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EU TRADE PREFERENCES FOR MOROCCAN TOMATO EXPORTS – WHO BENEFITS?

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Abstract: The EU applies a complex system of preferences for tomato imports from Morocco. Quantities are fixed and serve as entry price quotas and tariff rate quotas at the same time. This paper provides empirical evidence of i) the existence of an economic rent under the EU preferential scheme for tomato imports from Morocco of about €24-36.5 mill. per year, and ii) the distribution of that rent. Due to the structure of the Moroccan export sector as well as the EU method of allocating import licenses, it is likely that a large part of the quota rent ends up at the Moroccan side and that a dissipation of the rent in physical rent-seeking activities is limited.

Keywords: Morocco, tomatoes, trade preferences, Euro-Mediterranean Agreement, tariff rate quota, quota rent. JEL Q17, F14.

1 Introduction

The EU has notified the WTO of 21 bilateral trade agreements with non-EU members which are currently in force (WTO, 2005). Under these agreements the EU grants limited preferential access to its agricultural markets for various countries and country groups (see Kurzweil et al., 2003, for an overview). Morocco is covered by the Euro-Mediterranean Partnership and has substantial preferential access to selected EU agricultural markets under its Euro-Mediterranean Association Agreement with the EU. As the only country in the world in this position, Morocco may export tomatoes under a preferential entry price to the EU. From the Moroccan perspective, tomato exports are of special importance due to their high share in agricultural production and trade. In 2002 tomatoes provided more than 11% of Morocco's agricultural export value and had a value share of about 27% in total preferential exports to the EU (Grethe et al., 2005). From an EU perspective, Moroccan tomatoes are of special interest because they stand in direct competition to domestic production, especially in Spain.

Often preferential access is granted limited by tariff rate quotas (TRQs), which result in an economic rent if they are filled or overfilled. If the above-TRQ tariff rate is prohibitive, the effects are equal to an import quota (Abbott, 2002). A variation of the TRQ is the "entry price quota" (EPQ) which the EU grants to very few developing countries for selected fruit and vegetables, *inter alia* for tomatoes from Morocco. Much of the year, EU MFN entry prices (most favoured nation, i.e. countries for which no preferential trade policies apply) for tomatoes are prohibitive. The reduced preferential entry prices for a limited quantity act like an import quota; the quota is exactly filled and an economic rent arises, because the marginal cost of supplying the imported good is below the selling price on the EU market. This general mechanism and the potential distribution of the resulting rent have been discussed (Skully, 2001; Abbott, 2002), as well as more specifically for the countries covered by Euro-Mediterranean Agreements (Grethe et al., 2005), based on theoretical considerations. Empirical analyses of the existence and distribution of such rents, however, are rare. This paper provides empirical evidence of i) the existence of an economic rent under the EU preferential scheme for tomato imports from Morocco, and ii) the distribution of that rent. Preferential access to EU agricultural markets is often claimed to be motivated by development interests and the distribution of the resulting rents is therefore of special interest.

The paper is organized as follows. In Section 2, the institutional framework under which tomato exports from Morocco to the EU take place is described. First, an overview of the EU MFN import policies for tomatoes as well as for tomato imports from Morocco is given. Second, the structure of the Moroccan tomato export sector is described. Subsequently in Section 3, the EPQ is looked at from a theoretical point of view and research questions and *a priori* hypotheses on the existence and distribution of an economic rent resulting from EU policies are derived. Section 4 of the paper then empirically examines these hypotheses. It is shown that the EU entry price reduction for Morocco allows for exports of tomatoes to the EU and that these exports are limited by the size of the EPQ. Furthermore, different methods are explored to provide evidence of an economic rent, of which two are successful. Finally, some light is shed on the distribution of the resulting rent based on interviews with various participants in the marketing chain for Moroccan export tomatoes. In Section 5, some conclusions are drawn and the potential future development of the quota rent is discussed.

2 Institutional Framework for Moroccan Tomato Exports to the EU

2.1 EU Import Market Barriers: Tariffs, Entry Prices and Preferences for Morocco

The EU applies two different MFN import policies for tomatoes: *ad valorem* tariffs and the entry price system. The *ad valorem* tariff is at a relatively low level and varies seasonally between 8.8 and 14.4 %.

The entry price system is applied by the EU for many fruits and vegetables that are considered particularly sensitive, and effectively establishes minimum import prices. If the cif import price of a shipment is below the entry price, the entry price system provides the opportunity to gradually invoke specific tariffs, in addition to *ad valorem* tariffs. If the imported good comes in at an import price not more than 8% below the entry price, the additional tariff will equal the difference between import price and entry price. If the import price is more than 8% below the entry price, the full WTO-bound specific tariff, which is much higher than the *ad valorem* tariff, will be charged. This "eight percent rule" is a prohibitive import barrier for most imports below 92% of the entry price, because of the high level of the maximum specific tariffs. Table 1 shows the seasonal variation of *ad valorem* tariffs, entry prices and specific tariffs which the EU applies to MFN imports of tomatoes as well as to preferential imports from Morocco.

Table 1: MFN and Preferential EU Tariffs and Entry Prices (2004)

	TRQ 2003/04 (tons)	Ad Valorem Tariffs (%)			Entry Prices			Specific Tariffs	
		MFN	Morocco		MFN (€t)	Morocco		MFN (€t)	in % of MFN entry price
			in TRQ	Above TRQ		(€t)	% of MFN		
Oct. ^a	10,000	14.4	0.0	14.4 ^b	626	461	73.6	298	47.6
Nov. ^a	26,000	8.8	0.0	8.8 ^b	626	461	73.6	298	47.6
Dec. ^a	30,000	8.8	0.0	8.8 ^b	626	461	73.6	298	47.6
Jan. ^a	30,000	8.8	0.0	8.8 ^b	846	461	54.5	298	35.2
Feb. ^a	30,000	8.8	0.0	8.8 ^b	846	461	54.5	298	35.2
Mar. ^a	30,000	8.8	0.0	8.8 ^b	846	461	54.5	298	35.2
April ^a	15,000	8.8	0.0	8.8 ^b	1126	461	40.9	298	26.5
May ^a	4,000	14.4	0.0	14.4 ^b	726	461	63.5	298	41.0
June	-	14.4	-	5.76	526	-	-	298	56.7
July	-	14.4	-	5.76	526	-	-	298	56.7
Aug.	-	14.4	-	5.76	526	-	-	298	56.7
Sept.	-	14.4	-	5.76	526	-	-	298	56.7

^a Plus a conditional quota of 15,000 tons which may be used to the amount of 30% each month, from November to May (for further details see below).

^b The reduction of the above TRQ tariff during this period is suspended until 1. January 2007 (OJ L345/119).

Sources: European Union (various issues): OJ L345/121, 31.12.2003; OJ C103A, 30.04.2003; European Commission (2004a), own calculations.

Table 1 shows that MFN *ad valorem* tariffs are highest from May to October, while MFN entry prices are low during this time. This seems somewhat odd, as low entry prices in the summer months obviously reflect low EU prices during the main EU production season, and third country exporters have no comparative price advantage. Consequently there is no need to protect national producers by high entry prices. Nonetheless and somewhat inconsistently, the *ad valorem* tariff is highest during that season and consequently also leads to a significant protection of EU producers in summer. MFN entry prices are highest in the winter months, peaking in April. This reflects the objective of protecting EU producers of winter tomatoes from other countries that adjoin the Mediterranean Sea and which have a comparative production advantage and could therefore depress EU tomato prices. The country with the greatest interest in high prices during wintertime is Spain. Spain is the main EU producer of early greenhouse tomatoes, with a total value of €1.7 billion in 2002 (Spanish Ministry of Agriculture,

Fisheries and Food, 2002). The main Spanish production areas are allocated in the regions of Almeria, Murcia, Alicante and the Canary Islands, where a temperate climate allows the production of greenhouse tomatoes from October to May. In the Region of Almeria and on the Canary Islands the production season overlaps almost exactly with the production season of export tomatoes from Morocco.

Furthermore Table 1 shows that the maximum specific tariffs for tomatoes are much higher than the *ad valorem* tariffs, and sum up to 26.5 to 56.7% of the entry price. The entry price system therefore provides a strong incentive not to undercut the entry price level.

Additionally, Table 1 indicates the preferential treatment of tomato exports from Morocco to the EU in the marketing year 2003/04. The relevant Protocol (OJ L345/121, 31.12.2003) establishes an EPQ of 190,000 tons for tomatoes originating in Morocco to be eligible for import at a preferential entry price of €461/t. This quantity can be imported without any *ad valorem* duty from October to May. Therefore, the EPQs are at the same time TRQs because, in addition to reduced entry prices, the *ad valorem* duty rate is also reduced (to zero). For simplicity, the respective quantities are designated throughout the text as EPQs, as the entry price reduction is the effect which dominates the reduction of the *ad valorem* tariff. From June to September (the main production season in the EU) the MFN entry price applies and the MFN *ad valorem* tariff rate is reduced by 60%.

The total quota (which can be exceeded by 1%) applies for a given marketing year which is specified in the Euro-Mediterranean Agreement (OJ L70/02, 18.03.2000) as running from 1 October to 30 September. Furthermore, the quota is divided into monthly quantities. The marketing year starts in October with an EPQ of 10,000 tons. The period with the largest quotas is from December to March, with 30,000 tons in each month. If imports from Morocco undercut the relevant entry price level, the above-described mechanisms of the EU entry price system come into force. The EPQs under the preferential price system, as well as TRQs for fruits and vegetables in general, are administered by the EU, "first-come first-served": the import quantity is controlled at the border and if the EPQ is exceeded above-quota policies apply for the rest of the month. While Morocco guaranteed that it would not exceed the given annual quantity and consequently agreed to a voluntary self-restraint (VSR) under the Euro-Mediterranean Agreement (OJ L 305/20, 21.11.2001, Article 2; see also Council Regulation NR 2264/2001), it now has the opportunity to exceed the annual quantity of the EPQ by its imports under MFN conditions (OJ 345/121, 31.12.2003). An incentive for Morocco not to exceed the annual EPQ is an additional quota which applies for the following marketing year should the basic quantity of the given year not be exceeded by more than 1%. If the EPQ is not accepted, the additional quota for the following year is notably lower than when the conditions are complied with. Since the marketing year 2003/04, the additional quota starts at 15,000 tons, and the quantity is augmented by 10,000 tons each year when the EPQ is complied with. If, however, Morocco exceeds the EPQ in any marketing year, the additional quota diminishes by 20,000 tons. The additional quota applies from 1 November to 30 May, but Morocco is not allowed to use more than 30% of the additional quota during any month.

The state of EU preferences for Morocco presented above depicts the current situation. The origin of trade preferences to Morocco dates back to its close relationship with France and has its roots in colonial history. At independence in 1956, the Moroccan vegetable market was largely integrated in the French market (Aloui, no year). Preferential access conditions have been regulated since by France and later by the EU. Preferential agreements for tomato exports from Morocco have been revised several times. One large step was the negotiation of an Euro-Mediterranean Agreement, which was signed in 1995 and entered into force in 2000. Under the initial Agreement, Morocco received a preferential EPQ of 150,676 tons from October to March (OJ L70/02, 18.03.2000). Since then the preferential import quantity and the import period have been revised almost every year.

2.2 Structure of the Moroccan Tomato Export Sector

The agricultural sector in Morocco plays an important economic and social role. As shown in Table 2, the share of agriculture in total GDP has varied in recent years between 15 and 18%, mainly depending on the rainfall in the production season. The value of total agricultural production was about €7 billion on average in the years 2002 and 2003. This is about 57% above the average production value in 1994 and 1995. Aside from the high economic importance of the sector, its social

importance results from its high share in employment of the rural population. About 80% of the working rural population is employed in the agricultural sector, of which 22% in the horticultural sector (WTO, 2003).

Table 2: Production and Exports of Tomatoes Compared to Size of the Agricultural Sector and the Economy as a Whole

		1994/1995	2002/2003
	Share of agriculture in GDP (%)	16.6	17
(1)	Value of agricultural production (thousand €)	3,960,026 ^a	6,909,745 ^b
	Value of early tomato production (thousand €)	840,729 ^c	1,047,834 ^c
(2)	Quantity of tomato production (1,000 t)	737	998
(3)	Quantity of early tomato production (1,000 t)	450	565 ^d
(4)	Quantity of greenhouse tomato production (1,000 t)	320	475 ^c
(5)	Value of total exports (thousand €)	3,346,007 ^a	8,354,644 ^b
(6)	Value of agricultural exports (thousand €)	518,053 ^a	908,408 ^b
(7)	Value of horticultural exports (thousand €)	152,936 ^e	208,989 ^b
(8)	Value of tomato exports (thousand €)	47,239 ^a	109,655 ^b
(9)	In % of total exports	1.4	1.3
(10)	In % of agricultural exports	9.1	12.1
(11)	In % of horticultural exports	30.1	52.5
(12)	Quantity of Moroccan tomato exports (1,000 t)^f	168	196
(13)	Of which to the EU (%)	87.8	85.6
(14)	Of which to Central and Eastern Europe (%)	4.1	8.9
(15)	Of which to Switzerland (%)	2.9	5.3
(16)	Of which to other destinations (%)	5.2	0.2

^a Exchange rate 01.07.1995, ^b Exchange rate 01.07.02, ^c own calculation based on Eurostat data of the years 1995/96 and 2002/03, ^d 2002, ^e 1998, ^f average marketing years 1993/94-1994/95 and 2001/02-2002/03.

Sources: World Bank (2005a) for GDP and total production value; EACCE (2004) for destination of exports; FAO (2005a) for exports; APEFEL (2002) for production of export tomatoes; Office des Echanges for value of horticulture products exports; Eurostat (various issues) for IUUV; own calculations.

Aside from livestock breeding and wheat production, the most important segment of the agricultural sector is horticulture, and thereof tomato production plays the most important role. The production value of early tomatoes averaged about €840 million in 1994/95 and increased to €1 billion in 2002/03. Total produced quantity of early tomatoes increased as well in recent years. While the production was still at a level of 300,000 tons in 1992/03, it reached 450,000 tons in 1994/95 and peaked at 565,000 tons. The export production of early tomatoes is dominated by the production of greenhouse tomatoes; their production increased from less than 200,000 tons in 1992/93 to about 350,000 tons in 1994/05 and reached 475,300 tons in 2002.

Agricultural goods play an important role for the Moroccan export sector. In 2002/03, total exports had an annual value of more than €8 billion and agricultural products had a share of 18%. Tomatoes rank second on the Moroccan export list of agricultural goods with an annual export value of €109 million in 2002/03 right behind mandarins, which have an export value of €127 million, and above the export of oranges, with an export value of €104 million. The export value of tomatoes is about 12% of the total agricultural export value and in 2002 the export of tomatoes covered more than 50% of the export value of horticultural products, which account for more than €208 million or 23% of agricultural exports.

On average, in 2001/02 and 2002/3, 196,000 tons of tomatoes were exported (EACCE, 2005), mainly to the EU. In the year 2002/03, Morocco exported an overall quantity of 160,000 tons of tomatoes to the EU. This was 86% of the country's total tomato exports. Within the EU more than 80% of the tomatoes were delivered to France, followed by Spain (15%), the Netherlands (3%) and the

UK (1.5%) (EACCE, 2004). Other important export destinations for Moroccan tomatoes are Central and Eastern European countries, where 8.9% of total Moroccan tomato exports went, and Switzerland (5.3%).

Even though Morocco has a long history of vegetable exports, the sector experienced a significant change in 1986 when the national export monopoly was liberalized. Since then many producers started production and total area of greenhouse tomatoes in Morocco increased to 3,820 ha in 2001/02 (see Table 3). About 64% of the area is located in the southern Atlantic coastal strip in the region of Souss Massa; 74% of total production originates in this region (APEFEL, 2002). The strong concentration in this region is related to the availability of relatively cheap land and the favorable weather conditions for the production of early tomatoes.

Table 3: Structure of the Moroccan Export Tomato Sector

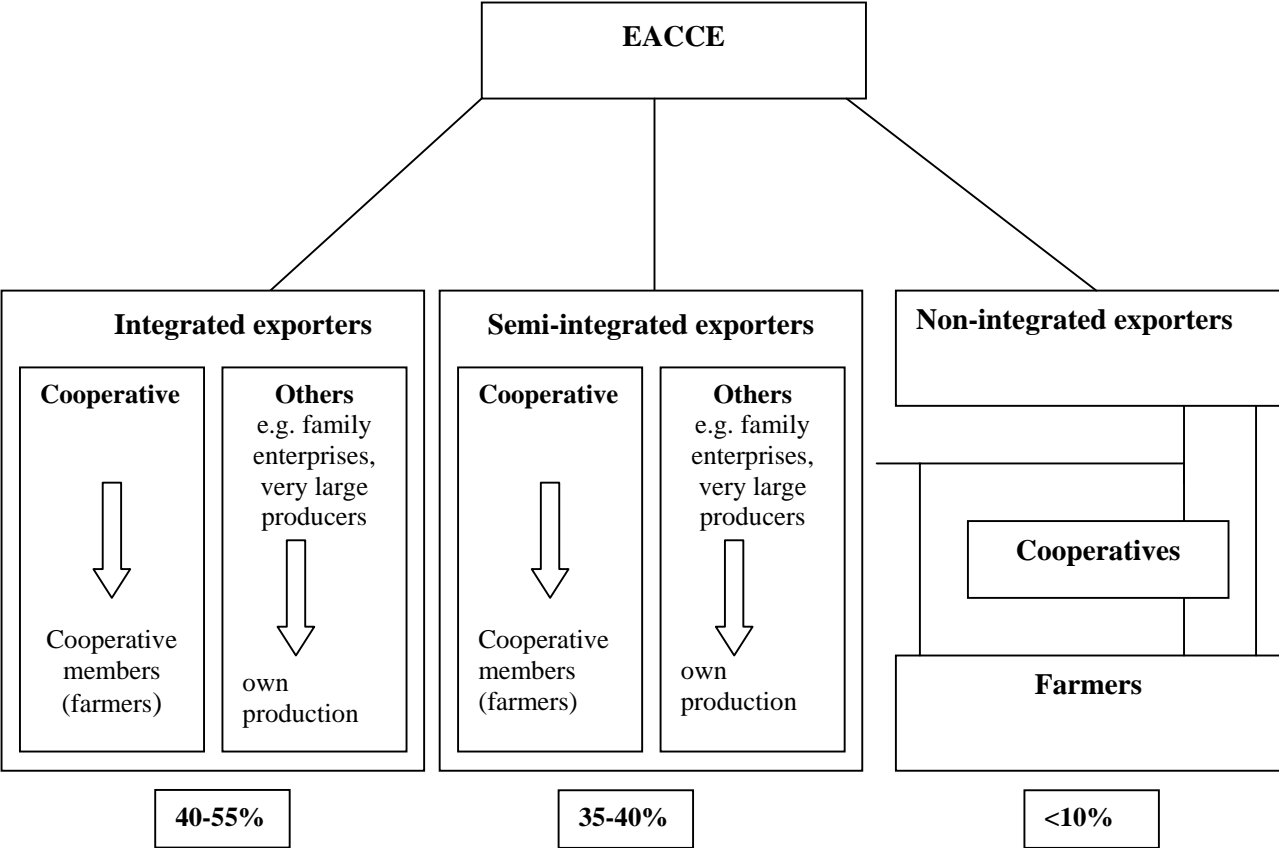
	Number of total export vegetable producers	8,000	
(3)	Number of total export tomato producers	400	
(4)	Area of vegetable production in greenhouses	24,500 ha	
(5)	Area of export tomato production in greenhouses	3,820 ha	
(6)	Farm size	% area	% farms
(7)	Farm size from 0-5 ha	5-10	30-35
(8)	Farm size from 5-20 ha	45-55	50-55
(9)	Farm size larger than 20 ha	35-40	10-15
(10)	Number of farmers cooperatives producing tomatoes	Ca. 40	
(11)	Number of exporter groups exporting tomatoes	Ca. 12-15	
(12)	Share of the three largest exporter groups on total exports	70%	

Sources: APEFEL (2005) for number of total export vegetable producers; APEFEL (2002); own expert interviews in 2005 for farm size, number of tomato producers, cooperatives, and exporter groups; own calculations.

The Moroccan agricultural sector includes about 1.5 million farms (WTO, 2003) of which about 8,000 produce early vegetables and only 400 produce export tomatoes. As shown in Table 3, around 30% of tomato producers are small scale farmers who cultivate less than 5 ha. Their production area represents only about 10-15% of the total production area for early tomatoes. The majority of the producers cultivates an area between 5-20 ha. Farms belonging to this group cultivate around 50% of the total tomato area. Only 10-15% of the farms are larger than 20 ha, but they represent around 40% of the early tomato area.

The production and marketing chain can be subdivided in three major levels: the production or farm level, the processing level and the exporting level. As depicted in Figure 1, the Moroccan export sector shows a highly integrated structure. The largest part of the production, between 40 and 55%, is produced in completely integrated export structures. The integrated exporters take the shape of two different organizational forms. The first type is dominated by tomato producers of various sizes which are organized in farmer cooperatives on the level of the packing stations. Most cooperatives own, depending on their size, one or more packing stations, which provide technical services for packing and wrapping before the exportation of tomatoes. Different cooperatives unite to form exporting group. Producers join cooperatives and exporting groups to reach a higher organizational level and consequently a better negotiating position in the marketing chain. The packing stations, cooperatives and exporting groups play an important intermediate role in the marketing chain between producers and different players in the export process. The packing stations are the most important source of information for producers and, if set up as cooperatives, organize the marketing process for their members. The task of the exporting group is the organization of all the logistics, such as transportation, the centralized purchase of production inputs and the negotiation process with banks and other actors in the sector.

Figure 1: The Structure of the Moroccan Tomato Export Sector



Source: Own expert interviews.

The second type of the integrated exporting groups are enterprises which contain all levels of the production and marketing chain. Only products produced on their own farms are processed and exported.

The second important organizational form of the sector are semi-integrated exporters. These are large enterprises which own their private packing stations where the products of their farms are processed. Additionally these enterprises process and sell tomatoes of other producers on a commission basis. The group of semi-integrated exporters sells 35 to 40% of total early tomatoes. 70% of the total exported tomatoes can be traced back to only three exporting groups, of which two are integrated and one has a semi-integrated structure.

The last and least important organizational form of the sector are the non-integrated exporters which represent less than 10% of the exported early tomatoes. These exporters take the tomatoes from cooperatives or from single farmers on a commission basis. According to several statements by interviewees the importance of this organizational form will further decrease in the near future.

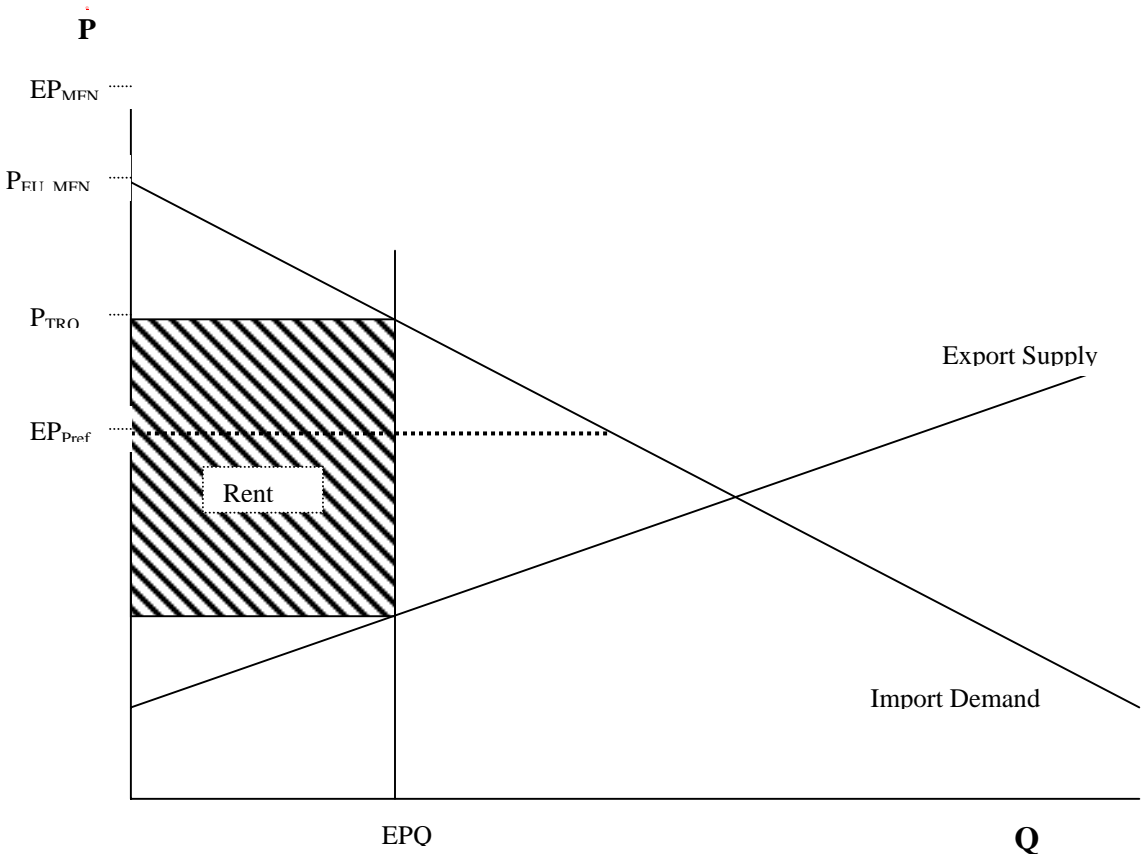
The overall organization of the export market of fruits and vegetables in Morocco is controlled by the EACCE (Etablissement Autonome de Contrôle et de Coordination des Exportations; Public Export Control and Coordination Authority), which was founded in 1986 when the national export monopoly was liberalized. The EACCE controls and organizes compliance of the Moroccan products with the international and bilateral regulations in terms of quantity as well as quality. Furthermore it functions as an important source of information for Moroccan producers, processors and exporters.

3 A Priori Hypotheses

A first *a priori* hypothesis is that the EPQ is binding. Otherwise Morocco would not have put so much effort into repeatedly negotiating increments (see above). Second, if the EPQ is binding, a rent

results: the marginal cost of supplying Moroccan tomatoes to the EU is below their selling price in the EU. Again, this is supported by the sustained efforts of Morocco to increase the EPQ. But no *a priori* assumptions exist on the size of the quota rent, which we try to quantify in this paper. Graph 1 depicts a potential quota rent.

Graph 1: Potential Rent Resulting from an EPQ



Graph 1 shows a situation in which the EU MFN entry price level (EP_{MFN}) is set above the level of domestic price equilibrium ($P_{EU, MFN}$), i.e. no imports occur. A reduced entry price (EP_{Pref}) is set at a level below domestic EU price equilibrium, but above the price level which would occur with completely liberalized trade. Without any further restriction, this would be the domestic price level in the EU. But an EPQ is set such that the resulting EU price is (P_{TRQ}). The quota rent is the price difference between the export supply (i.e. marginal cost) curve at EPQ and EP_{Pref} , multiplied by EPQ .

A third hypothesis based on the institutional framework described above is that a large part of the rent accrues to the Moroccan part of the marketing chain. This is because the "first-come, first-served" system of license distribution does not give the EU importers negotiating power, in contrast to the license on demand system, which the EU applies for most other products under which licenses are only distributed to EU importers. This leaves the question as to which participants in the Moroccan marketing chain receive the rent. Without any additional knowledge, two alternative *a priori* hypotheses are formulated:

1. The rent dissipates in rent-seeking activities. Principally, the first-come, first-serve system provides an incentive to export early for trading companies, in order to get a high share in the EPQ (Skully, 2001). If there is no coordination in the exporting country, the rent can be expected to end up, for the most part, in the pockets of the owners of those factors/resources that arrive early. As the EPQ is fixed for monthly periods, this could, for example, be the owners of transportation capacity at the beginning of the month. In the extreme, producers' and traders' efforts to be early could lead to marginal cost increasing such that the initial quota rent fully dissipates.

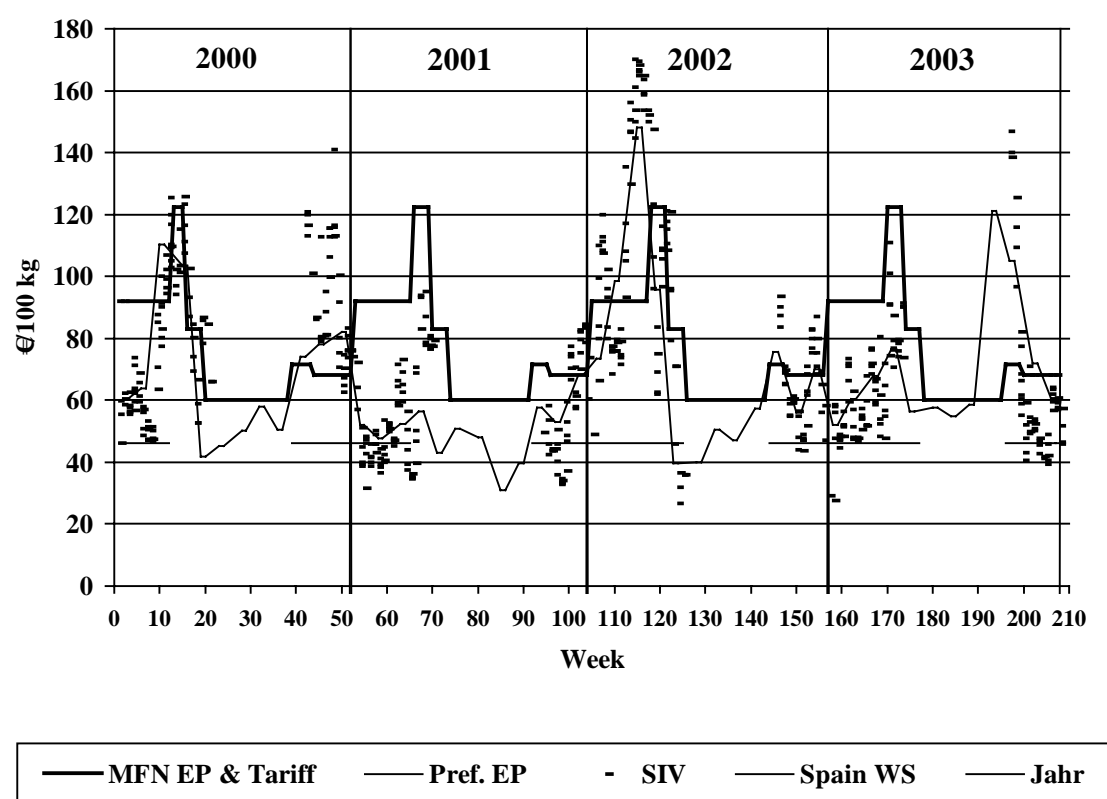
- The Moroccan export sector acts like a cartel. As the tomato exporting sector in Morocco is relatively concentrated and well organized (see above), an alternative option could be some cartel-like division of EPQ shares among traders as well as producers. Such a coordinative process could be based on many factors including historical market shares, readiness to pay to the coordinating unit, or others.

4 Empirical Part

4.1 Is the EPQ Binding?

In order to look at whether the EPQ is binding, it was determined whether the entry price reduction allows tomato exports from Morocco to enter the EU. To this end, Graph 2 displays weekly MFN entry prices, preferential entry prices, Moroccan Standard Import Values (SIVs) as reported by the European Commission as indicators for the Moroccan import price, and Spanish wholesale prices (WP) for tomatoes for 2000 through 2003.

Graph 2: Weekly Entry Prices, Moroccan SIVs and Spanish Wholesale Prices for Tomatoes in the Years 2000-2003



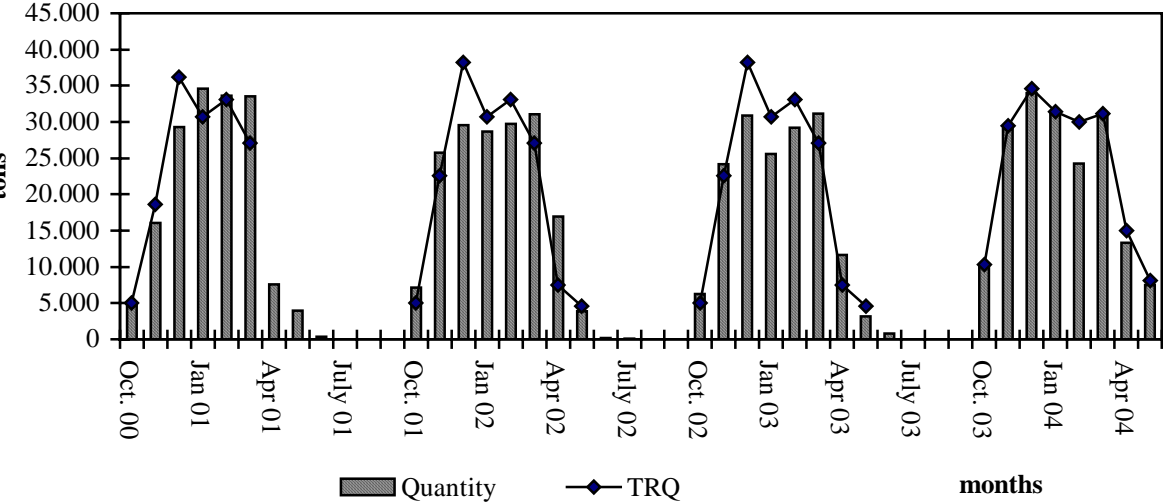
Sources: European Commission (2004a); European Commission (2004b); own calculations.

Graph 2 depicts the MFN entry price plus the *ad valorem* tariff for tomatoes which is higher in winter than in summer and which reaches its peak in April. Furthermore Graph 2 shows that the preferential entry price for Morocco in the winter months is considerably lower than the MFN entry price. The SIV of Moroccan tomatoes, which is the average of observed wholesale market prices for Moroccan tomatoes in the EU minus a marketing and transportation margin, is between the MFN and the reduced entry price in 58% of the observations. In such a situation it is the reduced entry price which allows for importation. In about 13% of the cases, however, Moroccan SIVs are below the preferential Moroccan EP. In such a situation an additional duty must be paid or importation must take place according to alternative procedures. These procedures require the proof that the final selling price on the EU market of the shipment concerned is above EP level (for details see Grethe and

Tangermann, 1999). In 29% of observations, SIVs are above even the MFN entry price level. In those cases, the preferential entry price is not relevant to Morocco, as even the MFN entry price is not restricting. This occurs in situations in which the EU price level for tomatoes, which is indicated by the Spanish average wholesale price in Graph 2, is especially high.

Thus it can be said that indeed for large parts of the high season of Moroccan tomato exports to the EU, it is the preferential price which allows for imports from Morocco. In order to check to what degree Morocco makes use of the EPQs, Graph 3 depicts monthly EU import quantities of Moroccan tomatoes compared to the size of EPQs for each month.

Graph 3: Monthly EU Import Quantities and EPQs for Moroccan Tomatoes, 2000/01-2003/04



Source: EUROSTAT (various issues); OJ L70/02; OJ L305/20; OJ L345/121; own calculations.

Graph 3 shows that, on average, EPQs are binding. While in some months Morocco does not completely fill the EPQs, in other months they are exceeded. The graph shows that for example, from 2000 to 2002 the quota was not fully used in December, while it was exceeded in March and April from 2000/2001 until 2002/03. In part, these irregularities result from the fact that Morocco can reallocate monthly EPQs up to 20% between months (see above). In some years Morocco did exceed its total annual quota. In 2001/02, the total imported quantity was 172,858 tons and consequently exceeded the total limit of 168,757 tons of the EPQ by 4,101 tons even though Morocco guaranteed that total imports in a marketing year would not go beyond the EPQ.

The graph also depicts that in all marketing years from 2000/01 to 2002/03, in the first period of the marketing year (October to February) total imports did not exceed the limit of the given EPQ. Consequently, the conditional contingency came into force which was then surpassed in all years. This is because the additional EPQs for April and May were granted only if total imports from Morocco did not exceed the given limit of the EPQ in the first period of the marketing year until 2003/04. This mechanism lead to the fact that the EPQ was only respected in the first part of the marketing year. The EPQ was not adhered to in the second part of the year after the additional quota became relevant and the excess of the quota had no negative effects for the next marketing campaign and consequently there was no incentive to exceed the EPQ. As an example, in the marketing year 2001/02, the total basic EPQ of 156,676 tons was not exceeded but the conditional contingent was surpassed by 9,433 tons. From the marketing year 2003/04 on, the rules were changed as described above and the total quota was not exceeded.

The relevance of the additional EPQ for the Moroccan export sector between May and April becomes more obvious with a specific look at the price situation in the EU during this portion of the year. Graph 2 depicts a strict correlation between the Spanish wholesale price (which indicates the EU price level) and the Moroccan SIV. In all three years (2000-2003), from March to May, Spanish wholesale prices, as well as Moroccan SIVs show a low price level. This price drop is related to the beginning of the open field tomato production season in the Mediterranean part of the EU. Due to the

low price level in the EU, Morocco as a extra-EU country is no longer able to sell its tomatoes on the EU market at MFN entry price level. Consequently Moroccan tomato exports highly depend on the preferential entry price during this time of the year. As a result, the additional EPQ is of special interest for Morocco and provides a strong incentive to respect the EPQ during the rest of the marketing year.

4.2 Does a Rent Exist?

There are three different options to determine a potential rent. First, check whether the selling price on the EU market (minus the differential marketing cost) is above the selling price on the domestic Moroccan market. Second, compare the marginal cost of selling to the EU market to the selling price on the EU market as lower marginal production costs would indicate the existence of a rent. And third, compare selling prices to prices in other countries, in which imports are not subject to quantitative restrictions. Unfortunately, the first option is not feasible because the quality that is comparable to that exported to the EU is usually not sold on the domestic market. The remaining two options and the respective results are described in detail below.

4.2.1 Comparing Production Cost to Selling Price

The determination of marginal production cost is based on the assumption that marginal cost at sector level equals average cost and that marginal cost can thus be measured as average cost of an efficient producer. This relies on the condition that the expansion of current production is possible without higher private costs, e.g. for land, irrigation, or labour, which seems realistic in the current situation in which area and labor are abundant and water is not priced according to its social cost (see below).

During the survey of production cost the topic appeared to be a very sensitive issue for Moroccan interviewees. Recently Morocco has participated in new negotiations for a possible extension of EPQs. In consideration of the fact that Morocco is the most important competitor of Spanish greenhouse production, it is more opportune, from a Moroccan perspective, to claim high production costs. As only very few surveys about production costs are available and those are relatively old, the determination of production costs is mainly based on interviews with various exporters and other experts in the sector. Table 4 provides an overview of the different cost components of the Moroccan export tomato sector.

Table 4: Production and Exportation Cost of Tomatoes

On farm production cost	€/kg tomatoes
Sources:	
APEFEL survey 1997	0.18
Average reported by exporters ^a	0.18
Range reported by exporters	0.15-0.22
Applied in further calculations	0.18
Corrected production cost	0.23
Exportation cost	
Processing cost	0.15
Transport cost	0.18
Total cost in Perpignan	0.56

^a Interviews with five exporters in 2005.

Sources: APEFEL (1997); own interviews with exporters; own calculations.

The first rows of Table 4 depict the production cost in Morocco without any further processing or transport cost. According to different sources production cost is between €0.15 and €0.22/kg. To the production cost, an additional amount must be added because not all greenhouse tomatoes produced for export are in fact exported. Due to quality issues, part of the production is sold on the national market at prices below production cost. The loss thus depends on two variables: the share of

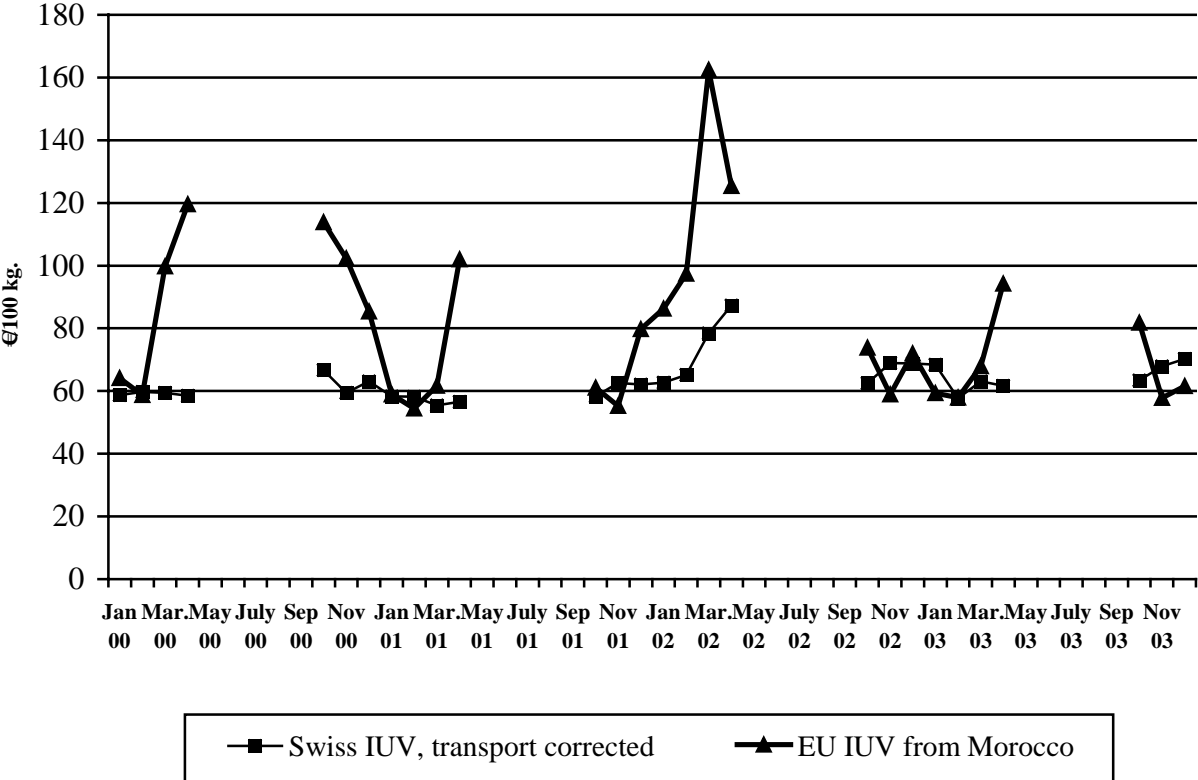
production which has to be marketed on the domestic market and the difference between domestic price and production cost. The information of the quantity sold on the domestic market and the received price vary among sources. While a survey (APEFEL, 1997) stated this share was 50% and the domestic selling price at €0.10/kg, own calculations based on production data of the Ministry of agriculture, fishery and rural development of Morocco and export data of the EACCE, the share which must be marketed domestically is estimated at 60% and the selling price is estimated at €0.14/kg. Interview partners consistently reported the share sold on the domestic market at about 40% with an average price level of €0.10/kg. Production cost of export tomatoes are corrected for losses based on the assumption that 40% of production is sold on the domestic market at a price of €0.10/kg. Therefore the corrected production costs are estimated at €0.23/kg.

Adding the processing and the transport cost to Perpignan, the most important export destination, costs sum up to €0.56/kg. The average export price to the EU from 2000 and 2003 was €0.78/kg (import unit values calculated based on Eurostat (various issues) are taken as an indicator for the export price). Thus, the resulting rent amounts to €0.22/kg. Based on an average annual export quantity to the EU of about 165,874 tons per year during that period, the resulting rent is estimated at €6.5 million per year.

4.2.2 Comparing Morocco's Export Price on the EU Market to that on other Markets

The second possibility of determining the existence and size of a rent is the comparison of the selling price to the EU with the selling price to other countries. Even though most tomatoes are exported to the EU and exports to many other countries cannot be compared for quality reasons (for example those to Central and East European countries), 6,000 to 10,000 tons of tomatoes are exported to Switzerland annually, free of any tariff and without quantitative restriction. Therefore, Swiss and EU import unit values (IUVs) for Moroccan tomatoes are compared for the period between 2000 and 2003 and results are shown in Graph 4.

Graph 4: Swiss and EU Import Unit Values for Moroccan Tomatoes, 2000-2003



Sources: Swiss Federal Customs Administration (2004); Eurostat (various issues); own calculations.

For the period 2000-2003, during the EU preference period, the IUV for tomatoes from Morocco in Switzerland, corrected for about €0.05/kg higher transportation cost than to Perpignan, was about 17% lower than to the EU. If the selling price to Switzerland is not due to existing trade distortions, and is assumed as the equilibrium price, results suggest a rent of about €0.13/kg for the exported tomatoes to the EU. This is about 59% of the rent per kg estimated based on the comparison of production cost and selling prices to the EU.

4.3 *Who Gets the Rent?*

The first question in the context of distribution of the rent is how the rent is shared between the Moroccan export and the EU import side. The EU administers the TRQ according to the “first-come first-serve” principle. Furthermore, export is co-ordinated among Moroccan exporters by the EACCE such that the EPQ quantity is exactly met. As Morocco has an interest in not exceeding the given EPQ in order not to lose the additional quota of 20,000 tons of tomatoes, exports are strictly organized. In the beginning of each month exports to the EU are not limited and each exporting group may export as much as it wants. Exported quantities are monitored by the EACCE. If, after 10-15 days, the export trend hints at a potential excess over the given monthly EPQ, the EACCE convenes an export committee. The export committee comprises of representatives from all exporting groups, from the Ministry of Agriculture, from the EACCE and the two most important producer organizations. In the committee, all exporting groups must reach a consensus on the distribution of the remaining quantity. Generally, the quantity is distributed according to the share in total exports the exporting group had in the first part of the month. The precise period is subject to discussion. As an incentive to export more to destinations other than the EU, the total exported amount is taken into account, not only the quantity exported to the EU. According to different exporters, the share of the remaining quantity stays relatively constant among the exporting groups. Once the committee agrees on the distribution, the EACCE enforces compliance. The export of tomatoes is only possible from exporters which are certified by the EACCE and the certification must be renewed annually. The yearly renewal of the export certificate functions as a possible sanction against noncompliant exporters.

The Moroccan side thus almost acts like a cartel and consequently European companies have hardly any negotiating power. Furthermore all members of an exporting group are informed about the prices the different commissioners obtained on the export market and the resulting transparency also adds to the negotiation power of Moroccan exporters. All this supports the assumption that much of the rent ends up on the Moroccan rather than at the EU side.

A second question is to what extent part of the rent dissipates in rent-seeking activities or because of the involvement of extramarginal suppliers. In consideration of the fact that tomatoes are traded as fresh as possible, an "export run" in the beginning of each month is unlikely. Even though it would make sense for producers to export early in the month to obtain a large part of the rent, exporters try to plan a constant production period in order to meet the marketing needs of their clients and tomatoes are exported as fresh as possible.

In addition, the allocation of the quota to the exporting groups needs to be arranged by consensus which leaves little space for swaying any decision-making authority. As shown in Figure 1, below the level of the export committee, quantities are rationed at various levels in the marketing chain: by exporters among farmers and farmers co-operatives, and by farmers co-operatives among their members. On every level where quality allocation takes place, rent seeking would be possible. However, as shown in the graph, due to the highly concentrated organizational structure of the sector, 64-95% quantity allocation takes place within integrated or semi-integrated structures. Within co-operative exporting groups the same allocation rule as in the export committee is usually applied. All producers are allowed to export as much as possible in the beginning of the month and only if the committee limits exports does the exporting group and individual co-operatives distribute the remaining quantity based on the same past reference period as chosen by the export committee. This again leaves little space for swaying any decision on quantity allocation. The fact that the export committee uses total tomato exports (including those to non-EU destinations), however, could lead to part of the rent dissipating in exports which earn less than their marginal cost, but contribute to a higher share in the EU EPQ.

Even though there are rarely any physical rent-seeking activities, part of the rent dissipates in the high organizational efforts of the sector, including the work of the export committee. The export groups, as well as the cooperatives, are financed by a margin of the selling price. Without being member of an exporting group it is hardly possible to participate in the export sector.

As the sector is organised quite competitively, it seems very unlikely that a large part of the rent dissipates because of the existence of extramarginal suppliers. According to various interview partners, only few differences in production efficiency appear while there are larger differences in marketing. Indeed this leads to accumulation of exports with the few most efficient exporting groups. What is surprising, however, is that in spite of the significant rent, the appearance of new producers and exporters rarely takes place. The mechanisms which explain the limited appearance of new enterprises in the sector are not completely clear. One large obstacle for newcomers is the strict water policy in the region of Souss Massa, which does not allow the establishment of new farms in the region.

A third question is how the existing rent is distributed within Morocco. Due to the high degree of education (and thus knowledge about prices which can be realised on the EU market), it seems realistic that farmers should be able to get hold of a large part of the rent. Depending on their satisfaction with the price received, they may also chose to join an alternative cooperative or export as a group, something which happens quite often and prevents intermediates from capturing a large part of the rent.

5 Conclusions

5.1 Size and Distribution of the Quota Rent

The indicators used in this study suggest a quota rent of €0.13 to 0.23/kg of tomatoes. Based on 2000/03 export quantities, this results in a total rent of €24-36.5 million per year, or 25-26% of total export value of tomatoes to the EU. Compared with the total agricultural preference margin (without tomatoes) of about €50 million for Morocco under the Euro-Mediterranean Agreement, this is a significant amount (Grethe et al., 2005). As described above, due to the structure of the Moroccan export sector as well as the EU method of allocating import licences, it is likely that a large part of the quota rent ends up at the Moroccan side. The exporting groups publish prices obtained on the EU market among their member co-operatives to create higher competition among importers and consequently a better negotiating power for the Moroccan exporters. The structure of the sector also suggests that rent dissipation is limited and a significant part of the rent ends up at agricultural producers.

5.2 Future of the Quota Rent

The future of the quota rent will largely be determined by the further development of international trade negotiations in the WTO. It is expected that negotiations on market access in the current Doha round will result in further reduction of MFN tariffs and entry prices and thus result in an erosion of the rent. Furthermore an additional erosion of the rent may take place by increasing production costs caused by higher product or processing standards, e.g. the EUREPGAP certification. A current research project (Chemnitz, forthcoming) supports the hypothesis that the introduction of the EUREPGAP certification in Morocco would be poverty reducing. Due to the structure of the Moroccan tomato sector, only a few producers receive much of the quota rent. By means of higher environmental and occupational health and safety standards implied by EUREPGAP, part of the rent could be distributed to workers in the tomato sector through higher wages and better working standards.

EU preferences for tomatoes from Morocco are an example of trade creation rather than trade diversion. Due to its favourable geographic location with respect to transportation as well as climatic conditions, Morocco is a competitive supplier to the EU and could gain from a further liberalisation of the EU's MFN policies for tomatoes. Even though Morocco would on the one hand lose its quota rent, it could, on the other hand, expand its export quantity and would gain more flexibility to react to changes of prices on the EU market and to the demands of clients. The resulting net welfare effect for the Moroccan export tomato sector depends on i) the size of the current quota rent and any

inefficiencies tied to it, ii) the EU import demand elasticity for tomatoes, iii) the export supply elasticity of Moroccan tomatoes, and iv) the export supply elasticity and the competition from other countries.

Simply because of market size, it is assumed that the EU import elasticity with respect to the Moroccan export tomato price is high, and thus the EU price effect of an expansion of Moroccan tomato exports will be low. Therefore, the gains for Morocco are likely to outweigh the losses.

Yet the gains for Morocco may be limited, as the export elasticity of Moroccan tomatoes correlates closely with the availability of water in the main production areas. Tomatoes require considerable amounts of water; one kg of tomatoes requires about 80 litres of water. In 1992 more than 92% of total water use in Morocco was for agricultural production (FAO, 2005b). Export tomatoes are always produced in greenhouses with irrigation systems. At present about 12% of the usable surface area is irrigated and the potential to extend irrigation is limited. Current surveys indicate about 1.36 million hectares, corresponding to 15% of the usable area and in the main production region of Souss Massa about 139,000 ha are irrigated whereof 30% are irrigated with drip irrigation (WTO, 2003). As Morocco faced difficult droughts in recent years, total water resources have already declined tremendously. The Souss Massa, with an annual rainfall of 200 mm, has an average annual water deficit of 260 m³, which leads to an annual drop groundwater levels of 0.5 to 2 meters (Agence du Bassin Hydraulique de Souss Massa, 2005). Even though the declining groundwater level has the greatest effect on the traditional sectors in the short run, it also affects production cost of the tomato export sector by increasing costs if water must be pumped from greater depths. Furthermore policies of the Moroccan administration are changing in response to the water problem. At the moment a significant part of agricultural subsidies goes directly into irrigation systems. Today's private water prices represent not more than 56-83% of the social cost, including maintenance of the irrigation systems (WTO, 2003). In 2002, the Moroccan government implemented a price of €0.002/m³ for water used for agriculture. As the price is very low and largely symbolic in nature, it may be increased in the future. A water pricing policy which reflects the social cost of providing water to farmers may thus result in a significant decline in the current quota rent.

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