How Effective is the EU Entry Price System for Fresh Fruits and Vegetables?

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Abstract — The EU protects EU growers of 15 kinds of fresh fruits and vegetables against international competition not only by the means of ad valorem tariffs of up to 20%, but also by the EU entry-price system (EPS), which is designed to restrict imports below the product-specific, politically designated entry price level. This study investigates the influence of the EPS on import prices of fruits and vegetables per product and country of origin. We utilise a unique data set comprising about 60,000 observations of daily synthetic import prices.

We develop two indicators for the effectiveness of the EPS, which serve as variables in a cluster analysis identifying four classes differing in the relevance of the EPS. Results suggest that the relevance of the EPS is heterogeneous among products as well as countries of origin for most fruits and vegetables. Thus, an adequate assessment of the importance of the EPS requires not only a product-specific but also a country-specific analysis. Overall, our results indicate that the effectiveness of the EPS is highest for the import of artichokes, courgettes, cucumbers, lemons, plums and tomatoes. The influence of the EPS on apples, clementines and pears is significantly lower, and of least relevance for EU imports of apricots, mandarins, oranges, peaches and nectarines and table grapes. The EPS has the greatest effect on countries which neighbour the EU, whereas it is of minor importance for exports from far-away countries with the exception of China and South Africa.

Keywords— **threshold cointegration, spatial price transmission, vector error correction model**

I. INTRODUCTION

The EU protects EU growers of 15 kinds of fresh fruits and vegetables against international competition not only by the means of ad valorem tariffs of up to 20%, but also by the EU entry-price system (EPS), which is designed to restrict imports below the product-specific, politically designated entry price level. This system was established in 1995, replacing the former reference price system (RPS).

Various authors have analysed the functioning and effects of this highly complex system and have compared it to the former reference price system (see Williams and Ritson, 1987; Swinbank and Ritson, 1995; Grethe and Tangermann, 1999; Martin and de Gorter, 1999; Cioffi and del' Aquila, 2004; Chemnitz and Grethe, 2005; Goetz and Grethe, 2007; García-Alvarez-Coque et al 2007; Martinez-Gomez 2007; López and Muñiz, 2007). These studies' results on single products and countries of origin are heterogeneous. As a general conclusion, the effects of the EPS appear relatively difficult to assess and differ strongly between products and countries of origin.

This study is unique in that it comprehensively analyses the effectiveness of the EPS for all products and countries of origin based on a uniform approach. The central question is whether the EPS influences EU import prices. In other words, would EU import prices change if the EPS were abolished? In particular, we investigate the relevance of the EPS on a disaggregated level, i.e. for each of the 15 fruits and vegetables and all major exporting countries individually. We utilise a unique data set comprising about 60,000 observations of the standard import value (SIV), a synthetic import price calculated by the European Commission (EC), for the period 1995 to 2005 (European Commission, 2005a). We derive two indicators which serve as variables in a cluster analysis that identifies four clusters of product-specific and country-specific imports of fresh fruits and vegetables which differ according to the degree they are affected by the EPS.

The effectiveness of the EPS is particularly topical for several reasons. First, from an EU producer's perspective it is interesting to see how policy-dependent the sector is. Any liberalisation of trade in fresh fruits and vegetables between the EU and Southern Mediterranean countries (SMC), i.e. Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey, within the Barcelona Process is strongly resisted by EU producers, as SMC exports of fresh fruit and vegetables to the EU directly compete with southern EU production due to overlapping production and marketing campaigns (García Álvarez-Coque and Jordán Galduf, 2007).

Second, for any quantitative analysis of liberalisation of trade in fresh fruits and vegetables especially between the EU and SMC, knowledge of the impact of the EPS on the EU import price is required, as García Álvarez-Coque and Jordán Galduf (2007) point out. Our paper provides a basis for deciding for which products it is important to take the EPS into account in simulation analyses.

Third, in the context of the ongoing Doha negotiations of the World Trade Organization (WTO), knowledge about the effectiveness of the EPS could serve as a basis for deciding how much negotiation effort to put into its maintenance (from an EU perspective) or its dismantling (from a third-country perspective).

We proceed as follows. Chapter 2 describes the functioning of the EPS and the indicators are derived in Chapter 3. Empirical results are presented in Chapter 4, while Chapter 5 concludes.

II. STRUCTURE OF THE EU ENTRY-PRICE SYSTEM

The EU protects growers of 15 kinds of selected fruits and vegetables against international competition not only by the means of ad valorem tariffs of up to 20%, but also by the EPS. The EPS came into effect on 1 July 1995, replacing the former RPS. Analogous to a minimum import price, the EPS is designed to restrict imports below the product-specific, politically designated EP plus ad valorem tariff (Table 1). If the EP is undercut, an additional specific tariff is levied, which proportionally varies depending on the gap between the product's actual import price and the EP. When the EP is undercut by 8% or more, the maximum specific tariff, referred to as the maximum tariff equivalent (MTE), of up to 80% of the EP is charged. For example, the EPS is applied to oranges during the EU orange harvest season in the time period December 1 to May 31. The MFN tariff for oranges seasonally varies between 3.2% and 16.0% whereas the MFN EP remains constant at a level of 354 €/t. If oranges are exported to the EU at a price of 336.3 €/t, the EP is undercut by 5%. This implies that the exporter has to pay an additional specific tariff of 17.7 €/t which is equal to the gap between the import price and the EP. If the entry price for oranges is undercut by 8% or more, an additional specific tariff at the level of the MTE of 71 €/t is charged.

Concurrently to protecting EU growers, the EU aims to foster exports to the EU of these fruits and vegetables from preferred trading partners by granting preferential market access. In most cases, preferential market access to the EU market for fresh fruits and vegetables is restricted to ad valorem tariff reductions, and thus the EPS still applies. Exceptions are market access under the Everything-but-Arms Initiative, and preferential market access for the Balkan countries, for which the EPS does not apply. In addition, in some cases EU trade preferences for fresh fruits and vegetables include a preferential EP, which is lower than the most favoured nation (MFN) EP. Preferential EPs, which are limited quantitatively up to a certain export amount by entry price quotas (EPQs), are granted exclusively to Morocco for artichokes, courgettes, cucumbers, clementines and tomatoes, while a preferential EP for oranges is also granted to Cyprus (pre-EU), Egypt and Israel.

Monitoring compliance with the EPS faces the difficulty that a large share of fruit and vegetable imports in the EU is on commission, implying that the import price is not determined until the product is sold in the EU market. Therefore, the EC calculates a synthetic import price, the standard import value (SIV). Fruit and vegetable prices, surveyed for each product and export country individually, are collected on representative fruit and vegetable wholesale markets in all EU Member States. The daily SIVs are calculated as a weighted average of collected wholesale market prices, less a marketing and transportation margin and applied tariffs.

The EPS can be circumvented (both legally and illegally), so that some product is finally sold at prices below the EP (García-Álvarez-Coque, 2002). According to information from importers, illegal circumvention (e.g. based on false invoicing) is more prevalent in small-scale trading, particularly between related trading partners. Storage can offer a means of legal circumvention, as storable products can be imported at any time while customs clearance is delayed until some later date when the SIV is above the EP. Once cleared at a favourable SIV, the product can be sold later on EU markets at any price (Cioffi and del' Aquila, 2004).

Table 1: Basic elements of the EPS

	MFN tariff (%)	MFN EP		Pref. EP	Specific tariff	
		Level (€/t)	Period of application	Level (€/t)	As a % of MFN EP	MTE (€/t)
Apples	4.8 - 11.2	457 - 568	01.01.- 31.12.	-	41.9 - 52.1	238
Apricots	20.0	771 – 1,071	01.06.- 31.07.	-	21.2 - 29.4	227
Artichokes	10.4	654 - 826	01.11. - 30.06.	571	27.7 - 35.0	229
Cherries	12.0	916 – 1,494	21.05.- 10.08.	-	18.3 - 29.9	274
Clementines	16.0	649	01.11. - 28.02.	484	16.3	106
Courgettes	12.8	413 - 692	01.01. - 31.12.	413-424	22.0 - 36.8	152
Cucumbers	12.8 - 16.0	481 – 1,105	01.01. - 31.12.	449	34.2 - 78.6	378
Lemons	6.4	462 - 558	01.01. - 31.12.	-	45.9 - 55.4	256
Mandarins	16.0	286	01.11. - 28.02.	-	37.1	106
Oranges	3.2 - 16.0	354	01.12. - 31.05.	264	20.1	71
Peaches/ nectarines	17.6	600 - 883	11.06. - 30.09.	-	14.7 - 21.7	130
Pears	4.0 – 10.4	388 - 510	01.07.- 30.04.	-	46.7 - 61.3	238
Plums	6.4 – 12.0	696	11.06. - 30.09.	-	14.8	103
Table grapes	8.0 – 17.6	476 - 546	21.07. - 20.11.	-	17.6 - 20.2	96
Tomatoes	8.8 – 14.4	526 – 1,126	01.01. - 31.12.	461	26.5 - 56.7	298

Sources: European Commission (2007), own calculations.

III. SPECIFICATION OF INDICATORS TO ANALYSE THE EFFECTIVENESS OF THE EPS

This Chapter specifies and empirically illustrates the utilized indicators. We define the relative difference between the SIV and the respective EP as GAP as follows:

$$GAP_{ijt} = \frac{(SIV_{ijt} - EP_{ijt})}{EP_{ijt}} \quad (1)$$

with i=kind of product, j=country of origin and t=time. Since preferential EPs are granted to just some countries, EP_{ijt} depends not only on the kind of product but also the country of origin. Besides, EP_{ijt} varies seasonally for some fruits and vegetables. If $GAP_{ijt} > 0$, the import price is higher than the EP, and if $GAP_{ijt} < 0$, it is lower. Several characteristics of the distribution of GAP_{ijt} can be identified which are related to the relevance of the EPS. Import price observations with $GAP_{ijt} < 0$ indicate that there exists an export supply below the EP. The higher the share of observations with $GAP_{ijt} < 0$, the higher the export supply at prices below the EP. In such cases, the EPS is relevant.

Assuming that circumvention of the EPS is only possible to some degree, and/or that circumvention involves additional costs (e.g. for storage), a high share of observations with $GAP_{ijt} < 0$ indicates that abolishing the EP would result in an increase of export supply at prices below the EP. The stronger the degree of circumvention and/or the lower the cost of circumvention, the less the EPS restricts the existing export supply below the EP, and the lower the effect of abolishing the EP would be.

This can be illustrated by two examples, oranges and tomatoes originating in Morocco. Case studies show that the EPS is of low relevance for EU orange imports originating in Morocco (Goetz and Grethe, 2007). In contrast, the EPS is highly relevant for imports of tomatoes originating in Morocco (Chemnitz and Grethe, 2005; García-Álvarez-Coque et al., 2007). Figure 1 compares histograms of the distributions of GAP_{ijt} for these two cases in the period 1997-2005. The figures show that $GAP_{ijt} > 0$ for all observations for oranges, whereas $GAP_{ijt} < 0$ for a substantial share (21%) of observations for tomatoes. Thus, the export supply for oranges originating in Morocco is exclusively above the EP, whereas tomatoes exported by Morocco are also supplied at prices below the EP.

Thus, we define the share of observations with $GAP_{ijt} < 0$ in all observations of GAP_{ijt} as the first indicator of our analysis of the relevance of the EPS:

(2) $neg.GAP_{ij}$ = (number of observations of GAP_{ijt} with $GAP_{ijt} < 0$) / (number of observations of GAP_{ijt})

with i=kind of product, j=country of origin and t=time.

This is correlated with the importance of the EPS. The smaller $neg.GAP_{ij}$, the less relevant the EP for the import price for product i exported by country j. Conversely, the larger $neg.GAP_{ij}$, the higher the influence of the EPS on the EU import price. As explained above, this requires SIV to be below the EP within the actual import season of the product. A similar variable is used in previous studies on the effectiveness of the EPS and RPS (see Cioffi and dell'

Aquila (2004) and Swinbank and Ritson (1995), respectively).

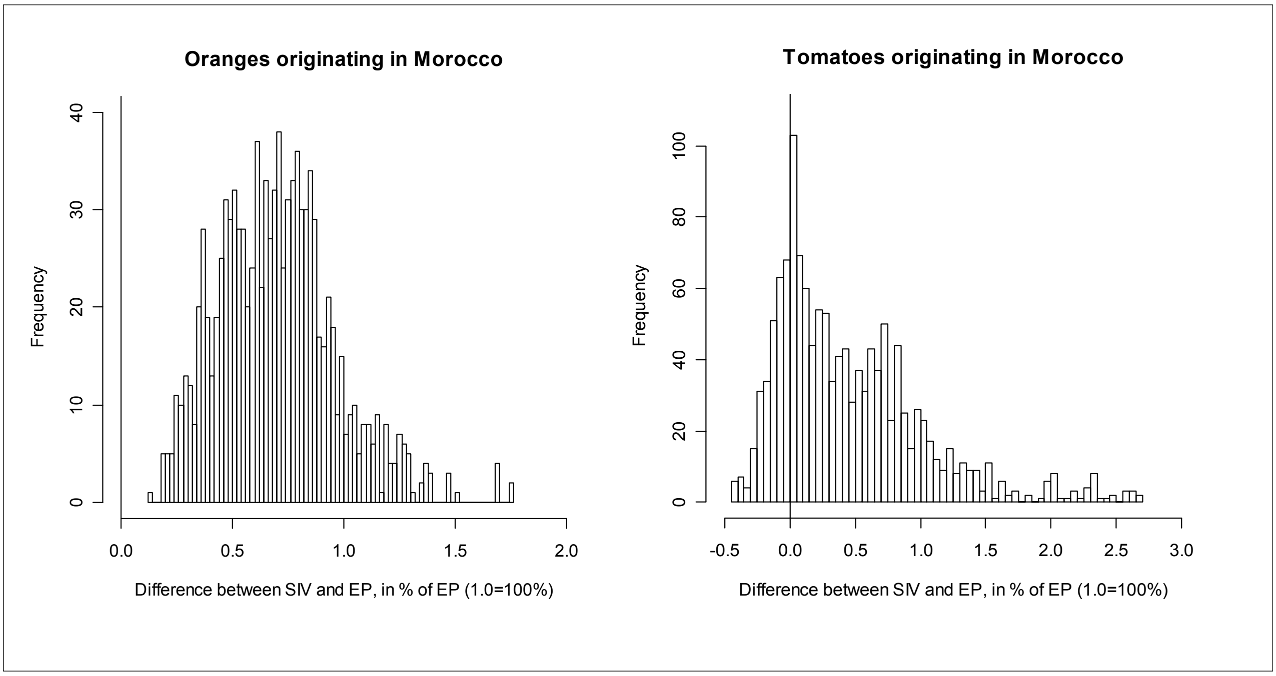
One drawback of $neg.GAP_{ij}$ as an indicator for the relevance of the EPS is that it is confined to the effects of the EPS on observations with $GAP_{ijt} < 0$ and does not cover the influence of the EPS on observations with $GAP_{ijt} > 0$. Therefore, we derive a second indicator from the assumption, which is supported by anecdotal evidence, that exporters often supply their product at the lowest possible price while complying with the EP, thereby utilising their competitive cost advantage only to such a degree that additional specific tariffs are avoided. In other words, exporters could supply at lower prices but do not do so in order to avoid triggering specific tariffs. This implies a concentration of observations with $GAP_{ijt} > 0$ slightly above the EP. Here, the EP is relevant for exporters and has a significant influence on the price of the export supply. Hence, if the EP were abolished, export supply at prices below the EP would increase. Conversely, the EPS has no influence on observations with $GAP_{ijt} > 0$ with SIV being significantly higher than the EP. The degree of accumulation of observations with $GAP_{ijt} > 0$ slightly above the EP can be measured by the quantile with p=0.05 of the distribution of GAP_{ijt} with $GAP_{ijt} > 0$. The quantile with p=0.05 measures the highest GAP_{ijt} value in the set of observations that belong to the bottom 5% of the distribution of observations with $GAP_{ijt} > 0$. The lower the value of the 0.05-quantile, the more observations accumulate slightly above EP. This indicator explicitly addresses the influence of the EPS on import price observations with $GAP_{ijt} > 0$.

As an example, it becomes directly evident from Figure 1, that observations with $GAP_{ijt} > 0$ concentrate slightly above the EP for tomatoes, whereas for oranges the value of GAP_{ijt} is significantly higher than the EP with the minimum value of GAP_{ijt} amounting to 0.13. The 0.05 quantile is 0.03 for tomatoes and 0.31 for oranges. In other words, the smallest 5% of the observations with $GAP_{ijt} > 0$ exceed the EP by at most 3% for tomatoes compared with 31% for oranges. This suggests that the EPS is much more effective for tomatoes from Morocco than for oranges from Morocco, confirming the case study results cited above.

Thus, the degree of concentration of observations with GAP_{ijt} around the EP measured by the 0.05 quantile of the distribution of GAP_{ijt} with $GAP_{ijt} > 0$ serves as the second indicator in our analysis. Since the variance of GAP_{ijt} may vary by product and

on the EU import price. For oranges and tomatoes

Figure 1: Histograms of GAP_{ijt} for oranges and tomatoes originating in Morocco



Sources: European Commission (2005a, 2007), own calculations.

distributions with differing variance are not exactly comparable, the 0.05 quantile is standardised by the standard deviation. In addition, large values are weighted less by taking logarithms, as the effectiveness of the EPS is only proportional to the 0.05 quantile within a certain interval:

(3) $$Q^{*}_{0.05ij} = \ln\left(\frac{Q_{0.05ij}}{sd(GAP_{ij})}\right)$$

The less GAP_{ijt} is concentrated around the EP, the larger $Q^{*}_{0.05ij}$ and the lower the influence of the EPS

0.54, respectively. However, the converse case has to be interpreted with care, as an accumulation of prices around the EP could also be caused by other factors.

It should be pointed out that the two indicators $Q^{*}_{0.05ij}$ and $neg.GAP_{ij}$ complement each other, but are theoretically not necessarily related. For example, if the EP is highly relevant and a country's exports to the EU are strongly organised and managed well in order to comply with the EPS by supplying products at a price at least as high as the EP, the value of $neg.GAP_{ij}$ as well as $Q^{*}_{0.05ij}$ might be low. In this case, the effectiveness of the EPS is high, although $neg.GAP_{ij}$ is low. Thus, $neg.GAP_{ij}$ alone would not correctly determine the effectiveness of the EPS. Instead, the high relevance of EPS would become evident in a low value of $Q^{*}_{0.05ij}$.

IV. EMPIRICAL RESULTS

The indicators $neg.GAP_{ij}$ and $Q^{*}_{0.05ij}$ derived above are calculated for 81 country- and product-specific distributions of GAP_{ijt} , each consisting of between 65 and 2,678 observations. We conduct a cluster analysis with the aim to attribute country- and product-specific imports of fresh fruits and vegetables into classes which differ in the relevance of the EPS. Although $neg.GAP_{ij}$ and $Q^{*}_{0.05ij}$ exhibit substantial correlation (correlation coefficient = -0.59, p-value=0.01), both indicators are used as variables in the cluster analysis for reasons given in Chapter 3.

The optimal number of clusters and the respective cluster means are identified by the Ward method, which serves as a starting partition in the consequent application of the K-Means method to determine the elements of each cluster. The four-cluster result from the Ward method as the starting partition for the K-Means method, which identifies the optimal four-cluster solution for 80 objects.

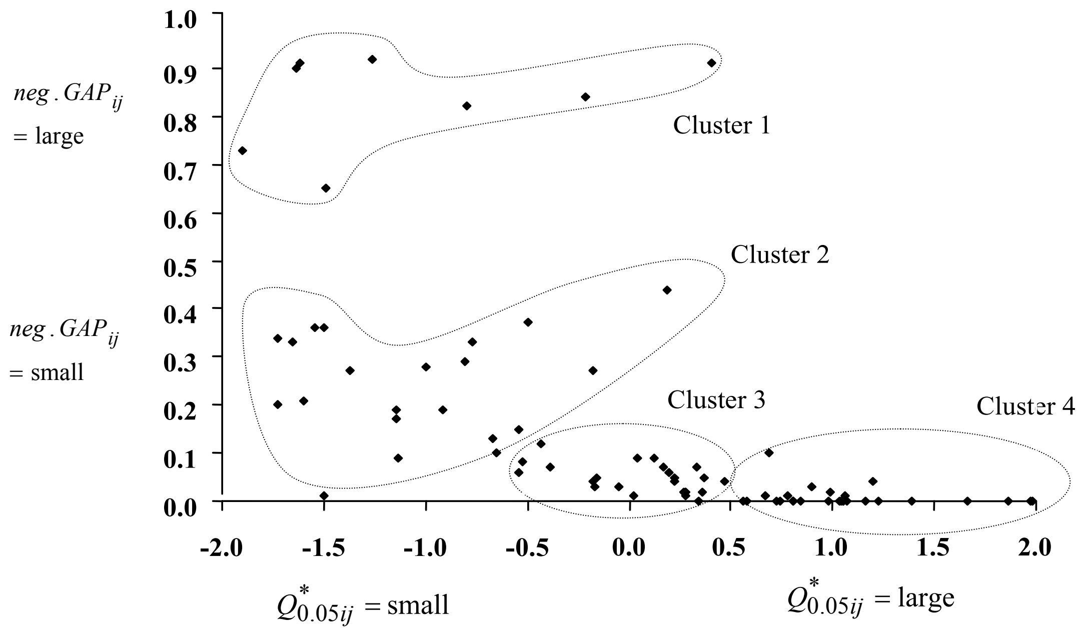
Several criteria suggest that the obtained four-cluster solution is of high quality. F-values are smaller than 1 for both variables in each cluster; eta = 0.93 on average and $eta^2 = 0.86$. In addition, cross-tabulation indicates that 74 objects, corresponding to 92.5% of the total, are classified congruently by the Ward and the K-means methods, and the kappa number is equal to 0.90.

Results of the cluster analysis are presented in the cluster plot (Figure 2). In the cluster plot the vertical axis displays the share of negative observations in its original dimension, while the horizontal axis displays the size of the 0.05 quantile in its normalised, logarithmised and z-standardised form. Table 3 additionally presents detailed results for all objects.

Cluster results suggest that the EPS is of highest relevance for objects in cluster 1, which display a very high share of negative observations for all objects and a strong accumulation of SIVs close to the EP for most products. Furthermore, for objects belonging to cluster 2 the EPS is relevant, although to a lesser extent. The share of negative observations is lower than for cluster 1, but still at 9% or more for all but one product. In addition, SIVs are concentrated closely above the EP for most products in cluster 2. The relevance of the EPS is lower for objects in cluster 3, and lowest of all for all objects attributed to cluster 4. The share of negative observations is very low for both clusters, and only for some products in cluster 3 is there some concentration of SIVs near the EP level.

The affiliation of individual fruits and vegetables is with some exceptions heterogeneous throughout

Figure 2: Cluster plot



Source: own calculations.

countries of origin (Table 2). For example, the EPS is of low importance for the major apple exporters to the EU such as Argentina, New Zealand and South Africa, but relevant for minor exporters such as China, Turkey, Poland and Uruguay. Regarding pears, the EPS is only relevant for exports from China. In addition, the EPS is of high relevance for the major tomato suppliers (Morocco and Turkey), but of low importance for Israel and Tunisia.

To draw some more general conclusions with regard to the relevance of the EPS for particular kinds of fruits and vegetables, country-specific results for each product are weighted by their respective share in the total quantity of EU imports during the period covered by the EPS (Table 2). For example, the countries of origin for apples that are attributed to clusters 3 and 4 account for 59% and 38% of total EU apple imports, respectively. This aggregation shows that the EPS is most relevant for the import of artichokes, courgettes, cucumbers, lemons, plums and tomatoes (dominant shares in clusters 1 and 2); significantly lower for apples, clementines and pears (dominant shares in cluster 3); and least relevant for apricots, mandarins, oranges, peaches and nectarines and table grapes (dominant shares in cluster 4). For their part, apples are easily stored, offering broad opportunities to circumvent the EPS (which is particularly the case for apples originating in countries in the Southern Hemisphere). Therefore, it can be expected that the removal of the EPS for apples would only have a very limited effect on the EU market.

Furthermore, to assess the relevance of the EPS for individual export countries, the incidence of clusters is aggregated per country over all products. The group of countries which are repeatedly attributed to clusters 1 and 2 and thus for which the EPS is of high relevance comprises Turkey (5 out of 11 products), the eastern European countries of Bulgaria, Poland, Romania and Hungary before EU accession (8 out of 11), the neighbouring eastern European countries of Bosnia-Herzegovina, Serbia-Montenegro and Macedonia (1 out of 1 each), Morocco (3 out of 6), South Africa (2 out of 4) and China (2 out of 2).

In contrast, the EPS is of low relevance for Israel (4 out of 5 objects are clearly assigned to clusters 3 and 4), the US (3 out of 3), and Jordan, Canada and New Zealand (2 out of 2 each).

The results also suggest that the influence of the EPS on the SMC (with the exception of Cyprus) is mixed, with the exception of mandarins and table grapes, which are attributed to cluster 4 for all SMC. For example, the EPS has a higher influence on tomato exports from Morocco and Turkey than from Israel or Tunisia; and greater impact on orange exports from Egypt, Tunisia and Turkey than from Israel or Morocco. It is striking that the EPS is of high relevance for Moroccan exports of courgettes, cucumbers and tomatoes, for which Morocco enjoys preferential EPs. Overall, out of 38 SMC objects, the EPS is of high relevance for 8 objects (21% in cluster 4), and of low if any relevance for 30 objects (79% in clusters 3 and 4).

V. CONCLUSIONS

The results of this analysis suggest that the relevance of the EPS is heterogeneous among products and among countries of origin for most kind of fruits and vegetables.

With respect to product-specific results, we find that the effectiveness of the EPS is highest for artichokes, courgettes, cucumbers, lemons, plums and tomatoes. The influence of the EPS on apples, clementines and pears is lower, and the EPS is of lowest relevance for apricots, mandarins, oranges, peaches and nectarines and table grapes.

With respect to country-specific results, we find that the EPS is of particular relevance for fruit and vegetable exports from the EU's neighbours such as Morocco, Turkey and Eastern Europe. These countries would benefit most if the EPS were removed. In contrast, the EPS is of minor importance for exports from far-away countries with high transport costs such as Canada, Israel, New Zealand and the US, with the exception of China and South Africa. Results suggest that abolishing the EPS would enable the latter two countries to utilise their competitive cost advantage more fully.

We also find that the EPS is of high relevance for Moroccan exports of courgettes, cucumbers and tomatoes, despite the fact that Morocco enjoys preferential EPs. This implies that Morocco exhausts the preferential EPs for these products.

However, the EPS is of little relevance for developing countries other than the EU's direct southern neighbours today. Since LDCs are not covered by the EPS anyhow as part of the EBA initiative, the EPS is of no relevance for Sub Saharan Africa except for South Africa. Furthermore, exports from Latin American countries (Brazil, Argentina, Chile and Uruguay) are mostly attributed to cluster 3, thus the EPS is of minor importance. This may also be due to substantial sea transport costs for these countries, with transport in a refrigerated container amounting to e.g. 165 $/t for Brazil, 175 $/t for Argentina and 250 $/t for Chile.

Overall, in 36% of the analysed country-specific and product-specific cases we find the EPS to be of relatively high relevance. In contrast, the EPS is of rather low, if any, relevance for 64% of the investigated cases.

Generalising the results of this analysis for the whole EU fruit and vegetable trade has to take into account that the analysis is based on EU wholesale market prices, which are on average about 10-20% higher than prices of produce directly traded by importers to retailers in Germany.

For any simulation modelling of trade liberalisation for fruits and vegetables between the SMC and the EU, we conclude that there is little value in modelling the effects of the EPS for cluster 4 products, i.e. exports of apricots, cherries, mandarins, nectarines and peaches and table grapes by Turkey; mandarins and oranges by Morocco; mandarins, oranges, plums and table grapes by Israel; and table grapes by Egypt, for which the EPS is indeed a paper tiger. Rather, it seems promising to concentrate on cluster 2 cases, for which the EPS constitutes a powerful market barrier.

In the future, the effectiveness of the EPS will be eroded for three reasons. First, the EPS is devalued each year due to inflation. Second, the EU is seeking to conclude regional trade agreements (RTAs) with many countries and is increasingly including agricultural products in these RTAs. Current negotiations include a potential agreement with the MERCOSUR countries and further liberalisation with the SMC as part of the Barcelona Process, improving market access for fresh fruit and vegetables by tariff or entry price reductions. Third, the EU import regime for fruit and vegetables will be subject to any agreement on agriculture that may be reached in the Doha Round.

Finally, we note that the EPS is in contradiction with the spirit of the WTO rules on market access for agricultural products which prohibit non-tariff barriers. Its administration, further development and administration by importing companies involve transaction costs. In light of the redundancy of the EPS for many products and origins found here, which is likely to increase as the EPS is eroded by bilateral and multilateral trade liberalisation, its abolition would be an important step in the direction of a more liberal and transparent trading regime.

Table 2: Cluster analysis of results

	$neg.GAP_{ij}$	$Q^*_{0.05ij}$ (z-standard)	Number of observations	Share in total extra-EU import	Cluster
Apples	**EPS of lowest relevance** (a: >0.98; b: cluster 1: <0.01, cluster 2: <0.04, cluster 3: <0.59, cluster 4: 0.38				
Argentina	0.09	0.04	1275	0.10	3
Australia	0.00	0.98	714	0.01	4
Brazil	0.05	0.37	1179	0.07	3
Canada	0.00	1.05	1543	0.01	4
Chile	0.05	0.22	1412	0.20	3
China	0.10	-0.65	1493	0.02	2
New Zealand	0.04	1.20	1315	0.30	4
Poland	0.91	-1.62	813	<0.01	1
South Africa	0.04	0.47	1648	0.21	3
South Korea	0.02	0.28	340	<0.01	3
Turkey	0.20	-1.73	337	<0.01	2
Uruguay	0.13	-0.67	788	<0.01	2
USA	0.01	0.67	2212	0.06	4
Apricots	**EPS of lowest relevance** (a: 0.87; b: cluster 3: 0.26, cluster 4: 0.61)				
Hungary	0.10	0.69	130	0.26	3
Turkey	0.00	1.16	323	0.61	4
Artichokes	**EPS of higher relevance** (a: 0.96; b: cluster 2: 0.96)				
Egypt	0.27	-0.18	519	0.96	2
Cherries	**EPS of lowest relevance** (a: <0.83; b: cluster 2: 0.01, cluster 3: <0.13. cluster 4: 0.72)				
Bulgaria	0.19	-1.14	160	0.01	2
Canada	0.00	1.05	1543	0.02	4
Hungary	0.06	0.20	154	0.12	3
Iran	0.03	-0.05	175	<0.01	3
Turkey	0.01	0.78	440	0.60	4
USA	0.00	1.04	466	0.10	4
Clementines	**EPS of lower relevance** (a: 0.99; b: cluster 2: 0.01, cluster 3: 0.98)				
Turkey	0.44	0.19	356	0.01	2
Morocco	0.01	0.28	799	0.98	3
Courgettes	**EPS of lower relevance** (a: 0.97; b: cluster 3: 0.11; Morocco: 0.86				
Jordan	0.00	0.56	119	0.01	3
Morocco	0.09	-1.13	979	0.86	2
Turkey	0.04	-0.18	2204	0.10	3
Cucumbers	**EPS of lower relevance** (a: 0.67; b: cluster 2: 0.21, cluster 3: 0.45)				
Bulgaria	0.29	-0.81	344	0.11	2
Egypt	0.00	0.34	205	0.01	3
Jordan	0.00	0.58	571	0.06	3
Morocco	0.28	-1.00	385	0.10	2
Turkey	0.07	-0.39	1788	0.38	3
Lemons	**EPS of higher relevance** (a: <0.97; b: cluster 2: 0.96, cluster 3:<0.01)				
Argentina	0.36	-1.54	1273	0.66	2
Cyprus	0.02	0.27	789	<0.01	3
South Africa	0.19	-0.92	1254	0.09	2
Turkey	0.15	-0.54	1253	0.15	2
Uruguay	0.33	-0.77	812	0.05	2
Zimbabwe	0.34	-1.73	313	<0.01	2

	$neg.GAP_{ij}$	$Q^*_{0.05ij}$ (z-standard)	Number of observations	Share in total extra-EU import	Cluster
Mandarins	**EPS of lowest relevance** (a: <0.94 ; b: cluster 4:<0.94)				
Cyprus	0.00	1.98	219	0.06	4
Israel	0.00	1.86	514	0.16	4
Jamaica	0.00	0.81	492	<0.01	4
Morocco	0.01	1.06	395	0.07	4
Pakistan	0.02	0.99	97	<0.01	4
Turkey	0.00	1.66	819	0.63	4
Oranges	**EPS of lowest relevance** (a: <0.94; b: cluster 2: <0.02, cluster 3: 0.25, cluster 4: 0.67				
Cyprus	0.01	0.02	502	0.03	3
Egypt	0.05	-0.16	669	0.09	3
Israel	0.00	1.39	834	0.21	4
Morocco	0.00	1.23	1035	0.46	4
South Africa	0.37	-0.50	220	0.01	2
Tunisia	0.03	-0.17	762	0.07	3
Turkey	0.08	-0.52	1016	0.06	3
USA	0.01	-1.50	191	<0.01	2
Peaches/Nectarines	**EPS of lowest relevance** (a: 0.71; b: cluster 3: 0.06, cluster 4: 0.65)				
Israel	0.09	0.12	65	0.06	3
Turkey	0.00	0.84	485	0.65	4
Pears	**EPS of lower relevance** (a: <0.94; b: cluster 2: 0.02, cluster 3: <0.88, cluster 4: <0.04)				
Argentina	0.07	0.17	923	0.43	3
Chile	0.07	0.33	796	0.17	3
China	0.33	-1.65	799	0.02	2
Hungary	0.02	0.36	559	<0.01	3
New Zealand	0.00	0.81	136	<0.01	4
South Africa	0.02	0.28	1243	0.27	3
Turkey	0.00	1.03	1124	0.03	4
Plums	**EPS of highest relevance** (a: 0.86; b: cluster 1: 0.71, cluster 4: 0.15)				
Bosnia-Herzegovina	0.82	-0.80	128	0.01	1
Bulgaria	0.91	0.41	123	0.03	1
Hungary	0.73	-1.90	388	0.44	1
Israel	0.03	0.90	494	0.15	4
Poland	0.90	-1.64	134	0.05	1
Romania	0.65	-1.49	349	0.15	1
Serbia-Montenegro	0.92	-1.26	144	0.03	1
Table grapes	**EPS of lowest relevance** (a: <0.75; b: cluster 2: <0.01, cluster 4: 0.73)				
Cyprus	0.04	0.22	159	0.02	3
Egypt	0.00	0.72	141	0.01	4
Hungary	0.17	-1.14	309	<0.01	2
Israel	0.00	1.07	317	0.01	4
Turkey	0.00	0.74	756	0.40	4
USA	0.00	1.97	598	0.31	4
Tomatoes	**EPS of higher relevance** (a: 0.98; b: cluster 1: 0.01, cluster 2: 0.91, cluster 3: 0.08)				
Israel	0.06	-0.54	520	0.06	3
Macedonia	0.84	-0.21	268	0.01	1
Morocco	0.21	-1.60	1325	0.83	2
Poland	0.36	-1.50	181	0.01	2
Tunisia	0.12	-0.43	651	0.01	3
Turkey	0.27	-1.37	1593	0.06	2

a: The sum of import shares of all countries of origin in total extra-EU imports for the respective product in the time period for which the EPS applies.
b: The sum of import shares of all countries of a specific cluster in total extra-EU imports of one product in the time period the EPS applies.
Observation period: 1995-2005 for cherries, clementines and mandarins, and 1997-2005 otherwise.

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