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MEDITERRANEAN AGRICULTURAL PRODUCT TRADE BETWEEN THE EU AND MOROCCO IN THE PERSPECTIVE OF THE NEW BILATERAL AGREEMENT: MAIN CAUSES OF IMBALANCE AND POSSIBLE EFFECTS

JEL classification: F13, F15

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Abstract. *In this article the possible repercussions of the new bilateral trade agreement between Morocco and the European Union concerning the fruit and vegetable sector have been examined. Through appropriate mathematical indices, such as the “revealed comparative advantage” (RCA) approach pioneered by Balassa, the competitive position of Morocco over its trading partners in the EU and especially over the Mediterranean Member States has been evaluated. The aim is to discover features of trade of Morocco and the EU in the fruit and vegetable sector, and changes during the period 2000 - 2010. In particular, the effects of the new bilateral trade agreement on EU countries such as Italy, Spain and France, i.e., the traditional producers of these goods, have been examined. RCA of Morocco over the EU and RCA of the EU over Morocco have been calculated by conducting research using UN Comtrade sources. Moreover, through the “revealed trade advantage” (RTA) introduced by Vollrath, the global competitiveness of the fruit and vegetables sector in both Morocco and the EU have been evaluated.*

Finally, the degree of intra-industry trade between Morocco and the major European producers of fruit and vegetables has been calculated. The results highlight the strong dominance of Morocco, and point to the possibility that the new bilateral trade agreement may cause an increase in economic instability in many European areas struggling against Moroccan competition in certain agricultural sectors. In countering this situation, questions concerning agri-food safety, agri-environmental protection and other aspects could become relevant in the near future. The importance of these questions is that they may point to the comparatively low levels of restrictions often faced by the Moroccan producers as the real cause of their actual competitive advantage in some strategic European agri-food sectors. Despite the limitations of RCA indices obtained in this study, they are expected to offer further insight into the competitiveness of the Moroccan fruit and vegetables sector and its implications for trade with the EU in the near future.

Keywords: *Fruit and vegetable sector, bilateral EU agreements, Morocco*

1. Introductory note

In recent years the system of international trade relations has evolved from simple forms of trade integration (Shallow Integration), which were essentially limited to the liberalisation of technical barriers, into more complex forms (Deep Integration), in which the liberalisation

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process concerns the system of barriers to entry in international markets. In particular, together with tariff barriers, the latter include increasingly important non-tariff barriers, such as quotas, export restrictions, administrative barriers and above all – as they have recently been indicated by various parties (Borghi, 2003; Claar and Nölke, 2009) – measures concerning such issues as the environment, food safety and workers' rights. Although these latter measures exert a certain influence, the so-called *non-explicit barriers* icon mainly corresponds to the socio-political factors, institutions, culture and physical distance of the contracting countries, as well as other factors such as the intensification of globalisation, the expansion of mass distribution systems and development of communication technologies (Banterle, 2009).

In brief, all these issues affect the food market, and therefore, they have been of increasing importance in trade policy strategies implemented by the European Union, particularly those which pertain to bilateral and regional relations. In this context, through the 200 bilateral agreements concluded so far (DG Trade, 2011), the EU is committed not only to strengthening its network of trade relations with emerging economies (Russia, China and India) and developing countries (Mercosur in particular), but also to deepening and building on its “historical” relations with North African countries across the Mediterranean.

Issues arising from the trade between these Third Countries and EU countries have been the subject of numerous scientific studies, which highlight how some countries on the southern shore of the Mediterranean Sea are increasing their share of the EU market, with the consequent deterioration of the competitive capability of European countries (Crescimanno and Galatians, 2007; Castellini and Pisano, 2008), especially in vegetable production (Perito, 2006).

Concerning trade in these products, the Kingdom of Morocco's recent policy – in place for the last decade – stands out, as it addresses the productivity of the Moroccan agricultural sector by planning to increase the land area allocated to fruit and vegetables, for which there are currently special conditions of preferential market access (Eagle, 2005; Cioffi, 2007).

In fact, the Kingdom of Morocco is one of the Mediterranean countries in North Africa that have benefited from the prevailing conditions of preferential trade with the EU as a result of the first trade agreement, which initially entered into force in 1969, and was later re-negotiated at the end of the 1990s, resulting in the establishment of the “Association Agreement” (effective from 1 March 2000), in which the EU and Morocco are expected to progressively establish greater liberalisation in their reciprocal trade. The anticipation of the entry into force of the latter agreement gave rise to an intense debate – sometimes accompanied by controversy – among European agricultural stakeholders, due to concerns over such issues as possible risks of instability and poor standards of food safety, environmental protection, and conditions of workers.

Taking a cue from the elements that contribute to the definition of the liberalisation measures in the trade in food products between the EU and the Kingdom of Morocco (see Proposal for a Council Decision of the European Union 2010/0248)¹, one wonders what are currently the key elements which characterize the fruit and vegetables trade between EU and Morocco.

Considering the economic relevance of the fruit and vegetable sector in Mediterranean coun-

¹ On the conclusion of the Agreement based on the correspondence between the European Union and the Kingdom of Morocco concerning reciprocal liberalisation measures for agricultural products, processed agricultural products, fish and fishery products, the replacement of Protocols No 1, 2 and 3 and their annexes and amendments to the Agreement establishing an association between the European Communities and their Member States, on the one side, and the Kingdom of Morocco on the other (COM (2010) 485 final of 16/09/2010).

tries², the aim of the paper is the assessment of sectoral competitiveness of Morocco and EU Mediterranean countries trading with Morocco. Through specific *revealed comparative advantage* (RCA) indices, the specialization and competitiveness of Morocco and its main Mediterranean partners of the EU were analysed. The results achieved contribute to the assessment of competitive pressure on the fruit and vegetable market in the perspective of a new bilateral agreement between EU and the Kingdom of Morocco.

In this context, the aim is to determine whether the socio-economic agents involved in the vigorous debate have reason to be concerned about the significant divergences over the new bilateral agreement, given the protests in many southern European regions.

In particular, in line with the aim of this analysis, the monetary value of international trade is used to quantify the economic phenomena studied. As such, this value is analysed for the evaluation of sectoral competitiveness through the use of special methods of estimation.

There are several official statistical sources to identify the monetary value of international trade. In this study, United Nations Commodity Trade Statistics Database (UN Comtrade), which is universally recognized due to its internationally harmonized nomenclature, has been used.

The key points of the approach taken into account in this work are as follows:

- Information on a new bilateral trade agreement between Morocco and the European Union;
- Assessment of the performance of the commercial exchange of fruit and vegetables between the EU and Morocco, in order to identify and quantify the import/export trade between the partners, and estimating the absolute sectoral balance in order to detect the effects on agricultural product trade and the agri-food trade balance of the Kingdom of Morocco.
- Assessment of the sectoral competitiveness of the EU and Morocco for fruit and vegetable products subject to liberalisation in the new bilateral agreement, through appropriate trade indices that measure competitive advantage.
- With reference to the emerging scenario concerning the degree of specialization in the international trade in fruit and vegetables subject to liberalisation (otherwise identified as “strong” products), identification of the possible advantages and disadvantages of the entry into force of the new bilateral agreement between the EU and the Kingdom of Morocco.

2. Theoretical framework

This research is based on the concept of *revealed comparative advantage* (RCA) for calculating sectoral competitiveness through the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. The RCA is based on the traditional Ricardian theory about comparative advantage and it is commonly referred to as the Balassa Index. Since its first formulation (Balassa, 1965), the RCA index has been revised and modified into formulations capable of assessing the competitive position of a country “A” for good “X” not only in the world market (Vollrath, 1991), but also relative to its bilateral exchange with another country “B” (Fertő and Hubbard, 2001; Mathur and Kumar, 2009).

² It should be noted, however, that within this decade, sales could have suffered from the effects of the new Regulation (EC) No 1234/2007 (Single CMO Regulation) “establishing a common organization of agricultural markets and on specific provisions for certain agricultural products” activated by the Implementing Regulation (EU) No 543/2011 of the Commission, due to the fact that Morocco is the only country on the southern shore of the Mediterranean to obtain approval by complying with marketing standards for fresh fruit and vegetables prior to importation into the European Union.

The RCA index, however, does not reveal the origins of comparative advantage. According to the Heckscher-Ohlin theorem, trade flows between countries is based on factor endowments. It states that a country will export goods that use its abundant factors intensively and import goods that use its scarce factors intensively. The similarity of factor endowments for a given good in two countries shows if inter-industry or intra-industry trade between these countries exists (Krugman, 1979). In the literature there are several indices that measure the degree of intra-industry trade between two countries and the most widely used is the Grubel-Lloyd Index (1975).

With reference to agricultural products, the trade liberalisation between Mediterranean Partner countries (MPCs) and the EU was one of the most important topics covered in the scientific debate. In this context, the trade liberalisation in the fruit and vegetable sector is difficult to represent in trade models because of the special characteristics of the major traded products (e.g. product differentiation and seasonality). However studies have often pointed out that this sector potentially loses by greater openness of trade (Chemingui, Thabet, 2001; Chevassus et al. 2005; García Álvarez-Coque *et al.*, 2007; Emlinger et al, 2010).

Despite the relevance of the topic, the studies on trade liberalisation in the fruit and vegetable sector between MPCs and EU countries are few and even fewer are studies on the effects of trade liberalisation based on the RCA approach. One of the most interesting (Din, Zugman, 2008) examines the effects of trade liberalisation on fruit and vegetables from the Southern Mediterranean to EU countries through the changes in comparative advantage in the major exported products.

The complexity of the fruit and vegetable sector makes it difficult to build trade models (García Álvarez-Coque, Galduf, 2007). For this reason, knowledge of the structure of the fruit and vegetable trade (inter-industry or intra-industry) may be useful to see if the competitive advantage between countries is due to better factor endowments (typical situation of inter-industry trade) or to economies of scale and to horizontal and vertical differentiation of fruit and vegetable production that can better respond to consumer preferences (typical situation of intra-industry trade).

In this context, the RCA and intra-industry index may contribute to the knowledge of the fruit and vegetable trade between Morocco and the EU in the perspective of the scenario designed by the new bilateral agreement.

3. The negotiating context

The first commercially-oriented association agreement between the European Community and the Kingdom of Morocco dates back to 1969, but the gradual liberalisation of agricultural-product trade between the EU and Morocco did not start until the Barcelona Conference in 1995, and continued with Euro-Mediterranean Agreement entering into force on 1 March 2000³. Since 2005 official negotiations initiated by the European Commission have been in progress. During this process, in 2008 the Kingdom of Morocco was granted the “advanced status” in its trade with the EU, consolidating a privileged partnership in some key sectors, such as agriculture. At the end of the current negotiations, conducted through the exchange of letters, an agreement will be reached with a view to making the due changes to the Association Agreement with Morocco.

The proposed amendment to the regimes and tariff quotas on trade and import-export of agri-

³ Official Journal of the European Union L 70, 18 March 2000.

cultural products, processed agricultural, fish and fishery products will offer an interesting analysis in terms of impact, and will vary according to the sector of production, i.e., agriculture or fisheries.

On the one hand, therefore, through the liberalisation of European exports of agricultural products to Morocco, the EU could strengthen its position in an important market; on the other, a total liberalisation of fruit and vegetable imports from Morocco could mean excessive market imbalances for European products⁴ under the same competitive pressure.

Finally, an aspect peculiar to the proposed amendment to the EU-Morocco Association Agreement is the safeguarding the stakeholders' continuous reciprocal compliance with obligations regarding sanitary and phytosanitary measures. The European Parliament⁵ itself ensures that agricultural imports to the EU provide European consumers with the same guarantees provided by European production methods.

After a vigorous debate, members of European Parliament voted, in February 16th 2012, with 369 in favour, 225 against and 31 abstentions despite a hostile campaign led in particular by the Spanish, Italian and French delegates. This result showed the political aspect of the agreement. In fact, the trade deal was intended to boost EU-Morocco ties and supported the sensitive transition to democracy following the Arab spring. In that sense, the majority in the European Parliament considered this positive vote as a way of alleviating economic, migratory and security problems in northern African countries, disregarding the possible negative repercussions on European agriculture and farmers' incomes.

4. Methodology

The evaluation of competitive advantage between the EU and Morocco in the fruit and vegetables sector has been made through an analysis based on the *revealed comparative advantage* (RCA).

It is based on three specific indices provided by the literature.

The first is aimed at assessing the competitive advantage of the EU and Morocco concerning their mutual exchange of fruit and vegetables. Here the RCA index formulation, proposed by Mathur and Kumar has been used in order to calculate the RCA index of both Morocco over the EU (RCA_{MEU}) and the EU over Morocco (RCA_{EUM}):

$$RCA_{MEU} = \frac{X_{mjeu} / X_{mteu}}{X_{wjeu} / X_{wteu}}$$

Where:

- RCA_{MEU} is the RCA index of Morocco over the EU for the good “j”; X_{mjeu} represents total exports of the good “j” from Morocco to the EU; X_{mteu} represents the total exports from Morocco to the EU; X_{wjeu} represents total exports of the good “j” from the rest of the world to the EU; X_{wteu} represents the total exports to the EU from the rest of the world.

⁴ Except for pasta.

⁵ Through its resolution on EU agriculture and international trade, 8 March 2011.

The EU's competitiveness is determined similarly as follows:

$$RCA_{EUM} = \frac{X_{eujm} / X_{eutm}}{X_{wjtm} / X_{wtm}}$$

The RCA indices between Morocco and its main Mediterranean trade partners in the EU (France, Spain and Italy) have also been calculated with the same methodology. In the context of bilateral trade between Morocco and the EU, if RCAMEU for the good “j” is greater than the respective RCAEUM, this means that Morocco is more competitive than the EU in the mutual exchange of the good “j”, and vice versa.

The second indicator refers to the competitive advantage of the EU and Morocco in global markets of fruit and vegetables products. The following formula was used (Vollrath, 1991):

$$RTA = \frac{\left\{ \frac{X_{ij}}{\left(\sum_i X_{ij} \right) - X_{ij}} \right\}}{\left\{ \frac{\left[\left(\sum_j \sum_i X_{ij} \right) - \left(\sum_j X_{ij} \right) \right] - \left[\left(\sum_i X_{ij} \right) - X_{ij} \right]}{\left[\left(\sum_j \sum_i X_{ij} \right) - \left(\sum_j X_{ij} \right) \right]} \right\}} - \frac{\left\{ \frac{M_{ij}}{\left(\sum_i M_{ij} \right) - M_{ij}} \right\}}{\left\{ \frac{\left[\left(\sum_j \sum_i M_{ij} \right) - \left(\sum_j M_{ij} \right) \right] - \left[\left(\sum_i M_{ij} \right) - M_{ij} \right]}{\left[\left(\sum_j \sum_i M_{ij} \right) - \left(\sum_j M_{ij} \right) \right]} \right\}}$$

Where:

- RTA is the Relative Trade Advantage;
- X_{ij} Exports of the good “i” in the country “j”;
- $\sum_j X_{ij}$ Total exports of all other products in the country “j”;
- $\sum_i X_{ij}$ Total global exports of the good “i”;
- $\sum_j \sum_i X_{ij}$ Total exports of other products in the rest of the world;
- M_{ij} Imports of the good “i” in the country “j”;
- $\sum_i M_{ij}$ Total imports of all other products in the country “j”;
- $\sum_j M_{ij}$ Total global imports of the good “i”;
- $\sum_j \sum_i M_{ij}$ Total imports of the other products in the rest of the world.

The analysis of the RTA was carried out in monetary values and positive values of the Vollrath Index (> 0) reveal a competitive advantage in the country “j” for the good “I”, whereas negative values (< 0) reveal a respective competitive disadvantage.

Finally, the Grubel-Lloyd index (Grubel-Lloyd, 1975) was used for analysing the intra-trade structure of fruit and vegetables between Morocco and the main Mediterranean EU partners.

The index is given by the following equation:

$$GLi = \frac{(Xi + Mi) - |Xi - Mi|}{Xi + Mi}$$

where X_i denotes the export, M_i the import of good i . When the index approaches 1, exports are roughly equal to imports, or, in our case, fruit and vegetable trade structure of the country under analysis (e.g. Morocco) tends to be similar to the other country (e.g. EU country). When the index approaches 0, trade flows consist only of imports or exports.

The analysis refers to the time period 2008-2010 and takes into account Morocco and its main European partners in trade of fruits and vegetables: France, Spain and Italy.

In order to estimate the indices previously introduced, the evaluation was conducted using the data on international trade reported in UN Comtrade Harmonised System (HS). The products analyzed in our study were the fresh fruit and vegetable products (four-digit codes) included in codes 07 and 08, reported in Table 1:

Tab. 1 - Fruit & vegetable products analysed in the paper			
HS code	Products	HS code	Name
0701	Potatoes, fresh or chilled	0711	Vegetables provisionally preserved, not ready to eat
0702	Tomatoes, fresh or chilled	0712	Vegetables, dried, not further prepared
0703	Onions, shallots, garlic, leeks, etc. fresh or chilled	0805	Citrus fruit, fresh or dried
0704	Cabbage, cauliflower, kohlrabi & kale, fresh, chilled	0806	Grapes, fresh or dried
0705	Lettuce and chicory, fresh or chilled	0807	Melons, watermelons and papaws (papayas), fresh
0706	Carrots, turnips, beetroot, etc. fresh or chilled	0808	Apples, pears and quince, fresh
0707	Cucumbers and gherkins, fresh or chilled	0809	Stone fruit, fresh (apricot, cherry, plum, peach, etc)
0708	Leguminous vegetables, fresh or chilled	0810	Fruits nes, fresh
0709	Vegetables nes, fresh or chilled	0811	Fruits and nuts, uncooked, boiled or steamed, frozen
0710	Vegetables (uncooked, steamed, boiled) frozen	0813	Fruit, dried, nes, dried fruit and nut mixtures

5. Frame of reference: the trade in fruit and vegetables between the EU and Morocco

In the last decade, the overall commodity exchange between the EU and Morocco has been increasingly waning. Nevertheless, the cash balance – constant euro - has decreased by - 553% from -1.8 billion euros in 2000 - 2002 to -11.4 billion euros in 2008 - 2010.

This positive trend was due to developments in the agro-food sector, such that the traffic of these goods between the EU and Morocco amounted to a net export-import increment of more

than 200%, with the average constant-euro value of the trade jumping from 0.58 billion in 2000 - 2002 to 1.65 billion in 2004 - 2007, reaching 1.66 billion euros in 2008 - 2010 (Table 2).

Behind this trend, which has been in favour of Morocco, is the trade in fruit and vegetables, virtually constituting the whole import-export value of all food products. In fact, the EU-Morocco trade in fruit and vegetables as a percentage of all the respective food products went up from 89.8% in 2000 - 2002 to 98.7% in 2008 - 2010.

The overall impact of the current bilateral agreement covering certain types of goods – tomatoes; pulses; melons, watermelons & papayas; citrus; other fresh fruit; various processed fruit – on the sectoral balance of trade from Morocco to the EU has been in continuous decrease from 80.9% in 2000 - 2002 to 80.3% in 2004 - 2007, reaching 76.6% in 2008 – 2010. In the period examined, the largest increases recorded are listed as follows in decreasing order of importance: pulses (487%); melons, watermelons & papayas (354%); tomatoes (240%); various processed fruit (372%); citrus (around 90%); other fresh fruit (around 90%).

Tab. 2 - Breakdown of the import-export balance between Morocco and the European Union for the main fruit & vegetable products over the period of 2000 - 2010

(Values in '000 euros) (*)							
HS code	Products (***)	2000 - 2002		2004 - 2006		2008 - 2010	
		Current euros	Constant euros (**)	Current euros	Constant euros (**)	Current euros	Constant euros (**)
0701	Potatoes	4.960,37	5.973,00	7.617,28	8.514,07	3.628,13	3.837,10
		100	100	154	143	73	64
0702	Tomatoes	118.467,79	140.899,52	232.133,17	254.016,99	473.146,36	479.285,60
		100	100	196	180	399	340
0703	Onions, shallots, garlic, leeks, etc.	806,82	939,15	255,49	282,65	-2.024,26	-2.029,02
		100	100	32	30	-251	-216
0704	Cabbage, cauliflower, kohlrabi & kale	330,43	368,23	2.638,12	2.850,34	3.749,39	3.815,06
		100	100	798	774	1.135	1.036
0705	Lettuce and chicory	119,50	140,89	2.299,15	2.503,79	4.050,62	4.107,29
		100	100	1.924	1.777	3.390	2.915
0706	Carrots, turnips, beetroot, etc.	929,62	1.132,59	611,53	661,62	4.228,04	4.291,53
		100	100	66	58	455	379
0707	Cucumbers & gherkins	2.241,86	2.633,30	4.624,43	5.040,07	4.881,99	4.952,50
		100	100	206	191	218	188
0708	Leguminous vegetables	39.375,92	46.845,81	177.203,81	193.745,82	271.509,28	275.039,45
		100	100	450	414	690	587
0709	Nes, fresh or chilled vegetables	29.557,94	35.117,46	129.903,05	141.938,17	252.965,72	256.410,22
		100	100	439	404	856	730
0710	Uncooked, steamed or boiled frozen vegetables	3.048,44	3.635,91	4.750,63	5.216,80	3.735,41	3.785,66
		100	100	156	143	123	104
0711	Provisionally preserved vegetables	14.160,78	16.846,59	16.512,55	18.067,88	26.336,89	26.713,13
		100	100	117	107	186	159
0712	Dried vegetables without preparation	815,80	982,93	113,85	126,08	927,38	944,60
		100	100	14	13	114	96
0805	Citrus	120.731,52	144.183,65	214.152,21	234.623,35	266.770,41	270.545,05
		100	100	177	163	221	188

HS code	Products (***)	2000 - 2002		2004 - 2006		2008 - 2010	
		Current euros	Constant euros (**)	Current euros	Constant euros (**)	Current euros	Constant euros (**)
0806	Grapes	2.149,37	2.546,57	19.564,91	21.416,96	26.921,51	27.293,39
		100	100	910	841	1.253	1.072
0807	Melons, watermelons & papaws	19.072,34	22.697,15	71.268,27	77.816,11	101.539,99	102.941,42
		100	100	374	343	532	454
0808	Apples, pears & quince	-2.268,42	-2.693,27	-5.131,87	-5.604,94	-13.132,03	-13.285,56
		100	100	226	208	579	493
0809	Apricots, cherries, plums, peaches, etc.	3.381,17	4.058,89	12.594,23	13.800,42	13.925,22	14.129,38
		100	100	372	340	412	348
0810	Nes or fresh fruit	38.871,14	46.159,52	68.521,13	75.066,26	84.777,88	85.989,77
		100	100	176	163	218	186
0811	Uncooked, boiled or steamed frozen fruit & nuts	16.820,36	20.009,91	54.822,95	60.099,93	92.579,12	94.006,32
		100	100	326	300	550	470
0813	Dried or nes fruit, and dried fruit & nut mixtures	-144,21	-169,85	-378,26	-415,99	-334,55	-337,62
		100	100	262	245	232	199
	Total	413.099	491.940	1.014.077	1.109.766	1.620.183	1.642.435
		100	100	245	226	392	334
07; 08	Total fruit & vegetables (****)	448.417	519.973	1.017.190	1.113.232	1.620.977	1.643.236
		100	100	227	214	361	316
01-24	Total agri-food products (*****)	472.878	579.181	1.508.795	1.655.705	1.640.962	1.663.854
		100	100	319	286	347	287

(*) Source: UN COMTRADE

(**) The values are referred to 2010

(***) The HS code for main fresh fruit and vegetables products are: 0701: Potatoes, fresh or chilled; 0702: Tomatoes, fresh or chilled; 0703: Onions, shallots, garlic, leeks, etc. fresh or chilled; 0704: Cabbage, cauliflower, kohlrabi & kale, fresh, chilled; 0705: Lettuce and chicory, fresh or chilled; 0706: Carrots, turnips, beetroot, etc. fresh or chilled; 0707: Cucumbers and gherkins, fresh or chilled; 0708: Leguminous vegetables, fresh or chilled; 0709: Vegetables nes, fresh or chilled; 0710: Vegetables (uncooked, steamed, boiled) frozen; 0711: Vegetables provisionally preserved, not ready to eat; 0712: Vegetables, dried, not further prepared; 0805: Citrus fruit, fresh or dried; 0806: Grapes, fresh or dried; 0807: Melons, watermelons and papaws (papayas), fresh; 0808: Apples, pears and quince, fresh; 0809: Stone fruit, fresh (apricot, cherry, plum, peach, etc); 0810: Fruits nes, fresh; 0811: Fruits and nuts, uncooked boiled or steamed, frozen; 0813: Fruit, dried, nes, dried fruit and nut mixtures

(****) The fresh fruit and vegetables products include the products of 07 and 08 of Harmonized System Code of UN COMTRADE

(***** The agri-food products include the commodities from 01 to 24 of Harmonized System Code of UN Comtrade

Products with the highest average trade surplus for Morocco in its exchange of goods with the EU in 2008 - 2010 were as follows: tomatoes (about 479 million euros); pulses (275 million euros); citrus (over 270 million euros); other vegetables (256 million euros); melons, watermelons & papayas (103 million euros). Potatoes was the only product group that has experienced a negative trend with a decrease of 36%.

There has been a negative trade balance in the following types of goods: apples, pears & quince; onions & allium vegetables; mixtures of dried fruit and nuts.

Finally, it should be noted that the trend in current euros of the trade flows examined (see Table 1 above) revealed no differences from what we have already presented in constant euros. This shows that the increase in the value of Moroccan exports of fruit and vegetables depends not only on market fluctuations and the exchange value of the currency, but also on the ability

to penetrate into the EU markets, especially with certain types of products, amongst which: tomatoes; pulses; citrus; other vegetables; apricots, cherries & peaches.

6. Results

These investigations have shown that Morocco has a clear competitive advantage over the EU and its major Mediterranean countries (Spain, France and Italy) in the trade in fruit and vegetables.

Looking at the data for the period of 2008 - 2010 in Table 3, the types of goods in which the EU is more competitive than Morocco are: frozen cooked vegetables; dried vegetables; apples, pears & quince; mixtures of dried fruit and nuts.

Tab. 3 - RCA indices of the bilateral trade between Morocco and the main Mediterranean European countries for fresh fruit & vegetable products over the period of 2008 - 2010 (*)

HS code	Products	Morocco-EU		Morocco-France		Morocco-Spain		Morocco-Italy	
		RCA _{MEU}	RCA _{EU}	RCA _{MFR}	RCA _{FR}	RCA _{MSP}	RCA _{SP}	RCA _{MIT}	RCA _{IT}
0701	Potatoes	7,80	1,96	8,71	0,72	0,30	-	0,05	-
0702	Tomatoes	116,09	-	84,07	-	20,12	-	4,23	-
0703	Onions, shallots, garlic, leeks, etc.	2,40	1,52	0,65	0,09	0,52	5,91	0,16	-
0704	Cabbage, cauliflower, kohlrabi & kale	6,44	1,65	0,09	4,57	0,18	-	-	-
0705	Lettuce & chicory	18,27	1,96	2,31	1,53	0,01	5,80	1,38	-
0706	Carrots, turnips, beetroot, etc.	14,77	1,96	0,93	6,71	0,25	-	-	-
0707	Cucumbers & gherkins	8,39	-	1,92	-	9,54	-	0,48	-
0708	Leguminous vegetables	51,29	0,02	36,23	0,06	70,79	-	0,89	-
0709	Nes, fresh or chilled vegetables	19,25	1,78	11,27	0,79	15,17	4,24	0,83	0,03
0710	Uncooked, steamed or boiled frozen vegetables	0,84	1,88	0,31	0,31	0,03	1,46	-	0,99
0711	Vegetables provisionally preserved	24,50	1,40	4,26	0,00	40,62	5,38	60,30	0,24
0712	Dired vegetables without further preparation	0,20	0,73	0,47	1,38	0,33	0,49	0,26	0,01
0805	Citrus	14,82	1,53	5,35	4,10	2,39	1,32	0,18	-
0806	Grapes	0,84	0,12	0,83	0,01	0,60	0,04	9,39	0,92
0807	Melons, watermelons & papaws	16,27	0,01	24,98	-	5,19	0,04	5,74	0,04
0808	Apples, pears & quince	0,08	1,49	0,26	1,11	-	1,56	-	5,49
0809	Apricots, cherries, plums, peaches, etc.	2,40	1,08	2,20	0,05	3,76	4,02	0,54	0,49
0810	Nes or fresh fruit	7,67	1,61	5,45	0,09	6,34	2,29	-	7,93
0811	Uncooked boiled or steamed frozen fruit & nuts	9,35	1,72	5,92	0,44	35,32	3,44	13,99	-
0813	Dried or nes fruit, and dried fruit & nut mixtures	0,05	0,11	0,02	0,35	0,13	0,03	-	-

(*) Source: see Table 2

In comparison to individual EU Mediterranean countries, Morocco has is more able to compete in the trade in fruit and vegetables, continuing to gain market segments even within the EU countries bordering the Mediterranean Sea which are historical exporters of these goods.

Morocco has a dominant position even when it comes to overall world markets, as evidenced by the Vollrath-RTA-index values that are, in fact, consistently higher than those initially calculated for the EU with the RCA index of Kumar and Mathur. The most significant types of goods for which Morocco holds a position of leadership in the world market, much higher than that of the Community, and therefore also of those European countries⁶ on the north shore of the Mediterranean, as reported in Table 4 are as follows: tomatoes, pulses; preserved vegetables; other vegetables; melons, watermelons & papayas; citrus; and others to a lesser extent.

Tab. 4 - RTA indices of Morocco and the main Mediterranean European countries for fresh fruit & vegetable products over the period of 2008 - 2010 (*)

HS code	Products	Morocco	EU	France	Spain	Italy
		RTA Vollrath	RTA Vollrath	RTA Vollrath	RTA Vollrath	RTA Vollrath
0701	Potatoes	-1,53	1,01	4,29	-0,89	-0,94
0702	Tomatoes	42,17	-0,18	-0,66	10,28	0,47
0703	Onions, shallots, garlic, leeks, etc.	0,10	-0,11	-0,22	2,90	-0,26
0704	Cabbage, cauliflower, kohlrabi & kale	0,36	0,49	1,33	14,34	2,07
0705	Lettuce & chicory	0,68	0,36	0,12	24,80	1,91
0706	Carrots, turnips, beetroot, etc.	2,17	0,16	-0,61	3,45	2,83
0707	Cucumbers & gherkins	0,80	0,08	-0,71	21,64	-0,08
0708	Leguminous vegetables	149,89	-5,67	-0,54	-1,32	-0,77
0709	Nes, fresh or chilled vegetables	8,51	-0,15	-1,17	10,96	0,29
0710	Uncooked, steamed or boiled frozen vegetables	0,33	-0,13	-1,15	2,74	-1,13
0711	Provisionally preserved vegetables	38,64	-2,11	-1,36	3,19	-4,82
0712	Dried vegetables without preparation	0,22	-1,19	-0,36	0,55	-0,75
0805	Citrus	34,07	-0,99	-2,28	27,52	-0,25
0806	Grapes	1,48	-1,76	-0,63	1,41	2,94
0807	Melons, watermelons & papaws	14,75	-1,16	-1,24	12,92	0,20
0808	Apples, pears & quince	-0,37	-0,23	1,41	-0,23	3,08
0809	Apricots, cherries, plums, peaches, etc.	1,28	0,13	0,31	18,19	3,85
0810	Nes or fresh fruit	4,08	-0,33	-0,95	6,97	1,65
0811	Uncooked boiled or steamed frozen fruit & nuts	12,55	-1,78	-2,32	0,41	-0,36
0813	Dried or nes fruit, and dried fruit & nut mixtures	-0,16	-1,72	0,62	-0,00	0,29

(*) Source: see Table 2

Among the latter, Spain is indeed an exception for certain types of goods for which it maintains a favourable competitive position. Amongst these are: onions & allium vegetables; cabbages & products of brassica genus; lettuce & chicory; carrots & beetroot; cucumbers & gherkins; apricots, cherries & peaches.

⁶ Russia is one of the main non-EU importers of Moroccan fruit and vegetable products (about 14%).

Results of Grubel-Lloyd indices are reported in Table 5. Fruit and vegetable trade between Morocco and its main European partners showed on the whole, an absence of intra-industry trade, except for a few cases such as “Potatoes” and “Apple, pears & quince” between Morocco and France or “Dried vegetables without further preparation” between Morocco/France and Morocco/Spain. No intra-industry trade has been revealed between Morocco and Italy.

Tab. 5 - Grubel-Lloyd indices of the intra-industry trade between Morocco and the main Mediterranean European countries

HS Code	Products	Morocco vs UE	Morocco vs France	Morocco vs Spain	Morocco vs Italy
0702	Potatoes	0,76	0,46	0,02	0,00
0703	Tomatoes	0,00	0,00	0,00	0,00
0704	Onions, shallots, garlic, leeks, etc.	0,81	0,14	0,17	0,00
0705	Cabbage, cauliflower, kohlrabi & kale	0,01	0,18	0,00	0,00
0706	Lettuce & chicory	0,07	0,06	0,09	0,00
0707	Carrots, turnips, beetroot, etc.	0,01	0,05	0,00	0,00
0708	Cucumbers & gherkins	0,01	0,00	0,00	0,00
0709	Leguminous vegetables	0,00	0,00	0,00	0,00
0710	Nes, fresh or chilled vegetables	0,01	0,00	0,01	0,00
0711	Uncooked, steamed or boiled frozen vegetables	0,22	0,01	0,50	0,00
0712	Vegetables provisionally preserved	0,04	0,00	0,04	0,00
0805	Dried vegetables without further preparation	0,57	0,74	0,84	0,04
0806	Citrus	0,00	0,00	0,00	0,00
0807	Grapes	0,09	0,01	0,12	0,30
0808	Melons, watermelons & papaws	0,00	0,00	0,00	0,00
0809	Apples, pears & quince	0,02	0,84	0,02	0,00
0810	Apricots, cherries, plums, peaches, etc.	0,07	0,00	0,28	0,23
0811	Nes or fresh fruit	0,04	0,00	0,10	0,00
0813	Uncooked boiled or steamed frozen fruit & nuts	0,01	0,00	0,01	0,00
0813	Dried or nes fruit, and dried fruit & nut mixtures	0,19	0,25	0,89	0,00

(*) Source: see Table 2

7. Discussion and policy implications

Empirical analysis has revealed Morocco’s dominant competitive position not only in the EU fruit and vegetable market but also at global level.

This advantage may become even greater in the perspective of a new bilateral agreement between the EU and Morocco, causing instability in the EU, especially in regions suitable for fruit and vegetable production. These imbalances include the following:

- Further increases in imports of Moroccan fruit and vegetables;
- Conflicts concerning food safety, environmental protection and other similar issues;
- Loss of employment and incomes in the EU regions where fruit and vegetables are traditionally produced.

Apart from the natural and climatic factors that certainly favour Morocco, the causes of

these imbalances can be traced back to a number of factors that enable lower pricing for Moroccan fruit and vegetables. One example is the low production costs, particularly for labour. The minimum wage in Morocco is known to range around 4.64 euros/day (Ministère de la Prevision Economique, Maroc, 2010), which is way below the levels generally applicable in different regions of EU agricultural production. In addition, the Moroccan producers are not subject to the strict environmental and phytosanitary regulations of the EU (e.g., compliance rules, nitrates directives, etc.). In the past, this has caused conflict among the institutions involved in marketing fruit and vegetables, and thus led to complaints about the EU's inability to gather useful information on Moroccan products before they are exported to Member States⁷. In this way there is a risk of turning the comparatively low constraints Moroccan producers face in terms of food security, environmental protection and other similar aspects into a competitive advantage over the EU producers.

Even the Moroccan commercial organizations are different from the European ones: in Morocco they are supported by financial oligarchies and centrally coordinated lobbies (e.g., EAC-CE)⁸, whose task is to constantly guide and direct exporters, informing them about the best channels through which their exports can be directed in a given period of the marketing year.

Finally, the growing dominance of Morocco in its bilateral trade with the EU implies the risk that thousands of European fruit and vegetable companies will disappear, unless a process of possible conversion into more competitive products is initiated, or countervailing action is undertaken to support the EU territories that are no longer able to compete with products coming from Morocco and other Mediterranean countries.

8. Conclusions

In this study Morocco's competitive advantage over the EU in the fruit and vegetable sector has been examined to verify whether the degree of competitiveness has become significant enough to be addressed appropriately through a strategic approach in a new bilateral agreement between the EU and Morocco.

Using the RCA approach proposed by Mathur and Kumar, the evaluation of trade showed an increasing specialization in the commercial flows from Morocco to EU Member States with regard to the following categories of products, listed in decreasing order by quantity: tomatoes; pulses; preserved vegetables; other vegetables; lettuce & chicory; melons, watermelons & papayas; citrus.

Using the Vollrath RTA index, the competitive position of Morocco for fruit and vegetables was also examined with regard to the global international market, revealing an even stronger position than that in the EU market where it enjoys a preferential trading partner status with reference to the aforementioned fruit and vegetables.

Finally, empirical evidence has highlighted, using the Grubel-Lloyd index, no similarity of factor endowments for fruit and vegetable production and consequently a predominant inter-industry trade between Morocco and its main Mediterranean EU partners. According to traditional theories on international trade, this result probably means a different availability of factor

⁷ For this reason, a modification in art. 139 of Regulation (EC) 1580/2007 "laying down implementing rules of Council regulations (EC) n. 2200/96, (EC) n. 2201/96 e (EC) n. 1182/2007 for fruit and vegetables sector" has recently been requested.

⁸ Etablissement Autonome de Contrôle et de Coordination des Exportations.

endowments such as labour or land in favour of Morocco or a greater efficiency of the Moroccan fruit and vegetable sector.

Despite the importance of the EU's current border-protection system in supporting its fruit and vegetable sector, the differences in competitiveness revealed may also point to the inadequacy of the constraints of the EU policy, especially given the natural conditions and level of labour cost that differentiate the commercial positioning of Morocco on the international scene.

However, an important aspect to take into account is the specificity of the demand in developed countries, where consumers – while giving particular importance to the wide selection of fruit and vegetables with their respective appeal – want appropriate guarantees in food production concerning issues of safety, environment pollution, and last but not least, quality.

On the other hand, participation with quality products expresses an element of competition when quality is part of the same circuit of evaluation and consumer recognition and this subsequently contributes to reduction of the asymmetry in information, giving a more significant competitive advantage to European farmers.

In future, policies on Euro-Mediterranean cooperation should take into account the very deep integration between the two shores of the Mediterranean through appropriate instruments in the framework of the Association Agreements on the aspects discussed above.

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