3.8  | 22.9 | 13.5 | –16.2 | 2.0  | 15.1 |
|        | Turkey | total     | 97 539.8             | 19.7 | 19.5 | 21.8 | 18.8 | –30.2 | 31.7 | 29.8 |
|        |        | agri-food | 3 237.5              | 7.0  | 6.4  | 46.3 | 62.4 | –27.5 | 21.0 | 42.7 |

degrees depending on the country studied and a different ability to recover. This is to be referred to the sharp fall in the world demand for agri-food products, caused by the changes in exchange rates and income levels of the countries affected by the financial and economic crisis. This performance differs from the results obtained in the past by Shane and Liefert (2000) and Kehoe (2000) for whom economic crises lead to a drop in imports, as a result of a collapse in the global demand for food and agricultural products,

and, less frequently, the simultaneous contraction of exports. In fact, the latter take longer to adapt to the changes in price and exchange rates than imports.

In particular, a comparison between the dynamics of the agri-food flows and the total flows, during the reference period, show that in all four countries the economic and financial crisis has also affected the agri-food flows, but less intensely compared to the total flows. In fact, as observed by García Alvarez-Coque et al. (2012) in their study on globalisation and the Mediterranean agricultural products, the agri-food products have proved to be more resilient to the economic crisis than manufacturing products. Moreover, among the countries analysed, Turkey presents the best export performance with a reduction in flows, between 2008 and 2009, of only 1.3%, compared to the highest values recorded by the remaining countries (Table 3), thus confirming a continued upward trend and a growing integration into the world agri-food market, as observed by Camanzi et al. (2003) in the past.

During the 2004–2011 period, in average France absorbed 40.8% of the volume of trade of the four countries under study (43.8% of exports and 37.6% of imports), showing a positive agri-food balance which gradually increased during the considered period as a consequence of a stronger growth in exports (7.9%) than in imports (7.7%). This country reached

Table 4. Agri-food trade in the main Mediterranean countries (million of \$)

|        |        | 2004       | 2011       | Average<br>2004–2011 | %     |
|--------|--------|------------|------------|----------------------|-------|
| Export | France | 47 834.35  | 77 968.16  | 60 936.94            | 43.8  |
|        | Italy  | 24 553.15  | 41 696.49  | 33 063.46            | 23.7  |
|        | Spain  | 27 140.93  | 43 531.91  | 35 336.42            | 25.4  |
|        | Turkey | 6 009.05   | 14 428.83  | 9 880.80             | 7.1   |
|        | Total  | 105 537.49 | 177 625.39 | 139 217.62           | 100.0 |
| Import | France | 37 938.33  | 61 364.66  | 49 436.15            | 37.6  |
|        | Italy  | 34 286.70  | 53 784.54  | 43 499.95            | 33.1  |
|        | Spain  | 25 365.00  | 39 129.65  | 32 247.32            | 24.5  |
|        | Turkey | 3 237.51   | 10 961.50  | 6 191.90             | 4.7   |
|        | Total  | 100 827.53 | 165 240.35 | 131 375.32           | 100.0 |

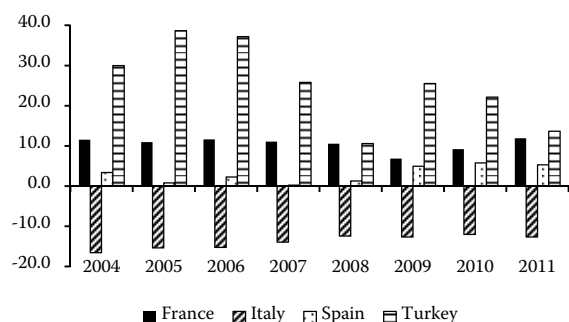


Figure 1. Trade specialization in the agri-food sector in the main Mediterranean countries from 2004 to 2011

Source: Our elaboration on UN Comtrade data

an average of just over 11.5 billion dollars, and a high specialization degree as emerged from the analysis of the normalised trade balance index (10.4% on average during the period 2004–2011) (Table 4 and Figure 1). This high degree of specialization not only reflects the importance of the agri-food sector from the productivity point of view, but also the strong competitiveness of the firms working in the sector. In fact, these firms have adapted well to the dynamics of the market, also in answer to the society's concerns (Ministère de l'Agriculture ... 2011). The decrease in the balance of the agri-food sector in 2009, caused by the reduction in exports and purchases, is to be referred, as stated by Caraes (2010), mainly to the reduction in the price of cereals and to the reduction in the volume of exports of meat, animal production by-products and wine, which represent some of the most strategic products of the French agri-food sector.

In the reference area, the importance of the Spanish agri-food trade is significant; it absorbs 25.0% of the volume of trade (25.4% of exports and 24.5% of imports) showing a positive agri-food balance which amounts, in the period, to an average of \$ 3.1 billion. On the whole, the dynamics are characterized by a sharper increase in exports (7.5%) than imports (6.8%), as can be seen from the progressive improvement in the balance of the agri-food sector that is accompanied by an improvement in the normalized trade balance. In 2009, a contraction in the flows as compared with the previous year was registered, but this did not, however, prevent the Spain's agri-food sector from maintaining its high export aptitude (Ministerio de Economía y Competitividad 2010).

Italy captures an average 28.3% of the trade flows in the reference area (23.7% of exports and 33.1% of imports) and it is the only country of those under consideration that presents a negative agri-food bal-

ance of up to 10.4 billion dollars, showing a marked trade de-specialization (–13.6%). The dynamic flows, characterized by an annual growth of 8.7% in exports and 7.1% in imports, reveal an overall worsening in the trade balance, which however, shows a slight improvement in 2009 as a result of reduction in the trade flows. Despite the fact that the trade balance is structurally in deficit, the Italian agri-food sector is present in the world market especially with some food products; in fact these “Made in Italy” products are widely recognized and appreciated abroad (Antimiani and Henke 2007; Ismea 2012).

Finally, Turkey intercepts only 5.9% of the volume of trade (9.7% of exports and 3.8% of imports), and is the only country to have a high trade specialization, with a normalized trade balance that amounts to an average of 23.0%. The evolution in the trade flows lead to an improvement in the overall balance of trade even if it is accompanied by a reduction in the normalized trade balance. The economic and financial crisis also caused a contraction in the agri-food flows in Turkey, but less so than in the other countries studied, especially as regards exports. Consequently, this determined a net improvement in the specialized trade between 2008 and 2009.

### The competitiveness analysis

The estimate of the Revealed Competitiveness index (RC) has made it possible to quantify the competitive advantage held by the four Mediterranean countries in the global agri-food market, both as a whole and specifically on each productive sub sector. Through the analysis of the index trend, we wanted, in particular, to clarify whether or not the world economic crisis, which brought about the contraction, in a more or less marked degree, of the trade flows, has affected the competitive position of the countries studied in the international market and in which of these countries the impact was more significant.

### The agri-food sector in the face of the crisis

Taking the agri-food sector as a whole, as can be seen in Figure 2, a strong competitive advantage on the part of Turkey in the international market stands out as a consequence of the strong weight of the agri-food component on the country's overall exchanges. This situation determines a higher relative export advantage compared to imports and a higher



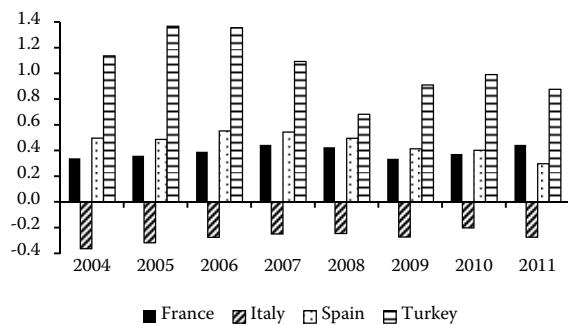


Figure 2. Revealed Competitiveness index (RC) for the main Mediterranean countries from 2004 to 2011

Source: Our elaboration on UN Comtrade data

specialization in the agri-food trade compared to the other countries in the area. Notwithstanding this as well as various structural bottlenecks, such as the predominance of small-sized and subsistence/semi-subsistence farms, and the high rates of illiteracy among farmers, Turkey ranks, globally, as a significant agricultural exporter. The reasons for this are to be referred to its geographical position, which gives the country the opportunity to access large markets such as Europe, the Middle-East and North Africa (Camanzi et al. 2003). Furthermore, Turkey is the world's seventh largest agricultural producer (OECD 2011), thanks to its rich soil, biological diversity and good climate (Deloitte 2010), which allows the country to be independent of foreign trade. The evolution of the index in the reference period shows that, on the whole, there has been a reduction in the Turkey's competitiveness in the world market. This is more marked between 2006 and 2008, mainly because of the increased weight of the agri-food imports compared to the total flows. The 2009 crisis hit imports the most, thus determining a contraction in goods purchased in foreign markets with the consequent increase in the competitiveness of the country in the international market.

Positive Index values can be seen in France and Spain as well; this is also to be referred to the strong weight of the agri-food component in the overall trade, which determines an export advantage in the international market. In both countries the sharp fall in trade flows in 2009 damaged the competitive advantage held in the international market as a consequence of the increase in the RMP (caused by an increase in weight of the agri-food imports compared to the total flows) and an erosion of the RXA. The recovery phase, which began in 2010, seems steadier for France thanks to the fast growth of the export

relative advantage which has gone back to the before crisis levels, while in Spain the negative trend, which started in 2008, continues. Furthermore, the growth in the agri-food sector in the Iberian Peninsula, based on debt, has made the economic system fragile and vulnerable to the effects of the crisis (Caraes 2012). To conclude, Italy is the only country of those considered which shows a competitive disadvantage in the global market as regards agri-food production as a whole; this is to be referred to a higher index value of the import relative advantage than that registered for exports. In fact, the Italy's dependence on foreign countries in several productive agri-food sub-sectors has determined a strong commercial de-specialization. This disadvantage has tended to increase since 2009 for the effect of the increase in import relative advantage steadier. In fact, the decrease in the values of sales, especially as regards products "Made in Italy", which are the Italy's agri-food strong point in the world (De Filippis 2012), has had a negative impact on the country's competitiveness (Caraes 2012).

### The crisis and the main sectors

The competitiveness analysis effected starting from the aggregate data nevertheless hides the different performance of the single sub-sectors of the sectors considered. For this reason, an RC index has also been determined for the principal productive sub-sectors of the agri-food sector which produce agricultural commodities and products of the food industry.

In the international market of agri-food productions, France shows a competitive advantage above all in the sub-sectors of continental agricultural products and, in particular, in those of cereals and live animals. In fact, France produces, about  $\frac{1}{4}$  of the cereals and live animals in the EU (OECD 2011). The same advantage also emerges in the industrial sub-sectors, as regards beverages, vermouth, other aromatic wines, and vinegar and its by-products in particular, as can be seen from the research carried out by Fanelli and Di Nocera (2009). This is also true for farming products, among which namely cheese, which represent the strategic sectors of France's agri-food production. High values of the index can also be noticed in the milling industry sub-sector and that of sugar-based products, although these only absorb the modest quotas of the agri-food exchanges (Figure 3). On the other hand, the analysis of the data shows a strong competitive disadvantage in the sectors of garden nursery products, coffee, tea, mate and spices; the

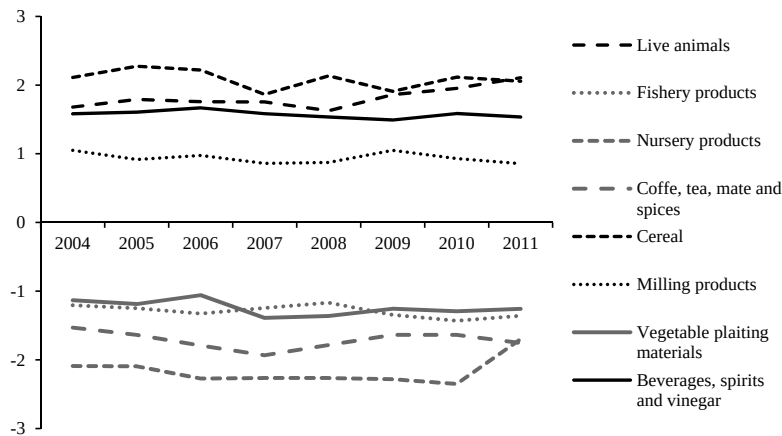


Figure 3. Revealed competitiveness index for the main French agri-food sub-sectors from 2004 to 2011

Source: Our elaboration on UN Comtrade data

products which come almost exclusively from foreign markets due to the low production in the country to be referred to the geographical and climate factors. As regards the fishery sector, the quotas of commercial exchanges are extremely low.

The economic crisis in the country brought about a contraction in the agri-food flows in 2009 which indiscriminately hit all sub-sectors, causing a change in the competitive advantage or disadvantage held by the country in the worldwide agri-food market. The results show a decline in the France's competitive advantage in the beverage and cereal sectors in particular; the sectors which, as highlighted before, represent the highly specialized sectors of the country's agri-food production, in which the contraction in exports has determined a reduction in their quota of the world market and a consequent reduction of their relative advantage. However, since 2010, a recovery has been seen; a recovery that has been stronger for cereals and can be referred to an increase in the RXA. This has been facilitated not only by the absence of the Argentinean cereals in the West African market but also by the reduction in the Russia and Ukraine's production of wheat and barley, caused by bad the weather conditions (Ubifrance 2011). All in all, this has determined an increase in weight on the part of France in the world market. The beverage sector, headed by wines and champagnes, has also registered positive dynamics favoured not only by the foreign demand from the traditional end markets, which is on the continual increase, but also by new consumer markets, like Asia. Furthermore, the replenishment of stock and investments on the part of French exporting firms has also played an important role in revitalizing exports (Ubifrance 2011). The competitive advantage of the live animals sector and of farm products such as cheese has increased over the same period as a

consequence of the increase in the relative export advantage, whereas the milling industry sector has registered a progressive contraction in competitiveness since 2010. Furthermore, as regards sectors in which France shows a competitive disadvantage, there has been a worsening, albeit slight, in the performance of the coffee, tea, mate and spices, fish and flower and ornamental sectors. This is to be referred to an increase in the relative advantage of imports, sectors in which, as previously highlighted, France is structurally dependent on foreign markets.

Italy shows a competitive advantage for "Made in Italy" products, and in particular for beverages, the category that includes wines, and cereal-based and fruit and vegetable-based products, which represent the most important Italian exports products (45% of the total amount). Furthermore, there has recently also been an increase in the flower and ornamental sectors. Made in Italy products, as already pointed out in the previous section, have contributed over the years to strengthening Italian commercial specialization in the international market, because they have become the symbols of the Italian life-style. This is particularly true for wine which, on account of its high quality and marked differentiation, has contributed over time to reinforcing the reputation of Italian products in the world (Carbone and Hanke 2012). On the other hand, in the division of agricultural commodities, a more or less significant disadvantage can be detected, with the exception of the fresh fruit sector for which Italy shows a modest advantage on the international level (Figure 4). A strong competitive disadvantage can also be noticed in the live animals and the basketwork plant material sectors, as they are the same as the net import sectors which absorb the extremely modest quotas of the agri-food exchanges. To a lesser degree, but with a bigger relative importance for fish products, this

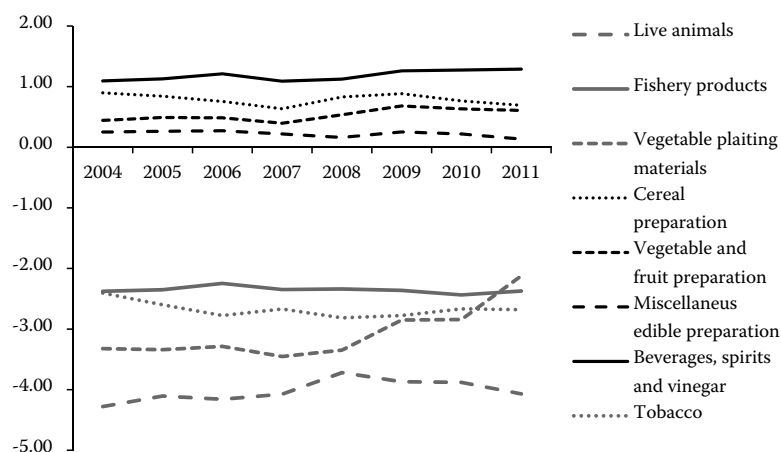


Figure 4. Revealed Competitiveness index for the main Italy agri-food sub-sectors from 2004 to 2011

Source: Our elaboration on UN Comtrade data

is also true for the structural limits. As regards fish products, it should be underlined that Italy presents a competitive advantage in some markets as regards specific products like that of the Bluefin Tuna in the Japanese market (Crescimanno and Galati 2012). With specific reference to the oils and vegetable and animal fats sector, the Italian competitive disadvantage is linked to the massive importation of oils from foreign markets used for the transformation or mixing in readiness for the subsequent export, mainly in packages (De Gennaro et al. 2009). In fact oils and olive oil in particular, result as being the main item as regards both imports and exports. This type of the so-called horizontal trade characterizes advanced markets and is a consequence of the purchase segmentation and trade liberalization (De Filippis 2012).

The trends in competitive position in the reference period, and between 2008 and 2009 in particular, show an improvement in competitive performance for most of the sub-sectors, to be referred to the export relative advantage. With reference to the sectors that are most competitive, an improvement in the competitive position of beverages, fruit and vegetable-based and cereal-based preparations can be seen. This is due to the lesser degree of penetration of these foreign products in the Italian market and a stronger weight of Italian exports in the world market. This confirms the great ability on the part of those sectors which are already the leaders on the international market to face the crisis. The competitiveness of the sectors associated with cereal-based and fruit and vegetable-based products has decreased, however, since 2010, as a consequence, in both cases, of a reduction in the export relative advantage and an increase in the degree of penetration of the Italian market. We would, nevertheless, underline that, of the sectors studied, the floral ornamental production has registered a fast growth since 2011. It is, in fact, one of the most

important productive sectors of some Italian regions, highly specialized in the production of potted ornamental plants, which addresses not only the national demand but, above all, foreign demand (Schimmenti et al. 2010). Furthermore, a reduction in the sectors of live animal and fish production has been registered, which is to be referred to the contraction of the export relative disadvantage. Other sectors like those of the meat, milk and dairy, and cereals, which are characterized by a marked competitive disadvantage, also saw a contraction between 2008 and 2009 to be referred to the reduction of purchases in the foreign markets.

The results of the analysis of the RC index for Spain show a competitive advantage mainly in the sectors of primary products, fruits and vegetables in particular, high revenue generating products which are mainly exported, and in the industrial sectors that work in correlation with them. This is also true for the meat sector, in which Spain shows a high commercial specialization (more than 50% of the total amount of agri-food export), which is also noticeable on the world scenario. A competitive advantage is also found in the sector of animal and vegetable fats and oils (Figure 5), whereas, on the contrary, the results showed a disadvantage in the cereal, oil-seeds and fruit, coffee, tea, mate and spices, tobacco, fish and breeding production sectors. This is to be referred to a higher weight of imports of these products compared to agri-food exchanges as a whole.

The economic crisis which began at the end of 2008 did not essentially modify the competitive position of the country in the world scenario, at least during the first phase. For the leading sectors of the Spanish agri-food economy in particular, such as the fruits and vegetables and the fruit and vegetable-based products sector, the competitive advantage started decreasing only after 2010. This was mainly a con-

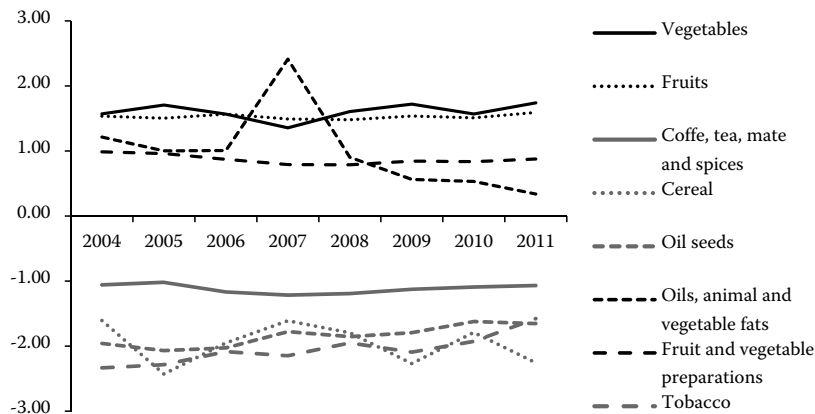


Figure 5. Revealed Competitiveness index for the main Spain agri-food sub-sectors from 2004 to 2011

Source: Our elaboration on UN Comtrade data

sequence of an increase in the purchasing weight of these products in the foreign market, which contributed to the increase in the import relative advantage. Furthermore, since early 2011 there has been a rapid recovery. The reduction in competitiveness of the fruit and vegetable sector registered in 2010 is to be referred to the 20% reduction of the average costs, which caused severe subsistence problems in the production areas (Navarro and García 2010). The slight reduction in the competitive advantage in the meat sector is, instead, to be referred to a decrease in the world demand, although this is extremely variable depending on the product type (Ministerio de Economía y Competitividad 2010). On the contrary, for the sectors which showed a competitive disadvantage, the trends of the commercial flows determined a reduction in the competitive disadvantage for the oil-seeds and fruits, coffee, tea, mate and spices and cereal sectors, to be referred to an increase in the import relative advantage. This performance tended to a further decline in 2010, for the effect of a contraction in the import weight of these sectors in the agri-food sector as a whole. In particular, as regards the cereal sector, the drop in the competitive

disadvantage held by Spain is to be referred both to an increase in the import flows, the consequence of a 45% decrease in the cereal production in 2009 (Navarro and García 2010), and to a contraction of price in 2009 following the historical peak of the previous two years (Ministerio de Economía y Competitividad 2010).

Lastly, Turkey shows a competitive advantage on the world scale in the sector of meat and fruit and vegetable-based products, fruit milling industry products, fruit and vegetable preparations sector, for which the country shows a high commercial specialization (Figure 6). Regarding the fruit and vegetable based products, Turkey is accepted as being an important producer and exporter of frozen fruit and vegetables which mainly address the European market. Instead, as far as fresh fruit and vegetables are concerned, Turkey is by far the top producer of hazelnuts, the production of which satisfied more than 74% of the world demand in 2008 (Deloitte 2011), figs, apricots and cherries and the second in the production of melons, leeks and sour cherries. Furthermore, it is becoming one of the largest markets for baked goods, which is why it shows a

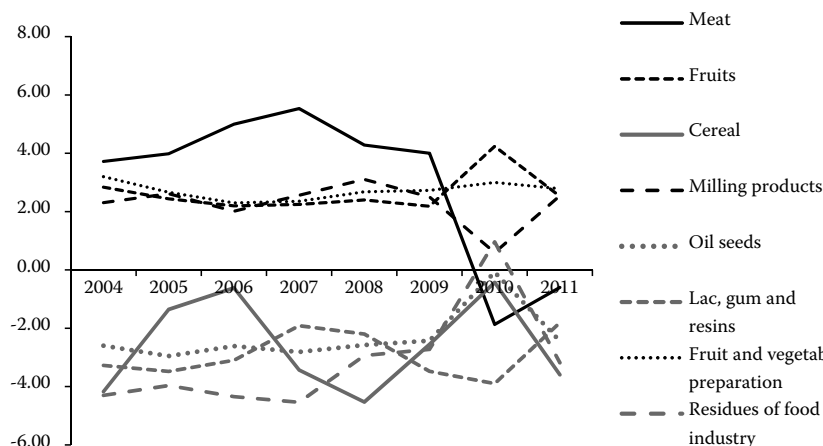


Figure 6. Revealed Competitiveness index for the main Turkey agri-food sub-sectors from 2004 to 2011

Source: Our elaboration on UN Comtrade data

high competitiveness in the sector of milling industry products, with its bread, an important element of the Turkish diet, leading to some of the highest rates of the per capita consumption in the world (Aydin 2009; IGEME 2009). However, on the other hand, it shows a competitive disadvantage in the oil-seeds, lac, gum and live animals sectors and in the food waste and resin industry sectors which, however, absorb the modest quotas of imports; this is also true for the cereal and fruit sectors, which show a weak productive structure.

The economic and financial crisis, although not generalized as in the case of the other EU countries studied, created a contraction in the competitive advantage only in some strategic sectors to be referred, in some cases, to the reduction in the export relative advantage, and, in others, to its reduction in weight on agri-food exchanges in the world market. With a particular reference to the most competitive sectors, the analysis of the data shows a decline in the advantage held by the fresh fruit and milling industries. On the other hand, it shows an increase in the competitive advantage of the fruit and vegetable derivatives sector, to be referred to a reduction in the import relative advantage. For this last sector in particular, the increase in competitiveness over the past few years is ascribable to the growth of the national and foreign investments in the sector, due to the considerable importance of the fruit and vegetable products (Aydin 2009). With reference to the sectors in which Turkey shows a competitive disadvantage, in 2010 we can observe a reduction in the cereal and oil-seeds sectors; sectors in which there is a reduction not only in the export relative advantage, but also in the import advantage. On the other hand, the disadvantage already held by the sectors of food waste and resin industry and of oils and animal fats has increased for the effect, in both cases, of a net decline in and of a reduction of the export competitive advantage.

## CONCLUSION

This paper has examined the competitiveness of France, Italy, Spain and Turkey in the global agri-food market and the ways in which it changed in the face of the economic and financial crisis, using the relative trade advantage index. The sharp fall in the world demand for agri-food goods, as a consequence of a reduction in the family income and therefore of the family's spending power, has caused a strong

reduction in the commercial flows and consequently changes in the competitive scenario. In fact, between 2008 and 2009, the Mediterranean countries registered a contraction in the export and import flows of agri-food products; the contraction was of different intensity depending on the structural characteristics of the productive sectors and, therefore, of their more or less strong commercial specialization and the integration into the world market. Furthermore, it should be noted that the agri-food sector has, on the whole, resisted the crisis, as it can be seen from a comparison between the total trade flows and those of the agri-food products in the countries studied.

The analysis carried out shows that of the Mediterranean countries studied, Turkey is the one that has the highest level of competitiveness in the international market of agri-food production. The contraction in the trade flows registered in 2009 following the world economic and financial crisis was less severe in Turkey, where between 2008 and 2009, with the crisis in full swing, the country's competitive advantage in the global market increased. The situation of the other EU member countries is, on the other hand, completely different, as their competitive advantage declined, showing them to be more vulnerable to external shocks.

The scenario changes when the single sub-sectors of the agri-food sector are taken into consideration. As regards the sub-sectors in which all four countries benefit from a competitive advantage – as in the case of live animals and beverages in France, beverages, cereal derivatives and fruit and vegetables based in Italy, and fruit and vegetables in Spain and Turkey – the analysis shows that, in the middle of the crisis, they resisted more strongly to the pressure of the negative circumstance, and in some cases contributed to the increase in the country's competitiveness on the world market. On the contrary, the results show that the sectors in which the countries suffered from a strong competitive disadvantage got worse in the EU member countries, whereas they improved in Turkey as a result of its lesser structural dependence on the foreign markets. These results confirm, above all that the firmness of a productive sector plays a crucial role in helping a country to face an economic recession which, in the last years in particular, has involved the global economic system.

Doubtlessly the changes in the flows of the agri-food sector in the Mediterranean countries studied and in their competitive advantage in the international market are related to other key variables of the sector studied (i.e. agri-food production, the

price of agricultural products, agriculture income, food consumption, employment in the agriculture sector), the knowledge of which would allow us to examine the causes of the registered trends in more depth. All these aspects should, either as a whole or case by case, be subject of a future research.

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