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Potential alliances for Turkey in coming WTO agricultural negotiations

Berna Türkekul

*Ege University Faculty of Agriculture
Agricultural Economics Department*

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Dr. Berna Türkeku

*Ege University Faculty of Agriculture
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Introduction

Restoring international economic growth and stability through the promotion of trade was crucial to securing a lasting peace after World War II. It was that vision that led to the establishment of institutions in order to ensure monetary and financial cooperation. Another intention was to create another institution handling international economic cooperation, to join the "Bretton Woods" institutions. The complete plan was to create an International Trade Organization (ITO). Even before the ITO was finally approved, participants decided to negotiate. The combined package of trade rules and tariff concessions became known as The General Agreement on Tariffs and Trade (GATT). Although it was a provisional agreement, GATT remained the only multilateral instrument governing international trade from 1948 to 1994. Efforts to reduce tariffs further were achieved through series of multilateral negotiations known as "trade rounds". The Uruguay Round (UR) has been the most complex of the eight rounds of GATT. In 1995, the GATT became the WTO, a fully-fledged international organization with stronger and broader authority (Türkeku, 1998). During the UR (1986-1994), agriculture was brought more fully into the multilateral trading system and GATT provisions that discriminated against the interests of agriculture-exporting countries were reformed.

The WTO Agriculture Agreement, together with individual countries' commitments to reduce export subsidies, domestic support and import duties on agricultural products were a significant first step towards reforming agricultural trade. The implementation period for the UR Agreements is now over. Article 20 of the Agriculture Agreement (AoA) committed members to start negotiations on continuing the reform at beginning of 2000. Those negotiations are now well underway.

As a member of WTO, Turkey amended its legislation in compliance with its obligations under the WTO. Another major economic involvement heavily determining future direction of Turkey's foreign trade is the Customs Union with the EU. Nevertheless Turkey also is a party to the Barcelona Process, which aims at establishing the Euro-Mediterranean Free Trade Area by the year 2010. The above mentioned developments affect Turkey's position in WTO agricultural negotiations. In this regard this paper analysis whether Turkey can form alliances with the EU and Mediterranean countries in the new rounds of agricultural negotiations.

In addition hereto next section introduces a brief description of the data and methodological framework. Section III and IV examine the positions of Mediterranean Countries and Draft Ministerial Text. Section V presents the empirical results. Section VI offers some concluding remarks.

1. Data and Methodology

The data consists of some economical, agricultural indicators and the indicators reflecting the official positions of Mediterranean countries. As the economical indicators, GDP per capita level expressed at constant 1995 US\$ and trade openness are considered. Trade openness is calculated as the ratio of the sum of imports and exports to GDP. Since the paper focuses on the agricultural negotiations, the structure of agriculture has an importance in shaping the countries' positions. Therefore indicators indicating the relative importance of agriculture in the national economy are chosen. These are agricultural value added, the share of agriculture in employment, the share of agricultural import in total import, the share of agricultural export in total export. These data are taken from World Bank, Food and Agriculture Organization (FAO), United Nation Statistics Office. The indicators reflecting the official positions of Mediterranean countries are taken from proposals¹ and statements² (Appendix Table1). All variables were calculated as average values of the last five years in order to eliminate possible distortions.

The data covers 9 countries³ and Draft Ministerial Text. The Ministerial Text is accepted as an independent country. A procedure similar to Bjørnskov and Lind (2002) in order to generate possible alliances for the countries included in this study. Another application of cluster analysis techniques to WTO negotiations was proposed by Diaz-Bonilla et al (2000) in the context of food security. Also correlation analysis and multidimensional scaling are performed to identify which countries agree the most.

Members' positions on a range of issues identified as important in the coming round are rated. Each country receives a rating on tariff, tariff escalation, tariff rate quota, export subsidies, blue box, green box, amber box, aggregate measurement of support, de minimis issues. These ratings are distributed on a scale from zero to four where a higher rating indicates more dedication to trading free of barriers or support⁴. These are used as inputs with the economical and agricultural indicators in the cluster analysis and multidimensional scaling.

This approach implies rating 10 (9 countries and Draft text) countries on 15 different indicators (6 economical and agricultural indicators, 9 issues), and hence forms a data set of 150 ratings. However, ratings are lacking where countries have not indicated a clear position in any of the surveyed proposals and statements. As a consequence, the data consists of 114 ratings and 36 missing data points. In the following analyses, these missing data points are replaced by the average rating on the issue in question.

Cluster analysis is concerned with group identification. The goal of cluster analysis is to partition a set of observations into a distinct number of unknown groups or clusters in such a manner that all observations within a group are similar while observations in different groups are not similar.

Algorithms designed to perform cluster analysis are usually divided into two broad classes called hierarchical and non hierarchical clustering methods. Generally speaking, hierarchical methods generate a sequence of cluster solutions beginning with clusters containing a single object and combines objects until all objects form a single cluster; such methods are called agglomerative hierarchical methods. Other hierarchical methods begin with a single cluster and split objects successively to form clusters with single objects; these methods are called diverse hierarchical methods. In both the agglomerative and diverse processes, a tree diagram, or dendrogram, is created as a map of the process.

¹ WTO document G/AG/NG/W/90, 14 December 2000; WTO document G/AG/NG/W/107, 6 February 2001; WTO document G/AG/NG/W/142, 23 March 2001; WTO document G/AG/NG/W/106, 5 February 2001; WTO document G/AG/20, 15 July 2005; WTO document G/AG/NG/W/140, 22 March 2001; WTO document G/AG/NG/W/57, 14 November 2000; WTO document G/AG/NG/W/141, 23 March 2001; WTO document G/AG/NG/W/105, 5 February 2001; WTO document G/AG/NG/W/56, 14 November 2000.

² WTO document G/AG/NG/W/150, 4 April 2001; WTO document TN/AG/GEN/1, 14 March 2003; WTO document TN/AG/GEN/2, 4 April 2003; WTO document G/AG/NG/W/172, 9 April 2001; WTO document G/AG/NG/W/173, 9 April 2001; WTO document G/AG/NG/W/147, 3 April 2001; WTO document G/AG/NG/W/131, 21 February 2001; WTO document G/AG/NG/W/85, 29 November 2000.

³ Albania, Croatia, Egypt, EU (25), Israel, Jordan, Morocco, Tunisia, and Turkey.

⁴ The rating 'zero' reflects support for expanding the current provisions and possibilities for support and protection; a rating of 'one' reflects support for keeping the current WTO provisions unchanged, but including the so-called broad agenda issues, i.e. a number of non-trade concerns; the rating 'two' reflects support for reducing tariffs and domestic support, but with special and differential treatment or exemptions given to developing countries, in some cases also transition economies; the rating 'three' reflects a desire to reduce tariffs or domestic support, i.e. to increase global market access; and a rating of 'four' reflects that a country wants to eliminate or substantially reduce tariffs and domestic support, and have a new round of negotiations as narrow as possible (Bjørnskov and Lind, 2002).

The agglomerative hierarchical procedures fall into three broad categories: Linkage, Centroid and Error Variance methods. Among these procedures, only linkage algorithms may be used to cluster either objects or variables. The other two methods can be used to cluster only objects (Timm, 2002).

Relocation methods move observations iteratively from one group to another, starting from an initial partition. The number of groups has to be specified in advance and typically does not change during the course of the iteration. The most common relocation method — *k*-means reduces the within-group sums of squares (Fraley, Raftery, 2005).

In fuzzy clustering, data elements can belong to more than one cluster, and associated with each element is a set membership levels. These indicate the strength of the association of between that data element and a particular cluster. Fuzzy clustering is a process of assigning these membership levels, and then using them to assign data elements to one or more clusters.

The cluster analyses start with a hierarchical method where clusters are merged according to the smallest increase in a dissimilarity index following Ward's method, which yields the suitable number of clusters. Then the *k*-means and fuzzy methods are applied taking the number of cluster from the hierarchical method as given.

Multidimensional scaling (MDS) is a generic term for a set of mathematical techniques used to explore underlying structures in data sets. An MDS solution reflects possible latent structures of the data and could make data easier to interpret. MDS is an explorative procedure designed for use with data that either could be expressed as distances (ratio and interval data), or that differ in terms of similarity (nominal and ordinal data). The latter type is treated as relative geometrical distances. Thus, MDS techniques use similarities (or dissimilarities) between variables in a data set as input. A similarity is a number indicating how similar or different two variables are in terms of relatedness.

The output from an MDS analysis is often presented graphically where the *n* dimensional spatial representation is projected into two or three dimensions, yielding a geometric map-like configuration of all variables and their interrelationships in the studied sample. Each point in an MDS solution corresponds to one variable or item. The more similar two variables are, the closer they will appear on the "map". Non-metric MDS is the most commonly used method in published articles and is also the method of choice when analyzing nominal or ordinal data.

In defining the criterion to determine which configuration is better than another, a goodness of fit measure named *STRESS* is used. This criterion measures how well the given configuration represents the given dissimilarities. Smaller stress means a better fit, and zero stress means a perfect fit. If the stress value higher, then a higher dimension map would be used which would make the interpretation of the map more difficult (Mead, 1992).

A second criterion for evaluating the number of dimensions necessary and sufficient to adequately represent the stimulus space, is the *RSQ index* or squared multiple correlation between the proximities in the similarities data and the distances plotted by the MDS model. The RSQ index describes how much of the variance in the proximity data is accounted for by the MDS model. As with any squared correlation, one indicates a perfect fit and zero indicates no fit at all (Pinkley et al, 2005).

2. Position of Mediterranean Countries, Turkey and the EU

2.1 - Market Access

In the area of market access, EU, Israel and Turkey are proposed using a Uruguay Round approach where they set a target for the average tariff cut combined with a minimum cut for individual tariff lines, which is substantially lower than the average tariff cut target. However, for Turkey, further tariff reductions can be considered when export subsidies and domestic support measures are substantially reduced or eliminated. Also for Turkey, tariff reductions can be undertaken provided that special and differential treatment for developing countries is respected and strengthened. Albania and Croatia, like EU, Israel and Turkey support Uruguay Round approach. But they ask for certain flexibilities as recognition of their high level of market opening and extreme vulnerability resulting from the transformation process. The African Group of Mediterranean (Egypt, Morocco, and Tunisia) proposed final bound rates for tariff reductions. Although not proposing specific numerical targets, the African Group asks for substantial reduction of the tariff peaks and tariff escalation they are facing.

Furthermore, the group emphasizes that the existing preferences should stay meaningful, and that LDCs' exports should be quota-free and tariff-free. Jordan declares its intention to define a specific tariff rate target to be reached by developing countries and another one for developed countries (e.g. weighted average). It also proposes the rate of tariff reduction depending on the applied tariff level of each country and the targeted tariff level to be reached over a fixed period.

As to tariff quota volumes, Israel do not require for expanding quota volumes in the WTO, beyond the existing arrangements. The EU, on the other hand, only declares its intention to enhance the administration of the tariff rate quotas (TRQs). The African Group asks for special measures to assist small-scaled and limited commodity exports in benefiting from TRQs in major markets. Turkey supports the elimination of tariff quotas through the expansion of quota volume and reduction in in-quota and out-quota tariffs over an agreed time frame.

2.2 - Export Subsidies

In the area of export competition, the issues centers on export subsidies, export credits, export state trading enterprises, and food aid. All Mediterranean countries are agreed to phase out all forms of export subsidization. But Turkey calls for the elimination or substantial reductions in the export subsidies of developed countries. Jordan proposes the prohibition of all export restrictions on agricultural products and the binding of export subsidy at zero level. The African Group (Egypt, Morocco, and Tunisia) also seeks eventual elimination of export subsidies, but wishes to retain the special conditions for developing countries laid out in the Uruguay Round AoA.

2.3 - Domestic Support

In the area of domestic support, the main issues pertain to reduction of amber box support, the future of the blue box, and reform of the green box. On the issue of Total Aggregate Measures of Support (AMS), EU proposes that the reform process should be pursued by further reduction in the starting from the Final Bound Commitment level, by a further strengthening of the rules concerning non-product specific domestic support, and by a reduction of the "de minimis" clause for developed countries. The African Group asks for increased flexibility for developing countries in using de minimis measures as well as permission for developing countries with zero current AMS to use such support as part of their development programs and substantially and progressively reduction in domestic support measures in developed countries. Like African Group, Turkey proposes substantially reduced or eliminated domestic support over "de minimis" level, and asks for an increased level in "de minimis" for developing countries. However, Jordan declares continuation of de minimis concept and threshold only for developing countries. As being transition economies, Albania and Croatia asks for an increase in the threshold of de minimis. Also they ask for specific provisions like investment subsidies, input subsidies, and interest subsidies.

Regarding the blue box, the EU, Israel, and Jordan propose to maintain blue box. As for the green box, the EU and Israel wish to include several non-trade concerns in the green box, which will likely expand the coverage and expenditures of the box. The African Group asks for tightening of the green box criteria but does not offer specifics. On the other hand, Turkey supports the continuation of Green Box measures. In order to minimize any possible trade distorting effects of Green Box measures, Turkey proposes the introduction of clear definitions and set of rules.

Finally, there is the issue of establishing a new "development" box mentioned in the EU proposal. According to the EU proposal, this box should contain measures that safeguard developing countries' sensitive products from a food security perspective and that enable these countries to support their agricultural sectors for development reasons.

3. Draft Ministerial Text

Although further agricultural negotiations have started since 2000, the deadline is missed due the importance that members attach to the major issues in the negotiations. The wide range of views and interest among member governments cause the collapse of the Cancún Ministerial Conference. After this failure, a general consensus has emerged that a framework text on modalities for the future agriculture negotiations should be agreed in 2006. In this regard, the last framework text is prepared by the Chairman of the General Council and presented in 1 December 2005. WTO had been headed into Hong Kong with this Draft Ministerial Text. In Hong Kong, ministers reviewed progress and took any decisions necessary to advance the negotiations further towards their conclusion in 2006.

At the heart of the talks are the three pillars (market access, domestic support and export subsidies). The talks also cover a number of other issues, including special treatment for developing countries and non-trade concerns.

3.1 - Market Access

The Doha Declaration mandates “substantial improvements in market access” with some special and differential treatment (SDT) provisions for developing countries. The Draft Text proposes to cut agricultural tariffs by a tiered formula that takes into account the different tariff structures of developed and developing countries. With regard to market access, Members agreed to structure their tariffs into four bands for reduction. Greater convergence has been achieved as regards the thresholds for the bands. But there is no convergence on the size of actual cuts to be undertaken within those bands.

The option to avoid excessive market opening for sectors of particular national importance was also introduced with the concept of sensitive products, which any country could use. But, the fundamental divergence over the basic approach to treatment of sensitive products needs to be resolved (WTO, 2005b).

As stated in the text there is a clear divergence on designation of special products, list of criteria and treatment of special products. There is also an agreement about special safeguard mechanism. There remains strong divergence however on whether or if so how, a special safeguard should be “price-based” to deal specifically with price effects (WTO, 2005b).

3.2 - Export Subsidies

The AoA requires export subsidy programs to be cut. The agreement focuses on export subsidies, but also mentions other forms of export support including publicly financed state trading enterprises (STEs), food aid and export credits. The Doha Declaration mandates a “reduction of, with view of phasing out, all forms of export subsidies” by “a credible end date”. However there is no convergence about the end date. On the other hand, convergence has been achieved on a number of elements of disciplines with respect to export credits, export credit guarantee or insurance programmes with repayment periods of 180 days and below. However, a number of critical issues remain (WTO, 2005b).

3.3 - Domestic Support

The Doha mandate calls for “substantial reductions” in trade-distorting domestic support, cutting levels of support allowed in the Amber Box, reducing the de minimis, and imposing a spending limit on the Blue Box. The Green Box is left more or less untouched, and despite a number of developing countries’ wish for restrictions on the current Green Box, not much is expected in this area from this round.

The Ministerial Text includes three bands for overall cuts by developed countries. It is proposed that the thresholds for the three bands be US\$ billion 0-10; 10-60; >60. On this basis, the EU would be in the top band, the United States and Japan in the second band, and all other developed countries at least in the third band. For developing countries, there is a view that either developing countries are assigned to the relevant integrated band (the bottom) or that there is a separate band for them (Table 1) (WTO, 2005b).

Table 1
Overall Cuts in Domestic Support

Bands	Thresholds (US\$ billion)	Cuts
1	0-10	31%-70%
2	10-60	53%-75%
3	> 60	70%-80%

Source: WTO; 2005b. Doha Work Programme Preparations for the Sixth Session of the Ministerial Conference Draft Ministerial Text, JOB (05)/298/Rev.1

The Ministerial Text calls for cuts between 50% and 80% for developed countries on product-specific de *minimis* and non-product-specific de *minimis*. As regards developing countries, there are still divergences to be bridged. In addition to the exemption specifically provided for in the Ministerial Text there is a view that, for all developing countries, there should be no cut in de *minimis* at all.

Alternatively, at least for those with no AMS, there should be no cut and, in any case, any cut for those with an AMS should be less than 2/3 of the cut for developed countries (WTO, 2005b).

The Ministerial Text includes three bands for AMS by developed countries. It is proposed that the top tier should be US\$25 billion and above. There is some remaining divergence over the ceiling for the bottom band: between US\$12 billion and 15 billion (Table2).

Table 2
Overall Cuts in AMS

Bands	Thresholds (US\$ billion)	Cuts
1	0-12/15	37-60%
2	12/15-25	60-70%
3	>25	70-83%

Source: WTO; 2005b. Doha Work Programme Preparations for the Sixth Session of the Ministerial Conference Draft Ministerial Text, JOB (05)/298/Rev.1

4. Empirical Results

4.1 - Correlation Analysis Results

My sample represents the Mediterranean Countries in the WTO. A descriptive analysis of these countries can be conducted looking at the main differences and similarities among them. For this purpose, Table 3 includes economical indicators for possible coalitions (See also Appendix Table 2).

Looking at the economical variables, non-EU members present low levels of income per capita. On the opposite, the EU and Israel present an income per capita ten times higher than these Mediterranean countries.

The structure of the agricultural sector is quite differentiated between countries. Croatia, Israel, and the EU(25) have low values of agricultural value added as a percentage of GDP, and of agricultural employment as a percentage of total labor. On the contrary, Albania, Egypt, Jordan, Morocco, Tunisia and Turkey have more labor intensive agriculture and high agricultural value added.

Trade statistics also confirm the difference. In particular, Albania, Egypt, Jordan, Morocco and Tunisia are more export-oriented than the others in the terms of the agricultural exports' share in total exports.

Table 3
Mediterranean Countries' and the EU's Economic Situations

	Albania	Croatia	Egypt	Israel	Jordan	Morocco	Tunisia	Turkey	EU(25)	Draft
GDP/PERCAP	1960.00	6369.00	1138.00	17746.00	1839.00	1416.00	2524.00	3364.00	21855.32	5559.00
openness	38.00	70.00	21.00	62.00	89.00	52.00	76.00	48.00	84.20	24.00
AGRVAD	26.40	8.60	16.40	4.00	2.60	15.80	11.80	13.40	3.23	4.00
AGRLABOR	46.91	7.45	32.14	2.49	10.72	34.54	23.86	44.77	3.98	43.89
AGRIMP	16.38	7.18	24.49	5.09	14.42	11.73	8.55	4.67	7.47	12.55
AGREXP	5.78	8.03	12.60	3.26	12.42	9.40	6.51	8.75	7.91	18.58

In making an attempt to identify which countries agree the most, two forms of analysis are presented. Both analyses are based on a rating of each country's positions with the economical and agricultural indicators.

A correlation analysis was performed on a matrix based on economical, agricultural indicators and points weighted with countries' GDP as indicative of the relative negotiation strength. These analyses perform the task of providing a preliminary overview of any potential alliances.

Table 4 shows that only one country agrees strongly with the EU, namely Israel. However, the simple correlation analyses demonstrate that the EU is not an alliance of Mediterranean countries in the WTO. Morocco is the only African Group country which has a large negative correlation with EU and Israel's positions. North Mediterranean countries (Albania and Croatia) agree with South Mediterranean countries except Morocco. Therefore they can form alliances. Table 4 also illustrates the disagreement between the EU and Turkey. On the other hand Turkey can form alliances with Albania, Croatia, Egypt, Jordan and Tunisia.

Table 4
Correlations between Mediterranean Countries and the EU

	Albania	Croatia	Egypt	Israel	Jordan	Morocco	Tunisia	Turkey	EU(25)
Albania	1.00								
Croatia	0.96	1.00							
Egypt	0.43	0.54	1.00						
Israel	0.78	0.78	0.08	1.00					
Jordan	0.78	0.83	0.66	0.34	1.00				
Morocco	-0.10	-0.19	0.27	-0.51	0.06	1.00			
Tunisia	0.96	0.99	0.56	0.78	0.83	-0.17	1.00		
Turkey	0.66	0.73	0.58	0.34	0.84	-0.12	0.77	1.00	
EU(25)	0.20	0.30	-0.18	0.66	-0.04	-0.85	0.29	-0.02	1.00

4.2 - Cluster Analysis Results

In this section I comment upon the results of the cluster analysis. These results provide a map for the coalitions that Mediterranean countries would form on the basis of their structural, economical and political similarities. In the following, I firstly discuss the structure of the groups produced by hierarchical, k-means, fuzzy methods and then multidimensional scaling.

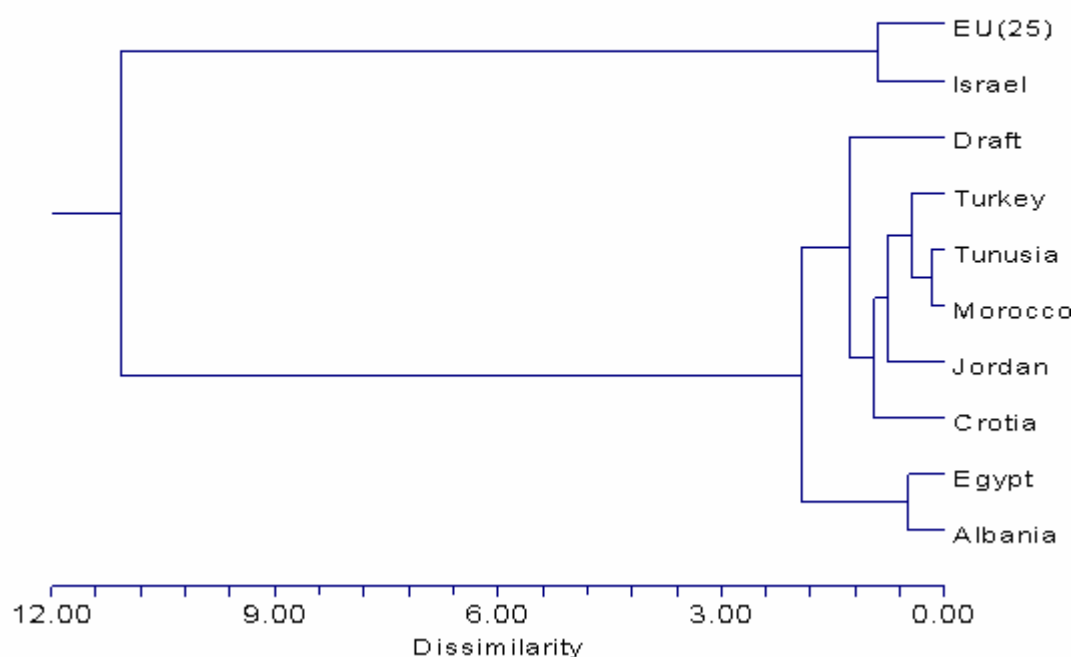
The clusters computed by Ward's method are displayed in Figure 1 and Table 5. In general, Ward's method sorts out three main groups divided into nine clusters explaining 50.61 % of the variation in the data. Two main groups, which are joined only in the last step of clustering sequence, are significantly different (Figure 1). The left group of clusters is relatively poor (having an average GDP of 3021 US\$ per capita, of which 52% are traded). The right group is relatively rich and more open (with an average GDP 19.801 US\$ per capita of which 73% is traded).

Table 5
Clusters of Countries (Ward's Method)

N°	Countries	Average GDP (US\$)	Trade/GDP (%)	Value Added (% GDP)	Employment (%)	Import (%)	Export (%)
3	Croatia, Jordan, Morocco, Tunisia, Turkey, Draft	3.512	59.8	9.37	27.54	9.85	10.62
1	Egypt, Albania	1.549	29.5	21.40	39.53	20.43	9.19
2	Israel, EU (25)	19.801	73.1	3.61	3.23	6.28	5.59

The relatively poor countries are divided into two clusters. Egypt and Albania take place in the Cluster 1. This cluster explains 70.26 % of the variation (similarity) in data. Cluster 3 explains 82.35 % of the variation (similarity) in data. This alliance has a relatively higher GDP per capita and openness compared to Cluster 1.

Figure 1
Dendrogram of the Hierarchical Cluster Analysis



The problem with using hierarchical methods is, however, that if a country is placed in any given cluster it is impossible to move out of the cluster although the average cluster characteristics may change significantly with the inclusion of other countries. Therefore, given the number of clusters provided by Ward's method above, a nonhierarchical method was employed in order to maximize the within-cluster similarity by allowing countries to move between clusters (Bjørnskov and Lind, 2002).

Considering the k-means method, it is seen that there is a movement between two clusters (Table 6). Morocco has been moved to Cluster 3. The Cluster 3 shows the lowest levels of GDP per capita and trade openness. And they are predominantly rural. Those Cluster 2 and Cluster 3 are very similar and they differ in that Cluster 3 is relatively poor.

Table 6
Clusters of Countries (K-means Method)

N°	Countries	Average GDP (US\$)	Trade / GDP (%)	Value Added (% GDP)	Employment (%)	Import (%)	Export (%)
2	Croatia, Jordan, Tunisia, Turkey, Draft	3.931	61.4	8.08	26.14	9.47	10.86
3	Morocco, Albania, Egypt	1.505	37.0	19.5	37.9	17.5	9.30
1	Israel, EU (25)	19.801	73.1	3.61	3.23	6.28	5.59

Table 7 presents the Euclidean distances between clusters' centroids. Cluster 2 and 3 are close to each other, but very distant from Cluster 1. This suggests the possibility of defining some common positions in the negotiations.

Table 7
Distances Between Cluster Centres

N°	Cluster 1	Cluster 2	Cluster 3
Cluster 1	0	13.836	17.760
Cluster 2	13.836	0	3.924
Cluster 3	17.760	3.924	0

Table 8 shows the second nearest cluster for each country. This provides a clue for the most likely alternative coalition in case of defection from actual group. The most remarkable information from this analysis is that for Croatia the only feasible alternative is Cluster 1. In the case of Croatia, Croatia is grouped in cluster 2 but also relatively closer to Cluster 1 than to all other countries included in Cluster 2.

Table 8
Second Nearest Cluster

Row	Cluster	Nearest Neighbour	Average Distance Within	Average Distance Neighbour	Silhouette Value
Egypt	3	2	24.67	44.16	0.4414
Albania	3	2	24.67	40.14	0.3854
Croatia	2	1	41.24	57.99	0.2888
Turkey	2	3	33.52	45.42	0.2620
Draft	2	3	38.91	48.46	0.1972
Tunisia	2	3	29.73	33.72	0.1183
Jordan	2	3	37.80	41.80	0.0959
Morocco	2	3	35.07	22.91	-0.3461
Israel	1	2	32.07	76.65	0.5815
EU(25)	1	2	32.07	73.96	0.5663
Overall Average		(10)	32.98	48.52	0.2590
Maximum Distance	2.456103				

In the fuzzy method we classify a country in the cluster in which it has a dominant degree of membership. Usually, a country has a dominant degree of membership in a particular cluster, but there are interesting cases where a country has significant degrees of membership in more than one cluster.

In fuzzy clustering the number of clusters is selected by maximum the Average Silhouette and $F_c(U)$ and minimum $D_c(U)$. In this case, two clusters are selected (Table 9). According to the fuzzy clustering, there are two main clusters. Croatia has moved to Cluster 1. Cluster 2 is largely formed by African Group countries (Table 10). In the fuzzy analysis, Croatia is placed in Cluster 1 with a membership degree of 76.5. All countries in Cluster 1 have large shares of GDP per capita, trade openness and low shares of agricultural export, import relative to total exports and imports.

Table 9
Cluster Distances

Number Clusters	Average Distance	Average Silhouette	F(U)	F _c (U)	D(U)	D _c (U)
2	2.777987	0.437140	0.6299	0.2599	0.1719	0.3439
3	1.775831	0.261984	0.4793	0.2190	0.2970	0.4455
4	1.295583	0.129607	0.4395	0.2527	0.3503	0.4670
5	0.933453	0.137705	0.5300	0.4125	0.2986	0.3733

Table 10
Clusters of Countries (Fuzzy Method)

N°	Countries	Average GDP (US\$)	Trade /GDP (%)	Value Added (% GDP)	Employment (%)	Import (%)	Export (%)
2	Albania, Egypt, Jordan, Morocco, Tunisia, Turkey, Draft	2.542	49.71	12.91	33.83	13.25	10.58
1	Croatia, Israel, EU (25)	15.323	72.07	5.28	4.64	6.58	6.40

Like the correlation analysis and the hierarchical clusters, the non-hierarchical cluster method groups EU and Israel. The countries are proposed to reduce tariffs. Moreover, the cluster is opposed to reducing neither export subsidies nor domestic support in green and blue boxes.

4.3 - Multidimensional Scaling Analysis Results

Figure 2 presents the resulting three dimensional MDS solution for all 15 indicators across 10 countries. The MDS result has a normalized raw stress value of lower than 0.025, (stress= 0.00158) which indicates very good fit between the input data and the out maps. Inserte Figure may be interpreted in terms of four clusters represented in three dimensional spaces. Albania and Morocco make up one cluster; Egypt makes up the second; Turkey, Tunisia and Jordan make up the third; and Draft, Croatia, EU (25) and Israel make up the fourth.

Cluster 3 shows somewhat higher levels of trade openness than cluster 4, but is still predominantly rural (Table 12). The main difference is that these countries are far less rural than those in Cluster 4 clusters: in fact, on average 27 percent of the population is classified as rural.

Figure 2
Results of multidimensional scaling analysis

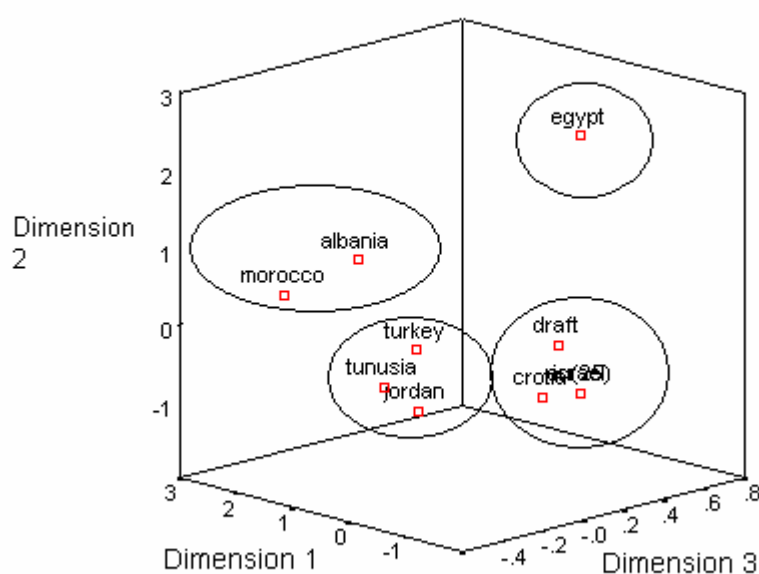


Table 12
Clusters of Countries (MDS Method)

N°	Countries	Average GDP (US\$)	Trade / GDP (%)	Value Added (% GDP)	Employment (%)	Import (%)	Export (%)
1	Albania, Morocco,	1.688	45.0	21.1	40.7	14.1	7.6
2	Egypt	1.138	21.0	16.4	32.1	24.5	12.6
3	Jordan, Tunisia, Turkey	2.576	71.0	9.3	26.5	9.2	9.2
4	Croatia, Israel, EU (25), Draft	12.882	60.1	5.0	14.5	8.1	9.4

Consequently, all methods agree to a larger extent, although there are some differences in the allocation of individual countries: nearly all the countries have the same cluster membership in all four methods. There are no cases in which hierarchical and fuzzy method agree while disagreeing k-means classification. This is the result of the k-means method following closely the centroid obtained from the hierarchical method.

Conclusion

Agriculture is vulnerable to unpredictable natural and climatic conditions, making year-to-year output very variable. Agriculture is vital for development, rural livelihoods and food security. Because of its crucial importance to almost all members, agriculture is often seen as the key to the entire package of negotiations. This importance and intertwining of agricultural issues with other issues makes agricultural negotiations in the WTO more complex to manage. As a result, forming alliances becomes essential particularly for developing countries.

Like all developing countries in WTO, agriculture plays a crucial role for the Mediterranean countries and EU, one of the Mediterranean countries' main partners for trade in agricultural products. EU's imports from the Mediterranean countries have increased fairly smoothly. On the other hand, exports from EU to the Mediterranean countries have been uneven. The biggest Mediterranean Countries as well as the suppliers of agricultural products to the EU are Turkey, Morocco, Israel and to a lesser extent Egypt and Tunisia. These relationships concluded an EU-Med agreement with objective of strengthening the relations between EU members and the Mediterranean countries.

Regarding these developments this paper tries to find out whether the Mediterranean countries and the EU can form alliances. The analyses point to a number of clusters/ alliances. The main finding is that Mediterranean countries seem to be able to gain support for their instruments if they form an alliance. The analyses also show that the positions of the Mediterranean countries are in opposition to EU, Israel and Draft Text.

As Turkey is considered, it would gain significantly more bargaining power through an alliance with other Mediterranean countries. On the other hand, as a candidate country, Turkey amended its legislation in compliance with its obligations under Customs Union and full membership. However, the analyses show that Turkey's position is in opposition to EU in the negotiations. Although Turkey is following with attention the position of the EU in the WTO negotiations, this opposition can cause some problems.

Besides, Turkey's membership in several arrangements makes its trade regime complex and difficult to manage. Future trade agreements could further complicate its trade regime and detract from multilateral efforts, given the limited resources available.

But, if Turkey and other Mediterranean countries act rationally by cooperating with partners, it might be possible to gain bargaining power and support for their objectives within the WTO.

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APPENDIX TABLE 1 : General Set of Indicators

	Indicators	Code	Years	Data Source
ECONOMIC	GDP per capita (1995 US\$)	GDPPERCAP	2000-2005	UN, Statistics Division
	Trade Openness	Openness	2000-2005	WDI
AGRICULTURE	Agricultural Value added (%GDP)	AGRVAD	2000-2005	WDI
	Employment in agriculture as % of total employment (%)	AGRLABOR	2000-2005	FAO
	The share of agricultural import in total import (%)	AGRIMP	2000-2005	FAO
	The share of agricultural export in total import (%)	AGREXP	2000-2005	FAO
POLICY POSITIONS	Tariffs	TARIFF		WTO
	Tariff Escalation	TARESC		WTO
	Tariff Rate Quota	TRQ		WTO
	Export Subsidies	EXPSUBS		WTO
	Blue box	BLUEBOX		WTO
	Green box	GREENBOX		WTO
	Development Box	DEVELOPBEOX		WTO
	Total Support	AMS		WTO
	De minimis	MINIMIS		WTO

APPENDIX TABLE 2 : Summary Statistics of the Indicators

INDICATORS	RANGE	MEAN	CV	MIN	MAX
GDPPERCAP	20717.230	6377.032	1152.000	11380.000	21855.000
openness	68.000	56.420	0.425	21.000	89.000
AGRVAD	23.800	10.623	0.722	2.600	26.400
AGRLABOR	44.422	25.076	0.707	2.487	46.910
AGRIMP	19.823	11.252	0.541	4.668	24.492
AGREXP	15.318	9.326	18.576	3.259	18.576
TARIFF	3.346	1.018	1.420	0.913	3.540
TARESC	3.553	1.069	1.564	0.160	3.713
TRQ	2.420	0.754	0.546	0.193	2.613
EXPSUBS	0.927	0.397	0.091	0.000	0.927
BLUEBOX	2.556	0.784	1.001	0.258	2.814
GREENBOX	1.016	0.553	0.651	0.222	1.238
DEVELOPBEOX	2.346	0.722	1.152	0.129	2.475
AMS	3.553	0.952	1.256	0.160	3.713
MINIMIS	1.889	0.530	1.114	0.000	1.889