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Abstract

This paper examines the methodological problems to define a modelling approach to assess the impact of full or limited bilateral liberalisation of agricultural trade flows in the Euro-Mediterranean region. The bilateral trade liberalisation process in the region is framed by complexity, in policy instruments and in the characteristics of the products, in particular fruits and vegetables. Advantages and disadvantages of the general equilibrium and partial equilibrium approaches to simulate trade policy impacts are assessed. Caveats of existing models are related to the representation of specific policy instruments (tariffs, entry prices and other non-tariff measures) and on the seasonal nature of horticultural trade, which is of major importance in the Euro-Mediterranean Free Trade Are. The paper provides an illustration of how an imperfect substitute product model could be helpful to describe the trade effects of bilateral price changes, for given seasons.

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1. Introduction

The analysis of regional trade liberalisation remains an interesting area of research. A large number of countries are taking part in preferential agreements. This is also true for the Mediterranean region. The present paper intends to identify some of the key aspects to incorporate in a modelling approach that contributes to the study of the agricultural trade liberalisation in the EuroMediterranean region. Characteristics of agricultural trade liberalisation in the region are: (i) it includes elimination of tariffs for a significant part of bilateral trade between the European Union (EU) and its Mediterranean partners; (ii) it excludes some sensitive products of the tariff elimination provisions; (iii) a number of policy instruments restricting trade remain non-tariff measures.

Complexity is a word that defines the bilateral trade liberalisation process in the region. This complexity is difficult to represent in a trade model, not only because of the range of instruments still constraining trade

but also because of the special nature of the most important traded goods (product differentiation and seasonality).

In the next pages, a review is carried out about: (i) the nature of the Euro-Mediterranean integration process; and (ii) the assessment of the trade effects caused by the Euro-Mediterranean Free Trade Area (EMFTA). What it is intended is basing on the existing methodology to identify an adequate modelling approach to assess the impact of full or limited bilateral liberalisation of trade flows in selected products. In the first section, a background of the EMFTA is presented, followed by a description of the general framework and rules that govern bilateral trade flows under the Euro-Mediterranean Association Agreements. Sections 4 and 5 focus on agricultural trade to help to understand why it remains an issue of the EMFTA. Sections 6 and 7 carry out a methodological and empirical review of the various modelling approaches, assessing the advantages and disadvantages of the general equilibrium and partial equilibrium approaches to simulate trade policy impacts. In particular, section 6 underlies the main caveats of existing models in relation to the representation of specific policy instruments and on the seasonal nature of horticultural trade, which is of major importance in the EMFTA. Section 7 illustrates how an imperfect substitute product model can be helpful to describe the trade effects of bilateral price changes, for given seasons. Section 8 refers to the direct measure of preference margins, and section 9 summarises the main findings of this review, pointing to the development of research under the Tradeag project.

2. Background of the EMFTA

In November 1995, the European Union (EU) Member States and 12 Mediterranean countries launched in Barcelona an integration process with the goal of favouring *"sustainable and balanced economic development with the view of creating an area of shared prosperity"[1]*. Regional integration, understood as trade liberalisation among the countries involved, was the method chosen, with the aim at creating the EMFTA by 2010.

The Barcelona process launched a new generation of Agreements, the Euro-Mediterranean Agreements (EMA), negotiated by the EU and individual Mediterranean partners, oriented at taking further steps for trade liberalisation on a bilateral basis, that is, through reciprocal liberalisation of trade in manufactures. The economic chapters of the EMAs aim at consolidating regional integration through i) bilateral trade agreements, ii) progressive establishment of a free trade area by 2010, and iii) measures to increase investment flows to the Mediterranean partner countries. Substantial financial assistance is provided to facilitate this integration process.

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[1] The Mediterranean partners in that moment were Egypt, Lebanon, Syria, Jordan, Turkey, Malta, Cyprus, Israel, Morocco, Tunisia, Algeria and the Palestinian Authority.

The commercial integration process among the European Union and a number of countries from the Mediterranean basin has been making progress during last years, within the framework launched in the 1995 Barcelona Conference (see Garcia-Alvarez-Coque, 2002). Within this framework, the EU holds preferential trade agreements (PTAs) with its Mediterranean neighbour countries -or Southern Mediterranean Countries (SMCs)- in the path towards the establishment of the EMFTA. The process is quite dynamic and not all SMCs are in the same stage of implementation of their corresponding FTA (ideally, to be completed by 2010). While agreements with Morocco, Israel and Tunisia are in a relatively advanced stage of implementation (even with recent reviews of the tariff provisions), ratification and entry in force of the Agreements has been relatively recent for Jordan (2002) and Egypt (2005). Agreements with Algeria and Lebanon have been signed but not ratified yet. By the end of 2004, Syria had finalised technical negotiations but signature was pending of solving political problems. Simultaneously, in the multilateral arena, the current Doha Development Agenda might deepen world-wide trade liberalization and involve further changes in the Euro-Mediterranean trade patterns.

Delays in the negotiation of the Barcelona process reflect the existing difficulties and serious disputes in some specific chapters, in particular agriculture. On the other hand, the still incomplete agricultural trade liberalisation suggests that the process can be directed in many possible ways, so discussion on advantages, costs and choices related to the EMFTA is still relevant.

Hereafter we will name the Mediterranean partners involved in the EMAs as Southern Mediterranean Countries (SMCs). The adjective "Southern" is political rather than geographical. Some other Mediterranean countries, such as Spain, Italy and Greece, while geographically in the "South", are EU Member States and politically and economically part of the "North". The per capita income in the EU is approximately ten times higher than that of the SMCs. The asymmetry is not just a matter of differences in income per capita but also has to do with actual size of the economies. The Euro-Mediterranean partnership is an example of regional integration involving two groups of countries, with outstanding contrasts and asymmetries: the EU is a much bigger economy than the SMCs. The combined GDP of the Maghreb States (Morocco, Algeria, Tunisia; population: 66 million) is less than that of Portugal (population: 10 million), while the GDP of the Mashrek States (Egypt, Lebanon, Syria, Jordan; population: 86 million) roughly equals that of Greece or Finland (population: 10 and 5 million respectively).

3. General rules covering free movement of goods under the EMAs

The Mediterranean partners already enjoyed duty-free access to the EU markets for manufactured goods under the various Co-operation Agreements signed before the EMAs. Hence the EMAs involve mainly liberalisation on the Mediterranean partner side. The EMAs, while different on specific items for each country, are quite similar in their overall structure of trade liberalisation. They include the following provisions.

- Abolition of import quotas upon entry of the agreements, except as allowed by WTO rules.

- Tariffs on industrial goods (Combined Nomenclature (CN) chapters 25-97) by Mediterranean countries are to be reduced to zero, over a 12 (15 in some cases) year period from the entry into force of the agreement, according to five or six schedules, involving different groups of industrial products. For the first group (products not mentioned specifically in any of the annexes) tariffs are abolished immediately. For the next two to three groups, tariff elimination starts at progressively later years, and also ends later. Finally there is a list of products, mostly processed agricultural ones, for which no tariff elimination beyond what is foreseen under WTO agreements is envisioned. The goods with front-loaded tariff elimination are usually intermediate and capital ones, while those with back-loaded tariff elimination schedules are consumer goods.

What about agricultural products (CN chapters 1-24)? Here trade liberalisation is much smaller. The EMAs have largely tended to lock in the existing status quo (namely the existing preferential agreements, and commitments under WTO), and offer limited improvements in access to the EU for specific products through increases in tariff rate quotas (TRQs), and reduction or elimination of tariffs on specific quotas. Furthermore, whatever EU tariff reductions are given most of them correspond only to the ad-valorem duties, and not to specific ones, which are, however, much larger in several cases.

For instance, in the EMA with Egypt, protocol 1 of article 14 of the Agreement, lists the agricultural products exported from Egypt into the EU, for which there is either tariff elimination within quotas, or unconditional tariff elimination. In some limited cases there are additional concessions in terms of ad-valorem tariff reductions for imports into the EU above quota. Furthermore, for some products, there are gradual increases in the TRQs of 3 percent annually.

For processed agricultural products, the agreements involve largely the partial tariff reduction of imports from EU into the Mediterranean partner, while the liberalisation of EU imports is within the overall structure of liberalisation of agricultural and processed products, mentioned above. Concerning safeguards, the EMAs mostly involve adherence to the relevant WTO articles. In some cases, however, they go beyond. For instance, in the EMA with Tunisia, the conditions that can evoke safeguard actions, entail, apart from "serious injury" to domestic producers of like or directly competing products, also 'serious disturbance to any sector of the economy", or "difficulties which could bring about a serious deterioration in the economic situation of a region". These last two criteria offer a wider opportunity for applying antidumping and safeguard measures. Of major significance in all EMAs are the rules of origin applicable to any preferential treatment of goods. These rules are necessary if preferential treatment is to be applied to any partner imports. They occupy significant amounts of space in all agreements (roughly one third of the length of the annexes) and are very detailed in their specificity.

4. Agricultural trade facts

The agricultural trade deficit of Mediterranean partners is significant. According to Eurostat figures, in the period 1998-2000, the average value of EU agricultural exports to SMCs was 1.3 billion Euro larger than the average value of EU agricultural imports from SMCs, increasing from an average value of 0.97 billion Euro in 1996-1998. While the opening of the EU market still represents an issue of the Euro-Mediterranean integration, the SMCs currently provide a larger market for EU agricultural exports than the EU for SMCs'. However, the situation is not the same for all the SMCs and these countries can be subdivided into two subgroups, at least regarding their agricultural export performance in the EU markets. The first group, represented by the major exporters in the region, Turkey, Israel, Morocco and Tunisia, shows a relatively high positive and improving bilateral trade balance with the EU, while the second group, formed by Egypt, Algeria, Lybia, Lebanon and Syria, shows a negative trade balance.

The overall positive balance for the EU is significant for cereals, dairy products, sugar, and meats (see Figure 1). Trade balance is only positive for SMCs for fresh fruits, fresh vegetables and preparations of fruit and vegetables.

Figure 1 EU trade balance with SMCs

Source: Eurostat (Comext database).
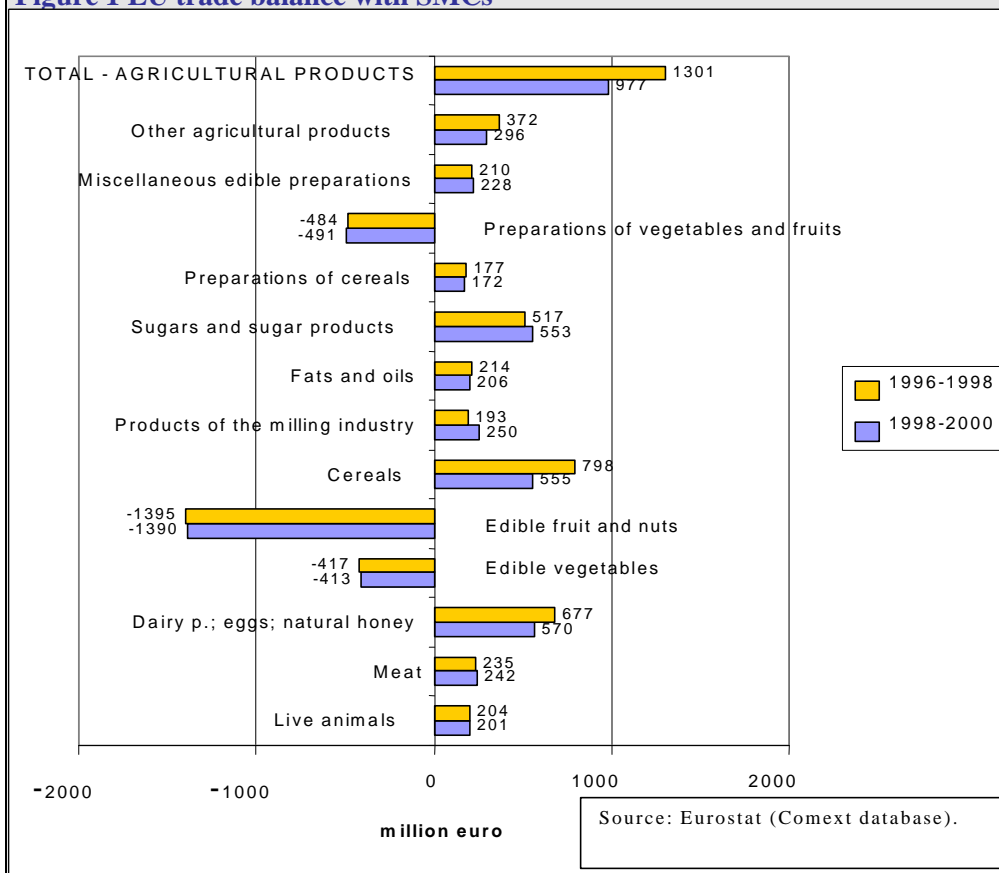
Current trade patterns between the EU and SMCs (see Table 1) reflect the product specialisation of bilateral trade. The EU mainly exports cereals, milk and dairy products, fats and oils and sugars; while SMCs concentrate 57% of their exports to the EU on fruits and vegetables. Within fruit and vegetables, citrus fruit and tomatoes are two major products exchanged between the EU and the SMCs, which can be considered sensitive in the EU (eg. with larger potential impacts of trade liberalisation). Within the citrus, the most important products are oranges, tangerines, mandarines, clementines and lemons. SMCs represent 15% of the oranges world exports and 16% of tangerines one. About 60% of oranges supplied by SMCs to the EU are from Morocco and Israel (40% and 20% respectively). The fresh tomato market has evolved during last 15 years, Morocco being the first Mediterranean supplier to the EU, followed by Jordan and Turkey. The importing markets of this product are determined by the characteristics of the tomato itself, because it is not easily conserved and very perishable. This makes seasonal studies relevant for this product as well as for most horticultural products.

Table 1. Trade Flows Between The Eu And Morocco, Tunisia, Algeria and Egypt

				Total		
2003	**1000€**	**M**	**%**	**X**	**%**	**Balance**
01	Live animals	3,565	0	42,947	2	39,382
02	Meat And Edible Meat Offal	241	0	6,667	0	6,426
04	Dairy Produce; Birds'eggs; Natural Honey	1,024	0	426,253	19	425,230
ex 05	Other Products Of Animal Origin	39,673	3	20,124	1	-19,549
06	Live Trees And Other Plants; Bulbs, Roots And The Like; Flowers	11,619	1	26,369	1	14,749
07	Edible Vegetables And Certain Roots And Tubers	426,613	30	14,4226	6	-282,388
08	Edible Fruit And Nuts; Peel Of Citrus Fruits Or Melons	388,306	27	45,552	2	-342,754
09	Coffee, Tea, Maté And Spices	11,062	1	6,547	0	-4,515
10	Cereals	4,640	0	674,837	30	670,197
11	Products Of The Milling Industry; Malt; Starches; Inulin; Wheat Gluten	149	0	20,627	1	20,478
12	Oil Seeds and Oleaginous Fruits; Miscellaneous Grains, Seeds And Fruit; Industrial Or Medicinal Plants;	60,427	4	53,385	2	-7,041
13	Lac; Gums, Resins And Other Vegetable Saps	15,872	1	11,309	1	-4,563

				Total		
	And Extracts					
14	Vegetable Plaiting Materials; Other Vegetable Products	638	0	727	0	89
15	Animal Or Vegetable Fats And Oils And Their Cleavage Products; Prepared Edible Fats; Animal Or Vegetable Waxes	781,155	5	211,548	9	133,433
ex 16	Preparations Of Meat, Of Fish Or Of Crustaceans, Molluscs Or Other Aquatic Invertebrates	215,130	15	16,752	1	-198,378
17	Sugars And Sugar Confectionery	14,598	1	127,562	6	112,963
18	Cocoa And Cocoa Preparations	6,494	0	32,494	1	26,001
ex 19	Preparations Of Cereals, Flour, Starch Or Milk; Pastrycooks' Products	7,600	1	55,961	3	48,361
20	Preparations Of Vegetables, Fruit, Nuts Or Other Parts Of Plants	86,831	6	35,149	2	-51,682
21	Miscellaneous Edible Preparations	9,622	1	103,664	5	94,042
22	Beverages, Spirits And Vinegar	27,438	2	66,279	3	38,842
ex 23	Residues And Waste From The Food Industries; Prepared Animal Fodder	12,730	1	43,986	2	31,256
24	Tobacco And Manufactured Tobacco Substitutes	724	0	57,833	3	57,109
	Total agricultural products from 1-24		**100**	**2,230,799**	**100**	**807,688**

M= Imports

X= Exports

Source: own elaboration from Comext database

5. Market access as a key issue of the EMFTA

One major fact of the EMFTA is that there is one major sector that is still excluded from the free trade area provisions. We refer to agriculture and food products. These products are implicitly excluded of the EMFTA and the basis of that exception was actually set by the Barcelona Declaration itself (1995). The Declaration states:

"Taking as a starting point traditional trade flows, and as far as the various agricultural policies allow and with due respect to the results achieved within the GATT negotiations, trade in agricultural products will be progressively liberalised through reciprocal preferential access among parties,…"

The key words of the paragraph are "traditional" and "progressively". Together we can take this to mean that agricultural trade might not be completely liberalised once the EMFTA is completed. In fact, under the EMAs, the EU has not offered significant concessions to SMCs in terms of market access for their agricultural exports, even after the subsequent reviews that have affected selected partners. By contrast, at the end of a fixed schedule for phasing out tariffs on EU manufactured products, these will benefit from duty-free access to Mediterranean markets. Consequently, while agricultural trade is implicitly constrained to "traditional flows" It is questionable whether this arrangement can be called "reciprocal" when reciprocity only applies to manufactures and agriculture is excluded from the deal. The five year programme agreed in the Barcelona Mediterranean Conference (27-28 November 2005) foresees the progressive liberalisation of trade in agriculture, but *"with a possible selected number of exceptions and timetables for gradual and asymmetrical implementation, taking into account the differences and individual characteristics of the agricultural sector in different countries"*.

Consequently, simple arguments are enough to understand the key points for the success of the Euro-Mediterranean process. Reciprocity is a key word. Because SMCs already had virtually free access to EU markets, the EMAs amount essentially to a unilateral removal of border barriers on EU imports of manufactures. As an example of this, Brown, Deadorff and Stern (1997) in their study of the Tunisia's EMA agreement, explained the implication of this, in reference to Tunisia, the first country to join the regional strategy:

"When Tunisia eliminates its relatively high tariffs against all EU-members but keeps its tariffs in place against other ('third') countries, a first effect is to cause substitution away from the imports of third countries. The reason is that imports from the EU now appear cheaper to buyers within Tunisia, who no longer have to pay the tariff. But these imports are not cheaper to the country as a whole, since, if they had been cheaper, they would have been purchased before when all imports faced the same tariffs. Therefore, the country as a whole loses from this substitution. The way that this loss manifests itself within Tunisia is through the loss of tariff revenue" (Brown, Deadorff and Stern (1997, p.79).

Adjustment costs will actually exist for the less competitive sectors. A significant part of society in the South has assumed that the opening to EU trade will not be cost-free but they hope that the European assistance will compensate them from the adjustments incurred. Consumers in SMCs will likely increase their consumption of imported European finished goods and this will push local industry to adjust, in a painful reallocation of resources and industrial production. Long-term benefits are predicted from the productivity improvement derived from the more competitive trading environment. But the short-term costs are certain and the loss of tariff revenues represents a key element of them.

Increased market access in the EU appears to be crucial to make the Euro-Mediterranean strategy profitable for SMCs. It is still an unsolved issue. For a SMC to accrue benefits from the regional arrangement with the EU, its economic agents must perceive significant improvements in:

- Trade preferences compared with the previous situation. Since in the previous generation of agreements preferences were actually granted for industrial exports, improvements may also come from the products where preferences were restricted, mainly agricultural products.

- Predictability of trade. Ideally, the EMFTA minimise the risk of unilateral policies by the EU such as antidumping actions, threaten the preferential market access.

- Reduced use of non-tariff barriers. While a FTA mainly deals with tariff liberalisation, developing countries exporting to the EU have experienced many other trade constrains, such as standards, rules of origin and other non-tariff procedures[2].

Trade models can be helpful for studying the impact of agricultural trade policy reforms in both sides of the Mediterranean basin.

6. Assessing the EMFTA

In order to analyse the possible effects of different paths towards trade liberalization, a great deal of quantitative models has been developed during the last twenty years. Trade models present different characteristics and techniques which are complementary, such as econometrics, input/output tables or equilibrium market models. Among the latter we can distinguish between partial equilibrium (PE) and computable general equilibrium (CGE) models (see Anania, 2001, for a review). While the CGE models take into account the effects of non-agricultural markets and macro-economic variables, PE models do not. The fact that a number of countries are negotiating with the EU and implementing agreements at a various stages makes it difficult to model the trade effects of the Euro-Mediterranean FTAs. Furthermore, actual preference margins enjoyed by one specific third country in the EU are depending on the preferences granted to other third countries. Consequently, the results of modelling efforts can hardly be considered as forecasts of future developments. They rather reflect or simulate the size of the potential economic impacts, depending on the nature of the preferences granted.

6.1 GE Approach

A number of studies have explored the Association Agreements, largely within a computable general equilibrium framework and usually focussed on a particular country (see some results in Table 2). The aim

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[2] The Barcelona's 5 year programme considers that "Non-tariff aspects of agricultural trade liberalisation should be properly dealt with" (Barcelona Conference, 27-28 November 2005).

of such studies has been typically to investigate the impact on production, trade-flows, factor markets and of course overall welfare. Generally speaking, they try to anticipate the possible scenarios and for these scenarios they only provide *ex ante* simulations.

The GE framework has obvious advantages to assess the *ex ante* effects of trade liberalisation, including the consideration of the agricultural sector and cross-effects originated in the rest of the economy. Tariff removals on manufactures and capital good imports probably increase effective protection of some agricultural and agro-industrial activities. Competitive pressures on SMCs's industry also increase, with a push for modernising the economy, but also with a risk for the most vulnerable sectors. In particular, two sectors in SMCs appear to be especially sensitive to trade liberalisation with the EU. One is the agro-food industry, which will be most affected by the increasing openness of SMC economy, given the fact that it is one of the sectors with the highest tariffs[3]. The second is the extensive and rain-fed agricultural systems, which in many regions in SMCs cannot compete with the EU exports[4].

Most CGE models describe the relations between the EU and different countries separately. Rutherford, Ruström and Tarr (1993) built a model for Morocco. The Tunisian case was studied by the aforementioned authors in 1995 and by Brown, Deardorff and Stern (1997). Finally, Egypt was the object of study of Konan and Maskus (1997) and Dessus ans Suwa-Eisenmann (1998).

The first *ex ante* assessments of the long run impacts have usually compared the FTA with a unilateral tariff elimination vis- à- vis all trading partners. Typically static welfare effects on Tunisia, Egypt, Morocco and Turkey derived from the Euro-Mediterranean initiative are estimated to be fairly small, and in certain cases negative (it must be recalled that partner countries already had nearly duty- free access to EU markets for industrial goods). Dynamic effects imply some welfare gains, the most important related to the increased inflow of foreign direct investment (due to enhanced policy credibility and larger market size) and the relocation of industries among member countries in a way that increases growth potential.

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[3] In 1984-93, for example, *ad valorem* tariffs on food imports averaged 30 per cent for Kuwait, Syria, Saudi Arabia, Algeria, Libya, Egypt, Morocco and Tunisia, while tariff equivalent rates of NTBs were slightly higher at an average of 34 per cent (Devlin and Page 2001).

[4] After the Uruguay Round, MFN tariffs on agricultural imports remained still significant in most SMCs (Chaherli and El-Said, 2000).

Table 2. Welfare effects of the Euro-Mediterranean FTA (% GDP)

	Euro-Med Static gains	+Agricultural Liberalisation	+Liberalisation vis-à-vis Rest of World	Euro-Med Dynamic gains
Egypt	-1.8/ 0.2		2.6	-
Morocco	-0.9/ 1.3	1.6	2.5	-
Tunisia	-1.6	1.7	5.3	4.6

Sources: Summarised by Zallio (2000), from Galal and Hoekman (1997), Rutherford, Rutström, and Tarr (1993), Brown, Deardoff and Stern (1997).

Let us make some comments on the usefulness of these quantitative studies, largely supported by international organisations[5]:

▪ The results depend on the assumptions of trade liberalisation (e.g. EuroMediterranean, unilateral, multilateral liberalisation; with and without productivity gains; liberalisation of industrial imports vs. liberalisation of agricultural imports; with and without increased market access for agricultural products). This is not a serious problem if assumptions are formulated explicitly and if results are clearly interpreted.

▪ Some models assume mobile capital, some others assume sector-specific capital. Results may be very sensitive to a change in the assumption on capital mobility. Thus, the simulations by Brown, Deardforff and Stern (1997) for Tunisia found FTA results under the assumption of sector-specific capital indicating a welfare decline of 0.2 per cent of GDP and a welfare increase of 3.3 per cent with mobile capital. Indeed, many impacts of trade liberalisation are sector-specific and also concentrate on specific territories, where not many alternative opportunities for capital and labour can be found in the short term. For instance agriculture is characterised by sector specific capital such as land.

▪ Welfare gains in quantitative studies mostly come from trade creation. Indeed, most of the simulations mainly point to trade creation as the source of benefits. An additional gain can be taken into account as a result of the indirect effect on the degree of competitive interaction (increased competition in the medium-term) leading to a decrease in the price-cost margins in SMCs' markets. Except for a few studies, the quantitative simulations make little account of the short-term adjustment costs and social impact of the trade creation.

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[5] Stern (2001) provides for a review of findings of ex ante quantitative assessments for Tunisia, Morocco and Egypt.

- Welfare losses arise from trade deviation, which give rises to fiscal losses.

- Welfare improvements tend to be higher in models when tariff liberalisation is accompanied by other reforms, such as the removal of non-tariff barriers, adoption of international standards, multilateral trade reforms and, increased market access in the EU. If the "deep integration" is really deep and brings about a strong reduction in "red tape" and other regulatory barriers, its effects will be substantial (Dessus and Suwa-Eisenmann, 1998).

- Some of the studies take account of the phased implementation of the tariff reductions (see Augier and Gasoriek, 2000; Hoekman and Djankov, 1997). While there are some differences within each agreement, the tariff reductions largely follow a phased pattern, where liberalisation of trade in competing products occurs over a 10-12 year period, but only commencing 3-4 years after the implementation of the agreement, for all other industrial products. This phased approach can help to soften the adjustment costs (the competing imports are liberalised during the last part of the transitional period). However, there is no guarantee that the time span of 10-15 years during which these measures should produce their effects (increased efficiency, productivity and growth), will be consistent with the problems they aim to solve.

- Quantitative studies represent an interesting basis for discussion and for identifying what is important in the Euro-Mediterranean integration. However, it is quite common that the standard literature concludes with the argument that domestic economic policies will be responsible for achieving the maximum benefits from the Euro-Mediterranean partnership. This is consistent with statements such as:

"What can Morocco and Tunisia do to ensure that the EU agreements fulfil their promise? First, they can accelerate and generalise the liberalisation of trade embodied in the agreements. Second, they can move aggressively to improve the investment climate; and third, they can adopt policies intended to accelerate the rate of productivity change" (Page and Underwood, 1997, p. 121).

Galal and Hoekman (1997) add *"the key to the efficient allocation of resources is openness of the economy to trade and financial flows" (p. 284).*

Consequently, benefits of the EMA do not seem to come automatically. They require domestic policies. The standard literature points out that those domestic policies contribute to create the environment in which favourable incentives for domestic investment and FDI are provided.

Table 3 provides a qualitative summary of the concepts used by quantitative modelling, illustrating the hopes and the choices of the SMCs. If the SMCs rely only on bilateral tariff liberalisation of EU industrial import, no significant gains appear. Deep integration leading to harmonisation of standards could help to improve prospects. Long-term productivity growth, associated to attraction of FDI, would make the balance positive, although there is no guarantee for that. Positive impact will clearly be either the outcome of reciprocal concessions in agricultural trade, or of multilateral trade liberalisation involving Mediterranean countries as well as all partners, including the EU.

Table 3. Qualitative presentation of results of quantitative studies

Assumption	Probable sign of the impact
Static effects Euro-Med gains (trade creation – trade deviation)	=
+ harmonisation of standards, red tape deregulation.	= +
+ FDI and long-term productivity growth	+
+ Increased market access in the EU for agricultural products, or Multilateral trade liberalisation	++

Some studies (see Löfgren, El-Said and Robinson, 2001; and Chemingui and Dessus, 2001) show a rather optimistic view, namely that agricultural liberalisation would help to lessen the traditional anti-agricultural bias in the region by increasing the effective protection of the sector. Nevertheless, the CGE approach has been really able to suggest that any scenario of liberalisation of agriculture without reciprocal concessions from the EU would significantly reduce SMCs' welfare gains (Bchir et alia. 2002).

6.2 Why PE modelling could be appropriate

Once having recognized the role of market access in the EU in providing gains for SMCs, the question is how to assess such trade effects through a modeling that adapts to the specificity of Mediterranean products. Political resistance to free trade in the EU is concentrated on a small number of products, which are of interest for SMCs as well as for many Southern EU regions, mainly fruit and vegetables. The weight of horticultural products in total exports to the EU varies across SMCs but, as indicated in section 4 above, most of them show a similar pattern of specialisation based on a strong presence of fresh fruit, fresh vegetable and processed fruit and vegetables[6]. Horticultural markets, which are relevant for SMCs, are plenty of complexities that are difficult to capture in CGE models. The crucial role of F&V in deepening the EMFTA suggests the interest in moving the modelling framework to partial equilibrium (PE) approaches that allow a detailed description of specific commodities' markets.

In fact, the number of contributions modelling horticultural trade in the Mediterranean area is scarce and, when F&V have been considered, it has been in a fairly superficial or general way. Kuiper (2004)

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[6] The contribution of these three products to total agricultural export value to the EU is over 40 per cent for Egypt (44.8), Morocco (50,5), Algeria (57.1), Turkey (70.2) and Jordan (75).

reviewed eleven different applied models that quantify the impact of the Euro-Mediterranean Association Agreements but only one of them (Chemingui and Thabet, 2001) took F&V specifically into account when setting its scenarios.

Two relatively recent contributions, by Lorca (2000) and Bunte (2005) defined multi-commodity models including some fruit and vegetables, but without a detailed consideration of the policy instruments applied to these products and of the seasonal nature of horticultural trade.

Lorca's work is perhaps the one which has better reflected differentiated country effects (Morocco, Egypt, Tunisia and Turkey) and the impact of non-tariff barriers. One of the interesting features of this study was the use of a "*shadow tariff*" which is the actual protection taking into account the lack of exports during specific time periods along the year, when protection is dissuasive. The project was able to estimate shadow tariffs and export price elasticities for different groups of products and countries. Annex I shows equivalent[7] and shadow tariffs for certain F&V calculated by the research mentioned.

Bunte (2005) considered a wide range of F&V but with little detail in the description of policy instruments (entry prices, TRQs and seasonal tariffs).

Some studies have focused on a single-commodity approach for studying selected F&V trade. The banana trade was, for instance, examined by Vanzetti et al. (2005, draft) by means of the GSIM model[8], being a comparative static, partial equilibrium model without stocks. Also for bananas, Guyomard et al. (1999) created a single-commodity, multi-country partial equilibrium world market model describing the pre and post 1993 banana's Common Market Organisation scenarios. Such single-commodity approach shares and could even deepen some of the problems of PE models. Trade losses and gains will be overestimated because the transfer of resources between sectors is not considered in an explicit way. However, working with a single-commodity model allows for providing a detailed description of specific products that may be substitutes for the product studied in consumption or production. This in turn should allow for further detail on trade instruments and geographical impacts for selected products.

The model developed by Sarris in 1983 (see below) can be included in the "one-product" class. What it is interesting of the Sarris' work is how product differentiation (following the Armington concept) was taken for the first time for modelling horticultural trade. Sarris developed a methodology to analyse the impact on world prices and trade patterns after the entrance of Greece, Spain and Portugal into the European Community. The method consisted of a one-commodity model for each group of F&V (fresh, dried and processed fruits, as well as fresh and processed vegetables) and it is an extension of the Armington's original specification. Sarris propose a linear specification of the Armington's equations. Nowadays, computing methods and tools allow for working with non-linear systems.

Which are the man sources of complexity in the horticultural trade from SMCs to the EU? At least two can be named: (i) Specificity of policy instruments; and (ii) seasonality.

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[7] The equivalent tariff represents and synthesizes the effects of all the policies of the country on the difference between the domestic and world prices, representing the effect of trade policies as a margin.

[8] For further information on GSIM (Global Simulation) model, see Francois and Hall (1997).

(i) Specificity of policy instruments

The aim of Tradeag work in the Euro-Mediterranean area is to study the effects of different levels of trade liberalization on F&V trade flows between SMCs and the EU. A modelling approach is needed that enables to consider specific policy instruments (eg. TRQs, entry prices, etc) in the most explicit way, what has not been made in the aforementioned trade models.

Preferences and TRQs

All EMAs include preferential agricultural trade in the form of tariff concessions, with or without quantitative limits. Agricultural preferences granted by the EU are generally limited to fruit and vegetables, flowers, spices, wine, olive oil, durum wheat, fish and some meats, and certain processed products. In fact, the way preferences are granted by the EMAs tends to freeze market shares in line with traditional trade flows, and there is no leeway for real exploitation of the export potential in the affected products.

The formal structure in all EMAs is very similar, although they may differ in the specific quantitative parameters of trade concessions in agriculture (tariff reduction, products covered and quantitative limits). Table 4 provides examples of the complex variety of measures applied, according to the agricultural protocols. However, tariff concessions are limited to negotiated quantities for a number of "sensitive" products. First, concessions tend to be more generous for products and seasons in which EU imports do not compete directly with domestic production. Second, tariff preferences are very often granted under limits in the form of TRQ or reference quantities (RQ). Third, TRQs involve the usual problems of quotas, most evident in the debate on administrative methods, and also fail to provide clear, transparent rules permitting greater market access. TRQs can easily neutralise the market access theoretically improved by tariff preferences. Even with relatively small tariffs, the introduction of a licensing system can become a psychological barrier for exporting countries. Moreover, current concessions are still far from full liberalisation due to the impact of the entry price system (see below).

Table 4. The EMA as an example of managed trade (examples of measures)

- Tariff reduction without any restrictions

- Tariff reduction within TRQs without reduction for quantities in excess of the TRQs

- Tariff reduction within TRQs with lower tariff reductions for quantities in excess of the TRQs.

- Tariff reduction within a fixed RQ. If this is exceeded, it may be changed into a TRQ without tariff reduction for quantities in excess of the quotas

- Tariff reduction within a fixed RQ. If this is exceeded, it may be changed into a TRQ, with lower tariff reductions for quantities in excess of the quotas

- Tariff reduction within given seasons, with or without TRQ or RQ, without reductions or with lower reductions for quantities in excess of the defined TRQs and RQs.

- Products for which TRQs/RQs are increased in different steps and in a given percentage each year

- Products for which tariffs are reduced, but RQ can still be defined, if the volume of imports 'threatens to cause difficulties on the Community market'. No tariff reduction for quantities in excess of defined TRQs

- Products for which tariffs are reduced, but RQs can still be defined, if the volume of imports 'threatens to cause difficulties on the Community market'. Lower tariff reductions for quantities in excess of defined TRQs

Billateral tariff-rate quotas: how to model them?

Tariff-rate quotas (TRQs) are one of the main features of the Euro-Mediterranean Agreements (see Annex II). Moreover, it is one of the major difficulties a modeller faces when proposing a model. According to van Tongeren at al. (2001), the difficulty that arises when implementing quotas, once we know if the quota is binding or not, is the assessment of what would be the level of imports in case of no quota and what are the rents accruing from the quota. Moreover, the reasons for either the underfilment or the fulfilment of a TRQ may determine how to set the policy description and the different scenarios. When TRQs are binding, a big gap may exist between the exporting and importing country prices (Westhoff et al., 2004) giving origin to quota rents. Van der Mensbrugghe et al (2003) developed a method for the specification of bilateral TRQs for sugar markets, which may be used for any market (including tomatoes).

Modelling bilateral trade has to consider the possible outcomes depending on the magnitude of the import demand relative to the TRQ and the world price and the in and out-quota tariff levels (Abbot, 2002). If imports are within quota, the tariff applied is the in-quota tariff. When the quota is binding, a premium - which is calculated endogenously and lower than the difference between the out-of-quota tariff and the in-quota tariff- is added to the in-quota tariff. If total demand is above the quota level, the tariff applied for the out-of-quota portion of the demand is the respective tariff and, in this case the premium is equal to the difference between the two rates (Cicowiez and Galperin, 2005).

Entry prices

The entry price system applies to a group of fruits and vegetables considered particularly sensitive by the EU. It guarantees that imports are not sold on EU markets below a 'minimum entry price'. This system is in contradiction with the spirit of tariffication. Third countries apparently accepted this approach as a *quid pro quo* for the continuing opportunity to export to the EU at high prices without facing high tariffs. Although to a lesser extent than the old reference-price system, the entry price system continues to penalise low-cost suppliers (Swinbank and Ritson, 1995). To simplify the system, import prices are usually monitored at the wholesale EU markets, where prices can be registered by origin. All these elements contribute to increasing the administrative burden of the system.

Significant reductions of entry prices for limited quantities of some products have been negotiated and agreed with Morocco, Egypt and Israel, creating a preference margin. The arrangements for these cases haves been adopted by the Agreements in the form of an Exchange of Letters. Reduction in entry prices enables the countries concerned to supply products to EU markets at a price significantly below that of shipments originating from other countries. However, this benefit must be qualified by the fact that entry prices faced by non-preferential exporters also will be reduced at the pace bound by the EU under the WTO. Thus, preferential status of these countries will suffer a certain degree of erosion due to multilateral liberalisation within WTO. Figure 2 provides an example on to what extent the reduction of the entry price system can involve an economic rent for the preferential supplier for oranges.

Figure 2. Orange import prices after duties.
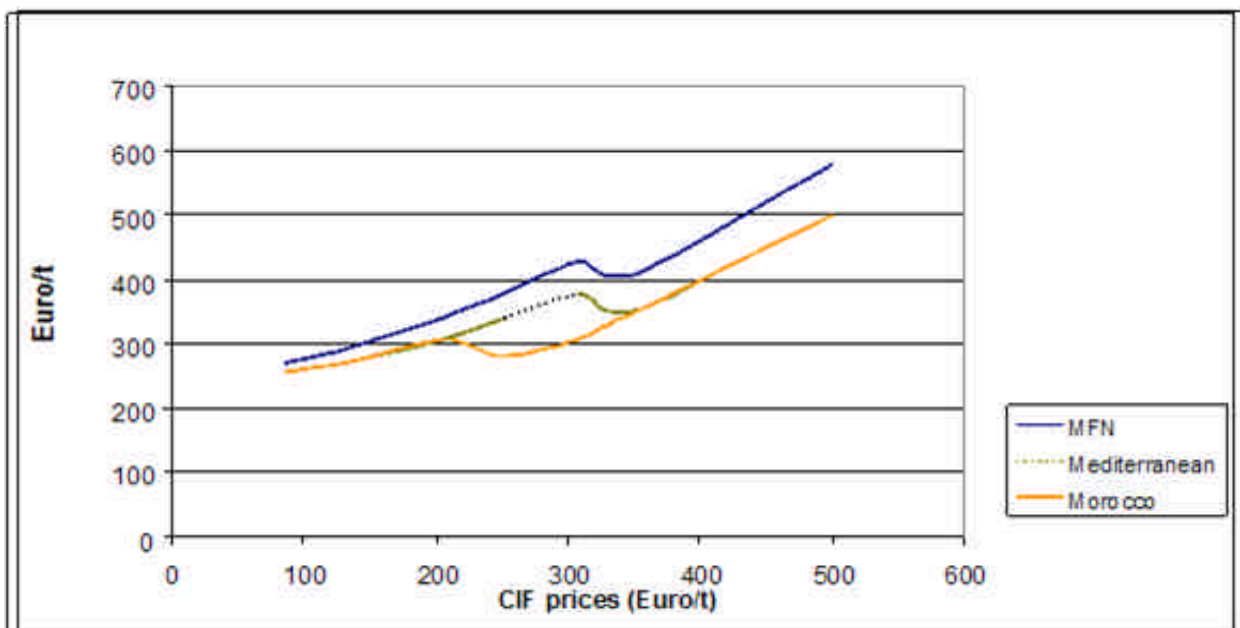
The figure shows the result of a simulation of the import prices after all border duties have been paid for the case of oranges (between 1/12 and 31/3). In the border duties we include:

(i)   the additional levy, which will result of the application of the Special Safeguard Clause (established by the Uruguay Round for the "tariffed" products),

(ii)   the additional duty derived from the application of the entry price system when import prices are sufficiently low, and

(iii)   the "normal" or *ad valorem* tariff.

For Moroccan oranges, within a TRQ, an entry price reduction (from 354,2 Euro/ton to 264 Euro/ton) applies coupled with a 100 per cent of rebate of the *ad valorem* tariff. Obviously, within the TRQ, there is a clear preference margin for Morocco against other suppliers that don't benefit from the entry price reduction.

(ii) Seasonal windows

In order to complete the quantitative characterization of the EU market for fruit and vegetables, let us consider the seasonal behaviour of EU imports (table 5 shows the quarterly distribution of EU imports of three "sensitive" products). The EU's role as a major actor in world horticultural trade has to be qualified by the fact that in some periods of the year the EU market seems to be more open to foreign trade than in other periods. Several comments emerge from the observation of this seasonal pattern:

  i.   For most products, the EU imports show a marked intra-trade nature, being the EU Member States the main suppliers of fruit and vegetables to the own EU market.

 ii.   Total EU imports show a seasonal pattern that is frequently (but not always) associated with higher availability of product from intra-EU suppliers (in turn related to the producing seasons).

iii.   For most F&V, supplies from extra-EU sources significantly reduce in some quarters of the year, being imports substituted by intra-EU sources. This seasonal pattern of import substitution is particularly clear for some products, such as: tomatoes (spring-summer), potatoes (summer), lemon (winter), table grapes (summer-autumn), apples (autumn), apricots (spring), cherries (winter), pears (summer-autumn), plums (autumn), peaches (summer) and onions (summer).

iv.   For some F&V (eg. tomatoes, potatoes, clementines, lemons, grapefruits, apples, apricots, cherries, pears and onions) total imports show a seasonal behaviour. Thus, the fact that intra-EU products take a larger share of the EU market is not incompatible with the increase of extra-EU imports in the peak

seasons, that is to say, higher imports from intra-EU sources can also be accompanied to higher imports from extra-EU suppliers.

v. The share of intra-EU sources in total EU imports is always significant along the year (see tomatoes, oranges and clementines in Table 5).

vi. Tariff lines are different according to the period of the year, which implies that average annual tariff equivalent would not be representative if we calculate it as a simple average. For F&V, the main concessions (and TRQs) are modulated on a seasonal basis. This applies to the reduction of tariffs compared to MFN conditions and to the reduction of the entry price –like in the cases of Moroccan tomatoes, cucumbers and artichokes. Exporters tend to concentrate their sales when the preference margin is greater -for a discussion about the preference margin and the EU preferences, see Grethe 2005- and therefore export flows can vary sharply from one month to the following.

Table 5 Structure of EU imports by quarter (1998-99 average)

Products and quarters	Quantities 000 Mt			Percentages of total		
	Extra EU	Intra EU	Total	Extra EU	Intra EU	Total
Tomatoes						
1	109,0	434,6	543,6	20,0	80,0	100
2	9,1	453,1	462,3	2,0	98,0	100
3	0,9	349,7	350,6	0,3	99,7	100
4	84,5	360,6	445,2	19,0	81,0	100
Oranges						
1	438,0	1274,2	1712,1	25,6	74,4	100
2	376,1	573,7	949,8	39,6	60,4	100
3	566,1	342,9	909,0	62,3	37,7	100
4	363,9	1006,7	1370,6	26,6	73,4	100
Clementines						
1	109,1	474,3	583,4	18,7	81,3	100
2	53,3	62,8	116,0	45,9	54,1	100
3	42,6	25,4	68,0	62,7	37,3	100
4	76,6	495,5	572,1	13,4	86,6	100

Source: COMEXT data base and authors' calculations.

Import substitution may contribute to explain the relative drop of extra-EU imports in some quarters of the year. Availability of intra-EU product remains significant along the whole year. This could partly be explained by the border protection applied by EU commercial policies, although the distribution firms in the

EU might tend to privilege certain domestic sources due to their better involvement in the modern marketing chains.

The study of Mediterranean preferential trade arrangements would be somehow incomplete without a seasonal analysis. Let us consider the tomato case, which provides a practical example of how existing border measures operate on a seasonal basis.

Moroccan tomato exports. Why an issue?

Tomato is not the only product of seasonally-conditioned preferences but is a good illustration and significant for EU agriculture. Tangermann (1997) analysed the concessions granted by the EU to several SMCs on the EuroMediterranean Agreements and concluded that in many cases the historical trade flows determined the applied quantitative restrictions. Similarly, it could be expected that "old" EU members used to protect their domestic supply of fruits and vegetables during its productive campaign, opening their markets when foreign produce were less harmful. In most cases Tangermann was not able to find any reasonable cause of the concessions granted but the *political bargain* occurring in the negotiations.

For tomato, before the Uruguay Round, the Moroccan production season was in fact complementary to the Northern European production season. After the UR the period of application of the entry price system was extended to cover all the year, whereas under the former system no reference (minimum) price was applied from 21 December to 31 March. The extension of the entry-price period was intended to protect Spanish production, whose season overlaps with that of Moroccan tomato.

Although the effective entry price applied on Moroccan tomato exports is significantly below the one applied on non-preferential imports (see Table 6), Moroccan preferences are restricted by Tariff Rate Quotas (TRQ). Non preferential tariffs and entry prices are applied when trade flows exceed the TRQ[9] The work by Chemnitz and Grethe (2005) indicates that Entry Price Quota (EPQ as a variety of TRQ) is usually binding. Actual Moroccan import prices tend to reflect the existence of an economic rent under the EU preferential scheme for tomato imports from Morocco of about €24-36.5 mill. per year, according the quoted authors.

In the scheme of preferences before 2003, Morocco was granted a given monthly TRQ from October to March, also with entry price reduction. Beyond those quotas, a 60 per cent tariff reduction was agreed. For easing the control of the TRQs in this perishable product, the EU and Morocco reached an agreement in the form of an Exchange of Letters, which established that Morocco would undertake not to export more

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[9] According to Grether and Tangermann (1998), the quota system may also tend to transfer a part of the economic rent to the importing companies, as these could offer low prices to the exporters, on the worst-case assumption that the full MFN tariff has to be paid, at least when there is a risk of exceeding the TRQ. However, in the case of Moroccan tomato exports, Chemnitz and Grethe (2005) suggest that according to the structure of the Moroccan export sector, it is likely that a large part of the quota rent ends up at the Moroccan side.

than the agreed tariff quotas. The European Commission reserved the right to establish the issuing of import licenses if the export flows exceed the agreed quota. The system had a test on October 1999 when the tomato exports from Morocco to the EU exceeded by 190 per cent the amount agreed for such month. Import licenses were then issued by the Commission (EC Regulation Nº 2767/1999 of December23, 1999). Import certificates were only thought to control whether or not the MFN tariff has to be applied, but they acted as a non-tariff barrier. During January the Moroccan tomato exports dropped dramatically and one month later the voluntary export control system was established again. However, the European Commission proved to have effective means to limit imports when market perturbations are felt in the EU wholesale markets.

Table 6 Entry Prices, periods of application and reduced entry prices for Morocco

Product and period	Entry price MFN	Entry price Morocco
Tomatoes from 1 to 30 April	1126	461
Tomatoes from 1 to 31 May	726	461
Tomatoes from 1 June to 30 September	526	526
Tomatoes from 1 October to 20 December	626	461
Tomatoes from 21 December to 31 December	676	461
Tomatoes from 1 January to 31 March	846	461

The issue of increasing the size of the quantitative limit for Moroccan tomato exports was again at stake when Morocco and the EU reviewied the agricultural provisions of the EMA. In the current Protocol, approved in 2003, the period for entry price reduction was extended between October and May. During this period, TRQs are applied for Moroccan exports with complete duty elimination (though the entry price still applies). Each of these months belonging to the time span have a different TRQ volume, ranging from 4,000 tonnes for May to 30,000 tonnes for December, January, February and March each (see Annex III). Moreover, there is the so called "*additional quota*", that ensures than a given number of tonnes can be sold over the monthly TRQs from November to May –with limited possibilities of over-passing the monthly quota. For the period October to May, exports beyond the quotas are granted a 60 per cent tariff reduction. In the rest of the year, any quantity exported from Morocco is having a 60 per cent tariff reduction.

Figure 3 illustrates monthly export data of Moroccan tomatoes and compare actual flows with agreed TRQs (if exist). Figure 4 shows the entry price faced by Moroccan tomatoes.

Figure 3. Moroccan tomato exports and monthly TRQs

Moroccan tomato exports
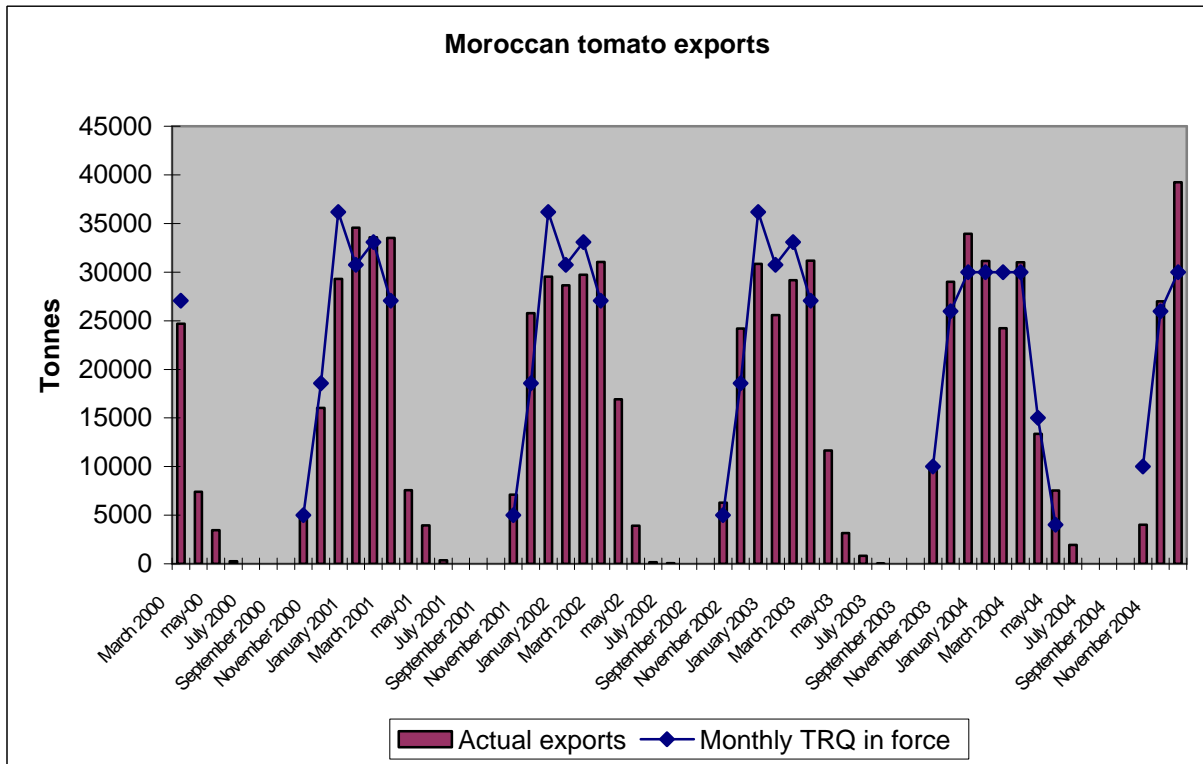
Source: Own elaboration from Comext data and Protocols of the Morocco-EU Association

Agreement

Figure 4. Entry price for Moroccan exports

**Entry price for Moroccan tomatoes
(€/ton)**
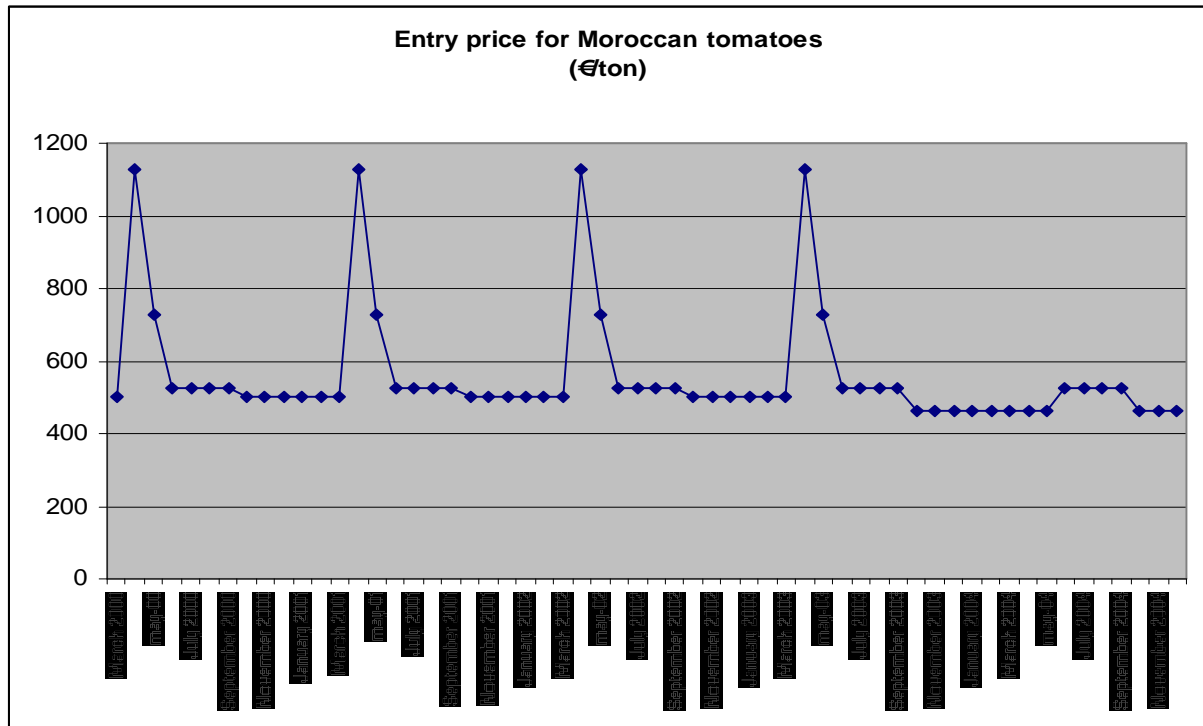
Source: TARIC consultation database

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As Figure 3 illustrates, there is a seasonal pattern for Moroccan tomato exports: while in summer (from May to September) the exports are almost irrelevant, they are quite important the rest of the year. In those months, in several cases TRQs are surpassed whereas in other cases actual trade flows appear to be bounded as result of the quantitative restriction. Usually, peaks happen in December and March. With regards to the entry price (Figure 4), it can be stated that high levels in April and May tended to reduce the exports under the previous scheme, whereas for the new regime a TRQ has been implemented also for these months together with the reduction of the entry price.

A yearly approach for modelling SMC trade flows could hardly catch this complex seasonal regulation and its practical consequences. For this reasons, a model will have as one of its features a seasonal definition of the unknowns, allowing us to make a detailed representation of the changing trade policies that export supplies are facing.

7. Further questions on modelling specific F&V.

In the next paragraphs, a number of issues are discussed in connection with the definition of an approach for modelling F&V trade between the EU and SMCs. Our aim is not to provide a strict answer to all the questions raised. The idea, at this stage of the Tradeag project, is just to identify the range of possible choices that end up in a model that adequately captures the specificities of horticultural trade to the EU countries.

Is the Armington-Sarris approach still valid?
In horticultural markeys, non-price factors matter. It is striking that for some products, the actual exports by SMCs to the EU have been below the quantitative limits, suggesting supply constrains faced by these countries but also the fact that the demand is differentiated by quality/origin. This is probably good news for Southern European farmers. In general, for products like fresh fruit and vegetables it is not easy to transform theoretical market opportunities into concrete market realities.

Armington (1969) proposed a method to introduce product differentiation exogenously in trade models by assuming that products are differentiated by country of origin. This method assumes that imports and domestic goods are imperfect substitutes in demand and a Constant Elasticity of Substitution (CES) functional form for preferences is commonly adopted. The most common Armington models determine import demand in a multi-stage budgeting process, wherein total expenditure is allocated to some good. This expenditure is then divided between imports and domestically produced substitutes, and finally, total imports are allocated across different source countries. A large number of papers have criticised these assumptions on different grounds (see van Tongeren et al., 2001). However, Armington's approach remains to be the most

widely used methodology when dealing with heterogeneous products and there are no much better solutions nowadays (see Bureau, 2005; Anania, 2001).

More specifically for fruits and vegetables, Sarris (1983) proposed a derivation from the standard Armingtonian approach, assuming that the export supply of an exporting country is given by a function including the country's price elasticity of export supply and a trend constant. With this specification, the effect of possible quality upgrading of the domestic production that would lead to larger shares of a country's supplies can be accounted for.

Following Armington (1969, p.174) showed also that

$$dMk/Mk = dM/M + s\ [dP/P - dPk/Pk] \qquad\qquad Eq.1$$

where Mk is the quantity of imports of product originating from country "k"; M is the quantity of total imports; *s* is the elasticity of substitution ; $P = ?\ aj\ Pj$ is the index of import prices representing a price for total imports from all origins, and *aj* is the quantity market share of country *j* in the base year.

The first term of Eq. 1 represents the growth of the market for *Mk* because of the price change, that is to say dM/M = - *h* dP/P, where *h* is the total import demand elasticity. This effect states that the change in total imports will be distributed according to the initial share of each partner. The second term represents the effect of relative price changes, that is, this is the *substitution effect*. This term allows us to estimate the trade diversion and to determine the winners and losers of trade substitution between partner countries.

Table 7 presents the imports of tomato by the EU-15 originated for each season in the EU-15, in Morocco and the Rest of the World for the average 2003-2004. The shares in total EU-15 imports are also included in the Tables.

An illustration of monthly impacts, based on Equation 1 is presented in Tables 8a and 8b, assuming two different set of values for *h* and *s*. For applying Equation 1 in this exercise we assume that Moroccan trade flows are not constrained by TRQ and that there is no price reaction in the rest of partners. Under these naive assumptions, just valid for the purposes of this illustration, the impact of a 10 % reduction of Moroccan import price is presented in Tables 8a and 8b for each season.

Impacts are divided in growth effect and substitution effect for imports from Morocco, intra-EU origin and Rest of Word (ROW). It is clear that the price impacts have to be modelled in a multi-country basis and that will depend on the each partner's supply response and on the existence of TRQs. What the exercise illustrates is that the impact of a price reduction on imports change depending on the season it happens. As indicated, in the case of Morocco, a price decrease only would have impact with a relaxation of TRQs, which have been binding for most of the months (shadow cells in Table 7 show those months when imports from Morocco are larger than the agreed TRQ for 2003/2004).

Table 7 EU imports of tomato per month (2003-2004 average)

	Volume in tons				Shares in total EU imports			
	Intra EU25	Morocco	ROW	Total				
January	202602	30704	6546	239852	0,84	0,13	0,03	1,00
February	186281	28946	5685	220912	0,84	0,13	0,03	1,00
March	191705	33186	6614	231505	0,83	0,14	0,03	1,00
April	187301	14791	4675	206766	0,91	0,07	0,02	1,00
May	193418	6160	1781	201359	0,96	0,03	0,01	1,00
June	185416	1883	3094	190393	0,97	0,01	0,02	1,00
July	172295	92	1564	173951	0,99	0,00	0,01	1,00
August	184149	0	459	184608	1,00	0,00	0,00	1,00
September	157206	0	6302	163508	0,96	0,00	0,04	1,00
October	145181	7184	8117	160482	0,90	0,04	0,05	1,00
November	142454	28991	4170	175615	0,81	0,17	0,02	1,00
December	180449	38367	9474	228290	0,79	0,17	0,04	1,00
Total	2128456,8	190304,3	58480,5	2377241,6				

Source: Comext. Authors' calculations.

Table 8a Impact of a 0,1% reduction of Moroccan price without quantity limits (*s=2; h=1*)

Volume changes in tons

	Growth effect			Substitution Effect			Total		
	Intra EU25	Morocco	ROW	**Intra EU25**	Morocco	ROW	**Intra EU25**	Morocco	ROW
January	2593,6	393,0	83,8	-5187,1	5354,7	-167,6	-2593,6	5747,8	-83,8
February	2440,8	379,3	74,5	-4881,6	5030,6	-149,0	-2440,8	5409,8	-74,5
March	2748,1	475,7	94,8	-5496,2	5685,8	-189,6	-2748,1	6161,5	-94,8
April	1339,9	105,8	33,4	-2679,7	2746,6	-66,9	-1339,9	2852,4	-33,4
May	591,7	18,8	5,4	-1183,5	1194,4	-10,9	-591,7	1213,2	-5,4
June	183,4	1,9	3,1	-366,8	372,9	-6,1	-183,4	374,8	-3,1
July	9,1	0,0	0,1	-18,2	18,4	-0,2	-9,1	18,4	-0,1
August	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
September	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
October	649,9	32,2	36,3	-1299,8	1372,5	-72,7	-649,9	1404,7	-36,3
November	2351,6	478,6	68,8	-4703,3	4841,0	-137,7	-2351,6	5319,6	-68,8
December	3032,7	644,8	159,2	-6065,3	6383,8	-318,4	-3032,7	7028,6	-159,2
Total	15940,8	2530,1	559,5	-31881,6	33000,6	-1119,1	-15940,8	35530,8	-559,5

Source: Table 7. Author's calculations.

Table 8b Impact of a 0,1% reduction of Moroccan price without quantity limits (*s=3; h= 0.5*)

Volume changes in tons

	Growth effect			Substitution Effect			Total		
	Intra EU25	Morocco	ROW	**Intra EU25**	Morocco	ROW	**Intra EU25**	Morocco	ROW
January	1296,8	196,5	41,9	-7780,7	8032,1	-251,4	-6483,9	8228,6	-209,5
February	1220,4	189,6	37,2	-7322,4	7545,9	-223,5	-6102,0	7735,5	-186,2
March	1374,0	237,9	47,4	-8244,3	8528,7	-284,4	-6870,2	8766,6	-237,0
April	669,9	52,9	16,7	-4019,6	4119,9	-100,3	-3349,7	4172,8	-83,6
May	295,9	9,4	2,7	-1775,2	1791,5	-16,3	-1479,3	1801,0	-13,6
June	91,7	0,9	1,5	-550,2	559,4	-9,2	-458,5	560,3	-7,7
July	4,6	0,0	0,0	-27,4	27,6	-0,2	-22,8	27,6	-0,2
August	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
September	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
October	325,0	16,1	18,2	-1949,8	2058,8	-109,0	-1624,8	2074,8	-90,8
November	1175,8	239,3	34,4	-7054,9	7261,5	-206,5	-5879,1	7500,7	-172,1
December	1516,3	322,4	79,6	-9098,0	9575,7	-477,7	-7581,7	9898,1	-398,1
				-	-		-		-
Total	7970,4	1265,1	279,8	-47822,4	49501,0	1678,6	39852,0	50766,0	1398,8

Source: Table 7. Author's calculations

Data aggregation

Due to the contents of existing databases, one of the major issues when setting the different market conditions for a model scenario is the aggregation of data and the specifically defined tariff lines. Detailed description of tariff lines should be one of the strong points of the model to be developed under the Tradeag project. Therefore, tariff line desegregation will not be such a big problem as in "bigger" models, like GTAP, for which Conforti and Salvatici (2004) have indicated: "*no model could ever include products at the level of detail at which tariff lines are specified*". Data availability is relatively larger for EU trade (COMEXT), where even monthly trade flows data can be found. This can be relevant for estimating the effects of trade liberalisation that take into account seasonality of trade flows and policy instruments (see below).

Reference scenario

The definition of adequate reference scenarios to compare future policies scenarios is very relevant when validating the results of any model. As Westhoff et al. (2004) stated: "*...the particular provisions of many trade agreements mean that baselines matter, and the often matter a lot*". In the case of agricultural products, like tomato, this definition is crucial because in some cases (depending on country and month) importing countries are filling their quotas. In the case of countries being far away from the quota filling point, an increase of the quota would not be as relevant as in the case explained above.

8. Trade preferences: how large a benefit

The benefits that a country receives from FTAs accrues from the difference between the tariffs applied under the MFN scheme and the tariffs applied to the country in question. Preference margin can be defined as: "*a weighted average tariff reduction, with trade values used as weights and the result expressed in money terms rather than a percentage tariff rate... it also indicates the extent to which the donor country was willing to forego (potential) tariff revenue by granting preferential access to its markets*" (Grethe, 2005). It is clear that the modelling approach should also aim at estimating the preference margins for SMCs resulting from different scenarios of EU bilateral and multilateral trade liberalisation. In agriculture, research findings suggest that static gains for SMCs from EU tariff preferences granted under the current EMAs are fairly low. Tangermann (1997), Grethe and Tangermann (1998) and , Grethe, Nolte and Tangermann (2005) calculated preference margins for Mediterranean countries due to the EMAs. The last paper reports preference margins for Egypt, Israel, Jordan, Morocco, Palestine and Tunisia under the respective EMA are 3.6, 4.3, 4.6, 8.8, 7.0 and 15.9 per cent of agricultural export values to the EU. Preference margins can reach significant values in some products and within TRQs. That is the case, for example, of the price advantage for Morocco against other suppliers in some specific products. Such price advantage or entry price preference margin can reach 28 per cent against MFN suppliers, and 19 per cent against other preferential countries that don't benefit from the entry price reduction (see Garcia-Alvarez-Coque, 2001).

Obtaining preferential market access may not be enough for SMCs accruing long-standing gains of their agreements with the EU. Preferential market access does not provide a permanent advantage for the recipient countries: while preference margins for SMCs in EU markets are substantial in some tariff lines, they will be eroded during the process of trade liberalisation at two levels: (i) the multilateral level (WTO negotiations and implementation of Uruguay Round Agreements) and (ii) the other regional agreements of the EU (Eastern Enlargement and preferences to other developing regions, such as the Everything But Arms initiative)[10]. The erosion of the tariff preference margins of some developing countries, because of multilateral negotiations, should not be neglected. In agriculture, the study by Grethe, Nolte and Tangermann (2005) showed that, with the previous preferential agreements with third Mediterranean countries, the Uruguay Round commitments caused a 14.4% reduction of the preference margin for Mediterranean countries as a whole. The reduction was 33% for Israel, 14% for Morocco and 4% for Tunisia. According to the quoted authors the EMAs (and their subsequent reviews) have contributed to partly neutralise the erosion of the preference margin, but as the EU goes ahead with the multilateral negotiations, the static gains of trade preferences will progressively be eroded. Moreover, some Mediterranean countries have declared that their interests should be taken into account when any concessions and advantages are granted to other SMCs under future agreements. That means that trade concessions are not static and preferences will depend in the future on the actual deals between the EU and the individual SMCs. On the other hand, the EU will probably be reluctant to grant higher concessions in the different reviews of the commercial part of the EMAs because

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[10] See Yamazaki (1996) for more details on the quantification of the erosion of preferences.

of a fear that individual demands for deeper concessions spread across the whole SMCs might erode the Common Agricultural Policy.

Erosion in preferences will be determined by other concessions granted by the EU, such as the Lomé/Cotonou Agreement and the "Everything but Arms" (EBA) initiative. The potential for preference erosion against SMCs from these initiatives is relatively low. In the EU the average tariff faced by the LDCs and ACP members is already below 1 percent, although preferences are much less generous for tariff peak products, such as meat and fish products, fish and crustaceans, sugar, tobacco, and footwear. Most of the increase in export revenue of LDCs will concentrate on products that are not of export interest for SMCs. Thus, sugars and confectionery account for 2/3, and cereals and meat products account for ¼ of the expected increase in LDC export revenue as a result of duty and quota free access by the EU (Olearreaga and NG, 2002).

9. Conclusions of the review of quantitative studies for assessing trade preferences for F&V in the Euro-Mediterranean region.

The careful investigation of the nature of horticultural trade from SMCs to the EU and the review of the way this trade has been treated by the economic research suggest that there is still a lack of contributions that assess trade liberalisation taking into account the complexities of these products and the policies currently applied by the EU.

General equilibrium models have been used to estimate welfare measure related to the implementation of the EMFTA. However, while international trade is fundamentally a general equilibrium phenomenon, the study of F&V has circumstances in which single market and partial equilibrium modelling is appropriate and desirable. Most of the FTA impacts on European agriculture are expected to concentrate on sensitive products such as tomato and citrus fruit. Moreover, there are highly detailed trade policies which affect EU horticultural trade which are a small portion of the total trade. Preferential tariffs, minimum (entry) prices and TRQs are examples of such policies that are better addressed in a partial equilibrium framework. Most of these measures are seasonally modulated, which requires more detailed investigation. Partial equilibrium is consistent with an imperfect substitution approach that can model product with different origin in an explicit way.

Measure of preference margin has been addressed by a number of studies. However, some further work is needed in relation to (i) the value of rates of protection and preference margins calculated for each season; and (ii) the value of preference margins connected with the entry price system, which involves a price difference between the MFN entry price and the reduced entry price that benefits selected Mediterranean partners.

10. References

Abbot, Ph. (2002): Tariff-rate quotas: failed market access instrument? European Review of Agricultural Economics, Vol. 9 (1) pp. 109-130.

Anania, G. (2001). "Modelling agricultural trade liberalization and its implications for the European Union". Working Paper n.12. Instituto Nazionale di Economia Agraria.

Armington, P.S. (1969). "A Theory of Demand for Products Distinguished by Place of Production". I.M.F. Staff Papers, Vol.16. N. 1.

Augier, P. and Gasoriek, M. (2000) Trade Liberalisation between the Southern Mediterranean and the EU: The Sectoral Impact. Discussion Paper in Economics Nº 79. University of Sussex, Brighton.

Bchir M. H., Bouët A., Decreux Y., Fontagné L., Guérin J.-L., Jean S., Mimouni M., Pichot X. (2002), *Les conséquences économiques d'un accord de libre-échange entre l'Union européenne et les pays membres du programme Euromed*, Report for the Directorate for External Economic Relationships (DREE) and for the Forecasting Directorate (DP), Ministry of Finance, Paris, February.

Bunte, F. (2005) : Liberalising EU imports for fruits and vegetables, Paper prepared for presentation at the 99th seminar of the EAAE (European Association of Agricultural Economists), *"The Future of Rural Europe in the Global Agri-Food System", 23-27 August 2005, Copenhagen.*

Bureau, J.C., Gohin, A., Sébastien, J. (2005). "The use of models in support of the WTO negotiations". Presentation in the IATRC Meeting. Seville, 2005.

Brown, D., Deadorff, A., and R. Stern (1997), "Some Economic Effects of the Free Trade Agreement between Tunisia and the European Union", in A. Galal and B. Hoekman (eds.), Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements, CEPR, London and ECES, Cairo.

Cicowiez, M. and Galperin, C. (2005): *Análisis cuantitativo de cambios en las cuotas arancelarias: el caso de las exportaciones de carne vacuna a la UE*, Reunion de la Asociación Argentina de Economía Agraria, Buenos Aires, Octubre de 2005.

Conforti, P., Salvatici,L. (2004). "Agricultural trade liberalization in the Doha Round. Alternative scenarios and strategic interactions between developed and developing countries". FAO.

Chaherli, N and El Said, M. (2000). Impact of the WTO Agreement on MENA Agriculture, Economic Research Forum. Working Paper Nº 2007, Boulos Hanna St., Dokki, Cairo, Egypt.

Chemingui, M. A. and Dessus, S. (2001): The Liberalisation of Tunisian Agriculture and the European Union: A Prospective Analysis, in Dessus, S.; Devlin, J. and Safadi, R. (eds.) (2001): Towards Arab and Euro-Med Regional Integration, Development Centre of the Organisation for Economic Co-Operation and Development Economic Research Forum for the Arab Countries, Iran And Turkey-The World Bank, Development Centre Seminars, Paris: 147 – 165.

Chemingui, M.A., Thabet, C. (2001). "Internal and External Reforms in Agricultural Policy in Tunisia and Poverty in Rural Area". Paper written for the GDN Research Medal Competition.

Chemnitz, Ch. And Grethe, H. (2005): *EU Trade Preferences for Moroccan Tomato Exports – Who Benefits?* Paper prepared for presentation at the 99th seminar of the EAAE (European Association of Agricultural Economists), *"The Future of Rural Europe in the Global Agri-Food System", 23-27 August 2005, Copenhagen.*

Deardorff, A and Stern R (1997). "Measurement of Non-Tariff Barriers" Economics Dept. Working Paper N° 179 OECD.

Dessus, S. Devlin, J., Safadi, R., eds. (2001). "Towards Arab and Euro-Med Regional Integration". OECD, Development Centre Seminars.

Dessus, S. and A. Suwa- Eisenmann (1998). "Trade Integration with Europe, Export Diversification and Economic Growth in Egypt." OECD Development Centre Technical Paper 135. June.

Devlin, J. and Page, J. (2001): Testing the Waters: Arab Integration, Competitiveness, and the Euro-Med Agreements, in Dessus, S.; Devlin, J. and Safadi, R. (eds.) (2001): Towards Arab and Euro-Med Regional Integration, Development Centre of the Organisation for Economic Co-Operation and Development Economic Research Forum for the Arab Countries, Iran And Turkey-The World Bank, Development Centre Seminars, Paris: 189 – 224.

Francois, J.F. and Hall, H. K. (1997). "Partial Equilibrium Modeling," in J.F. Francois and K. Reinert, eds., Applied Methods for Trade Policy Analysis: A Handbook, Cambridge University Press: Cambridge.

Galal, A. and B. Hoekman (eds.) (1997), Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements, CEPR, London and ECES, Cairo.

García-Alvarez-Coque, J.M. (2001). Implications for the Syrian agricultural sector of a possible co-operation and trade agreement with the European Union, FAO, GCP/SYR/006/ITA, FAO-Italian Government Co-operative Programme, Damascus.

Garcia-Alvarez-Coque, J.M. (2002): Agricultural trade and the Barcelona Process. Is full liberalisation posible? European Review of Agricultural Economics, Vol. 29, pgs. 399-422.

Grethe, H. and Tangermann, S. (1998a). The New Euro-Mediterranean Agreements An Analysis of Trade Preferences in Agriculture. Paper prepared for the Commodities and Trade Division, FAO Economic and Social Department, Göttingen , October 1998.

Grethe, H., Nolte, S. and Tangermann, S. (2005): The Development and future of EU Agricultural Trade Preferences for North-African and Near-East Countries, Paper prepared for presentation at the 99th seminar of the EAAE (European Association of Agricultural Economists), *"The Future of Rural Europe in the Global Agri-Food System", 23-27 August 2005, Copenhagen*

Grethe, H. (2005). "The Future of Agriculture Trade Preferences Granted by the EU to Developing Countries". Contributed paper at the IATRC Summer Symposium, June 2005. Seville, Spain.

Guyomard, H., Laroche, C., Le Mouël, C. (1999), Impacts of the Common Market Organisation for Bananas on European Markets, International Trade and Welfare, *Journal of Policy Modeling*, 21(5), 619-631.

Helpman, E and Krugman, P (1985). "Market structure and foreign trade. Increasing returns, imperfect competition and the international economy". The MIT Press, Cambridge, MA/London.

Hoekman, B. and Djankov, D. (1997), "Towards a Free Trade Agreement with the European Union: Issues and Policy Options for Egypt", in A. Galal and B. Hoekman (eds.), Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements, CEPR, London and ECES, Cairo.

Konan, D.E., and K.E. Maskus (1997), "A Computable General Equilibrium Analysis of Egyptian Trade Liberalisation Scenarios", in A. Galal and B. Hoekman (eds.), Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements, CEPR, London and ECES, Cairo.

Kuiper, M. (2004). "Fifty Ways to Leave Your protection. Comparing Applied Models of the Euro-Mediterranean Association Agreements". ENARPRI Working Paper No.6/April 2004

Löfgren, H., El-Said, M. and Robinson, S. (2001): Trade Liberalisation and the Poor: A Dynamic Rural-Urban General Equilibrium Analysis of Morocco, in Dessus, S.; Devlin, J. and Safadi, R. (eds.) (2001): Towards Arab and Euro-Med Regional Integration, Development Centre of the Organisation for Economic Co-Operation and Development Economic Research Forum for the Arab Countries, Iran And Turkey-The World Bank, Development Centre Seminars, Paris: 129 - 146.

Lorca Corrons, A. (2000). « L'impact de la libéralisation commerciale Euro-Méditerranéenne dans les échanges agricoles ». FEMISE network.

Malaga. J. E., Williams, G.W., Fuller, S.W. (2001). "US-Mexico fresh vegetable trade: the effects of trade liberalization and economic growth". Agricultural Economics 26 (2001) 45-55

OECD (2005). "Preferential Trading Arrangements in Agricultural and Food Markets. The case of the European Union and the United States".

Olarreaga, M. and NG F. (2002): Tariff Peaks and Preferences, in The World Bank Guide --- Chapter 12.

Page, J., and J. Underwood (1997) "Growth, the Maghreb and Free Trade with the European Union" in A. Galal and B. Hoekman (eds.). Regional Partners in Global Markets: Limits and Possibilities of the Euro-Med Agreements. CEPR, London and ECES, Cairo.

Rae, Allan N. (2004). "International Trade in Fruits and Vegetables: Barriers to Trade, WTO Proposals for Reform and Modelling Alternative Outcomes" Acta Horticulturae 655: 429-438

Rutherford, T., E. E. Rutström and D. Tarr. 1993. "Morocco's Free Trade Agreement with the European Community." World Bank Policy Research Working Paper 1173. September.

Rutherford, T., E. E. Rutström and D. Tarr (1997) "Morocco's Free Trade agreement with the EU: A Quantitative Assessment", Economic Modelling, vol. 14: 237-269.

Sandberg, HM (2004). "The impact of historical and regional linkages on free trade in the Americas: a gravity model analysis across sectors". Selected paper prepared for presentation at the American Economics Association Annual Meeting, Denver, Colorado, August 1-4,

Sarris, A.H. (1983). "European Community Enlargement and World Trade in Fruits and Vegetables". American Agricultural Economics Association. Pp, 235-246

Stern, R.B. (2001): Dynamic Aspects of Euro-Mediterranean Agreements for the Middle East and North African Economies, in Dessus, S.; Devlin, J. and Safadi, R. (eds.) (2001): Towards Arab and Euro-Med Regional Integration, Development Centre of the Organisation for Economic Co-Operation and Development Economic Research Forum for the Arab Countries, Iran And Turkey-The World Bank, Development Centre Seminars, Paris.

Swinbank, A. and Ritson, C. (1995). "The impact of the GATT Agreement on EU Fruit and Vegetable Policy". Food Policy, Vol 20.

Tangermann, S. (1997). "Access to EU markets for agricultural products after the Uruguay Round and export interests of the Mediterranean countries". Study prepared for UNCTAD, International Trade Division.

van der Mensbrugghe, D., Beghin, J. C., Mitchell, D. (2003). "Modeling Tariff Rate Quotas in a Global Context: The Case of Sugar Markets in OECD Countries". CARD Working Paper 03-WP 343, Ames, Iowa.

van Tongeren, F., van Mejl, H., Surry, Y. (2001). "Global models applied to agricultural and trade policies: a review and assessment". Agricultural Economics 26 (2001) pp 149-172

Vanzetti, D., Fernández de Córdoba, S., Chau, V. (2005). "Banana Split: How EU policies Divide Global Producers". Trade Analysis Branch, UNCTAD, Geneva. Draft Version

Westhoff, P. C., et al (2004). "Challenges in Modeling the Effects of Trade Agreements on the Agricultural Sector". Working paper 358, Center for Agricultural and Rural Development, Iowa State University.

Yamazaki, F. (1996). Potential Erosion of Trade Preferences in Agricultural Products, Food Policy, 21: 4-5.

Zallio, F. (2000): Deep Integration, Euro- Med Free Trade and the WTO 2000 Negotiations, Fintesa Studi Paese, Working Paper 2014, Milan.

Annex I (from Lorca, 2000)

Morocco

TARIC	Description	Amount	Average tariff (%)	Equivalent tariff (%)	Shadow tariff (%)
07020000	Fresh or chilled tomatoes	195032	3.0	0.9	19.8
08051010	Oranges	13217	0.0	0.0	6.4
08051030	Navel, navelines…	17654	0.0	0.0	0.0
08051050	Other oranges	5031	0.0	0.0	11.8
08052010	Clementines	91281	0.0	0.0	5.6
08052030	Monreales	212	0.0	0.0	20.5
08052050	Mandarines	221	0.0	0.0	17.7
08052070	Tangerines	834	0.0	0.0	22.5
08052090	Other	19845	0.0	0.0	10.2
08053010	Lemons	74	3.0	11.7	15.2

Egypt

TARIC	Description	Amount	Average tariff (%)	Equivalent tariff (%)	Shadow tariff (%)
07020000	Fresh or chilled tomatoes	228	13.6	16.1	45.5
08051010	Oranges	-	0.0	-	21.2
08051030	Navel, navelines…	3677	0.0	0.0	6.2
08051050	Other oranges	2841	0.0	0.0	11.8
08052010	Clementines	-	0.0	-	22.4
08052030	Monreales	-	0.0	-	30.1
08052050	Mandarines	90	2.7	16.2	23.3
08052070	Tangerines	-	0.0	-	30.1
08052090	Other	255	4.2	16.7	23.2
08053010	Lemons	77	2.2	6.5	45.1

Tunisia

TARIC	Description	Amount	Average tariff (%)	Equivalent tariff (%)	**Shadow tariff (%)**
07020000	Fresh or chilled tomatoes	1034	10.2	14.5	34.3
08051010	Oranges	-	0.0	-	21.2
08051030	Navel, navelines…	20813	0.0	0.0	6.4
08051050	Other oranges	3	0.0	0.0	23.6
08052010	Clementines	-	0.0	-	22.4
08052030	Monreales	-	0.0	-	30.1
08052050	Mandarines	5	1.3	16	26.8
08052070	Tangerines	-	0.0	-	30.1
08052090	Other	-	0.0	-	26.7
08053010	Lemons	1	0.6	6.7	59.3

Turkey

TARIC	**Description**	**Amount**	**Average tariff (%)**	**Equivalent tariff (%)**	**Shadow tariff (%)**
07020000	Fresh or chilled tomatoes	2939	12.7	12.0	17.3
08051010	Oranges	297	7.7	0	11.9
08051030	Navel, navelines…	13216	8.9	14.5	10.8
08051050	Other oranges	590	6.8	16.4	17.5
08052010	Clementines	639	8.7	0	18.4
08052030	Monreales	25210	8.2	0	19.8
08052050	Mandarines	1523	6.8	16.3	16.5
08052070	Tangerines	17	1.3	0	26.8
08052090	Other	20.362	6.9	0	19.9
08053010	Lemons	41495	7.1	6.5	16.5

Annex II Tariff-Quota for tomato trade between selected Mediterranean countries and the EU

COUNTRY						
Algeria	0702 00 00	15-Oct to 30 April	No	100%		
Egypt	Ex 0702 00	1 Nov to 31 March	No	100%		
Israel	Ex 0702 00	No dates	9000 for cherry tomatoes and 1000 for other	100%	0%	
Jordan	0702 00 15 Ex 0702 00 45 0702 00 50	1 Dec to 31 March	EC May fix a Reference Quantity	100%	60% if RQ is fixed	
Lebanon	0702 00 00	No dates	5000	100%	60%	Annual increase 1000Tm of the TRQ
Morocco	0702 00 00	See next table for details				
Palestine	0702 00 00	1 Dec to 31 March	2000 (RQ)	100%	60%	
Tunisia	0702 00	1 Oct to 31 May	EC May fix a Reference Quantity	100%	60% if RQ is fixed	

Source: EU Commission.

Annex III. Morocco's preferences according to the last review:

1 October to 31 May

(tonnes)	marketing years			
	2003/04	2004/05	2005/06	2006/07 and after
Basic monthly quotas				
October	10 000	10 000	10 000	10 000
November	26 000	26 000	26 000	26 000
December	30 000	30 000	30 000	30 000
January	30 000	30 000	30 000	30 000
February	30 000	30 000	30 000	30 000
March	30 000	30 000	30 000	30 000
April	15 000	15 000	15 000	15 000
May	4 000	4 000	4 000	4 000
Total	175 000	175 000	175 000	175 000
Additional quota (from 1 November to 31 May)				
Line A	15 000	25 000	35 000	45 000
Line B	15 000	5 000	15 000	25 000

Basic Monthly Quotas=TRQs. with 100% reduction. **Entry price= 461€/tm**. Only for these periods

Additional Quota: 2) When the total quantity of tomatoes originating in Morocco released for free circulation in the Community during a given marketing year does not exceed the sum of the basic monthly quotas and the additional quota applicable for that marketing year, the additional quota for the following marketing year shall be that indicated at line A in paragraph 1 above. Where that condition is not met during a given marketing year, the additional quota for the following year shall be that indicated at line B in paragraph 1 above. However, a maximum tolerance of 1 % shall be accepted for the purpose of assessing whether this condition has been met.

3) Morocco undertakes to ensure that no more than 30 % of this additional quota is used during any one month.

Beyond both quotas: 60% tariff reduction, pending on Article 18.?? Looks like been in force already.

From 1 June to 30 September: 60% tariff reduction for any quantity.