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**A EURO-MEDITERRANEAN AGRICULTURAL TRADE AGREEMENT:
BENEFITS FOR THE SOUTH AND COSTS FOR THE EU¹**

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Free agricultural trade in the Mediterranean area is a delicate matter which brings both shores, as well as different EU countries face to face. Specially, in Spain and France the agricultural opening generates certain strain between the priorities of foreign policy and the demands of the affected sectors, as there is the generalised impression that such strain would generate important costs towards the agricultural sectors in both countries. The aim of this study is to quantify the magnitude of the effects brought about by a unilateral agricultural liberalisation developed by the EU regarding major agricultural exporters from the southern shore of the Mediterranean Sea – Morocco, Tunisia, Egypt and Turkey. Those effects are analysed at two levels: the supposedly positive economic impact on the south Mediterranean shore and the competitive increase for the European producers. The results suggest that the size of such effects is important for the southern countries as much as for the northern ones, and show the need for reaching a Mediterranean agricultural agreement.

Keywords: Agricultural market, exchange liberalisation, Common Trade Policy, Agricultural transactions between Europe and PTM.

JEL classification: Q17

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Introduction

In November 1995 the Barcelona Conference agreed the settlement of a Euro-Mediterranean Free Trade area for 2010. Within this framework, several association agreements have been reached between the EU and Morocco, Tunisia, Israel and Jordan. Free trade would only affect industrial goods as the trade for agricultural products is limited by the specific concessions established in each of the bilateral agreements for the association between the EU and the Third Mediterranean Countries – TMC, onwards. Such agreements stipulated the opening of the negotiations regarding agriculture since 2000 and in them the south shore countries are predicted to demand greater access to the European agricultural markets (Handoussa, 1999). The case of Turkey presents some differences as this country has a Customs Union with the EU from which agricultural products are excluded at the moment, even against Turkish interest in getting more favourable conditions for their entrance.

The matter of free agricultural trade in the Mediterranean is a delicate topic as the interests of the two shores differ, besides the fact that even the different countries within the EU show differentiated positions. The TMC demand the liberalisation of those products which have a comparative advantage – such as fruits and vegetables, fish, flowers and olive oil – but are reluctant to liberalise the rest of the products. Continental European agriculture – grain, meat and poultry, dairy products and sugar – which has a higher support from the CAP than the Mediterranean one, is interested in the deficit food market of the southern shore. On the other hand, Mediterranean agriculture tries to minimise competition from the TMC. At a national level, governments struggle between the priorities of foreign policy and the demands of the affected sectors whose mobilisation capability makes them important political pawns.

Communitarian markets opening to agricultural export from the TMC represent a clear dilemma for Spain. On the one hand – because of geo-economic reasons – Spain is one of the strongest promoters of the Euro-Mediterranean relationships and is deeply engaged at a political level with the economic development of the TMC. On the other hand, there is the generalised impression – especially in our country – that the costs for such an opening would be significant and would besides also lower on the Spanish agricultural exports, mainly.

The divergence of interests seems to point to the need for an agricultural agreement of an economic-political character in the Mediterranean area between all the country-groups involved. That is, an agreement between the EU and the TMC and another one within the EU itself (Escribano and Lorca, 1999).

The previous positions of the different governments and the European Commission itself are conditioned by the lack of estimates regarding the size of the impact that the agricultural opening could imply. From a European point of view, the liberalisation would be justified by its capability to promote economic development on the south Mediterranean shore through the rise in agricultural exports. At the same time, this would generate a virtuous circle, which would influence employment and the sector income and would be transmitted to the rest of the economy. In this study we analyse the effects of this hypothesis for agricultural products in four of the major agricultural exporters from the south Mediterranean shore – Morocco, Tunisia, Egypt and Turkey.

The aim is to quantify the size of such effects when facing a unilateral agricultural liberalisation on the part of the EU. Thus, neither its effects on European agriculture nor the effects of a hypothetical opening of the agricultural markets on the southern shore are dealt with. Nevertheless the estimate we carry out does allow us to evaluate the global importance of the impact which the European agricultural opening would have on the European producers.

Our results suggest that the impact of these effects is significant, especially in terms of export and employment, although in some of the countries analysed no huge increase in terms of GDP is obtained. From another perspective, the results obtained point to the fact that those new agricultural exports from TMC would be an important part of intra-communitary trade of those products, there being a considerable competitiveness increase for European farmers devoted to the Mediterranean productions.

The structure of this study is the following: Firstly, there is a brief description of the EU trade policy operation regarding agriculture with respect to TMC, and how this interacts with the multilateral commitments reached in the *Ronda de Uruguay*. Secondly, we present some methodological matters of the analysis, the results of which are shown and discussed in the third section. We will find answers to the questions ‘What is the size of the predictable positive effects of the European unilateral agricultural liberalisation in the TMC analysed?’ and ‘What is the impact which the new flow in intra-communitary trade of the affected agricultural produce would represent?’ Finally, the conclusions section sums up the major results and brings the suitable implications for economic policy.

European Union trade policy and Mediterranean agriculture

The EU trade policy regarding agriculture is currently in a transitional period moving from the productivity protectionism of the agricultural policy previous to the CAP reform, to the greater liberalisation of the sector, which means such reform as the commitments contracted at *Ronda de Uruguay*. Moreover, the agricultural protection of the European Mediterranean produce is affected by

the Euro-Mediterranean association bilateral agreements, which set concrete preferences and take into account the possibility of a greater flexibility on the part of Europe in this matter.

Despite the liberalising attempts, the CAP is still limited by the protectionist and interventionist passivity of the past, which are distinguishable by the use of heavy duties and, above all, by the mechanism for reference prices, variable rights and entrance calendars. Before the entrance of Spain into the EU, this system was an almost insurmountable barrier for the entrance of fruits and vegetables in those seasons when Spanish production would compete directly with the communitary one. Even after Spanish entrance in EEC, such a system continued being used until the creation of the Common Market in 1993. The efficiency of the system of variable rights – which came into operation when the entry prices were lower than the reference ones – was easily noticed in the Spanish case: From 1986 to 1992 Spanish fruit and vegetable exports rose 9%, while from 1993 to 1998 its rise was 60%. Although this is true, in the latest years the *peseta* was depreciated almost 30%, and the rise of sector costs in Spain almost compensated for the profit from competitiveness-price through depreciation.

This mechanism made the exporters adopt an organisation adapted to their demands, the bulk of the export would respect reference prices and would not be punished by the imposition of variable duties added to the tariffs *ad valorem*. Therefore, the communitary agricultural protection indirectly drove the birth of trading offices; monopsonies of a public character that managed most part of the agricultural exports to EEC which appear in the TMC. The impossibility of competing in prices implied the management of the market through quantities. The self-discipline regarding agricultural exports prevented the TMC from rising their market shares in the Community, but it guaranteed an additional profit – in the form of higher prices than the international ones – besides a preferential access that was developed through more reduced *ad valorem* duties because of the conventional trade policy of the EU (Sologral, 1997). In the new Euro-Mediterranean agreements certain TMC products – for instance tomatoes and Moroccan oranges – are also benefit from preferential reductions in reference prices.

After the CAP reform, the European agriculture protection system is still complex, protectionist and very biased towards the imposition of administrative measures. Nevertheless, it must be remembered that the major support to Mediterranean agricultural production came from the tariff and not-tariff protection and from the returns to export, as most part of Mediterranean agriculture didn't have a support system for prices similar to the existing one for the continental productions. This is an important aspect because the agriculture agreement signed in the final record of *Ronda de Uruguay* is based on the protection tariffication, the tariffs reduction, the consolidation of certain minimum levels of access to the market, and a steady reduction of internal support to agriculture and of export subsidies.

The new model for the internal support to European agriculture is characterised by the replacement of the support to prices by the support to agricultural profits. But – as most of the Mediterranean productions did not benefit from subsidised prices – they do not benefit now from the support to the profits (Massot, 1999).

Therefore, these modifications – both external and internal – to the rules of European agriculture support mean a higher competition in communitary agricultural markets, especially for Mediterranean productions whose internal support level is very limited. Fruit and vegetables – which have been constituting an average of 20% of the communitary agricultural produce in the latest years – only receive 5% of the EAGGF so that their only protection comes from trade policy, which also tends to decrease in regard to both tariffs and export subsidies. In the case of Spain, this situation of lack of internal support and protection reduction is worsened by the existence of dates of entrance whose effects are clearly uneven for the Member States. Such calendars protect northern European productions to a greater extent when they do not hold equal consideration for the Spanish productive seasons which are much earlier and have to face competition from the TMC in low tariff protection periods. Moreover, Spanish exporter and producer associations have their doubts about the accuracy of the new protection system based on entrance prices (Pozancos, 1999).

Concerning the TMC, they are against the new CAP framework basically due to two major reasons: The noticeable increase of tariffs because of the tariffication of the protection through tariff equivalents and the erosion of their preferences against the rest of the world brought about by the multilateral reduction in agricultural protection. A third worrying element for these countries is the perspective of an imminent enlargement towards the eastern countries, which are very competitive in certain products such as tomatoes or potatoes. It is important to highlight that the TMC have a comparative advantage in typical Mediterranean products where they strongly support liberalisation, but they are deficit and unable to compete with continental agricultural producers – grain, dairy products, meat and sugar. In fact the TMC encourage these products through policies of extremely interventionist prices whose removal presents important political limitations (Louafi, 2000). Therefore, their strategy consists of protecting these latter sectors in the multilateral framework and pushing for the Mediterranean product markets to be liberalised in the bilateral framework – with the EU – because they are aware that their agriculture would not stand a total and reciprocal free agricultural trade, neither at a multilateral scale nor at a bilateral one with the EU (Regnault, 1997). Moreover, the extension to the reciprocity agriculture used for the industrial products trade is rejected by the south shore countries because of the strong unbalance of bilateral trade relationships (Akesbi, 1999; Elyssa, 2000).

With respect to Spain, it can be confirmed that Spanish productions of fruit and vegetables have less protection than those of the northern European countries, as the import calendars protect in a higher degree productions in the period between June and October, while Spanish producers must face a stronger competition. This fact, together with the Spanish farmers' perception of suffering a historic discrimination in the productions where they have a comparative advantage at a European level, explains their being reluctant to a possible liberalisation of agricultural trade in the Mediterranean area. This is why Spanish producers refuse to bear the main part of the cost of a policy on whose convenience they do not make a pronouncement which they believe to be damaging to their interests.

Method

The aim of the analysis is to cover the following aspects:

- To determine the export growth for agricultural *products* that could be derived from the suppression –in five years- of tariff barriers which the EU imposes against the studied TMC.
- The settlement of the impact that such an increment of export would have on employment, production and the added value in each of these countries.
- The concrete effects on the so-called 'sensitive' products as they come in perfect competition with those produced by the Mediterranean EU².

The model used only values the price effect that is necessarily produced at the tariff removal and which brings about a probable increase in the TMC exports to the EU. The model covers the reaction of current productive structure at the potential tariff removal, not entering into the possible reforms that would be produced in such structure when increasing the EU investment on TMC among other matters.

With the purpose of developing a quantitative analysis, we propose a mixed simulation system of Input Output tables and their stirring into action from structural econometric models for the determination of future values of the explanatory variables. The chosen model is based on the models of Social Accounting Matrix, widely used in the developing countries context. Nevertheless, it includes the important novelty of the dynamisation of results, thanks to the evolution given to employment fixed coefficients – number of employees by branch on effective production – developing from productivity evolution models throughout the available statistical history, together with the rest

² 'Sensitive products' are defined as those that are subject to the application of tariff equivalents and correspond to the tariff descriptions of: fresh or cooled tomatoes, cucumbers, artichokes, courgettes, oranges of all kinds, tangerines and mandarin oranges of all kinds, lemons, grapes, golden delicious, granny smith, pears, apricot, cherries, any other grapes, nectarines, all peaches, plums, grape juice and the rest of fruit juices, fruit concentrates, any other concentrated grape juices or concentrates.

of variables included as explanatory ones and which are developed in the section of the model specification – added values, deflators, branch employment, salary evolution, marginal tendency to consumption, financial pressure, etc.

The operative needs to carry out the simulation are the following:

- The prediction of the basic macro-economic framework of each country analysed.
- Determination of the customs protection that the EU exercises on each country and the ‘shadow tariff’ as the measure for an efficiently developed protection, even when there are certain months with very little tariff protection.
- Determination of export elasticity-price.
- Sector distribution of production, as much as final demand of such production.
- Effective production of each sector.
- Employed number in each sector and their evolution in time. (for the main attached ones to it.)

Now, the steps mentioned are briefly explained.

The determination of the effects of a free trade area needs a forecast of the economic situation both in the studied TMC and in the EU. The developed simulation – given the chosen horizon 2000-2004 – rests on a situation which is very favourable to trade exchange between the EU and the rest of the world due to the important growth foreseen for the five-year period. In the simulation, growth rates close to 2.5-3% for the whole Union are seen. Concerning world trade growth, the figures are enormously optimistic for the period 2000-2004, with foreseeable figures over 6 percentage points every year³. Regarding the four TMC subjects to study, the economic growth expectations set by the forecast institutions are also optimistic, pointing to average growth rates close to five percentage points in the five-year period. This forecast is even better for Morocco and Tunisia where they are accompanied by a moderate evolution of inflation. On the contrary, the evolution of the prices is not so positive for Egypt and less so for Turkey⁴.

The product categories included in the analysis are different for each country depending on the weight that each product has on the whole of the agricultural export from which we have selected those that stand over 3%. The only exception is that of fish and seafood in Morocco, which has been included –

³ To get the forecast figures of EU and World Trade, we have resorted to the model of MEDINA Project – www.uam.es/medina - which collects the consensus of several forecast institutions among which are included the IMF, the World Bank, United Nations LINK Project, the Economist Intelligence Unit, JP Morgan, etc.

⁴ See reports and statistics that appear on www.uam.es/medina.

as they are a product group specially controversial for Spanish interests – although it only represents 1.6% of Moroccan food and agriculture exports.

Fruits are main agricultural export produce in all countries except for Egypt. Among the rest of the products we can highlight oil in Tunisia, sugar and sweets in Egypt, and pulses and vegetables in Turkey, Morocco and Egypt. The so-called ‘sensitive products’ have a different weight in the agricultural export of each country studied: They represent 88% in Morocco, 88.8% in Egypt, 90.5% in Tunisia – including oil – and 88.1% in Turkey. Regarding the absolute export volume in value – ECUS per year – of these products destined to the EU, Turkey is the most important country with 51%, followed by Morocco – 36% –, Egypt – 9% –, and Tunisia – 3% (See table 1).

Considering the tariff protection level on these products it is essential to analyse the effects of a free trade area which involves agriculture because the different preferential agreements determine different protection degrees depending on the countries dealt with and the month. Facing the complexity of the communitary trade policy regarding agriculture, the level of protection has been captured as ‘shadow tariff’⁵.

Because of the existence of a complex mechanism for the tariffication of the products coming from abroad the EU, it is necessary to have the estimate of what we have called the ‘shadow tariff’ – term which allows us to understand the percentage increase generated in the imported good price in the EU according to the trade policy that the Community keeps with each particular country.

Obviously, the customs duties differ for each country depending on the degree of specialisation in certain products, which are more or less punished by the trade policy or by the preferential agreements signed. Thus, firstly we can distinguish between the average tariff imposed on the product and the real one imposed at the entrance of such product in each case depending on the month it entered and the quantity exported. With that we could compute the equivalent tariff – monthly weighted average of the tariffs applicable according to the real exported quantity in each country.

The obtained objective is the exact settlement of the customs duty value, which was really paid for the products coming from Morocco, Turkey, Tunisia and Egypt and included in this ‘equivalent tariff’.

Besides this effect on the export made, the strong tariff to which certain products would be subject in those seasons when their entrance would coincide with the production in the EU itself, gives place to

⁵ Shadow tariff: estimate of the effect of real tariff protection as the sum of the tariff effectively imposed on the import made and of the tariff which – due to its level – avoids import in certain seasons. For more detailed information, see MEDINA (2000).

such a competition disadvantage that no export would take place. Being so, the computing of the tariff from the exported goods that were assessed for tax is insufficient as the effective protection in some moments prevents from there being any entrance and thus, this direct sum cannot be made.

The protection included in the 'shadow tariff' is especially costly because of the concentration of strongly protected goods export from the analysed countries, to the extreme that the EU is null in the moments when the protection is higher. Nevertheless, the climatic situation of both shores of the Mediterranean Sea perfectly allows the coincidence in time of the harvests. It could seem more logical to attribute the absence of production during certain months of the year in North Africa to an adaptation to the selling possibilities in Europe than to attribute it to a climatic or a production means restriction. With all this we want to highlight the importance of a Mediterranean agricultural economy whose potentiality is much bigger than what it could seem for a level and seasonality of production completely dependent on limitations imposed by the communitary trade policy – which will disappear in the case of the setting of an agricultural free trade area (See table 2).

For the computing of the export elasticity-price, the Spanish referent has been used as standard example when there is an evident lack of data and they are of low quality in the countries we are dealing with. When the estimate of the elasticity in an accurate way and with national data was possible, the obtained values have been used in the simulation. In the other cases, estimated values for the Spanish case have been used. In table 3 the estimated elasticity for each country are shown – blanks correspond to those cases where the estimate was not consistent with the country data. From this table it is interesting to notice that the agricultural elasticity-price would range from 0.7% to 0.9% for almost every category stated (See table 3).

From a different perspective, the seeming productivity observed and its predictable evolution is a key point in the simulation made. For the computing of the agricultural productivity, the evolution of five variables has been considered: rainfall during the year, number of tractors, fertiliser consumption and percentage of irrigated land over the total cultivated land. The results of regressions made allow us to evaluate the elasticity of agriculture regarding these variables. Each growth point of the irrigated land on the total cultivated one means a 0.4% growth of the agricultural productivity by each worker. This is the most prominent factor of the five ones analysed – the rest hardly reach 0.1%, excluding, of course, the arable land that is the fundamental factor. Anyway, in our analysis we assume that water is not a limiting criteria for the Mediterranean agricultural production, as the production under plastic and (with watering by sprinklers) makes climatic conditions and the capital being able to cover for the lack of water resources the fundamental factor (Decaluwé et al., 1999; Rogers and Lydon, 1994; Luc et al., 1997; Tujil, 1993).

Results of the simulation

In this section we present, firstly, the results obtained regarding export facing the hypothetical opening of communitary agricultural markets for each of the analysed countries. Secondly, we comment on the effects that such export increase would imply at a macro-economy level for the four countries. And finally we analyse the weight of new exports generated by the supposed liberalisation in the intra-communitary market of the affected products.

For Morocco, the results obtained with respect to the sensitive agricultural produce export mean 1.4% of the GDP – see table 4. For all the five-year period, our estimate suggests a total export increase of more than 27%. If we consider different product groups, the potential growth is spectacular for fruits – 53% – and quite important for pulses and vegetables – 20%. In the case of Turkey, the rise in exports would imply 2.3% of the GDP – see Table 5. The most important rises are on sugar and sweets – more than 40% in the five-year period –, wine and fish – 20% – and seafood – 12.8%. For Egypt the average export increase of the products considered is placed approximately in 23% during all the five-year period, meaning 3.26% of the GDP – see table 5. The growth of edible fruits and pulses and vegetables is of fundamental importance, with a percentage of more than 28% each one. The results for Tunisia in terms of export are the most limited – 0.4% of the GDP; table 6 – and confirm olive oil as the star product with an increase of over 80% during the five-year period, followed by pulses and vegetables.

With respect to the results of the macro-economy simulations, they could be surprising as, in some cases, the effects of generalisation of added value are bigger in the second phase – effect included in demand – than in the first one – necessary increase in production to face the new export. Nevertheless, the creation of employment shows a contrary effect, as it is much bigger in the production phase than in the induced demand phase. This fact is linked to agricultural sector peculiarity because the degree of concatenation of this sector with the rest of the economy is very limited. That is to say that it is not a sector whose production ‘strongly moves’ the rest of the economic sectors, but it is very intensive in labour and, because of this, small rises in production are immediately related with important rises in employment in the sector itself and with scarce increase of the total AV of the country.

When we speak about the effect induced by the demand, the creation of new disposable income for consumption are distributed in a proportionate manner among all the economic sectors of the country, generating an increase of internal and external demand which definitely affects the sectors in which the interconnections are stronger than the ones/those quoted above for the agricultural case. It is important to consider the strong restriction of the model, which conveys the generation of profit for consumption in the so-called ‘effect induced by way of demand’. Statistically, the marginal tendency

to consumption as the percentage of disposable income for this is well known. Nevertheless, the proportion of dividends and other incomes coming from the production means owners must have a dedication to consumption much smaller than that to the income from dependent work. But it would be foolish to think that this tendency towards consumption on the capital profits is null. In the model, the creation of new profit assuming that the employment created in the production phase is exclusively by third parties can clash with economies where self-employment is very important. This fact gets special importance in economies such as the Tunisian one, where the added value has a strong composition of gross profit from export. This fact could mean a certain undervaluing of the effect induced by the way of demand.

As it becomes noticeable on several occasions along the simulation, the important market of black economy present in the agricultural sector hides the flexibility of real labour, which the official data rarely shows appropriately, and which – at the same time – makes the computing of the apparent productivity of the employment factor quite complex. Even so, and facing international comparisons, we can highlight the following differences in the number of employees in each sector to generate a million dollars of agricultural production in 1995⁶: while in Spain the number of necessary employees is 33.5, in Turkey it is 315, in Egypt 343, in Morocco 457 and in Tunisia 305.

In the case of Morocco, the effect of the removal of tariff barriers is centred on specific products and – in general – they belong to the so-called ‘sensitive products’. The economic simulation allows us to determine a 1.4% global impact on Moroccan economy – measured in percentage of the GDP – during the five-year period. In terms of the relative importance on the agricultural added value, it would be 8.25% in the period. The number of new jobs is over 115,000, the vast majority of them coming from the effect of a higher agricultural production.

The lack of updated information in the Input-Output Tables of Morocco recommends completing the analysis with the comparative study of the change produced in Spain since the creation of the Single Market and with the elasticity that our country presented on that date. If we make the sum of the increase of ‘sensitive’ agricultural export produced in Spain when the Single Market was established in 1993 – comparing the 1986-1992 period versus the 1993-1999 period – and we take that relative growth rate to the Moroccan export values, the study shows that the speed effect on the GDP of such removal of tariff barriers would be equivalent to the one produced in Spain with a time-horizon of ten years for the Moroccan economy. That is, we study the possibility that Morocco would register the

⁶ Being aware of the quoted effect of the measuring complexity of employment in the country, regarding international comparison it seems possible to understand that ‘on bulk’ the weight of black economy of all the Mediterranean countries will be more or less similar and the use of the family to face the needs of production will be so, too. In the case of Spain, the use of illegal immigration in the country would eliminate differences that could be supposed because of its relatively bigger development level.

same positive relative effects brought about by the removal of tariff barriers in Spain, although enlarging the time limit for getting it. The results computed for Spain during the 1993-1999 period are extrapolated to the Moroccan case with a ten-year horizon. Under this assumption, the results are the ones shown in table 4.

In the case of Turkey, the simulation shows that the effect of the agricultural market liberalisation between the EU and this country would produce a rise in the Turkish activity of an additional 4.4% as an accumulated effect in the following five years – measured by the total added value – versus the results without the liberalisation. The number of new jobs generated by the hypothetical agricultural liberalisation – around 23,000 jobs – is small for an employed population of almost thirty million Turkish. Nevertheless, the importance of this figure is bigger in the framework of Mediterranean agricultural economy where the analysed effect is concentrated in an exclusive way. From the results obtained, Turkey establishes a growing pace practically equivalent in the relative increase of its export to the EU of edible fruit and pulses and vegetables (see table 5).

In the case of Egypt, the results of the simulation are very similar to the ones obtained for Turkey, with rises that would mean more than three points of the total effect distributed in the five-year period in which the simulation is done. Such increase has a poor reflection in the creation of employment in the country – here, probably very influenced by the lack of a definite statement about the agricultural employment in the country. In the described framework, the export growth would mean 3.26% more than the previously existing one. This impact would bring a rise in employment of approximately 16,000 people who would have to generate – together with the rest of the employees and thanks to an important evolution of the agricultural productivity – a total added value of 0.75 points higher on average each year of the ones included in the simulation. The effect on Added Value would represent a 4% over the GDP and a 22% over the Agricultural Added Value (see table 6).

With respect to Tunisia, we find that this is the country –of the four countries considered – where the weight of the agricultural sector is smaller in terms of GDP – hardly 5%. Rutheford et al. (1995) estimated that the effects of the Free Trade Agreement between the EU and Tunisia would produce a total profit equivalent to 4.5% of the GDP once such effects have been thoroughly applied – nowadays agreement only affects the liberalisation of manufacturing, with Agriculture and services being excluded. The Tunisian agricultural economy is a strong generator of added value in the form of profit from the land property. As it has been commented above, the proportion of the Gross Surplus of Operation is extraordinary against the one from the remuneration of the employees as much as against the consumption of intermediate goods from other sectors. From the 25% of production that

constitutes the intermediate consumption, the self-consumption in the own sector – 8% –, that of the food and agriculture industry – 6.5% –, the chemical sector – 3,1% – and the energy one – 4.3% – are hardly meaningful. The rest of the sector interconnections are all under 0.5%. As a result of this, the connection of the used model between employment and production generates a situation where the added value resulting from the simulation is scarce – 0.5% in terms of GDP and almost 10% over the agricultural AV – and, nevertheless, the generation of employment is very important – over 66,000 new jobs (see table 7).

The global result of the simulations that have been carried out stress the importance of tariff protection as an efficient measure for the export control that the EU could develop in the countries studied, especially in the field of the so-called ‘sensitive products’ – edible fruits and pulses and vegetables mainly – as well as on fish and seafood. The net increase of export would mean the entrance of this kind of products which represent 11% of the intra-communitary ‘entries’ nowadays throughout five years – 2.1% every year –; That is that those product markets would probably assume a change in suppliers practically equivalent to that quantity as it is not really believable that its consumption would increase much given the first need products we are dealing with. This situation gives place to the need to either protect or restructure the sector in the EU before starting the removal of tariff barriers. Obviously, the countries from the EU that are more affected by this potential competition are the Mediterranean ones. In the case of edible fruits, these countries represent over 63% of the whole of the inter-EU trade (see table 8).

From the global results of inter-EU trade and from the export growth values for each product that have been shown previously for Morocco, Tunisia, Egypt and Turkey, the increase of competition for these countries in the products for which the simulation has been made can be calculated, obtaining an annual total of 2.1% for the EU.

As has been commented above, the nature of this kind of product trade in detail has a direct competition from France, Spain, Italy, Portugal and Greece because the products of/from the categories we have included in the simulation obviously coincide with those of the typical Mediterranean agriculture on both shores (see table 9).

Putting together the results for the whole EU, the most affected product category is that of edible fruit – 3.42% annual growth of the competitors. This category is still very important considering only the Mediterranean countries, although now competition for fishing is also very relevant – 6.36%.

To sum up it would be important to highlight the following conclusions:

- The so called Medina-Agro I Model – from which the conclusions presented in this study have been drawn – quantifies the effects of a liberalisation in the agricultural domain as a result of the proportional reduction of price that the tariff elimination would entail in a five-year period. Obviously, such a phenomenon is accompanied by others of diverse nature, ranging from industrial dislocalisation in favour of the liberalised area – with the consequent change in its production scheme – to several foreign trade elements – other trade barriers such as preference for the national product, phyto-sanitary measures, quality standards, political or budgetary impulses, etc. – just to quote a few.
- Thus, being aware that the study focuses only on one concrete aspect from so many others, we cannot avoid valuing its importance for being a safe and direct effect. Moreover, when quantifying it one must be especially careful with the calculation of the real tariff barriers, which we have named here ‘shadow tariff’. References to diverse elements highlighted in this study are frequent in literature where we have elements such as the tariff policy capability to determine the way and time of certain countries’ production. Concerning this, it is important to notice how our main assumption on the computing of the ‘shadow tariff’ has been to assume that the real value of the protection is that which completely eliminates the competition potential of the other Mediterranean shore, and not because of an incapability/incapacity to produce but because of not being competitive with what is produced inside the EU when the tariff barriers are so high.
- As the major result of the estimate of ‘shadow tariff’, there is the figure obtained for the tariff entry of edible fruit, where most part of the so-called ‘sensitive products’ are included. In this case, tariff protection provokes an average price increase of over 45% for all countries included in the study. Secondly, the ‘shadow tariff’ computed for pulses and vegetables – which would be around 30% depending on the country considered – is noticeable. In the last analysis, the effect of the price reduction of the entrance of these products in a free trade environment breaks the existing strong protector mechanism. Therefore, we should not be deceived by the simple computation of the money collected through the tariffs of these products, as they have the same deterrent effect even when no tariff is charged, as shown above.
- The elasticity estimated for the different product categories are normally situated between 0.75 and 0.9 points, although in some exceptional cases it is over one.
- It is important to stress that water is no longer a discriminating factor to putting a limit to production in North African countries. This fact is due to the diminishing of the importance of this scarce element because of the important investments on piping and supplying of the environment??? and because the step to greenhouse growing with plastic and dripping has not been taken. The

production possibilities due to the application of the new agricultural techniques make it impossible to consider water as a fixed restriction to these countries' future productions.

- The main results regarding export increase are the following:

- Concerning Morocco and during the five-year period analysed, export would have a total increase of over 27%. Dealing with concrete entries, the potential growth is spectacular for edible fruit, which would be placed at 53% in the five-year period. Secondly, the entry from pulses and vegetables would rise 20% and that from sugar and sweets 14%.
- In the case of Turkey, the most important increase is seen in sugar and sweets – over 40% in the five-year period –, grape wine and fish – 20.2% – and seafood –12.8%.
- Regarding Egypt, the average increase for export in the products considered is around 23% during the whole five-year period, that is, a growth of almost 5 points over each year values. The importance of the growth of edible fruits and pulses and vegetables – again 'sensitive products' – over 28% each is fundamental. Similarly, the important growth of sugar and sweets is noticeable –16%.
- The results for Tunisia show an increase of over 80% for oil during the five-year period. Secondly, pulses would be the product with the highest growth rate.

- The increase of export estimated represents a growth of direct competition for the EU Mediterranean countries' productions. The export increase foreseen means over 11% on the present average EU trade of these products throughout five years, thus an annual 2.1%. Due to the nature of the products studied, the climatic factors shared by both shores make real competition much stronger in the Mediterranean countries, where the estimated export increase on fruits would be 5.4% of what is exported now by France, Spain, Portugal, Greece and Italy to the rest of the EU. Concerning vegetables, the figure would be around 4%, being also relevant the increase on fish and seafood – 6.4% – and that for living plants – 1.4%.

- The results of the Medina-Agro I Model regarding impact on each country added value can be summarised as follows:

- The effects on added value for Morocco projected by the econometric simulation called basic allow us to determine a global impact on economy of 1.4%, measured in the GDP percentage and during the five years studied in our simulation. In terms of the relative importance on the agricultural added value, we are dealing with 3.4% in the five-year period.

- For Turkey, the simulation shows that the effect of liberalisation of the agricultural trade between the EU and this country would bring an increase in this economy activity of around 4% – measured by the total added value – over what there would be without this liberalisation as accumulative effect in the following five years and with a decreasing evolution.
- In the case of Egypt, the increase would mean more than three points of total effect distributed in the five-year period of the simulation. Such increase has a poor influence on the employment creation in this country, being probably very influenced by the lack of statement of agricultural employment.
- Out of the four countries studied, Tunisia is the one where the weight of the agricultural sector is smaller in terms of GDP – hardly 5% – and thus, where the comparison could seem poorest, as it is 0.4% in five years. Nevertheless, measured against the agricultural added value, the foreseen increase would represent almost 2% of each year value.

- The employment increase generated by the effect of the tariff barrier suppression is not very important in the country's global terms, but it is so in local terms both for the EU and for the studied countries. The concentration of the affected agricultural production in the Mediterranean shores marks this environment as the most affected one, and as the reference for the relativisation that must be used. In this context and for subsequent research it is important to value which would be the employed population affected by this process. It would even be interesting to check if there would be an effect for the returning of migration to their country of origin, as the European Mediterranean agriculture depends more and more on North-African emigrants. They might be the most affected ones by the effect of the loss of employment if the creation of a free agricultural trade area was created.

- On the whole, the results presented here are not spectacular regarding the GDP although they become so after being conveniently relativised. Concerning each country, the obtained values must be compared to their total agricultural production because we are studying export growth rates that affect only that sector.

- Finally, it is important to highlight the strongly competitive environment that the liberalisation of the trade with north-Africa would bring due to the enormous coincidences in the types of crops there are between them and the Mediterranean EU. Liberalisation measures in this area should go through compensation schemes and the restructuring of wide coastal zones from France, Spain, Portugal, Greece and Italy.

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TABLES AND FIGURES:

Table 1: Breakdown of each TARIC product category in agricultural export

	TURKEY	TUNISIA	MOROCCO	EGYPT
Live animals	0.0%	0.1%	0.0%	0.1%
Meat and edible offal	0.0%	0.0%	0.0%	0.0%
Fish and seafood	1.6%	7.8%	9.1%	0.3%
Milk and dairy products	0.4%	0.0%	0.0%	0.1%
Living plants	0.7%	0.7%	0.3%	0.6%
Pulses and vegetables	24.6%	4.5%	30.7%	47.5%
Edible fruits	54.8%	25.1%	46.8%	4.0%
Coffee and tea	1.1%	0.8%	1.3%	0.5%
Grain	4.7%	0.0%	0.1%	1.4%
Mill products	0.9%	0.0%	0.0%	0.0%
Seeds and oil fruits	6.2%	0.4%	2.6%	3.1%
Sugar	2.4%	0.1%	7.5%	42.4%
Grape wine	0.3%	3.9%	0.6%	0.0%
Oil	2.2%	56.6%	1.1%	0.1%
Selected ones (in bold letters)	94.1%	97.9%	96.7%	97.0%

Source: COMEXT, Eurostat

Table 2: 'Shadow' tariffs by TARIC agricultural produce categories

	Tunisia	Morocco	Egypt	Turkey
Fish and seafood	13.9	13.9	13.9	13.9
Cut plants	7.1	7.1	7.1	7.1
Pulses and vegetables	43.1	23.3	32.4	16.9
Fruits	47.7	46.5	46.1	42.1
Grain	1.1	1.1	1.1	1.1
Sugar	31.6	31.6	31.6	31.6
Wine	21.2	21.2	21.2	22.7
Oil	70.9	4.5	4.5	4.5

Source: issued by the authors based on TARIC and Comext.

Table 3: Elasticity price of export

	Morocco	Tunisia	Turkey	Egypt	Spain
Fish and seafood	-	-0.81	-1.53	-	-0.81
Living plants	-0.89	-0.92	-0.87	-1.13	-1.02
Pulses and vegetables	-	-0.96	-0.76	-	-0.78
Fruits, citrus or melon peel	-0.96	-	-	-0.56	-0.56
Seeds and oil fruits	-0.86	-	-0.9	-0.7	-0.89
Sugar and sweets	-1.36	-	-1.21	-1.06	-0.33
Grape wine	-	-	-	-	-0.72
Oil	-	-1.43	-	-	-0.87

Source: issued by the authors

Table 4: Impact on Morocco

	2000	2001	2002	2003	2004	TOTAL
Δ EXPORT	333	683	1,052	1,441	1,851	5,360
% Δ EXP / GDP	0.10%	0.19%	0.28%	0.37%	0.46%	1.40%
TOTAL EMPLOYMENT	7,603	15,234	22,967	30,833	38,901	115,538
Production employment	6,625	13,302	20,069	26,960	34,008	100,964
Demand employment	979	1,932	2,898	3,872	4,893	14,574
TOTAL AV	355	727	1,118	1,530	1,964	5,694
AV Production	306	628	967	1,324	1,700	4,925
AV Demand	49	99	151	206	264	769
% Δ AV /GDP	0.10%	0.20%	0.30%	0.39%	0.49%	-
% Δ AV/ AV agricult.	0.60%	1.14%	1.67%	2.18%	2.68%	-
MOROCCO GDP	342,935	357,975	373,015	388,055	403,096	-
AV Agriculture	59,103,30	63,965,18	67,103,70	70,242,22	73,380,74	-
AV Ag / GDP	17.20%	17.90%	18.00%	18.10%	18.20%	-

(Million Dirham and %)

Table 5: Impact on Turkey

	2000	2001	2002	2003	2004	TOTAL
Δ EXPORT	518,207	527,152	536,449	546,119	556,187	2,684,114
% Δ EXP / GDP	0.60%	0.50%	0.40%	0.40%	0.40%	2.30%
TOTAL EMPLOYMENT	6,278	5,255	4,377	3,937	3,535	23,382
Employment Production	3,769	3,300	2,968	2,720	2,529	15,286
Employment Demand	2,508	1,956	1,409	1,217	1,006	8,096
TOTAL AV	1,131,475	1,072,666	971,912	956,792	921,396	5,054,241
AV Production	503,335	512,023	521,053	530,445	540,224	2,607,080
AV Demand	628,140	560,643	450,860	426,347	381,171	2,447,161
% Δ AV /GDP	1.30%	1.00%	0.80%	0.70%	0.60%	-
% Δ AV/ AV agricult.	8.10%	6.40%	5.00%	4.30%	3.70%	-
GDP TURKEY	86,538,058	103,691,043	120,844,029	137,997,014	155,149,999	-
AV Agriculture	13,961,783	16,707,341	19,452,900	22,198,458	24,944,017	-
AV Ag / GDP	16.13%	16.11%	16.10%	16.09%	16.08%	-

(Billion Turkish Pounds and %)

Table 6: Impact on Egypt

	2,000	2,001	2,002	2,003	2,004	TOTAL
Δ EXPORT	2,336	2,448	2,566	2,690	2,820	12,859
% Δ EXP / GDP	0.73%	0.70%	0.70%	0.60%	0.60%	3.26%
TOTAL EMPLOYMENT	3,016	3,161	3,318	3,489	3,662	16,645
Employment Production	2,567	2,691	2,820	2,956	3,099	14,133
Employment Demand	449	470	498	533	562	2,512
TOTAL AV	2,728	2,858	3,002	3,161	3,318	15,068
AV Production	2,178	2,282	2,392	2,508	2,629	11,990
AV Demand	550	576	610	653	689	3,078
% Δ VA /GDP	0.9%	0.8%	0.8%	0.7%	0.7%	-
% Δ AV/ AV agricult	4.9%	4.6%	4.4%	4.2%	3.9%	-
GDP EGYPT	318,075	355,926	394,721	439,193	489,066	-
AV Agriculture	55,245	61,874	68,474	75,702	84,483	-
AV Ag / GDP	17.40%	17.40%	17.30%	17.20%	17.30%	-

(Million Egyptian Pound and %)

Table 7: Impact on Tunisia

	2000	2001	2002	2003	2004	TOTAL
Δ EXPORT	51	57	64	71	80	322
% Δ EXP / GDP	0.10%	0.10%	0.10%	0.10%	0.10%	0.40%
TOTAL EMPLOYMENT	10,786	11,736	13,159	14,543	16,386	66,610
Employment Production	10,431	11,362	12,745	14,092	15,884	64,513
Employment Demand	354	374	415	451	502	2,097
TOTAL AV	61	68	76	85	96	386
AV Production	58	65	72	81	91	367
AV Demand	3	3	4	4	5	19
% Δ AV /GDP	0.10%	0.10%	0.10%	0.10%	0.10%	-
% Δ AV/ AV agricult	1.80%	1.90%	1.90%	2.00%	2.10%	-
GDP TUNISIA	62,517	67,718	73,231	78,949	84,873	-
AV Agriculture	3,420	3,669	3,923	4,187	4,458	-
AV Ag / GDP	5.50%	5.40%	5.40%	5.30%	5.30%	-

(Million Dinars and %)

Table 8: Inter-EU trade breakdown represented by the Mediterranean countries in 1999

	SPAIN	FRANCE	GREECE	ITALY	PORTUGAL	TOTAL average
Fish and seafood	11.2%	9.5%	3.0%	3.2%	2.3%	29.1%
Living plants	3.5%	3.0%	0.0%	8.2%	0.3%	15.0%
Pulses and vegetable	26.0%	13.6%	0.8%	7.1%	0.6%	48.2%
Edible fruits	30.7%	12.6%	3.0%	16.8%	0.4%	63.5%

Table 9: Annual percentage that new exports entail for each product category

	TOTAL	TOTAL AVERAGE
Fish and seafood	1.85%	6.36%
Living plants	0.21%	1.42%
Pulses and vegetable	1.89%	3.92%
Edible fruits	3.42%	5.39%
TOTAL	2.09%	4.85%