Bargaining Coalitions in the Agricultural Negotiations of the Doha Round: Similarity of Interests or Strategic Choices? An Empirical Assessment

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Summary

The paper aims at understanding the structural features of the bargaining coalitions in the Doha Round of the WTO. We provide an empirical assessment of the preferences of each negotiating actor looking at general economics indicators, development levels, structure of the agricultural sectors, and trade policies for agricultural products. Bargaining coalitions are analyzed by grouping countries through a cluster analysis procedure. The clusters are compared with existing coalitions, in order to assess their degree of internal homogeneity as well as their common interests. Such a comparison allows the detection of possible "defectors", i.e. countries that according to their economic conditions and policies seem to be relatively less committed to the positions of the coalition they join.

Keywords: Agricultural trade negotiations, Bargaining coalitions, WTO, Cluster analysis

JEL Classification: F13, Q17

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1. Introduction

The political economy approach has been extensively adopted in the analysis of the WTO negotiations. In particular, some contributions have focused the strategic interactions and the formation of bargaining coalitions, which have proved to be key actors in the current negotiation round (Kahler and Odell, 1989; Narlikar and Odell, 2004; Narlikar and Tussie, 2004; Panagariya, 2002; Tussie and Glover, 1995). This paper aims at analysing the internal coherence of the existing coalitions in the Doha Round negotiations, with a special reference to agriculture.

In principle, one may expect that individual countries join coalitions on the basis of similar expected benefits from a specific negotiation outcome. If this is true, the existing coalitions should present a certain degree of internal "homogeneity" of member countries, with respect to a set of variables related to their socio-economic structure. The setting up of a bargaining coalition such as the G-20, for example, was accompanied by sceptical comments pointing out that it combined a great diversity of members and quite different interests.

Strategic behaviour may influence the decision whether to join certain coalitions, where coalition members negotiate over priorities and joint fallback positions in order to pool together technical expertise and political will. This leads to a "log-rolled agenda" that balance national positions cross the various issues. In this respect, it seems reasonable to expect that the greater the "similarity" among the participants in the coalition the more robust the coalition itself will be.

This paper groups WTO members on the basis of a set of indicators concerning economic, social and institutional development level, openness to trade, agricultural productive structure and market access policies. The choice of the variables used in this analysis is based on a number of existing studies. Firstly, we refer to the literature on the linkages between economic growth, development, poverty and trade liberalization (Dollar and Kray, 2003, 2004; Martin, 2001; Rodrik, 2000; Winters, 2004). For the variables more specifically related to agriculture, we consider studies focusing on the quantitative analysis of the relationship between the primary sector and the rest of the economy (e.g. Diaz-Bonilla et al., 2000; Gardner, 2003; Sarris, 2004). Finally, regarding the policy variables, we mainly refer to the market access, which is the most contentious issue under negotiation (Anania et al., 2004; Bureau and Salvatici, 2004).

This set of indicators provides the basis for a cluster analysis of WTO members, following an approach already used in the literature on the present round of negotiations (Bjørnskov and Lind, 2002). We rely on structural data which are assumed to reflect the "true" interests of the negotiators, trying to capture the main characteristics that could explain internal cohesion. The counterfactual coalitions obtained from the cluster analysis are then compared with the existing ones. This shows how important structural features are in driving coalition formation, distinguishing within each coalition "core members" – those with more similar structures – from "strategic members" – those that join the coalition in order to get some kind of side payments.

In order to achieve these objectives the paper is structured as follows. In Section 2 the Doha Round general framework is briefly outlined with specific reference to the agricultural negotiations and the bargaining coalitions emerged so far. In Section 3, we present the theoretical assumptions and the methodology adopted for the empirical analysis. Section 4 discusses the results obtained, while Section 5 concludes.

2. The agricultural negotiations in the Doha Round: the formation of bargaining coalitions.

2.1 The general framework of the Doha Round agricultural negotiations

In 2001, WTO members agreed in Doha to launch a new round of trade negotiations, encompassing the agricultural negotiations already started in 2000 according to the so-called "built-in" agenda. The 1994 Agreement on Agriculture, concluded as part of the Uruguay Round, laid down liberalisation commitments under three pillars that will also provide the basis of any new agreement:

- market access, covering tariff ceilings (*bindings*) and liberalization commitments in terms of tariffs and tariff rate quotas;
- domestic support, including subsidies and other programmes;
- export competition, covering export subsidies, export credits, guarantees and insurance, food aid, exporting state trading enterprises, export restrictions and taxes.

Each of the three pillars included provisions for the "special and differential treatment" of developing countries, such as exemptions from some commitments, lower reduction targets, and more time for their implementation.

Negotiators missed the 31st March 2003 deadline for producing "modalities" (i.e., numerical targets and formulas) for countries' commitments, and the WTO Ministerial meeting, held in Cancún (Mexico) in September 2003, ended in deadlock. After Cancún, there were efforts to put the negotiations and the rest of the work programme back on track. The outcome was the "framework agreement" reached at the end of July 2004 (the so called "July package") on moving forward the Doha Round of trade negotiations.

As far as domestic support is concerned, the July package includes concrete targets for the reduction of overall domestic support and specifies that "blue box" levels will be capped, while no capping is imposed to the "green box", as had been proposed by developing countries. The reduction will be made under a tiered formula that cuts subsidies progressively – higher levels of trade-distorting domestic support are subject to greater reductions. Moreover a *downpayment* is imposed, that is a commitment to reduce the "amber box" of at least 20% in the first year of the implementation period.

On export competition, the Doha mandate calls for "reductions of, with a view to phasing out, all forms of export subsidies". In the July package, WTO members have agreed to establish detailed modalities to implement the elimination of all forms of export subsidies and the discipline of all export measures with equivalent effect by a credible end date.

Out of the three main issues under negotiation, market access stands out as the most contentious one. The Doha mandate commits WTO members to "substantially improve market access". According to the July package, agricultural tariffs will be cut on the basis of a single, tiered approach: the higher the tariff, the higher the tariff cut. However, the agreement caters for several concerns: either from developed countries, to address some "sensitive products", or developing countries, to benefit from a special and differential treatment across the board, e.g. lower tariff cuts and special treatment on market opening for the so-called "special products". Meetings held since August 2004 confirmed the existence of different views about the formula to be used for tariff reduction. Some countries argue strongly for a non-linear, Swiss formula to be applied in each of the band of the tiered approach. This is vigorously objected by other countries, proposing instead average linear reductions (Uruguay Round-style) in each band.

Furthermore, the tiered approach requires the calculation of *ad valorem* equivalents (AVEs) of specific tariffs, in order to compare them. Far from being a purely technical exercise, this became a very sensitive and highly politicized issue. Only at the "mini-ministerial" meeting held in Paris in May 2005, the so called "Five Interested Parties" (Australia, Brazil, EU, India and US) found an agreement on the methodology to be followed in the computation of the AVEs.

2.2 A brief overview of the coalitions in the Doha Round

Several countries' groups are playing a role in the present round of negotiations. They can be broadly classified according to the following typology:

1) "Structural groups", whose aggregation is based on specific commercial relationships such as free trade areas (e.g., ASEAN, NAFTA, MERCOSUR, etc.), or on other economic interests or geographic similarities (e.g., Least Developed Countries or Net Food Importing Developing Countries). These groups do not necessarily sponsor specific proposals, but they are often referred to in the negotiations.

2) "Representative groups", which are set up with the specific objective of representing a large variety of national interests in order to overcome the deadlocks in the negotiations. The members of these groups are selected among the key political and economic players in trade negotiations, assuming that joint proposal coming from them may be acceptable for all other WTO members. Examples of (more or less) representative groups are the partnership of the US and the EU in issuing joint proposals (as happened before the Cancún meeting), the so-called Quad (Quadrilaterals) with Canada, the EU, Japan and the US, or the more recent and already mentioned *Five Interested Parties* (FIP). Other "informal" representative groups are formed by the countries attending the so-called "mini-ministerial" meetings, where specific negotiation issues are discussed with the aim of finding a common point of view to be presented at the plenary sessions.

3) "Bargaining coalitions", where a group of countries forms a preliminary consesus on a a common proposal, aiming at increasing their collective bargaining power. The Cairns Group, the G-10, the G-20, the G-33 are all examples of "bargaining coalitions", which submit proposals both on specific issues and on the whole negotiation agenda.

In our analytical framework, we consider only this third cathegory, focusing our attention upon the mechanism of formation of bargaining coalitions between agents with (probably) heterogeneous preferences but with a common interest in increasing their bargaining power.

After the Ministerial meeting in Cancún, most observers agreed that developing countries had played an innovative role in comparison with the Uruguay Round, showing a greater capacity to coordinate their positions. In particular, a remarkable development has been the rise of a new powerful negotiating voice among developing countries with the formation of the G-20, a group centred around Brazil, India, China and South Africa. This was set up just before the Cancún Ministerial, in order to co-ordinate pressure on the EU and the US to reduce their import tariffs, export subsidies and domestic support.

More generally, in the current agriculture negotiations we can distinguish between two main categories of developing countries: those more 'offensive', looking for gains in their market share and therefore asking for substantial trade liberalization; and those more 'defensive', aiming at keeping some protection for their agricultural markets.

Countries with an "offensive" attitude are, among others, Brazil, Argentina, Chile, Uruguay, Thailand and, more recently, Pakistan. Countries with a defensive attitude form the majority of the developing world, including India, China, Indonesia (leader of the G-33), Philippines, or the Caribbean and Central American countries. Most of the G-90 countries (a grand coalition formed by the African Union, Least Developed Countries and the African, Caribbean and Pacific block) have defensive interests as well and, except at ministerial meetings (Doha and again in Cancún), they have functioned as separate groupings in the WTO. Another bargaining coalition with a mostly defensive attitude is the G-33, consisting mainly of net food-importing developing countries concerned about the prospects of premature liberalisation at home.[1]

[1] The exact memberships of bargaining coalitions such as G-90, G-20, and G-33 are currently not clear, and they have changed many times during last years (Hilary, 2004). For our analytical purpose, we have adopted as the

In other cases, existing coalitions are mixed groups, bringing together countries from both the defensive and the offensive side. In the case of the G-20, Brazil and India play a key role in uniting the two traditionally opposing camps.
Another coalition bringing together seemingly heterogeneous countries is the Cairns Group. It was set up just before the Uruguay Round began in 1986 to exert pressure towards agricultural trade liberalization. Its members are diverse, including both developed and developing countries, but share a common objective - agricultural trade liberalization - and the common view that they lack the resources to compete with larger countries in domestic and export subsidies.
Finally, the G-10 calls for a conservative approach, with some strong request on maintaining as much as possible the existing policies. These countries, as a matter of fact, maintain high tariffs in order to protect domestic markets.

3. Methodological issues and the choice of the variables

3.1 A "structural" analysis of WTO bargaining coalitions

The World Trade Organisation can be considered the outcome of a collective action designed to address the undersupply of "free trade" as a public good. Free trade is non-rival by nature and non-excludable by choice, as WTO trade liberalisation actions are based on the most favoured nation principle. In this sense, "liberalised trade is an impure public good as well, since it can be subject to some excludability, either through restricting membership to the WTO or through use of 'unfair trade laws' to exclude exports from targeted countries" (Shaffer, 2004, p.463).
Even if exclusion from the WTO is possible in principle, in fact it is not desirable due to the increased "global" benefits accruing from more participants. From this standpoint, free trade is definitely a "quasi-public good" or "near-public good" for which exclusion is possible but not desirable (Stiglitz, 1986). In terms of efficiency, the more countries "produce" and "consume" free trade, the better society becomes as a whole.
In addition, free trade is not a homogenous good; rather, it can be considered a "multidimensional" good, as a consequence of the possibility for the agents to choose among different "baskets" of policies all delivering the same global "amount" of free trade. In this sense the agents show differentiated preferences over the set of feasible policies.[2] As the nature of the good under analysis is so complex, its supply calls for a "two-stage collective action", partially similar to the two-stage game interaction developed in the context of the non-cooperative bargaining theory.[3] In the first stage countries decide non-cooperatively whether or not to sign the agreement (to join the WTO in our context). In the second stage, which is the focus of our analysis, countries set their policy (their preference for the final negotiating outcome in our framework), in order to maximize their welfare function. At this point, the policy space is not limited to two options (join or not the WTO) as in the first stage, and there is a continuum of feasible policies within the free trade vs. autarchy dichotomy: once a country decides to join the WTO (*first-stage*), it has a set of preference for a specific outcome of the negotiation. According to these preferences, each country will define a negotiating position in order to maximise its utility (*second-stage*).
The preferences are influenced by the heterogeneity of the agents which implies different payoff functions. Since a country's influence over the final negotiation outcome crucially

final data source, the official document provided by the WTO, updated at 1st December 2004 (WTO, 2004), as in Appendix B, Table B1.
[2] For the relevance of public good differentiation in the formation of groups, see Haimanko et al. (2004).
[3] Botteon and Carraro (1997) clearly discuss this point with reference to environmental coalitions.

depends on its bargaining power, "coalitions" between agents with overlapping preferences are formed, for purpose of increasing their bargaining power, i.e. their chances of making the final negotiation outcome closer to their optimal policy choice.
Following this line of reasoning, bargaining coalitions should be based upon a *common milieu* of interests of their participants. The closer an individual country's preference is to this *milieu*, the stronger its commitment to the coalition. In the same vein, the closer a country's economic structure and policy stance are to the "average" of the coalition, the more likely is that its preferences coincide with the common interest. This would make unlikely the possibility of a defection in favour of another group or policy outcome, unless there are payoffs related to the countries' specific interests within the negotiation. In this latter case, the commitment of the individual country to the group's common position may turn out to be very weak, and mainly related to the evolution of the power relationship outside the negotiation context.
To sum-up, we may suppose that each negotiating actor faces a trade-off between its bargaining power and the "distance" between its "optimal" policy outcome and the policy in fact supported in the negotiation. If a country chooses to negotiate as a singleton, it is able to support, as final outcome of the negotiation, precisely its "optimal" policy. In this scenario, if its proposal is adopted as final decision, its pay-off will be maximised. At the same time, however, the country's bargaining power can be supposed to be at its minimum and the cost of negotiating (e.g. the cost of being represented in Geneva, etc.) at its maximum.[4]
On the contrary, when a country decides to join a coalition it inevitably accepts to support the group's policy outcome which, as we discussed above, can be more or less distant from its optimal policy, thus reducing the countries' payoff in case of acceptance of the group's proposal. However, this "dilution" of the country's preference is compensated by both an increased bargaining power (or by an increase in the probability of gaining at least the reduced pay-off), and a reduction of the negotiating costs (that will be shared among the various members).
In this context, *ceteris paribus*, "big" countries (such as the EU or the US) have less incentives to join coalitions as their bargaining power is relevant and their negotiating cost are relatively insignificant, while "small" countries benefit more from joining coalitions as their cost opportunity of negotiating as singletons is much higher.
Within this theoretical framework, the understanding of the structure and the internal coherence of existing bargaining coalitions implies making some assumptions over the "true" preference structure of each country, grouping them according to these preferences and then assessing their distance from the coalition's interest "milieu". Such an exercise would provide some insights on both the "coherence" of the various coalitions and the "long-term commitment" of each member.
Having acknowledged that a certain degree of arbitrariness is intrinsically related to every attempt to represent a country's preferences over such a complex issue as trade regime, we suppose that countries' official positions may also be affected by their tactic behaviour. Consequently, assuming that countries do not reveal their real preferences at all, we treat this information as "unknown".[5] By grounding our reasoning in the "economic theory of alliances" literature (see Sandler and Hartley 2001 among the others), we suppose that

[4] The final decision is only formally based on a head-count mechanism. In fact the bargaining power of individual countries can be, more realistically, considered as proportional to its capability to influence other countries' position.
[5] On the contrary, Bjørnskov and Lind (2002) examined countries' "revealed preferences" as stated in their official WTO positions, and attempted a "quantification" of such preferences by rating their official positions on a number of issues

national "true" (unobservable) preferences for the final negotiation outcome are shaped by a set of (observable) structural features.
In this framework, we have defined a set of structural indicators (that will be discussed in further details below) which we suppose to be related, through a variety of mechanisms, to the formation of each country's preferences. Without making any assumption on the form of this relationship, we use the full set of indicators as a proxy of the countries "true" preferences. Consequently, we assess the similarity of these indicators by mean of a purely descriptive statistical methodology such as cluster analysis, which enables us to form groups of countries with (supposedly) similar preferences, i.e. representing the "natural" Doha Round coalitions. In addition, the cluster analysis will allow us to represent each country's "distance" from its coalition "centroid" thus giving us a clue of its commitment to the coalition itself.

3.2 The choice and construction of the proxies for countries' preferences: "five dimensional" indicators

In our view, the formation of preferences on the outcome of the negotiation (or on the preferred level of provision of the quasi public good "free trade") is related to a large set of features, which is not limited to the strictly economic sphere, as it would be according to the simplistic dichotomy developed vs. developing countries. In order to have quite a general framework, we gathered an extensive set of structural and policy indicators.
We have divided the 39 indicators, listed in Table 1, into five different groups: 1) *Economic dimension*, *Development*, *Agriculture*, *Trade* and *Trade policy*.[6] The choice of the variables was grounded in the literature on international economics, development and trade. All variables were calculated as an average value of the last five available years in order to eliminate possible distortions due to punctual data errors (Appendix A, Table A1). Trade policy variables refer to a single year, due to lack of data for all countries considered.[7]
Within the *economic dimension* we include few general macroeconomic indicators representing a synthetic but comprehensive data set which is currently used in most of the studies oriented to analyze the linkages among trade openness and economic growth (Frankel and Romer, 1999; Winters, 2004). As far as the latter is concerned, we consider three different variables: the GDP per capita level expressed at constant 1995 US$ at purchasing power parity; the GDP per capita growth rate, in order to neutralize effects linked to high population growth; the simple GDP growth rate, to have an evaluation of the general economic performance. In addition, the inflation rate was taken as an indicator of macroeconomic stability (Ranis, 2004), since there seems to be enough evidence showing that inflation is lower in open economies (Winters, 2004). As far as *openness* of the economic system is concerned, we use a widely used measure such as the level of Foreign Direct Investments (Martin, 2001; Ranis, 2004).
Another important issue is the level and quality of *institutions*, because it is widely accepted that a trade opening policy framework require institutional capacity, which is a scarce resource in developing countries (Rodrik, 2000). The share of government expenditure in the GDP is adopted as a proxy of 'institutions engagement'.

[6] In order to make it easier to distinguish the variables from each dimension, variables' names start with letters 'G', 'D', 'AG', 'T', and 'PO', in order to indicate the General Economic system, the Development level, the Agriculture sector, the Trade issue, and the trade Policy issues, respectively. Furthermore, within the trade dimension we have specified where the trade index is related to agriculture (TAG).
[7] For the structural indicators data set, sources are: World Bank World Development Indicators (WDI) various years; United Nations Development Programme (UNDP), data for Human Development Reports, various years; International Labour Organization (ILO), Labour Force Statistics; Food and Agriculture Organization (FAO), FAOSTAT. For the trade policy indicators, values are from the World Integrated Trade Solution (WITS) system.

We classified the *Development* indicators into four possible categories, on the basis of the theoretical literature on human development and its linkages with economic growth (Boozer et al., 2004). The human well-being is represented by: i) an index of education built as the average primary, secondary and tertiary gross enrolment ratio (as defined by UNESCO);[8] ii) a measure of public health expenditures as percentage of GDP; iii) a representation of household consumption expenditures as a *proxy* of the absolute poverty level, ignoring inequalities within households (Ravallion, 2003).[9]

Other development variables included in our analysis refer to labour force, innovation and technology, and food security, a crucial issue for several developing countries. Regarding the labour force conditions, we use the unemployment rate, while for the distribution of technology we have included the number of internet users and its annual percentage change over the period 1998-2002.

[8] UNESCO defines the gross enrolment ratio as the enrolment in a specific level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education in give school-year (Education and Literacy Indicators, 2003).

[9] The debate on specific effects of globalization and trade openness on poverty and inequality is rather complex and it is out of the scope of this work. For further details on this issue, see Dollar and Kraay (2002, 2004), Ravallion (2003, 2004).

Table 1 –Set of indicators: summary statistics

	Categories		Indicators	Code	Range*	Mean*	Coef.Var*
Economic dimension	*General*		GDP per capita (level, 1995 US$ PPP)	GDPCPL	31491.89	7715.90	8383.06
			GDP per capita growth (annual % change 10 years)	GDPCPG	12.28	1.59	2.58
		X	GDP growth (annual % change 10 years)	GDPTOG	13.53	3.06	1.22
		X	Inflation rate	GINFLRT	73.06	8.06	21.38
	Openness	X	Foreign direct investment, net inflows (% GDP)	GFDIGDP	21.51	4.38	4.09
	Institutions		General government final consumption expenditure (% GDP)	GOVEXP	35.42	15.71	2.39
Development	*Human well-being*		Education index (average enrollment ratio)	DEDUIND	0.87	0.62	0.07
		X	Health expenditure, public (% GDP)	DHEAEXP	7.52	3.50	0.86
			Household consumption (% GDP)	DHOUCON	69.01	68.27	2.51
	Labour force		Unemployment (% total labor force)	DUNEMP	42.90	10.12	4.41
	Innovation and Technology		Internet users (per 1,000 people)	DINTERLV	572.12	125.71	200.15
		X	Internet users (% change)	DINTERG	24.63	2.95	5.74
	Food security		Calories per capita	DCALCAP	1928.00	2658.03	95.36
		X	Food production per capita	DFOOCAP	975.00	219.19	153.78
		X	Total exports/Food imports	DFOOIMP	63.60	14.24	7.96
Agriculture	*General*	X	Agriculture, Value Added (% GDP)	AGVA	59.63	16.43	12.31
		X	Employment in agriculture as % of total employment (% change)	AGEMP	65.22	-19.12	-8.31
			Rural population (% of total population)	AGRUR	88.11	47.00	10.04
		X	Land use, arable land (% of land area)	AGLAND	62.07	16.84	12.16
	Productivity		Cereal yield (kg per ha)	AGCER	7632.84	2722.18	1224.48
		X	Agricultural Value Added per Worker	AGVAWR	51809.64	6992.18	18787.69
			Agri V.A/ (arable land, ha)	AGVALA	18101.58	2082.77	4281.44
		X	Workers in agriculture per ha	AGWRHA	8.83	1.13	1.87
	Technical innovation	X	Agricultural machinery, tractors per 100 ha of arable land	AGMACH	45.62	3.72	14.45
			Fertilizer consumption (100 grams per ha)	AGFERT	6279.52	1224.40	1931.10
Trade	*Agriculture*	X	(Agri imp + Agri exp)/ Agri V.A.	TAGIEVA	11.01	1.39	2.29
		X	Agri imp/Total imp	TAGIMTI	0.42	0.11	0.04
		X	Agri exp/Total exp	TAGEXTE	0.88	0.14	0.17
		X	(Imp-Exp)/(Imp+Exp)	TAGSTB	1.83	0.12	1.72
	General	X	Exports, tot (% of GDP)	TEXPGDP	111.10	38.51	11.24
		X	Imports, tot (% of GDP)	TIMPGDP	98.43	44.30	9.75
		X	Manif imp/Total imp	TMANIMP	77.02	67.66	1.97
		X	Manif exp/Total exp	TMANEXP	96.39	47.05	19.39
		X	Computer, communications and other services (% Total exp)	TCOMEXP	39.06	6.37	4.35
Trade Policy	*Import Own tariffs*	X	Average bound tariff	POAVBD	199.93	49.97	35.97
		X	Variance of bound tariff	POVRBD	4967.07	357.65	1265.21
		X	Water in tariffs	POWAT	190.53	35.25	44.57
	Import Foreign tariffs	X	Average Highest Applied MFN	POAVHG	101.07	59.23	16.29
		X	Preference Margin	POPMS	22.12	8.50	6.42

Notes: X = chosen variables for cluster analysis; * = non standardized variables

As far as food security is concerned, we refer to a specific work made by Diaz-Bonilla et al. (2000), considering three of the five variables included in the cluster analysis of these authors: i) calories per capita per day as specific indicator for nutrition and food consumption levels, ii) food production per capita as a representative measure of self sufficiency or the ability of countries to feed themselves, and iii) the ratio of total exports on food imports as a measure of the capacity of a single country to finance the food imports with the export flows in other goods and services.

As underlined by Diaz-Bonilla et al. (2000), a country that is a net food importer and for which the total food bill takes a large percentage of total exports is likely to be more vulnerable than a country with a low share of food imports on total exports.

Since this paper focuses on the agricultural negotiations, the structure of *Agriculture* has a special importance in shaping the countries' position on agricultural trade issues. The selection of the most suitable indicators has been driven by a careful consideration of the existing literature aimed at offering a comparative analysis of the various agricultural systems (e.g. Sarris 2004 for the G-20 case). The related set of indicators combines information on the relative importance of agriculture for the national economy, the relative abundance and productivity of the factors of production, and the level of innovation embodied in the primary sector.

Turning to *Trade* indicators, the general structure of trade flows is represented by exports and imports value as percentage of GDP level. In order to represent the sector specialization of trade, we chose the percentage of manufactured imports and exports on total imports and total exports, respectively. Furthermore, the degree of international competitiveness of the service sector and the degree of technical innovation should be captured by a specific indicator concerning the percentage of computer, communications and other services exports on total exports. For agricultural trade, the variables included in the analysis attempt at capturing its relative importance with respect to both general trade flows, and agricultural output (agricultural imports plus agricultural exports related to agricultural value added). Additional information regarding the net importer or exporter position of the country in terms of agricultural goods was introduced by a standardized balance of trade index.[10]

As far as *Trade Policy* indicators are concerned, we have mainly focused our attention upon market access by considering both the tariffs imposed by a country on its imports and the tariffs the same country faces on the world market when exporting its goods.

We characterize tariff protection on agricultural products using three different indices based on average bound tariff calculated on the nomenclature HS 2002 at chapter level (2 digit). Since a larger dispersion in the tariff structure implies larger costs in terms of efficiency and welfare, we include in the analysis both the mean and the variance of the tariff structure (Bureau and Salvatici, 2004). Moreover, the "tariffication" required by the Uruguay Round Agreement allowed each country to provide its own estimates of the tariff equivalents. This resulted in many cases in a "binding overhang", with tariffs bound above the actual applied rates (also known as the "water in tariffs" issue).[11]

Regarding the export side (i.e., the tariffs that each country faces on the foreign markets) we implemented two indices. The first one is the simple average of the highest applied MFN tariff for each chapter that the analysed country faces in importing markets (we have included

[10] (Imp – Exp)/(Imp + Exp). Positive (negative) values of the index means that the country is a net importer (exporter) of agricultural products

[11] More specifically, the average bound tariff for each country was calculated as the weighted average of bound tariffs for each chapter (01-23) and the corresponding import flow from the rest of the World. The Variance of bound tariffs was obtained as the variance of the 23 tariff values (based on the simple average of the tariffs for each product line at 6 digit level). The indicator for the so-called water in tariffs was built as the average of the difference between the notified bound tariff for each chapter and the relative effectively applied MFN (Most Favourite Nation), weighted with import flows.

all importing countries available on the UNCTAD-TRAINS database). The second one is the average of the preference margins that each country benefits in the international market. More specifically, we have singled out the highest difference between applied MFN and effectively applied preferential rate for each chapter and we have then computed the simple average of these 23 preference margins. However, such an index is not easy to interpret since data do not allow distinguishing between bilateral and unilateral preferential treatments. For this reason, and considering that the index is highly correlated with average highest MFN (see below, Appendix A, Table A7), this index was not included in the cluster analysis.
We do not provide any specific indicators concerning the other two pillars of trade liberalisation, domestic support and export subsidies. In the case of the former, comparable data for the various "boxes" are difficult to obtain for a large sample of countries. As far as the latter are concerned, in practice only the EU actually grants direct export subsidies, while on indirect subsidies there is no sufficient available information.

3.3 Cluster analysis of bargaining coalitions

The methodology implemented for the analysis of the "convergence" of negotiating actors' interests is based on cluster analysis techniques. Although we have chosen a different mechanism to model countries' preferences, we follow a procedure similar to Bjørnskov and Lind (2002) in order to reproduce the formation of bargaining coalitions. Another interesting application of cluster analysis techniques to WTO negotiations was proposed by Diaz-Bonilla et al. (2000) in the context of food security issues.
Cluster analysis is a "generic term for procedures which seek to uncover groups in data" (Everitt et al., 2001, p. 5), used to create partitions of the data according to a pre-determined algorithm. The most coherent techniques with the theoretical framework outlined above are the so called optimization cluster techniques, which partition data by either minimizing or maximising some numerical criteria. In particular we will apply a *k-mean procedure* which produces a partition of the data which minimizes the within-group sum of squared errors in terms of the Euclidean distance from the group centroid (i.e. the vector of the means of all variables calculated on the observations included in the cluster). The recursive algorithm used to pursue such a minimisation requires the *a priori* definition of the desired number of clusters and the specification of the relative cluster centroid in order to initialize the procedure. Therefore, in order to produce consistent results this choice has to be driven by an a priori knowledge of the phenomenon under scrutiny (Milligan, 1980; Everitt et al., 2001).
The number of coalitions focused in our analysis is set as the number of clusters to be searched in the data, and the "leading" countries of existing coalitions are indicated as initial centroid for the recursive procedure. Once this information is provided, each country is assigned to the group whose centroid is closer in terms of Euclidean distance. Then the centroid of each group is calculated again, and each country is assigned to the group whose centroid is closer. Every time a cluster changes, by losing or gaining an observation, the cluster's centroid is recalculated. The process is reiterated until no further changes are possible, thus minimizing the objective function (Everitt et al., 2001; Minitab, 1999).
When compared to hierarchical techniques (where observations are progressively joint into clusters without the possibility of changing their initial allocation) the *k-means* procedure seems particularly appropriate to the purposes of our analysis. In our case, as a matter of fact, *a priori* knowledge of the groups' structure overcomes the main limitation of this methodology – i.e. the arbitrary choice of the number of clusters to be identified in the data.

Our sample well represents the population of the WTO members as almost all countries are included in the analysis.[12] The issue of collinearity between variables, which Sassi (2003) underline as a source of bias towards the information provided by the correlated variables, has been addressed by checking the correlation matrix for all the variables and preliminarily excluding the most correlated ones from the analysis. In addition, as cluster analysis results are very sensitive to the presence of outliers, we have carefully checked for them. In the case of countries showing outlying values for many variables, we excluded the specific country from the analysis. When just one individual variable assumed an extreme value for a specific country, we have equated the outlying value to the immediately inferior/superior value for the same variable.[13]
The effect of different units of measurement of the variables has been addressed by basing the analysis upon *z-scores* (the variables minus its mean and divided by its standard deviation), thus preventing a bias towards the variables with larger absolute values.
Overall, the *k-mean* cluster analysis, once specific attention is devoted to the technicalities outlined above, provides us with a "readable map" of the multidimensional (R^n) space in which countries' preferences are formed. The *k-mean* procedure, being based on the minimization/maximization of a specific objective function, provides a credible representation of the formation of bargaining coalitions. Furthermore, the output of the quantitative analysis provides valuable information on the structural features of these "natural" coalitions and on their reciprocal distances, which in turn may provide useful clues on potential convergence of interests between existing coalitions.

4. Empirical results

4.1 Existing bargaining coalitions: descriptive analysis

A descriptive analysis of the existing bargaining coalitions can be based on Table 2, which includes the main indicators for seven groups: on the basis of the whole indicators data set is a very first step in order to consider differences and similarities among and within the groups. We have therefore reported the main statistics for seven bargaining coalitions: G-90, G-20, Cairns Group, G-10, G-33, the EU and the US (Table 2).[14]
Looking at the economic system, it is hardly surprising that the bargaining coalitions with developing and least developed countries as principal members (G-90, G-20, and G-33), present low levels of income per capita (GDPCPL), high level of inflation (GINFLRT) (mainly for the African Group and Latin American economies), and good performance in terms of Foreign Direct Investments (GFDIGDP) (especially for G-33). G-90 seems to be the group with the worst performance in terms of economic growth (growth of income per capita, GDPCPG), and with the highest coefficient of variation for the inflation rate, meaning that

[12] The WTO members considered for our analysis are those listed by WTO at the end of 2004 (WTO, 2004). The members not included for lack of data are Bahrain, Brunei, Cuba, Hong Kong, Israel, Liechtenstein, Macao, Maldives, Myanmar, Oman, Qatar, Sierra Leone, Singapore, Solomon Islands, Suriname, Chinese Taipei, and United Arab Emirates. The final data set covers 129 countries including European Union members.
Iceland was not included in the final cluster analysis due to outlier values for many variables.
[13] In general, if there was an outlier many times above (or below) the average value for any specific indicator (4-5 times above/below the mean) the outlier value has been replaced with the second highest (lowest) value.
[14] According to the typology presented in Section 2, the EU is a "structural" rather than "bargaining" coalition. Nonetheless, since we had the data for each Member country, we thought that it may be interesting to compare the EU with the other groups. For the same reason, we included in Table 2 also the US, even though only reporting the mean values. Further details for statistics on the whole data set are available in Appendix A, Table A2, A3, A4.

there is a great heterogeneity within the members. On the opposite, the US presents an income per capita ten times higher than G-90, and the lowest inflation rate.
The values of economic variables are heterogeneous also in the case of the Cairns Group, as it is indicated by the high value of the coefficient of variation of income per capita (GDPCPL). Members of this Group, as a matter of fact, are at rather different stages of development.

Table 2 – Summary statistics for existing coalitions

Indicators	Statistics	G-90	G-20	CAIRNS	G-10	G-33	EU-25	US
GDPCPL	Mean	3015	4771	8774	18334	4061	17866	31018
	Coef. Var.	2731	1455	5399	5905	2876	2318	-
GDPCPG	Mean	1.08	1.45	1.89	1.99	1.55	2.94	1.85
	Coef. Var.	3.47	3.03	2.27	0.93	3.15	0.78	-
GINFLRT	Mean	9.30	11.84	5.96	3.54	9.55	3.39	2.31
	Coef. Var.	27.46	23.10	4.04	3.37	21.91	1.66	-
GFDIGDP	Mean	4.35	3.01	3.33	2.60	4.42	6.49	2.08
	Coef. Var.	5.48	1.49	1.50	1.63	4.00	3.87	-
DEDUIND	Mean	0.47	0.62	0.71	0.79	0.55	0.85	0.91
	Coef. Var.	0.06	0.03	0.03	0.02	0.05	0.01	-
DHEAEXP	Mean	2.54	2.62	3.48	4.46	2.60	5.63	5.88
	Coef. Var.	0.44	0.59	0.84	0.93	0.47	0.19	-
DINTERG	Mean	4.69	3.00	1.65	0.74	3.14	0.75	0.20
	Coef. Var.	6.16	2.46	1.62	0.44	3.43	0.25	-
DFOOCAP	Mean	121.88	193.93	349.69	202.32	136.57	391.82	504.50
	Coef. Var.	32.04	65.30	198.01	33.37	31.04	114.85	-
DFOOIMP	Mean	8.37	17.36	23.01	25.23	11.60	19.80	38.10
	Coef. Var.	3.00	8.49	8.75	6.90	5.06	2.93	-
AGVA	Mean	24.52	14.33	11.07	5.32	17.60	3.78	1.61
	Coef. Var.	9.69	4.58	3.46	5.43	7.48	0.85	-
AGLAND	Mean	14.25	13.91	9.37	21.99	15.20	27.12	19.13
	Coef. Var.	13.16	12.30	4.96	15.35	10.62	6.95	-
AGEMP	Mean	-11.20	-17.28	-17.72	-36.15	-15.80	-31.57	-25.93
	Coef. Var.	-6.42	-3.36	-3.64	-3.32	-6.79	-3.09	-
AGVAWR	Mean	1554	1953	7421	15593	2145	19938	51824
	Coef. Var.	5481	1423	17755	7131	5554	10100	-
AGMACH	Mean	0.75	1.07	1.42	16.79	1.28	11.00	2.74
	Coef. Var.	1.60	0.74	1.19	17.87	3.31	8.54	-
TAGEXTE	Mean	0.17	0.16	0.19	0.04	0.13	0.07	0.05
	Coef. Var.	0.21	0.10	0.08	0.05	0.12	0.05	-
TAGSTB	Mean	0.23	-0.12	-0.36	0.40	0.15	0.08	-0.11
	Coef. Var.	0.91	-1.71	-0.22	0.42	1.12	1.28	-
TMANEXP	Mean	30.86	44.97	48.61	72.62	40.70	77.62	82.27
	Coef. Var.	23.57	16.93	11.29	10.23	22.75	1.88	-
POAVBD	Mean	73.12	60.35	35.75	41.62	72.76	15.11	4.90
	Coef. Var.	23.13	34.52	19.00	15.22	26.08	0.00	-
POVRBD	Mean	307.30	274.12	161.09	1599	354.58	330.33	61.57
	Coef. Var.	889.07	453.51	291.52	2325	2032	-	-
POWAT	Mean	57.64	45.63	26.84	12.40	56.11	0.00	0.74
	Coef. Var.	27.28	31.33	21.83	41.34	27.04	-	-

The development indicators present several interesting results in terms of well-being, technological innovation and food security. The first two variables, the index of education (DEDUIND) and the level of public health expenditures as percentage of GDP (DHEAEXP), denote fewer investments in human capital for G-90 and G-33, while G-20 seems to have an education level quite higher than other developing countries groups. Another interesting indication is provided by the degree of technological innovation, where the internet users

growth rate (DINTERG) is much higher for least developed countries (G-90) and lower for G-10, the EU and the US.
Looking at food security, the first indicator, calories per capita, draws a clear separation between developed and developing countries. This is hardly surprising, while the other two indices (food production per capita, DFOOCAP and the ratio of total exports on food imports, DFOOIMP) are more differentiated. The Cairns Group, the EU and the US have much larger food production per capita than the G-10. Considering the ratio between total exports and food imports, G-20 and Cairns Group present the highest values due to the presence of net food exporting countries, while G-90 and EU register the lowest values.
The structure of the agricultural sector is quite differentiated between groups. G-10, the EU and the US countries have low values of agricultural value added as a percentage of GDP (AGVA), and of agricultural employment as a percentage of total labour force (AGEMP), but high value added per worker (AGVAWR) and strong capital intensity (AGMACH). On the contrary, the G-90 has the more labour intensive agriculture, with low machinery and fertilizers levels, and a low value added per worker. G-20 and Cairns Group present similar values for most of the indicators considered, with the exception of agricultural arable land (AGLAND) and value added per worker (AGVAWR). As far as the former is concerned, values are much more homogeneous within the Cairns Group. This group also presents a relatively high agricultural value added per worker, due to the presence of developed countries, such as Australia, Canada, and New Zealand.

Trade statistics and trade policy variables confirm the difference between G-20 and Cairns Group on one side, and G-10, the EU and the US on the other side. In particular, G-20 and Cairns Group are more export-oriented than G-10, the EU and the US in terms of the agricultural exports' share in total exports (TAGEXT) and according to the standardized agricultural trade balance (TAGSTB). Looking at general trade, there is a certain degree of accordance between the two agricultural exporters groups, confirming that Cairns and G-20 are generally export-oriented. On the contrary, G-90 and G-33 have the highest percentage of agricultural imports on total imports and this value corresponds to the high dependence from food imports. Both manufactures imports and exports for G-90 represent a low percentage of total imports and exports compared to other groups, confirming that G-90 and G-33 include the most vulnerable economies in the world.
Looking at trade polices, G-90 and G-33 have the highest average bound tariffs (POAVBD) and the US the lowest. In the case of the G-10, a rather high average tariff value is coupled with a high variance of bound tariffs (POVRBD), showing a larger dispersion of tariff structure, which increases the impact on trade flows. On the contrary, Cairns Group has a low variance of bound tariffs, showing a more homogeneous structure of tariff lines.
As far as the "water in the tariffs" issue is concerned, i.e. the difference between bound and applied tariffs, G-90 and G-33 present the largest values of this indicator (POWAT). Finally, considering the export side, G-20 and Cairns Group face the highest (bound) tariffs on their agricultural exports, and this is consistent with their request for a liberalization of world agricultural markets.
In order to give a more general overview of the coherence (or similarity) degree within each coalition, we have built a synthetic index as the sum of the variances for each indicator for the specified groups (Table 3). Looking at the sum of variances for the all sample of indicators, it is worth noting that the G-20 seems to have a higher internal cohesion compared to the other group. Looking at specific characteristics, G-20 has quite the same value for all the five dimensions, while the other groups are more heterogeneous. Also the other "exporting group" (Cairns Group) presents a rather high degree of internal cohesion, though it is more heterogeneous in terms of the development dimension.

Table 3 – Sum of Variances for effective coalitions

Dimensions / Coalitions	Total	Economic	Development	Agriculture	Trade	Trade Policy
G-90	30.51	6.14	4.92	7.45	9.22	2.76
G-20	21.17	4.50	4.10	4.38	5.30	2.88
CAIRNS	23.74	3.77	7.71	5.67	5.22	1.36
G-10	37.19	3.54	5.75	13.85	4.84	9.21
G-33	27.55	5.46	4.12	6.07	8.02	3.88
EU-25	22.08	3.68	3.63	7.76	7.01	0.00

Note: values of variances calculated on the basis of *z-scores* values for each indicator

The situation of the other groups is more contrasted. The G-90, for example, has high variance for trade, and low for trade policy. On the contrary, G-10 has low variance for trade and high for trade policy, mainly due to the variable related to variance of bound tariffs (POVRBD). G-10 countries present similar values regarding the economic dimension, but register great differences in the structure of the agricultural sector. These results fly into the face of the comments forecasting a short life for the G-20 coalition after Cancún. According to this interpretation, the G-20 only shared the opposition to the EU-US joint proposal of August 2003, with no other scope for real cooperation after Cancún. Our data suggest a rather different story, confirming the cohesion that this group has showed after Cancún.

4.2 Correlation analysis among indicators

Since our analysis is based upon a plurality of indicators for each dimension, the presence of collinear variables within the same dimension needs to be preliminarily checked to prevent a bias in the clustering procedure. We have therefore analyzed all the selected indicators (Appendix A, Table A5, A6, A7, A8) in order to select the most appropriate and statistically significant variables for the cluster analysis.[15] As a general rule we dropped all the variables which showed a statistically significant Pearson correlation index with any other variables unless specific theoretical considerations suggested to keep the variable anyway.

Apparently, within the economic and development dimensions, the three income related indices (GDPCPL, GDPCPG, and GDPTOG) are highly correlated. Since GDPCPL seems to be correlated with most of the development indices, it was eliminated. Between the two remaining indices, we maintain the total GDP growth rate (GDPTOG) because it is less correlated with the other development issues (i.e., foreign direct investments, growth of internet users, food security indicators). Finally, the government expenditures were dropped due to high correlation with FDI, health expenditures and household consumption.

On the development side, the education index is highly correlated with all other development indicators, and the same is true for the number of internet users. The index of calories per capita (DCALCAP) was dropped due to its high correlation with the other two indices for food security and with other development variables (DHEAEXP and DINTERG). Even if the other development indices are also positively related, we chose to retain them in order to represent the economic and development dimensions with a number of indicators at least equal to that used for the other ones.

Coming to the agricultural dimension, four out of ten variables (rural population – AGRUR, cereal yields per hectare – AGCER, agricultural value added per hectare – AGVALA, and

[15] The variable "total unemployment" has been excluded from the correlation analysis due to data gap for too many countries, impossible to replace using regional averages.

fertilizer consumption – AGFERT) were not considered in the cluster analysis due to their high correlation. Other indices present high correlation values, but they were maintained in order to fully represent productivity and technical innovation in agriculture.
In the case of trade flows and policy, correlations are less common, but still significant in some obvious (i.e., the agriculture share and the manufacture share in total export) and less obvious cases (i.e., the average tariffs faced on agricultural exports and the share of manufacture trade in total trade). However, none of the variables was dropped in order to avoid a major imbalance between the number of trade related variables and the number of variables related to the structural dimensions (economic system, development and agriculture). The only exception is the variable POPMS, which was excluded due to the high correlation with POAVHG, and for the problems mentioned above.

4.3 "Natural" bargaining coalitions from cluster analysis

In this section we comment upon the results of the cluster analysis. As discussed in Section 3, these results provide a map for the counterfactual ("natural") bargaining coalitions that WTO members would form on the basis of their structural similarity, which, in turn, we suppose to be the key factor in the formation of their "true" preferences for the negotiation outcome. In the following, we firstly discuss the structure of the groups produced by the cluster analysis, and then we compare "natural" and "actual" coalitions.

Figure 1 provides a visual representation of the coalitions membership projected onto a geographical map. The north-south divide is immediately apparent with few interesting exceptions. Developed countries are grouped together into three coalitions corresponding to the traditional Quad: the US-Canada Group, the EU with some of its neighbours, and the G-10.

Other coalitions mainly include countries from the developing world, thus confirming a strong geographical pattern in the formation of negotiating collective actors. It is worth noticing a few exceptions, as in the case of Turkey and Romania. These countries present structural features closer to the developing countries, but their "geo-political proximity" to the EU strongly influences their actual negotiating position. The Figure also confirms the "African core" of the G-90 group by contrast with the more inter-continental vocation of the G-20. Tables 4, 5 and 6 show a more in-depth analysis of the "natural" bargaining coalition and of their "milieu" of interests.

Figure 1 – Clusters Map

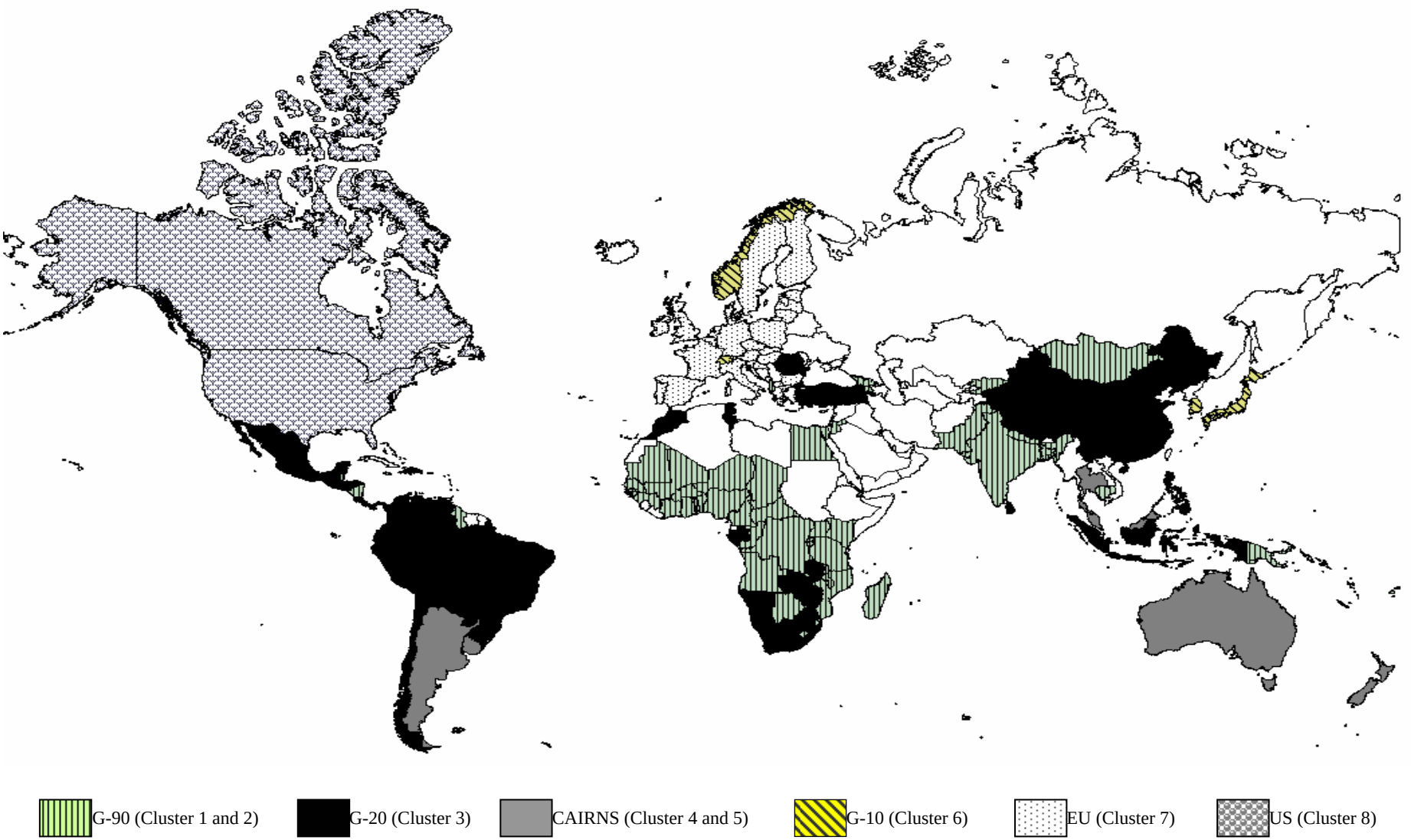


Table 4 – Groups from cluster analysis

G-90			G-20		CAIRNS		G-10	EU-25	USA
Cluster 1		*Cluster 2*	*Cluster 3*		*Cluster 4*	*Cluster 5*	*Cluster 6*	*Cluster 7*	*Cluster 8*
Albania	Madagascar	Angola	Bolivia	South Africa	Argentina	Malaysia	Japan	Bulgaria	Canada
Armenia	Malawi	Antigua and Barbuda	*Botswana*	*Sri Lanka*	Australia	Thailand	Korea, Rep.	Croatia	US
Bangladesh	Mali	Barbados	Brazil	Tunisia	New Zealand		Switzerland	Macedonia	
Benin	Mauritania	Belize	Chile	*Turkey*	Uruguay		Norway	Moldova	
Burkina Faso	Mozambique	Congo, Rep.	China	Venezuela				EU-25	
Burundi	Nepal	Djibouti	Colombia	*Zambia*					
Cambodia	Niger	Dominica	Costa Rica	Zimbabwe					
Cameroon	Nigeria	Fiji	*Dominican Rep.*						
Central Afr. Rep.	*Pakistan*	Grenada	Ecuador						
Chad	Papua N.G.	Guyana	El Salvador						
Congo Dem. Rep.	Rwanda	Jamaica	*Gabon*						
Cote d'Ivoire	Senegal	*Jordan*	Guatemala						
Egypt.	Tanzania	*Kuwait*	*Honduras*						
The Gambia	Togo	Lesotho	Indonesia						
Georgia	Uganda	Mauritius	Mexico						
Ghana		*Mongolia*	*Morocco*						
Guinea		*Nicaragua*	*Namibia*						
Guinea-Bissau		St. Kitts and Nevis	*Panama*						
Haiti		St. Lucia	Paraguay						
India		St. Vincent and the Gr.	Peru						
Kenya		Swaziland	Philippines						
Kyrgyz Rep.		Trinidad and Tobago	*Romania*						

Notes: in *italics* countries from different existing coalitions based on official WTO documents (WTO, 2004).

Table 5 – Cluster output: main statistics

	Number of observations	Within cluster sum of squares	Within cluster standard deviation	Average distance from centroid	Maximum distance from centroid
Cluster1	37	685.81	4.31	4.09	7.60
Cluster2	22	449.30	4.52	4.20	8.15
Cluster3	29	385.64	3.65	3.49	6.39
Cluster4	4	27.65	2.63	2.62	2.80
Cluster5	2	17.12	2.93	2.93	2.93
Cluster6	4	83.66	4.57	4.49	5.46
Cluster7	5	51.18	3.20	3.09	4.26
Cluster8	2	5.23	1.62	1.62	1.62

G-90 - The G-90 is represented in our analysis by two different clusters, thus reproducing the "multifaceted" composition of this group, which is, in fact, the sum of three groups: African Union (AU), Least Developed Countries (LDCs) and African, Caribbean and Pacific (ACP). However, it should be noted that these two sub-groups show quite a degree of similarity, as shown by the values of "within cluster standard deviation", "average" and "maximum distance from centroid" (Table 5). Cluster 1 (whose components are listed in Table 4) includes mainly the African Group members within the G-90, while in cluster 2 are grouped a variety of mainly non-African countries which are mostly members of the ACP group and/or of the G-33. These results suggest that the very large alliance named G-90 is the sum of similar but not identical interests. Both clusters forming the G-90 are less homogenous than all other clusters, thus emphasizing the relative lack of coherence of this large coalition with respect to the others.

Countries included in a certain group on the basis of the cluster analysis but actually members of a different coalition are showed in *italics* in Table 4. As already mentioned, this "misclassification" may be a clue for a country's weaker commitment to its actual group's position. According to its structural features, such a country is expected to be "naturally" inclined towards the positions of its most similar group (i.e. the one identified by the cluster analysis).

One of the most relevant "misclassification" cases within the G-90 clusters is represented by India. This important country, as a matter of fact, emerged in Cancún as one of the leading members of the G-20, asking for relevant multilateral liberalization efforts from the developed countries. Nevertheless, such a position was not fully consistent with the previous statements from the Indian government, since they were mostly concerned with the special and differential treatment for developing countries (Narlikar and Tussie, 2004). These positions were broadly consistent with the G-90 negotiating attitude and India, indeed, is classified by the cluster analysis in this group. The convergence of interests between India and other G-20 members must then be explained on political grounds: the Indian government probably thought that it was preferable to take the offensive, putting the spotlight on the policy implemented by the developed countries rather than on those implemented by the developing countries. Moreover, the political relevance of India is certainly enhanced by the fact that many "G-90" countries acknowledge that the problems faced by the Indian agricultural sector and policy are not very different from those faced by their own economies.

G-20 - Cluster 3, with the exception of India, provides a remarkably accurate representation of the G-20. This cluster shows a relatively high internal cohesion (Table 5), so that the cluster centroids effectively summarize the group's structural features. In terms of "misclassifications", it is worth underlining the inclusion of two EU candidate countries:

Romania and Turkey. As it was already mentioned, this could be considered a typical example of the existence of "side-payments" (i.e., benefits not directly related to multilateral trade) influencing the actual alliances.

CAIRNS - The Cairns Group is represented by two different clusters (cluster 4 and 5 in Table 4). This shows a potential divide within the group, with Malaysia and Thailand so distant from the other countries' interests to form a separate group (cluster 5). The results suggest that the "core" of the group is to be found in cluster 4. An interesting feature of the actual Cairns Group is that several of its affiliated is also members of other negotiating coalitions. This behaviour is consistent with our results, since clusters 4 and 5 are the second nearest clusters of several Cairns Group members included in different clusters (see Table 8). This is the case of Brazil, South Africa and the Philippines, which are included in the counterfactual (as well as in the actual) G-20, or Canada in the case of the "US cluster". In the present round, the Cairns Group has played a rather minor role in comparison with the Uruguay Round negotiations. An obvious explanation is provided by the small number of countries included in cluster 4. These countries, which can be considered the "core" of the Cairns Group are very homogeneous (Table 5 shows a relative low dispersion around the centroid of the cluster), but they lack the political clout of the "larger" Cairns Group.

G-10 - The cluster analysis representation of the G-10 may be biased by the lack of data for many of its components. However, cluster 6 is able to include the majority of its main actors even if the cluster is less compact than other groups (Table 5), since an average distance from the group's centroid is accompanied by a relatively standard deviation within the cluster.

EU-25 and US - The EU-25 and the US do not join any coalition, but they are big enough to attract other countries in their "own" clusters. For the EU this happens for Bulgaria and Croatia (candidates for accession), as well as for Macedonia and Moldova (both signatories of the *Memorandum of Understanding on Trade Liberalisation and Facilitation* between EU and South East European countries). It should also be recalled that the EU-25 (i.e., after the enlargement) is much more similar to these countries than what would have been the case for the EU-15 (i.e., before the enlargement). It is worth noting, as shown again in Table 5, that this aggregation is far from being homogeneous, though relatively more "compact" than other existing coalitions. The US is grouped with Canada, and this is hardly surprising.[16]

4.4 A map for the negotiation: the relative position of the bargaining coalitions

In addition to the group's membership, cluster analysis allows a better understanding of the relative position of the different groups. Table 6 presents the Euclidean distances between clusters' centroids. The clusters are defined in an *n-dimensional* space, thus making all bi-dimensional representation of their reciprocal distances impossible. However, Figure 2 provides a (partial) graphical representation of the distances between the clusters. The Figure shows the distances of all cluster centroids from a common benchmark (a vector of zeros) on the *x-axis* and the distances of each country/observation from its cluster centroid (on the *y-axis*). The *y-axis*, then, provides a scatter of the within-group distribution, thus offering a visual representation of clusters' homogeneity. In addition, this scatter allows the identification of outliers in the distribution: those countries which show more extreme values within the group - i.e. which are more distant from the cluster centroid – are less homogeneous with the rest of the group and, consequently, less committed to its positions.

Two dimensions do not allow to ensure proportionality between each bilateral distance (reported in Table 6), nonetheless Figure 2 graphically (though not accurately) shows, on the *x-axis*, the great divide within the Doha Round. The G-90 and the G-20 are globally "close" to

[16] For further details on descriptive statistics for clusters, see Appendix A, Table A9, A10, A11, A12.

each other, but very "distant" from other groups. As it was already mentioned, the clusters forming the G-90 are very close to each other in the Euclidean space. Cluster 3 (representing the G-20) is the next closest cluster to both the sub-groups. This suggest the possibility of defining (at least) some common positions in the negotiations, creating a large front of developing countries balancing the political ad economic power of the developed countries.

Table 6 – Proximity matrix: distances between cluster centres

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	Cluster7	Cluster8
Cluster1	0	3.98	3.27	7.51	7.28	8.29	5.74	9.27
Cluster2	3.98	0	3.45	7.36	5.89	7.62	4.72	8.59
Cluster3	3.27	3.45	0	5.56	5.33	6.59	4.26	7.25
Cluster4	7.51	7.36	5.56	0	7.21	7.70	5.92	5.08
Cluster5	7.28	5.89	5.33	7.21	0	7.76	5.76	7.82
Cluster6	8.29	7.62	6.59	7.70	7.76	0	6.27	6.92
Cluster7	5.74	4.72	4.26	5.92	5.76	6.27	0	6.66
Cluster8	9.27	8.59	7.25	5.08	7.82	6.92	6.66	0

Cluster 7 (including the EU) is relatively closer to both G-90 and G-20 than all other clusters. This is rather surprising if we look at the policy issues, but it can be explained on a structural ground, taking into account the consequences of the most recent enlargement. In point of fact, the new EU members are characterized by agricultural structures and an overall development level which make the EU-25 a bit less different from the developing world than the EU-15. If such a change may influence the EU position in the WTO negotiations remains a moot point.
With respect to the clusters forming the G-90, the USA-Canada group is the more remote, together with the G-10 group.
Table 7 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 exercise is that for countries in the G-90 the only feasible alternative is the G-20 and vice versa. The same reasoning applies to the developed countries' coalitions as a whole, thus confirming the significant divide between developed and developing countries.
In addition, it is worth noting that when countries have an overlapping membership, the "second membership" is often consistent with the "second nearest cluster" (e.g., in the case of the Philippines or Brazil). This confirms the capability of our analysis to represent some interesting features of the "real world".
Figure 3 provides a visual representation of the distribution of the countries according to the differential distance between the centroid of their second nearest cluster and that of their own cluster. The higher this difference, the closer the country is to its own cluster centroid relatively to other potential alternatives. Symmetrically, the lower the difference, the higher the relative proximity to the second nearest cluster (for numerical details, see Appendix A, Table A13). Thus, countries showing relatively lower values are, in comparison to the others, more "attracted" by the "second best" coalition. This is for example the case of India, Egypt and Nigeria, grouped in cluster 1 (G-90) but also relatively closer to cluster 3 (G-20) than to all other countries included in cluster 1.

Figure 2 – Group centroid distance from zero vs. countries' distance from their own group centroid

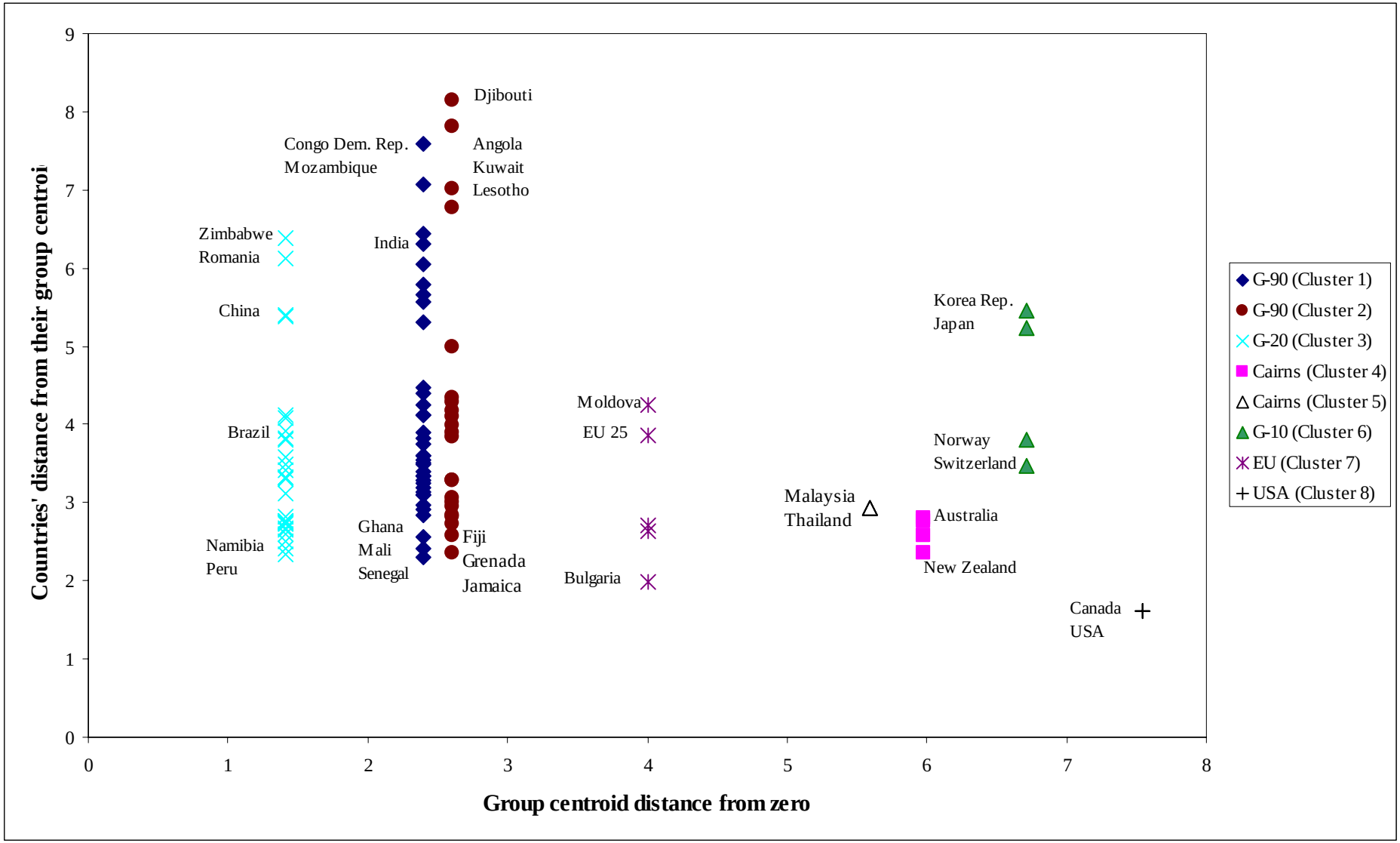


Figure 3 – Difference in distance between second nearest cluster and own cluster centroid.

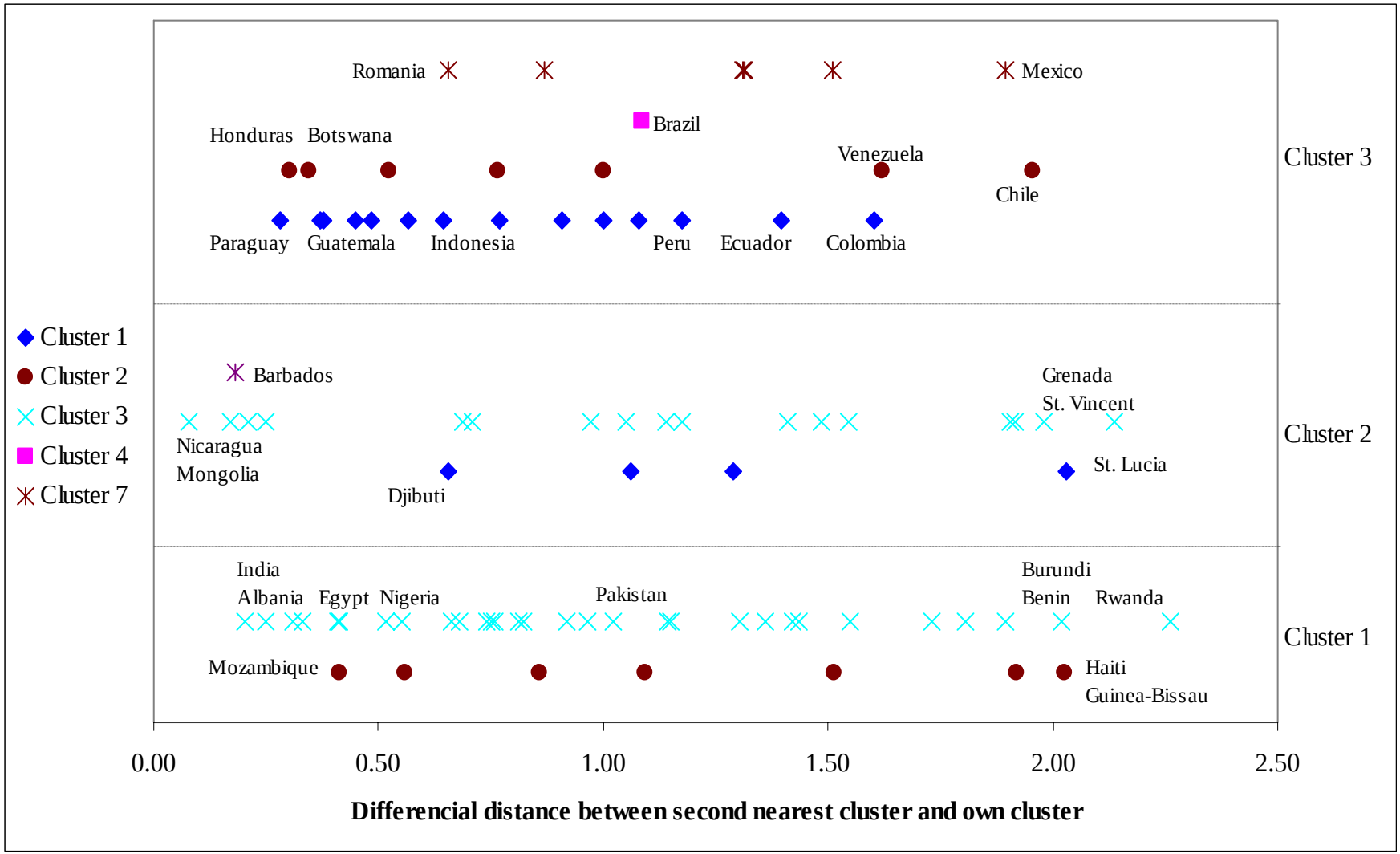


Table 7 – Second nearest cluster

Cluster	Second nearest	Countries
Cluster 1	*Cluster 2*	Armenia, Guinea-Bissau, Haiti, Mauritania, Mozambique, Papua New Guinea, Togo
	Cluster 3	Albania, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Dem. Rep., Cote d'Ivoire, Egypt, Gambia, Georgia, Ghana, Guinea, India, Kenya, Kyrgyz Republic, Madagascar, Malawi, Mali, Nepal, Niger, Nigeria, Pakistan, Rwanda, Senegal, Tanzania, Uganda
Cluster 2	*Cluster 1*	Lesotho, St. Lucia, Congo, Rep., Djibouti
	Cluster 3	Grenada, Guyana, Jamaica, Jordan, Kuwait, Mauritius, Mongolia, Nicaragua, St. Kitts and Nevis, St. Vincent and the Grenadines, Swaziland, Trinidad and Tobago, Angola, Antigua and Barbuda, Belize, Dominica, Fiji
	Cluster 7	Barbados
Cluster 3	*Cluster 1*	Bolivia, China, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Indonesia, Morocco, Paraguay, Peru, Sri Lanka, Zambia, Zimbabwe
	Cluster 2	Botswana, Chile, Gabon, Honduras, Namibia, Tunisia, Venezuela
	Cluster 4	Brazil
	Cluster 5	Philippines
	Cluster 7	Costa Rica, Mexico, Panama, Romania, South Africa, Turkey
Cluster 4	*Cluster 3*	Argentina, Uruguay
	Cluster 8	Australia, New Zealand
Cluster 5	*Cluster 2*	Malaysia
	Cluster 3	Thailand
Cluster 6	*Cluster 3*	Korea Rep.
	Cluster 7	Japan, Switzerland
	Cluster 8	Norway
Cluster 7	*Cluster 2*	Macedonia
	Cluster 3	Bulgaria, Croatia, Moldova
	Cluster 8	EU-25
Cluster 8	*Cluster 4*	Canada, USA

4.5 Driving factors of "natural" bargaining coalitions

In this subsection we focus on the variables providing a more apparent contribution to the formation of clusters. In particular, the values of some "cluster centroids" vectors (Table 8) are commented together with the distribution of individual countries' values around their group's mean (Figures 4-7). This sheds some light on the structural features of the "natural" coalitions, and the comparison of these results with those regarding the "actual coalitions" (see section 4.1) makes clear the similarities among the two groups. Moreover, this analysis provides some clues on the contribution of these factors in differentiating the groups.

Table 8 – Cluster output: cluster centroids

Variable	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	Cluster7	Cluster8
GDPTOG	0.044	-0.029	0.165	-0.367	0.847	-0.303	-0.980	0.057
GINFLRT	-0.059	-0.114	0.368	-0.334	-0.462	-0.527	-0.128	-0.484
GFDIGDP	-0.390	0.968	-0.190	-0.363	-0.124	-0.463	0.491	-0.126
DHEAEXP	-0.717	0.133	0.036	1.617	-0.741	1.495	1.473	2.115
DINTERG	0.320	0.049	-0.121	-0.562	-0.444	-0.618	-0.471	-0.730
DFOOCAP	-0.490	-0.217	-0.025	3.815	0.079	0.115	0.653	2.256
DFOOIMP	-0.590	-0.440	0.252	1.524	3.059	1.674	0.275	1.960
AGVA	1.072	-0.547	-0.466	-0.930	-0.662	-1.185	-0.391	-1.201
AGEMP	0.643	0.030	-0.178	0.115	-0.499	-1.631	-2.059	-0.970
AGLAND	0.204	-0.233	-0.228	-0.494	0.211	-0.293	1.458	-0.190
AGVAWR	-0.415	-0.106	-0.271	1.387	-0.176	1.946	0.478	5.087
AGWRHA	0.420	0.100	-0.225	-0.831	-0.133	-0.501	-0.780	-0.874
AGMACH	-0.301	-0.090	-0.202	0.029	-0.033	4.136	0.469	0.009
TAGIEVA	-0.512	1.037	-0.232	0.245	0.040	0.028	0.285	0.141
TAGIMTI	0.636	0.136	-0.403	-0.994	-1.162	-0.975	-0.431	-1.236
TAGEXTE	0.317	-0.311	-0.114	0.900	-0.468	-0.887	0.109	-0.613
TAGSTB	0.145	0.416	-0.232	-1.748	-0.972	1.119	-0.445	-0.547
TEXPGDP	-0.585	1.079	-0.224	-0.718	2.791	-0.098	0.596	-0.446
TIMPGDP	-0.379	1.266	-0.418	-1.053	1.608	-0.719	0.748	-0.796
TMANIMP	-0.785	-0.062	0.672	1.366	1.269	0.452	-0.307	1.312
TMANEXP	-0.395	-0.153	0.195	-0.257	1.259	1.213	0.737	1.147
TCOMEXP	0.062	0.319	-0.275	-0.461	-0.015	-0.033	0.010	0.296
POAVBD	0.106	0.548	-0.058	-0.876	-0.687	-0.489	-1.038	-1.136
POVRBD	-0.174	-0.133	0.115	-0.458	-0.223	2.597	-0.286	-0.318
POWAT	0.117	0.590	-0.059	-0.760	-0.589	-1.046	-1.017	-1.055
POAVHG	-0.483	-0.485	0.388	1.227	1.583	0.690	0.403	2.215

Table 8 presents the centroid vector of each cluster, including the mean of each variable considered. These are the values underlying the differences across clusters showed by the following figures.

Considering the economic dimension, Figure 4 provides an indication of the dispersion of the values within the clusters (the values for the variance are included in Appendix A, Table A9-A12). Growth of income per capita (GDPTOG) and foreign direct investments (GFDIGDP) (the values for each cluster are shown in Table 8) are the most differentiated variables. In both cases the mean values for the eight clusters are quite different, and for the FDI there are several outliers in three out of the eight clusters formed exclusively by developing countries. The clusters including the developing countries - clusters 1, 2 and 3 - show a larger variability, though it should be recalled that these clusters also include a larger number of observations. Considering the inflation rate (GINFLRT), the divergence among clusters is lower than for other economic variables, but in some cases (see for example the G-20) a relative high variance is due to the presence of several outliers.

On the development side, Figure 5 includes variables such as health expenditures per capita (DHEAEXP), internet users growth (DINTERG) or food security (DFOOIMP). Cluster 3 (G-20) denotes a relatively higher variability of health expenditures, and this reflects different approaches to the welfare state in the developing world. The growth of internet users shows some dynamism by developing countries, especially for Cluster 1 (African Union) and Cluster 3 (G-20). The food security index, defined here as the ratio of total exports to food imports,

makes clear the difference between net food importing countries (mainly clusters 1 and 2) and relatively food secure countries, such as clusters 4 and 5 (Cairns Group) or cluster 8 (USA). In terms of intra-groups variability, cluster 6 (G-10) has a high internal variance, while the developing countries (clusters 1, 2 and 3) show values closer to the mean.

Figure 4 – Main statistics for clusters: Economic system

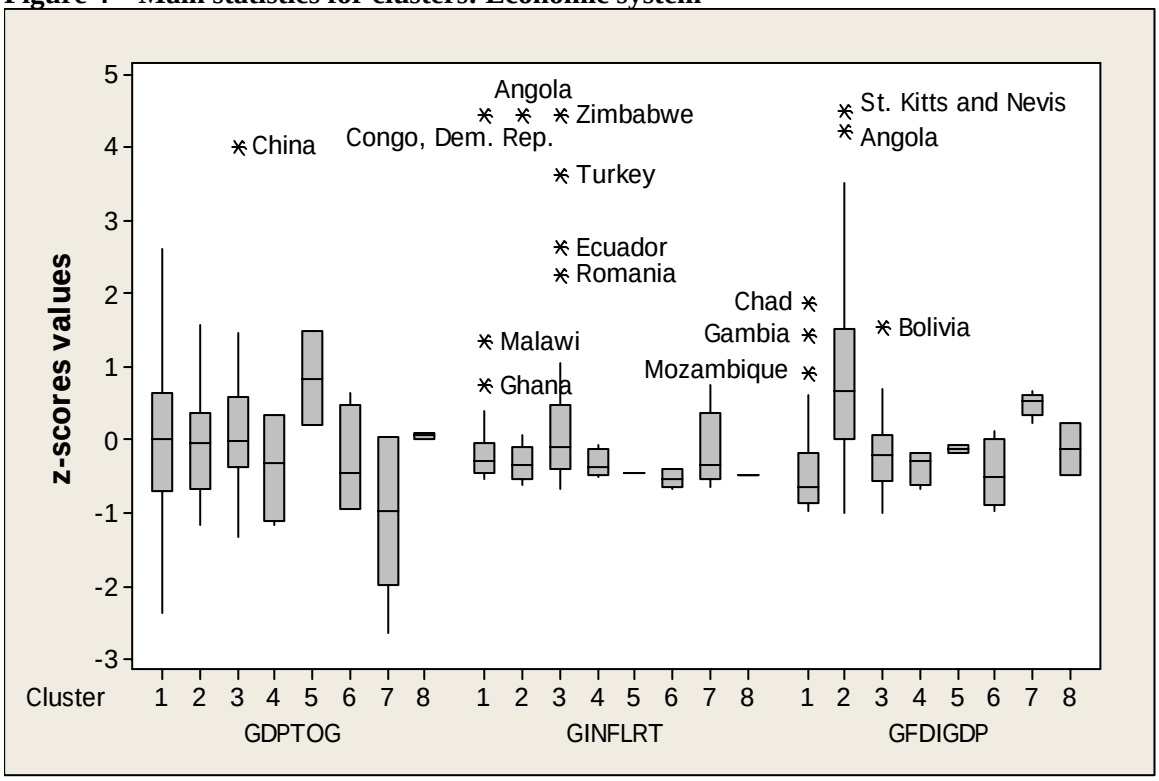
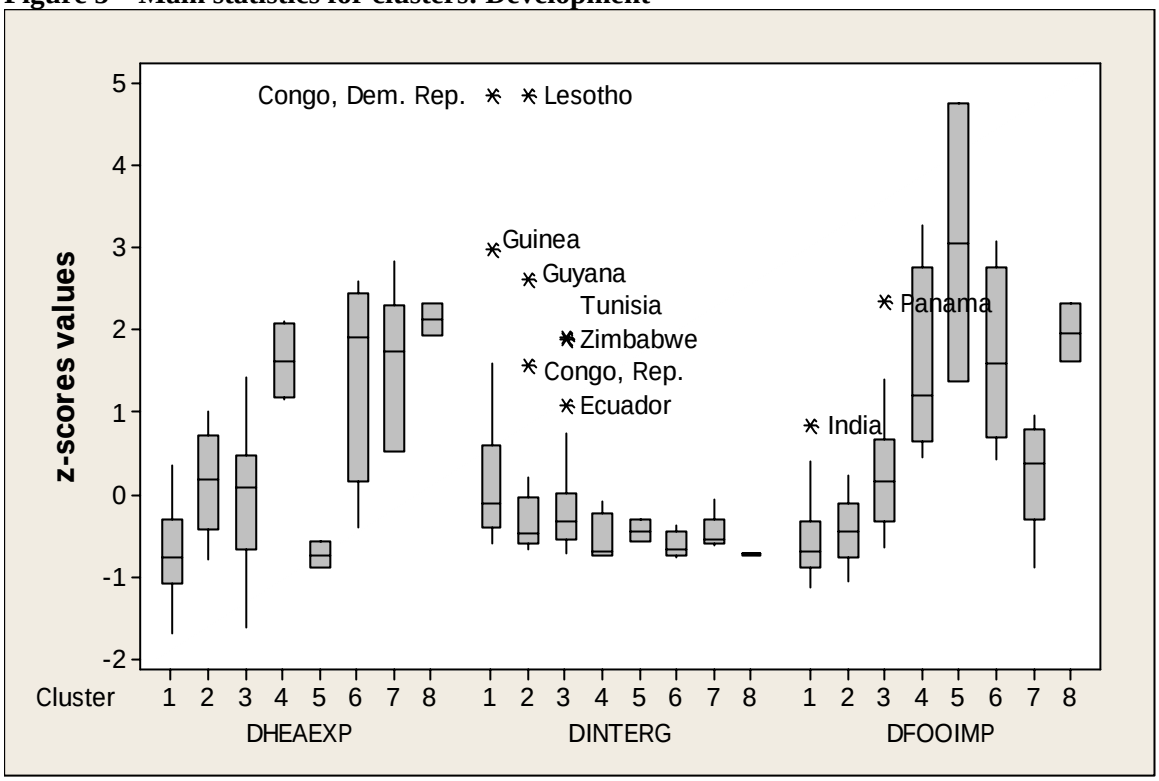


Figure 5 – Main statistics for clusters: Development



The diagram regarding the agricultural variables (Figure 6) confirms that developing countries are highly dependent on the primary sector, with labour-intensive production techniques and low capital investments. As a matter of fact, clusters 1, 2 and 3 show a relatively lower decrease in agricultural employment (AGEMP) and a low productivity of labour factor (value added per worker, AGVAWR), with quite a great similarity between and within the clusters. It is with respect to these variables that the two clusters "representing" the G-90 are more differentiated from the others: both sub-groups are significantly far from the other clusters, while cluster 1 (including most of the African countries) is more characterized by a crucial role of agriculture in the economy and foreign trade.
Figure 7 presents the results for the trade variables. Cluster 4 (Cairns Group) stands as the most export-oriented group, and this is true for each of its members, with high ratios of agricultural exports (TAGEXTE) and negative values (implying larger exports than imports) of the standardized agricultural trade balance (TAGSTB). On the contrary, the other export-oriented group (cluster 3 – G-20) seems much more differentiated in this respect, and this may explain the doubts raised on the sustainability of this coalition. Countries of cluster 6 (G-10) are all net agricultural importers, but some of them are net exporters for manufactures. These results confirm the great divergence among clusters on the trade side, and the convergence within homogeneous groups such as cluster 4 (Cairns).

Finally, trade policy variables (Figure 8) offer additional evidence of the internal cohesion of clusters 4 and 5 (Cairns Group), including countries imposing low tariffs on imports (POAVBD) and facing high tariffs (POAVHG) on exports. On the contrary, clusters 1 and 2 (G-90) are rather scattered around an average value for import tariffs close to the general mean. "G-20" countries are rather similar in terms of protection, but face quite different tariffs in the foreign markets, with an average close to those of the clusters 4 and 5. Finally, it is worth noting the cluster 6 (G-10) countries present very different levels of protection, as shown by variance of bound tariffs (POVRBD).

Figure 6 – Main statistics for clusters: Agriculture

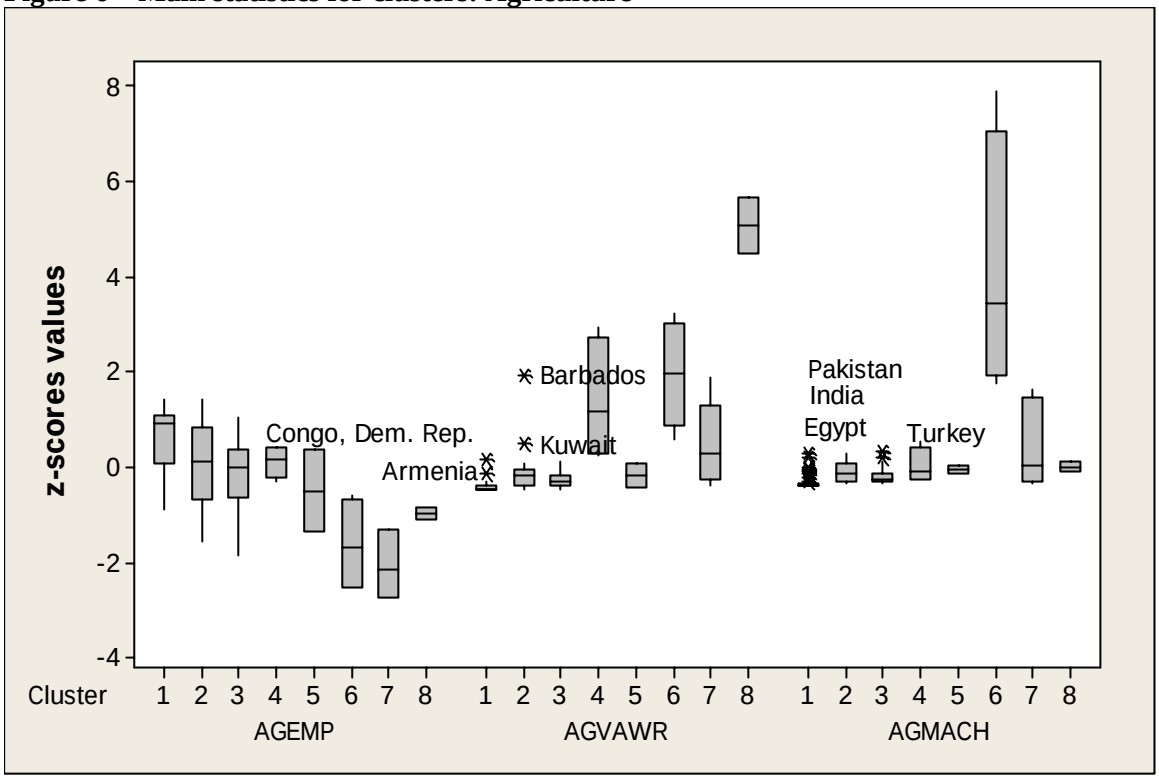


Figure 7 – Main statistics for clusters: Trade

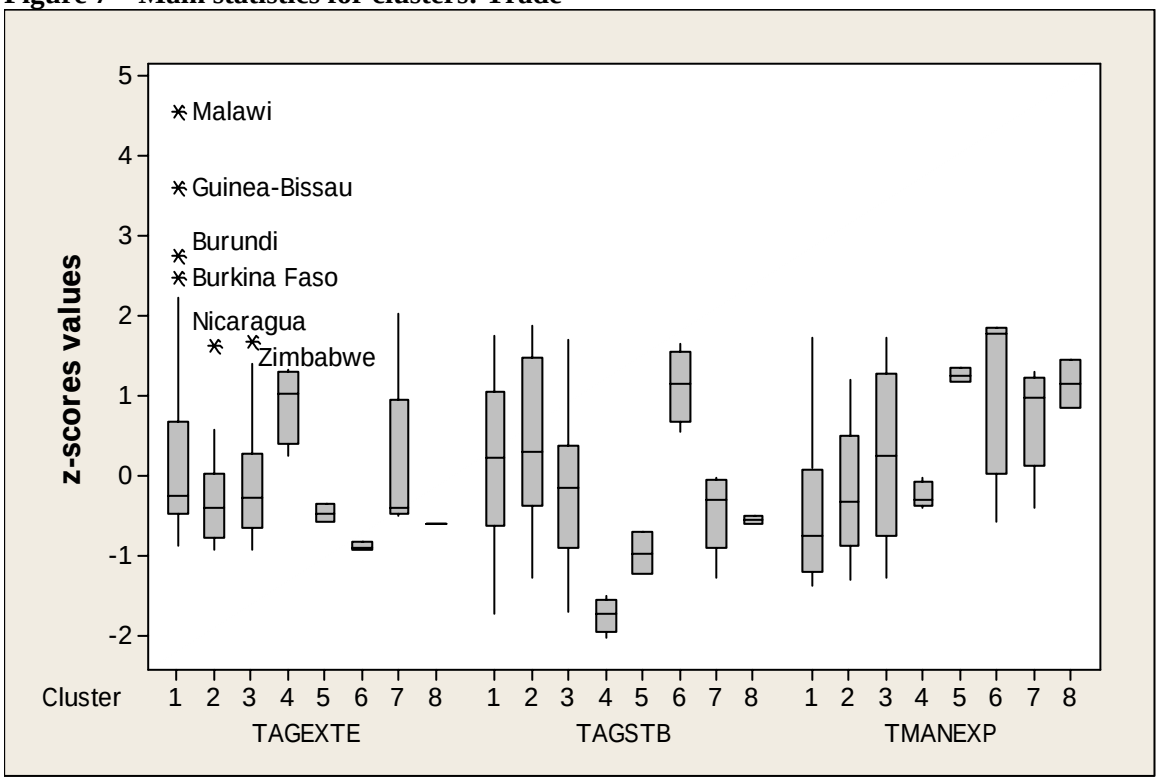
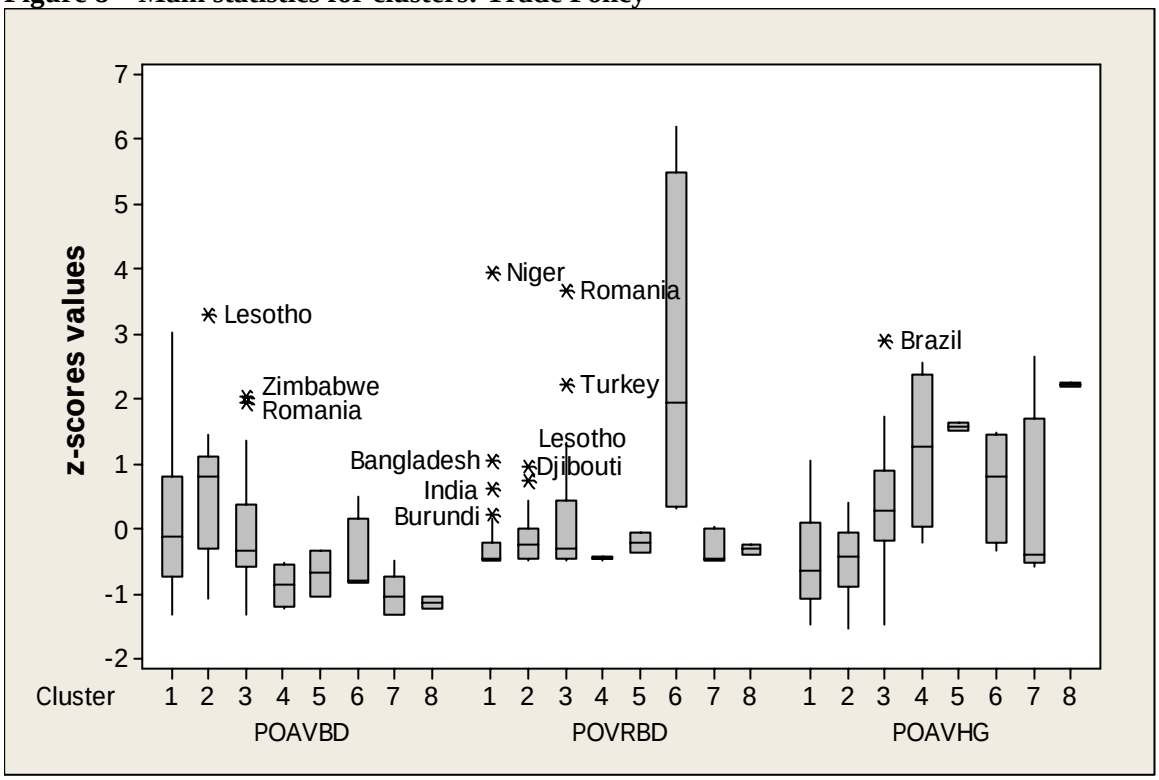


Figure 8 – Main statistics for clusters: Trade Policy



5. Conclusions

The paper aims to deliver new quantitative insights into the "sustainability" of the existing bargaining coalitions in the current WTO agricultural negotiation, as also into their coherence with the interests of each actor. Our methodology, by offering a global view on the negotiations, overcomes one of the limitations of the existing analyses which are focused on individual coalitions as case studies.

In this paper we have been able not only to highlight the *milieu* of interest of the existing bargaining coalitions, but also to show the relative position of the negotiating actors with respect to the *core* of their coalitions. Cluster analysis, in this context, has proven to be able to provide a consistent "map" of the ongoing negotiation, of the similarities of the actors in terms of their structural features and, consequently, of their preferences for the final negotiation outcome. Overall this analysis provides a base-line scenario for a dynamic assessment of the evolution of the negotiation coalitions, also showing the room for, and discussing the possibility of, new "potential" coalitions. In this sense the analysis has been able to "detect" the existence of "potential defectors" in each existing coalition also showing the alternative coalitions which may more "naturally" accommodate these countries. These potential alternative coalitions may concentrate a certain pressure on such potential defectors in order to gain their support in the final evolutions of the current negotiation round.

Furthermore, the empirical results confirm our research hypotheses about the role of countries' structural features in the formation of bargaining coalitions thus providing empirical support for the use of such structural features as proxies for countries' preferences. This finding may prove particularly promising in order to pursue further research on the formation of bargaining coalitions in the WTO. While cluster analysis allowed us to understand the features of each coalition and the relative position of its components, the relative importance of each factor is not directly addressed. Thus, further research should be focused on a more formal analysis of the relative contribution of each factor towards the chance, for a negotiating actor, to join a certain coalition or not. This further empirical analysis, to be pursued in a more formal "regression" framework, is in our agenda for future research.

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APPENDIX A – MAIN STATISTICS AND RESULTS

Table A1 – General set of indicators

Dimension	Categories	Indicators	Years	Data Source	Code
Economic System	*General*	GDP per capita (level, 1995 US$ PPP)	1998-2002	WDI	GDPCPL
		GDP per capita growth (annual % average last ten years)	1992-2002	WDI	GDPCPG
		GDP growth (annual % average last ten years)	1992-2002	WDI	GDPTOG
		Inflation rate	1998-2002	WDI	GINFLRT
	Openness	Foreign direct investment, net inflows (% of GDP)	1998-2002	WDI	GFDIGDP
	Institutions	General government final consumption expenditure (% of GDP)	1998-2002	WDI	GOVEXP
Development	*Human well-being*	Education index (average gross enrolment ratio)	1996-2000	WDI-UNDP	DEDUIND
		Health expenditure, public (% of GDP)	1997-2001	WDI	DHEAEXP
		Household consumption (% of GDP)	1998-2002	WDI	DHOUCON
	Labour force	Unemployment, total (% of total labor force)	1997-2001	WDI-ILO	DUNEMP
	Innovation and Technology	Internet users (per 1,000 people)	1998-2002	WDI	DINTERLV
		Internet users (% change)	1998-2002	WDI	DINTERG
	Food security	Calories per capita	1993-1997	Diaz-Bonilla 2000	DCALCAP
		Food production per capita	1993-1997	Diaz-Bonilla 2000	DFOOCAP
		Total exports/Food imports	1993-1997	Diaz-Bonilla 2000	DFOOIMP
Agriculture	*General*	Agriculture, Value Added (% GDP)	1998-2002	WDI	AGVA
		Employment in agriculture as % of total employment (% change)	1992-2002	FAO	AGEMP
		Rural population (% of total population)	2002	WDI	AGRUR
		Land use, arable land (% of land area)	2001	WDI	AGLAND
	Productivity	Cereal yield (kg per hectare)	1998-2002	WDI	AGCER
		Agricultural value added per worker	2002	WDI-FAO	AGVAWR
		Agri v.a/ (Land use, arable land (hectares)	2002	WDI	AGVALA
		Workers in agri/ hectar	2002	FAO	AGWRHA
	Technical innovation	Agricultural machinery, tractors per 100 hectares of arable land	2001	WDI	AGMACH
		Fertilizer consumption (100 grams per hectare of arable land)	2002	WDI	AGFERT
Trade	*Agriculture*	(Agri imp + Agri exp)/ agri V.A.	2000-2002	WDI-FAO	TAGIEVA
		Agri imp/total imp	2000-2002	WDI-FAO	TAGIMTI
		Agri exp/Total exp	2000-2002	WDI-FAO	TAGEXTE
		(Imp-Exp)/(Imp+Exp)	2000-2002	WDI-FAO	TAGSTB
	General	Exports, tot (% of GDP)	1998-2002	WDI	TEXPGDP
		Imports, tot (% of GDP)	1998-2002	WDI	TIMPGDP
		Manif imp/total imp	1997-2001	WDI	TMANIMP
		Manif exp/Total exp	1997-2001	WDI	TMANEXP
		Computer, communications and other serv. (% Total. exp.)	1997-2001	WDI	TCOMEXP
Trade Policy	*Import Own tariffs*	Average bound tariff (weighted with import flows)	2002*	UNCTAD-TRAINS	POAVBD
		Variance of bound tariff (simple)	2002*	UNCTAD-TRAINS	POVRBD
		Water in tariffs weighted with import flows (BND-MFN)	2002*	UNCTAD-TRAINS	POWAT
	Import Foreign tariffs	Average Highest Applied MFN	2002*	UNCTAD-TRAINS	POAVHG
		Preference Margin Simple (MFN-AHS)	2002*	UNCTAD-TRAINS	POPMS

Notes: * where not available, replaced with values referred to last available year
Legend: G= General Economic; D=Development; AG=Agriculture; TAG=Trade Agriculture; T=Trade General; PO=Trade Policy

Table A2– Summary statistics for existing coalitions: Economic system and development

Indicators	Statistics	G-90	G-20	CAIRNS	G-10	G-33	EU 25
GDPCPL	Range	13243.03	10252.92	22968.37	26209.40	13243.03	20259.59
	Mean	3014.84	4771.10	8773.71	18333.90	4061.45	17866.39
	Coef. Var.	2730.92	1454.53	5398.85	5904.63	2876.18	2317.71
GDPCPG	Range	8.8062	10.5726	9.2727	3.7156	11.0042	7.0365
	Mean	1.0784	1.4548	1.8908	1.9934	1.5532	2.9400
	Coef. Var.	3.4678	3.0290	2.2657	0.9267	3.1496	0.7819
GDPTOG	Range	9.2084	9.5771	9.0559	4.3231	9.9769	7.8954
	Mean	3.2000	3.3206	3.5288	2.3836	3.3984	3.0927
	Coef. Var.	1.0863	1.1140	1.1392	1.3052	1.2804	0.8333
GINFLRT	Range	72.4682	73.0586	21.6526	9.3468	73.0586	8.5682
	Mean	9.3021	11.8397	5.9637	3.5386	9.5472	3.3879
	Coef. Var.	27.4631	23.1033	4.0437	3.3708	21.9106	1.6628
GFDIGDP	Range	21.4218	9.9227	9.9227	5.4618	21.5066	20.9403
	Mean	4.3534	3.0053	3.3308	2.6035	4.4165	6.4906
	Coef. Var.	5.4844	1.4938	1.5026	1.6278	3.9989	3.8722
GOVEXP	Range	35.4150	14.5740	14.5740	8.4842	23.9737	17.2153
	Mean	15.1328	12.8227	14.0271	15.5024	14.3060	19.8704
	Coef. Var.	3.3621	1.4345	1.3332	0.6747	1.8897	0.6625
DEDUIND	Range	0.6860	0.5482	0.5929	0.3265	0.6460	0.3212
	Mean	0.4665	0.6221	0.7064	0.7916	0.5511	0.8523
	Coef. Var.	0.0602	0.0307	0.0298	0.0202	0.0473	0.0112
DHEAEXP	Range	4.3982	4.3200	5.8200	4.9600	4.6400	4.2200
	Mean	2.5377	2.6198	3.4753	4.4558	2.6017	5.6333
	Coef. Var.	0.4396	0.5887	0.8350	0.9321	0.4734	0.1907
DHOUCON	Range	69.0105	42.1116	41.5465	24.2872	55.3296	21.4500
	Mean	72.4514	68.5804	64.7102	57.9663	67.5839	58.0069
	Coef. Var.	2.6891	1.2970	1.7949	1.2248	2.1833	0.6826
DINTERLV	Range	228.2329	234.0384	495.5337	471.1318	550.3755	439.9696
	Mean	37.5033	63.4367	163.6263	339.0475	66.1134	308.4937
	Coef. Var.	82.9658	49.5088	178.9905	123.0081	144.4038	58.4994
DINTERG	Range	24.2019	11.3893	6.4523	1.6698	14.3333	1.5152
	Mean	4.6941	2.9951	1.6488	0.7421	3.1367	0.7462
	Coef. Var.	6.1587	2.4609	1.6164	0.4353	3.4257	0.2457
DCALCAP	Range	1537.00	1176.00	1184.00	489.00	1795.00	912.00
	Mean	2348.96	2619.87	2759.83	3060.00	2433.45	3278.96
	Coef. Var.	63.6808	36.9282	38.7651	13.4348	60.8979	19.1350
DFOOCAP	Range	334.700	502.300	894.700	177.700	334.700	880.700
	Mean	121.877	193.926	349.694	202.317	136.565	391.817
	Coef. Var.	32.0403	65.3018	198.006	33.3725	31.0436	114.849
DFOOIMP	Range	22.5000	59.1000	56.3000	36.7000	37.5000	29.0000
	Mean	8.3719	17.3609	23.0056	25.2333	11.6000	19.7958
	Coef. Var.	2.9988	8.4933	8.7462	6.8972	5.0630	2.9289

Table A3– Summary statistics for existing coalitions: Agriculture

Indicators	Statistics	G-90	G-20	CAIRNS	G-10	G-33	EU 25
AGVA	Range	58.3465	31.6962	20.3131	13.9382	43.0936	7.1210
	Mean	24.5244	14.3307	11.0684	5.3199	17.5956	3.7783
	Coef. Var.	9.6890	4.5833	3.4620	5.4346	7.4751	0.8513
AGEMP	Range	34.2098	26.6009	26.0582	24.8222	42.6910	48.0096
	Mean	-11.2021	-17.2819	-17.7224	-36.1496	-15.7974	-31.5678
	Coef. Var.	-6.4207	-3.3579	-3.6416	-3.3196	-6.7891	-3.0933
AGRUR	Range	73.1740	61.8280	60.6700	36.9220	74.8720	46.2920
	Mean	61.9569	43.0811	34.1868	33.3343	54.6928	29.3517
	Coef. Var.	4.7147	8.5899	11.3622	5.0376	4.6053	5.3685
AGLAND	Range	62.0679	51.9806	26.9383	46.3931	53.8904	47.4735
	Mean	14.2504	13.9117	9.3715	21.9896	15.1974	27.1182
	Coef. Var.	13.1614	12.2970	4.9588	15.3473	10.6203	6.9519
AGCER	Range	6982.40	6024.70	4650.76	3894.13	6626.86	6010.60
	Mean	1658.84	2932.96	3182.94	5377.69	2171.11	4589.71
	Coef. Var.	1067.59	626.75	465.80	484.39	1021.79	780.54
AGVAWR	Range	20277.39	6777.14	41660.53	26650.12	20277.39	40842.42
	Mean	1553.88	1953.44	7420.60	15593.27	2145.16	19937.59
	Coef. Var.	5480.58	1422.62	17754.95	7131.28	5554.12	10099.92
AGVALA	Range	18101.58	5444.57	5460.65	12521.19	12531.86	10694.48
	Mean	1879.19	1601.81	1784.73	6333.08	2114.95	2533.38
	Coef. Var.	5820.12	1555.80	1704.17	3998.17	4258.38	2442.79
AGWRHA	Range	8.7218	3.5392	3.5745	1.2052	4.1365	0.3862
	Mean	1.8162	1.1544	0.9434	0.4983	1.4545	0.1495
	Coef. Var.	1.7280	0.7633	1.1165	0.3878	0.9236	0.0668
AGMACH	Range	3.6547	3.0272	4.8631	45.2543	11.8474	44.0443
	Mean	0.7514	1.0727	1.4174	16.7857	1.2842	11.0039
	Coef. Var.	1.5977	0.7448	1.1933	17.8661	3.3115	8.5423
AGFERT	Range	6279.52	5644.88	6239.97	3871.78	6270.39	5124.70
	Mean	777.82	1443.78	1918.67	2622.60	1182.85	1936.64
	Coef. Var.	2917.52	1292.09	2106.39	721.99	1875.78	998.85

Table A4– Summary statistics for existing coalitions: Trade and Trade policy

Indicators	Statistics	G-90	G-20	CAIRNS	G-10	G-33	EU 25
TAGIEVA	Range	7.4193	1.5145	1.9947	2.0716	4.0867	10.3328
	Mean	1.0198	0.6199	0.9362	1.2233	0.9972	2.8282
	Coef. Var.	1.6139	0.2218	0.3308	0.7094	0.9974	2.1828
TAGIMTI	Range	0.3218	0.1186	0.0893	0.0627	0.2529	0.4161
	Mean	0.1440	0.0838	0.0668	0.0622	0.1150	0.0841
	Coef. Var.	0.0328	0.0139	0.0112	0.0099	0.0279	0.0808
TAGEXTE	Range	0.8787	0.4109	0.3375	0.1011	0.5075	0.3014
	Mean	0.1653	0.1570	0.1871	0.0368	0.1278	0.0693
	Coef. Var.	0.2131	0.1049	0.0794	0.0518	0.1153	0.0538
TAGSTB	Range	1.6888	1.5943	1.0908	1.0238	1.6494	1.3971
	Mean	0.2313	-0.1155	-0.3570	0.4048	0.1492	0.0844
	Coef. Var.	0.9117	-1.7063	-0.2202	0.4168	1.1248	1.2806
TEXPGDP	Range	87.6155	51.5216	107.0439	53.1675	83.6921	72.1811
	Mean	37.8494	27.7543	35.0014	41.8624	38.4448	50.1255
	Coef. Var.	10.9876	6.3720	18.0301	7.4137	9.9164	9.7150
TIMPGDP	Range	90.0606	41.1490	86.0629	54.5922	93.4799	71.6693
	Mean	46.9034	29.0545	34.1668	38.8525	44.3590	51.2010
	Coef. Var.	9.1137	4.9843	11.7311	9.7250	9.3372	9.3530
TMANIMP	Range	66.3789	36.3418	23.3801	26.8916	70.8006	18.3274
	Mean	61.2617	72.8058	77.6379	69.4919	64.6277	75.8309
	Coef. Var.	1.9059	1.2624	0.4921	1.9233	2.0571	0.3160
TMANEXP	Range	89.7923	89.0400	74.4970	69.9627	89.6762	45.0914
	Mean	30.8636	44.9674	48.6146	72.6233	40.7026	77.6239
	Coef. Var.	23.5664	16.9312	11.2921	10.2289	22.7498	1.8836
TCOMEXP	Range	39.0624	19.2004	19.2004	4.1793	38.8855	11.3115
	Mean	6.3759	5.5982	5.2092	6.3427	7.3144	7.5060
	Coef. Var.	6.4600	5.1366	3.4384	0.4454	6.4007	1.3051
POAVBD	Range	199.93	179.62	108.35	57.43	187.84	0.0000
	Mean	73.1159	60.3525	35.7508	41.6231	72.7629	15.1076
	Coef. Var.	23.1339	34.5163	19.0048	15.2243	26.0780	0.0000
POVRBD	Range	3298.60	1351.98	727.48	4940.44	4967.07	0.0000
	Mean	307.30	274.12	161.09	1599.19	354.58	330.33
	Coef. Var.	889.07	453.51	291.52	2325.17	2032.17	0.0000
POWAT	Range	190.53	122.2897	97.0673	57.7065	122.2921	0.0000
	Mean	57.6434	45.6316	26.8386	12.4015	56.1101	0.0000
	Coef. Var.	27.2799	31.3308	21.8286	41.3412	27.0434	0.0000
POAVHG	Range	57.4133	84.3474	77.0561	41.0725	70.3120	0.0000
	Mean	37.7716	65.4266	74.1391	61.5422	47.2321	108.73
	Coef. Var.	5.5231	7.9608	6.5724	4.9218	5.4737	0.0000

Table A5 – Correlation matrix: Indicators for Economic system and Development

Indicators	GDPCPL	GDPCPG	GDPTOG	GINFLRT	GFDIGDP	GOVEXP	DEDUIND	DHEAEXP	DHOUCON	DINTERLV	DINTERG	DCALCAP	DFOOCAP
GDPCPG	0.196												
	(0.045)												
GDPTOG	0.034	0.870											
	(0.734)	(0.000)											
GINFLRT	-0.198	-0.329	-0.327										
	(0.043)	(0.001)	(0.001)										
GFDIGDP	0.001	0.139	0.043	0.076									
	(0.991)	(0.156)	(0.660)	(0.440)									
GOVEXP	0.227	-0.021	-0.057	0.060	0.412								
	(0.020)	(0.831)	(0.560)	(0.543)	(0.000)								
DEDUIND	0.686	0.261	0.003	-0.169	0.081	0.209							
	(0.000)	(0.007)	(0.977)	(0.085)	(0.411)	(0.032)							
DHEAEXP	0.675	0.051	-0.160	-0.056	0.157	0.444	0.546						
	(0.000)	(0.608)	(0.104)	(0.568)	(0.110)	(0.000)	(0.000)						
DHOUCON	-0.470	-0.250	-0.226	0.014	-0.189	-0.528	-0.448	-0.261					
	(0.000)	(0.010)	(0.020)	(0.890)	(0.054)	(0.000)	(0.000)	(0.007)					
DINTERLV	0.901	0.210	0.034	-0.184	0.034	0.170	0.640	0.604	-0.440				
	(0.000)	(0.032)	(0.731)	(0.060)	(0.730)	(0.082)	(0.000)	(0.000)	(0.000)				
DINTERG	-0.325	-0.105	-0.072	0.341	0.091	-0.038	-0.337	-0.207	0.216	-0.277			
	(0.001)	(0.287)	(0.463)	(0.000)	(0.354)	(0.703)	(0.000)	(0.034)	(0.027)	(0.004)			
DCALCAP	0.687	0.252	0.074	-0.142	-0.081	0.100	0.675	0.439	-0.361	0.641	-0.321		
	(0.000)	(0.009)	(0.454)	(0.149)	(0.411)	(0.310)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)		
DFOOCAP	0.578	0.064	-0.097	-0.096	-0.033	0.087	0.570	0.556	-0.190	0.613	-0.258	0.579	
	(0.000)	(0.519)	(0.325)	(0.332)	(0.736)	(0.377)	(0.000)	(0.000)	(0.052)	(0.000)	(0.008)	(0.000)	
DFOOIMP	0.635	0.101	0.007	0.024	-0.089	0.039	0.527	0.374	-0.493	0.598	-0.233	0.461	0.504
	(0.000)	(0.306)	(0.947)	(0.807)	(0.367)	(0.696)	(0.000)	(0.000)	(0.000)	(0.000)	(0.017)	(0.000)	(0.000)

Note: p-values in parenthesis

Table A6 – Correlation matrix: Indicators for Agriculture

Indicators	AGVA	AGEMP	AGRUR	AGLAND	AGCER	AGVAWR	AGVALA	AGWRHA	AGMACH
AGEMP	0.456								
	(0.000)								
AGRUR	0.661	0.515							
	(0.000)	(0.000)							
AGLAND	0.140	-0.184	0.249						
	(0.156)	(0.061)	(0.010)						
AGCER	-0.414	-0.474	-0.392	0.108					
	(0.000)	(0.000)	(0.000)	(0.271)					
AGVAWR	-0.409	-0.393	-0.471	-0.034	0.468				
	(0.000)	(0.000)	(0.000)	(0.730)	(0.000)				
AGVALA	-0.383	-0.201	-0.272	-0.138	0.313	0.188			
	(0.000)	(0.040)	(0.005)	(0.159)	(0.001)	(0.055)			
AGWRHA	0.216	0.432	0.396	-0.031	-0.072	-0.285	0.397		
	(0.027)	(0.000)	(0.000)	(0.756)	(0.465)	(0.003)	(0.000)		
AGMACH	-0.322	-0.399	-0.257	-0.027	0.486	0.434	0.458	-0.158	
	(0.001)	(0.000)	(0.008)	(0.787)	(0.000)	(0.000)	(0.000)	(0.107)	
AGFERT	-0.407	-0.289	-0.257	-0.037	0.528	0.226	0.517	0.043	0.299
	(0.000)	(0.003)	(0.008)	(0.705)	(0.000)	(0.021)	(0.000)	(0.664)	(0.002)

Note: p-values in parenthesis

Table A7 – Correlation matrix: Indicators for Trade and Trade Policy

Indicators	TAGIEVA	TAGIMTI	TAGEXTE	TAGSTB	TEXPGDP	TIMPGDP	TMANIMP	TMANEXP	TCOMEXP	POAVBD	POVRBD	POWAT	POAVHG
TAGIMTI	0.096												
	(0.329)												
TAGEXTE	-0.157	0.127											
	(0.110)	(0.198)											
TAGSTB	0.157	0.383	-0.643										
	(0.109)	(0.000)	(0.000)										
TEXPGDP	0.372	-0.147	-0.258	0.087									
	(0.000)	(0.133)	(0.008)	(0.377)									
TIMPGDP	0.319	0.087	-0.081	0.118	0.832								
	(0.001)	(0.376)	(0.409)	(0.229)	(0.000)								
TMANIMP	0.145	-0.692	-0.065	-0.312	0.151	-0.107							
	(0.140)	(0.000)	(0.511)	(0.001)	(0.123)	(0.277)							
TMANEXP	0.028	-0.313	-0.443	0.160	0.102	-0.028	0.173						
	(0.774)	(0.001)	(0.000)	(0.104)	(0.301)	(0.777)	(0.078)						
TCOMEXP	-0.045	-0.006	-0.113	0.050	-0.007	0.104	-0.136	0.119					
	(0.648)	(0.951)	(0.251)	(0.613)	(0.940)	(0.292)	(0.168)	(0.225)					
POAVBD	0.002	0.049	0.069	0.100	-0.056	0.057	-0.034	-0.146	0.058				
	(0.987)	(0.622)	(0.486)	(0.310)	(0.574)	(0.560)	(0.727)	(0.138)	(0.559)				
POVRBD	-0.019	-0.028	-0.129	0.195	-0.038	-0.103	0.007	0.180	-0.035	0.293			
	(0.848)	(0.778)	(0.188)	(0.046)	(0.703)	(0.297)	(0.944)	(0.066)	(0.723)	(0.002)			
POWAT	0.043	0.078	0.093	0.074	-0.044	0.094	-0.014	-0.201	0.050	0.967	0.171		
	(0.662)	(0.431)	(0.345)	(0.452)	(0.652)	(0.338)	(0.885)	(0.040)	(0.614)	(0.000)	(0.082)		
POAVHG	0.023	-0.558	-0.129	-0.383	-0.035	-0.300	0.524	0.476	0.042	-0.197	0.007	-0.198	
	(0.816)	(0.000)	(0.188)	(0.000)	(0.720)	(0.002)	(0.000)	(0.000)	(0.671)	(0.044)	(0.940)	(0.043)	
POPMS	0.179	-0.178	-0.041	-0.191	0.071	-0.016	0.325	0.338	0.059	-0.198	-0.094	-0.184	0.618
	(0.097)	(0.459)	(0.113)	(0.013)	(0.188)	(0.153)	(0.137)	(0.930)	(0.416)	(0.770)	(0.276)	(0.233)	(0.091)

Note: p-values in parenthesis

Table A8 – Correlation matrix for chosen variables in the cluster analysis

Indicators	GDPTOG	GINFLRT	GFDIGDP	DHEAEXP	DINTERG	DFOOCAP	DFOOIMP	AGVA	AGEMP	AGLAND	AGVAWR	AGWRHA	AGMACH
GINFLRT	-0.327												
GFDIGDP	0.043	0.076											
DHEAEXP	-0.160	-0.056	0.157										
DINTERG	-0.072	0.341	0.091	-0.207									
DFOOCAP	-0.097	-0.096	-0.033	0.556	-0.258								
DFOOIMP	0.007	0.024	-0.089	0.374	-0.233	0.504							
AGVA	-0.102	0.109	-0.232	-0.514	0.355	-0.339	-0.460						
AGEMP	0.202	0.054	-0.096	-0.411	0.238	-0.244	-0.322	0.456					
AGLAND	-0.008	-0.010	-0.082	-0.120	-0.075	-0.087	-0.008	0.140	-0.184				
AGVAWR	-0.036	-0.146	-0.040	0.623	-0.223	0.593	0.543	-0.409	-0.393	-0.034			
AGWRHA	0.041	0.031	-0.138	-0.272	0.136	-0.347	-0.305	0.216	0.432	-0.031	-0.285		
AGMACH	-0.130	-0.117	-0.049	0.403	-0.172	0.120	0.255	-0.322	-0.399	-0.027	0.434	-0.158	
TAGIEVA	0.050	-0.136	0.129	0.281	-0.203	0.044	0.015	-0.465	-0.011	-0.185	0.140	0.110	0.088
TAGIMTI	-0.142	-0.039	-0.133	-0.263	0.260	-0.373	-0.616	0.436	0.385	-0.089	-0.346	0.427	-0.193
TAGEXTE	-0.204	0.085	-0.106	-0.036	-0.003	0.102	-0.176	0.452	0.252	0.020	-0.166	-0.017	-0.194
TAGSTB	0.112	-0.037	0.092	-0.138	0.159	-0.452	-0.272	-0.081	0.024	0.030	-0.059	0.196	0.190
TEXPGDP	0.003	0.004	0.347	0.084	-0.045	-0.010	0.153	-0.318	-0.169	-0.124	-0.013	-0.067	-0.003
TIMPGDP	-0.029	-0.034	0.529	0.097	0.097	-0.115	-0.164	-0.094	-0.066	-0.040	-0.158	-0.046	-0.110
TMANIMP	0.202	0.029	0.048	0.352	-0.270	0.438	0.542	-0.511	-0.268	-0.158	0.370	-0.256	0.080
TMANEXP	0.192	-0.100	-0.109	0.187	-0.201	0.116	0.235	-0.400	-0.354	0.347	0.249	-0.116	0.345
TCOMEXP	0.171	-0.054	0.124	0.088	-0.151	0.003	-0.081	-0.016	-0.002	0.066	0.042	0.112	0.045
POAVBD	0.058	0.184	0.151	-0.209	0.296	-0.318	-0.236	0.120	0.231	0.230	-0.251	0.125	-0.164
POVRBD	0.001	0.164	-0.131	0.140	0.052	-0.046	0.191	-0.142	-0.226	0.100	0.114	-0.032	0.256
POWAT	0.084	0.195	0.184	-0.202	0.298	-0.302	-0.265	0.132	0.292	0.184	-0.273	0.142	-0.227
POAVHG	0.142	-0.090	-0.225	0.269	-0.274	0.467	0.578	-0.453	-0.290	0.024	0.457	-0.186	0.260

Table A8 – continued

Indicators	TAGIEVA	TAGIMTI	TAGEXTE	TAGSTB	TEXPGDP	TIMPGDP	TMANIMP	TMANEXP	TCOMEXP	POAVBD	POVRBD	POWAT
GINFLRT												
GFDIGDP												
DHEAEXP												
DINTERG												
DFOOCAP												
DFOOIMP												
AGVA												
AGEMP												
AGLAND												
AGVAWR												
AGWRHA												
AGMACH												
TAGIEVA												
TAGIMTI	0.096											
TAGEXTE	-0.157	0.127										
TAGSTB	0.157	0.383	-0.643									
TEXPGDP	0.372	-0.147	-0.258	0.087								
TIMPGDP	0.319	0.087	-0.081	0.118	0.832							
TMANIMP	0.145	-0.692	-0.065	-0.312	0.151	-0.107						
TMANEXP	0.028	-0.313	-0.443	0.160	0.102	-0.028	0.173					
TCOMEXP	-0.045	-0.006	-0.113	0.050	-0.007	0.104	-0.136	0.119				
POAVBD	0.002	0.049	0.069	0.100	-0.056	0.057	-0.034	-0.146	0.058			
POVRBD	-0.019	-0.028	-0.129	0.195	-0.038	-0.103	0.007	0.180	-0.035	0.293		
POWAT	0.043	0.078	0.093	0.074	-0.044	0.094	-0.014	-0.201	0.050	0.967	0.171	
POAVHG	0.023	-0.558	-0.129	-0.383	-0.035	-0.300	0.524	0.476	0.042	-0.197	0.007	-0.198

Table A9 – Summary statistics for clusters: Economic system and development

		G-90		G-20	CAIRNS		G-10	EU25	US
Variables	**Statistics**	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**	**Cluster 6**	**Cluster 7**	**Cluster 8**
GDPTOG	Range	9.21	6.02	9.58	3.37	2.34	2.44	7.30	0.17
	Mean	3.23	3.12	3.32	2.24	4.81	2.06	0.63	3.19
	Variance	4.56	2.81	3.28	2.94	2.73	1.69	9.02	0.01
	CoefVar	1.41	0.90	0.99	1.31	0.57	0.82	14.31	0.00
GINFLRT	Range	71.27	71.64	73.06	6.10	0.11	3.88	19.93	0.26
	Mean	8.23	7.52	14.32	4.32	2.50	1.57	7.26	2.18
	Variance	148.94	220.47	337.90	7.18	0.01	2.93	59.57	0.03
	CoefVar	18.09	29.31	23.59	1.66	0.00	1.87	8.21	0.02
GFDIGDP	Range	11.16	21.48	9.92	1.98	0.43	4.21	1.65	2.71
	Mean	2.40	8.48	3.18	2.51	3.44	2.12	5.83	3.43
	Variance	6.91	43.11	4.04	0.88	0.09	3.26	0.40	3.67
	CoefVar	2.87	5.08	1.27	0.35	0.03	1.54	0.07	1.07
DHEAEXP	Range	3.06	4.32	4.50	1.40	0.46	4.46	3.42	0.58
	Mean	1.97	3.40	3.08	5.43	1.93	5.25	5.22	6.17
	Variance	0.55	1.18	1.38	0.57	0.11	3.80	2.08	0.17
	CoefVar	0.28	0.35	0.45	0.10	0.05	0.72	0.40	0.03
DINTERG	Range	23.88	24.20	11.49	2.85	1.14	1.67	2.40	0.05
	Mean	4.84	3.63	2.90	0.96	1.48	0.72	1.36	0.22
	Variance	23.37	34.13	9.10	1.90	0.65	0.53	1.00	0.00
	CoefVar	4.83	9.39	3.14	1.98	0.44	0.74	0.74	0.01
DFOOCAP	Range	134.70	416.00	307.00	421.10	3.00	168.30	203.22	40.70
	Mean	106.73	151.22	177.51	762.18	193.40	198.85	280.84	524.85
	Variance	955	9533	6207	41226	4.50	6639	6136	828.24
	CoefVar	8.96	63.05	34.97	54.09	0.02	33.39	21.85	1.58
DFOOIMP	Range	21.30	14.10	32.20	30.50	36.50	28.80	20.20	7.70
	Mean	6.64	8.60	15.75	29.53	46.15	31.15	16.00	34.25
	Variance	21.36	17.66	52.48	172.59	666.12	140.91	58.31	29.65
	CoefVar	3.22	2.05	3.33	5.85	14.43	4.52	3.64	0.87

Table A10 – Summary statistics within clusters: Agriculture

		G-90		G-20	CAIRNS		G-10	EU25	US
Variable	**Statistics**	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**	**Cluster 6**	**Cluster 7**	**Cluster 8**
AGVA	Range	43.06	33.15	20.12	3.38	0.44	2.92	23.71	0.94
	Mean	34.47	10.73	12.56	5.94	9.76	2.32	13.63	2.08
	Variance	110.93	90.26	34.11	2.54	0.1	1.82	78.32	0.44
	CoefVar	3.22	8.41	2.72	0.43	0.01	0.79	5.75	0.21
AGEMP	Range	26.45	34.43	33.39	8.32	19.59	22.26	16.63	3.11
	Mean	-9.04	-17.1	-18.42	-15.08	-22.1	-35.04	-39.93	-27.48
	Variance	51.59	100.19	81.59	16.13	191.87	134.56	68.24	4.82
	CoefVar	-5.71	-5.86	-4.43	-1.07	-8.68	-3.84	-1.71	-0.18
AGLAND	Range	61.65	49.22	40.17	6.72	23.88	14.31	33.05	14.17
	Mean	17.33	12.51	11.53	7.97	17.42	10.66	34.16	12.05
	Variance	236.06	155.81	101.76	8.94	285.17	35.21	184.42	100.39
	CoefVar	13.62	12.46	8.82	1.12	16.37	3.3	5.4	8.33
AGVAWR	Range	5487	40821	4839	22853	4188	22298	19188	9782
	Mean	665	4921	1879	15818	2678	20524	8177	46933
	Variance	1014928	82473134	1632363	123241303	8768005	87492853	55247688	47845494
	CoefVar	1526	16759	869	7791	3274	4263	6757	1019
AGWRHA	Range	8.44	8.72	4.14	0.14	0.29	1.17	0.18	0.01
	Mean	1.98	1.48	1	0.08	1.14	0.58	0.16	0.01
	Variance	2.65	3.77	1	0	0.04	0.25	0	0
	CoefVar	1.34	2.54	1	0.05	0.04	0.43	0.03	0
AGMACH	Range	3.7	12.28	3.87	4.44	0.94	33.77	10.84	1.14
	Mean	0.46	2.11	1.01	2.28	1.94	24.94	4.71	2.17
	Variance	0.81	6.84	0.87	4.17	0.44	233.54	26.71	0.65
	CoefVar	1.76	3.25	0.87	1.83	0.23	9.36	5.68	0.3

Table A11 – Summary statistics within clusters: Trade

		G-90		G-20	CAIRNS		G-10	EU25	US
Variable	**Statistics**	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**	**Cluster 6**	**Cluster 7**	**Cluster 8**
TAGIEVA	Range	1.02	10.36	3.13	1.15	0.37	2.07	2.18	1.18
	Mean	0.36	2.97	0.75	1.41	1.13	1.11	1.47	1.27
	Variance	0.06	8.59	0.34	0.29	0.07	0.96	0.67	0.69
	CoefVar	0.17	2.89	0.46	0.21	0.06	0.87	0.45	0.55
TAGIMTI	Range	0.25	0.31	0.13	0.04	0	0.05	0.07	0.01
	Mean	0.16	0.12	0.09	0.05	0.04	0.05	0.09	0.04
	Variance	0	0	0	0	0	0	0	0
	CoefVar	0.03	0.04	0.01	0.01	0	0.01	0.01	0
TAGEXTE	Range	0.87	0.41	0.42	0.17	0.04	0.02	0.41	0
	Mean	0.2	0.1	0.13	0.3	0.08	0.01	0.17	0.05
	Variance	0.05	0.01	0.01	0.01	0	0	0.03	0
	CoefVar	0.22	0.1	0.09	0.02	0.01	0.01	0.18	0
TAGSTB	Range	1.63	1.47	1.59	0.25	0.24	0.52	0.58	0.04
	Mean	0.19	0.3	0.01	-0.7	-0.33	0.65	-0.09	-0.13
	Variance	0.21	0.22	0.16	0.01	0.03	0.05	0.06	0
	CoefVar	1.08	0.74	11.59	-0.02	-0.09	0.07	-0.66	-0.01
TEXPGDP	Range	42.23	66.65	43.12	19.21	55.52	33	8.79	33.17
	Mean	24.5	58.42	31.57	21.89	90.68	34.05	47.66	27.23
	Variance	144.49	275.34	124.58	65.82	1541.36	247.01	16.17	550.28
	CoefVar	5.9	4.71	3.95	3.01	17	7.25	0.34	20.21
TIMPGDP	Range	51.49	67.68	42.47	20.27	45.11	29.43	22.58	25.84
	Mean	35.14	68.86	34.34	21.5	75.31	28.26	57.92	26.71
	Variance	176.67	254.84	119.94	69.37	1017.28	171.62	84.93	333.89
	CoefVar	5.03	3.7	3.49	3.23	13.51	6.07	1.47	12.5
TMANIMP	Range	62.84	30.61	22.46	13.69	7.17	26.89	26.66	5.6
	Mean	56.6	65.78	73.81	82.02	80.87	71.21	62.24	81.38
	Variance	123.58	42.06	31.45	36.28	25.7	182.83	144.48	15.66
	CoefVar	2.18	0.64	0.43	0.44	0.32	2.57	2.32	0.19
TMANEXP	Range	89.79	75.99	87.23	10.5	5.29	69.96	49.2	17.77
	Mean	28.97	39.07	45.99	32.96	76.61	75.31	61.6	73.39
	Variance	799.72	599.9	794	22.44	13.97	1172.5	387.66	157.87
	CoefVar	27.61	15.35	17.27	0.68	0.18	15.57	6.29	2.15
TCOMEXP	Range	39.06	17.96	19.2	2.7	0.97	3.23	4.35	4.76
	Mean	6.47	8.05	4.59	3.54	6.04	5.94	6.18	7.78
	Variance	55.27	21.4	21.35	1.54	0.47	2.37	2.99	11.33
	CoefVar	8.54	2.66	4.66	0.43	0.08	0.4	0.48	1.46

Table A12 – Summary statistics within clusters: Trade Policy

		G-90		G-20	CAIRNS		G-10	EU25	US
Variable	**Statistics**	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**	**Cluster 6**	**Cluster 7**	**Cluster 8**
POAVBD	Range	187.84	188.19	145.30	30.45	30.97	57.43	36.89	7.27
	Mean	62.19	77.39	55.08	19.75	27.91	36.46	12.78	8.53
	Variance	2080.21	2113.03	1305.78	244.02	479.51	798.58	228.60	26.44
	CoefVar	33.45	27.30	23.71	12.35	17.18	21.90	17.89	3.10
POVRBD	Range	3298.60	1078.34	3096.18	28.70	235.10	4381.65	394.73	130.81
	Mean	234.04	279.61	449.05	23.51	197.67	2293.45	151.20	126.98
	Variance	333263	91511	490423	161	27636	4246776	37896	8556
	CoefVar	1423.94	327.28	1092.12	6.86	139.81	1851.70	250.64	67.38
POWAT	Range	146.47	190.53	122.29	21.23	18.71	5.44	11.25	0.50
	Mean	47.64	62.55	40.63	12.74	19.53	1.36	2.51	0.99
	Variance	1606.17	2128.63	1029.60	107.80	175.12	7.40	24.18	0.13
	CoefVar	33.72	34.03	25.34	8.46	8.97	5.43	9.62	0.13
POAVHG	Range	57.54	95.05	99.76	63.08	2.71	41.07	73.94	1.26
	Mean	37.40	40.80	57.21	76.32	84.41	64.10	57.57	98.81
	Variance	264.27	373.50	439.70	756.16	3.67	417.00	971.53	0.79
	CoefVar	7.07	9.15	7.69	9.91	0.04	6.51	16.88	0.01

Table A13– Second nearest cluster

	Countries	Distance from own cluster	Second nearest cluster	Distance from second nearest cluster centroid	Difference in distance between second nearest cluster and own cluster
Cluster 1 G-90	Mozambique	7.0688	cluster 2	7.4806	0.4118
	Papua New Guinea	5.6615	cluster 2	6.2195	0.5580
	Armenia	3.5153	cluster 2	4.3728	0.8575
	Mauritania	3.6019	cluster 2	4.6952	1.0933
	Togo	3.0942	cluster 2	4.6071	1.5129
	Haiti	6.0481	cluster 2	7.9683	1.9202
	Guinea-Bissau	5.3082	cluster 2	7.3351	2.0269
	Gambia, The	3.5362	cluster 3	3.7391	0.2029
	Madagascar	3.2909	cluster 3	3.5398	0.2489
	India	6.3100	cluster 3	6.6192	0.3092
	Albania	3.7466	cluster 3	4.0779	0.3313
	Egypt, Arab Rep.	3.8904	cluster 3	4.3013	0.4109
	Nigeria	4.1211	cluster 3	4.5340	0.4129
	Malawi	5.7829	cluster 3	6.2985	0.5156
	Cote d'Ivoire	2.9052	cluster 3	3.4557	0.5505
	Kenya	2.8366	cluster 3	3.5008	0.6642
	Kyrgyz Republic	3.4831	cluster 3	4.1617	0.6786
	Cameroon	2.9691	cluster 3	3.7083	0.7392
	Uganda	3.5935	cluster 3	4.3442	0.7507
	Bangladesh	6.4484	cluster 3	7.2064	0.7580
	Georgia	3.2450	cluster 3	4.0568	0.8118
	Cambodia	4.3971	cluster 3	5.2208	0.8237
	Pakistan	3.3870	cluster 3	4.3049	0.9179
	Ghana	2.5672	cluster 3	3.5324	0.9652
	Chad	4.1136	cluster 3	5.1372	1.0236
	Congo, Dem. Rep.	7.5984	cluster 3	8.7420	1.1436
	Senegal	2.2940	cluster 3	3.4427	1.1487
	Nepal	4.2584	cluster 3	5.5631	1.3047
	Guinea	3.8245	cluster 3	5.1855	1.3610
	Tanzania	3.3411	cluster 3	4.7633	1.4222
	Central African Rep.	3.0945	cluster 3	4.5298	1.4353
	Mali	2.4191	cluster 3	3.9691	1.5500
	Niger	5.5741	cluster 3	7.3047	1.7306
	Burkina Faso	3.3487	cluster 3	5.1535	1.8048
	Burundi	4.4689	cluster 3	6.3631	1.8942
	Benin	3.1863	cluster 3	5.2038	2.0175
	Rwanda	3.1379	cluster 3	5.3998	2.2619

Table A13– Second nearest cluster, continued

	Countries	Distance from own cluster	Second nearest cluster	Distance from second nearest cluster centroid	Difference in distance between second nearest cluster and own cluster
Cluster 2 G-90	Djibouti	8.1543	cluster 1	8.8107	0.6564
	Congo, Rep.	3.9929	cluster 1	5.0537	1.0608
	Lesotho	7.8143	cluster 1	9.1030	1.2887
	St. Lucia	3.0659	cluster 1	5.0960	2.0301
	Nicaragua	4.1662	cluster 3	4.2445	0.0783
	Mongolia	3.8962	cluster 3	4.0683	0.1721
	Mauritius	4.2824	cluster 3	4.4927	0.2103
	Fiji	2.8132	cluster 3	3.0629	0.2497
	Jamaica	2.3638	cluster 3	3.0508	0.6870
	Jordan	4.0978	cluster 3	4.8059	0.7081
	Kuwait	7.0233	cluster 3	7.9961	0.9728
	Belize	2.9563	cluster 3	4.0072	1.0509
	Angola	6.7702	cluster 3	7.9107	1.1405
	Trinidad and Tobago	2.7240	cluster 3	3.9002	1.1762
	Antigua and Barbuda	3.2756	cluster 3	4.6856	1.4100
	Dominica	3.2893	cluster 3	4.7749	1.4856
	Guyana	4.9917	cluster 3	6.5376	1.5459
	St. Kitts and Nevis	4.3409	cluster 3	6.2454	1.9045
	Swaziland	3.0071	cluster 3	4.9225	1.9154
	St. Vincent and Gren	2.8358	cluster 3	4.8157	1.9799
	Grenada	2.5886	cluster 3	4.7243	2.1357
	Barbados	3.8501	cluster 7	4.0328	0.1827

Table A13– Second nearest cluster, continued

	Countries	Distance from own cluster	Second nearest cluster	Distance from second nearest cluster centroid	Difference in distance between second nearest cluster and own cluster
Cluster 3 G-20	Paraguay	4.0754	cluster 1	4.3555	0.2801
	Guatemala	2.5964	cluster 1	2.9679	0.3715
	Sri Lanka	3.3008	cluster 1	3.6787	0.3779
	El Salvador	2.6476	cluster 1	3.0962	0.4486
	Zimbabwe	6.3890	cluster 1	6.8742	0.4852
	Morocco	2.5080	cluster 1	3.0748	0.5668
	Zambia	3.3160	cluster 1	3.9614	0.6454
	Indonesia	2.7732	cluster 1	3.5428	0.7696
	China	5.3990	cluster 1	6.3068	0.9078
	Bolivia	3.1157	cluster 1	4.1165	1.0008
	Dominican Rep.	2.7651	cluster 1	3.8445	1.0794
	Peru	2.4115	cluster 1	3.5862	1.1747
	Ecuador	3.8194	cluster 1	5.2169	1.3975
	Colombia	2.8163	cluster 1	4.4188	1.6026
	Honduras	2.7331	cluster 2	3.0358	0.3027
	Botswana	4.1286	cluster 2	4.4734	0.3448
	Gabon	3.9214	cluster 2	4.4438	0.5224
	Tunisia	3.3256	cluster 2	4.0895	0.7639
	Namibia	2.3368	cluster 2	3.3368	1.0000
	Venezuela, RB	3.4880	cluster 2	5.1091	1.6211
	Chile	2.6685	cluster 2	4.6236	1.9551
	Brazil	3.7996	cluster 4	4.8875	1.0879
	Philippines	3.4105	cluster 5	4.2726	0.8621
	Romania	6.1164	cluster 7	6.7717	0.6553
	Panama	3.5892	cluster 7	4.4587	0.8695
	Costa Rica	2.7469	cluster 7	4.0568	1.3099
	Turkey	5.3871	cluster 7	6.7002	1.3131
	South Africa	2.7555	cluster 7	4.2660	1.5105
	Mexico	2.7458	cluster 7	4.6403	1.8945

Table A13– Second nearest cluster. continued

	Countries	Distance from own cluster	Second nearest cluster	Distance from second nearest cluster centroid	Difference in distance between second nearest cluster and own cluster
Cluster 4 Cairns	Uruguay	2.7705	cluster 3	4.2152	1.4447
	Argentina	2.5713	cluster 3	5.2465	2.6752
	Australia	2.8025	cluster 8	4.1802	1.3777
	New Zealand	2.3478	cluster 8	5.7337	3.3859
Cluster 5 Cairns	Malaysia	2.9264	cluster 2	6.3292	3.4028
	Thailand	2.9264	cluster 3	5.6039	2.6775
Cluster 6 G-10	Korea, Rep.	5.4599	cluster 3	7.6644	2.2045
	Switzerland	3.4682	cluster 7	6.0518	2.5836
	Japan	5.2348	cluster 7	9.1811	3.9463
	Norway	3.7972	cluster 8	6.1836	2.3864
Cluster 7 EU 25	Macedonia, FYR	2.6307	cluster 2	5.0912	2.4605
	Croatia	2.7139	cluster 3	4.8816	2.1677
	Moldova	4.2558	cluster 3	6.4238	2.1680
	Bulgaria	1.9820	cluster 3	4.4855	2.5035
	European Union 25	3.8552	cluster 8	4.7922	0.9370
Cluster 8 USA	Canada	1.6172	cluster 4	4.7655	3.1483
	United States	1.6172	cluster 4	5.8471	4.2299

APPENDIX B – GROUPS AND COALITIONS FROM WTO

Table B1 – Groups and coalitions within WTO

African Group (41 countries):
Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Congo (Democratic Republic), Côte d.Ivoire, Djibouti, Egypt, Gabon, The Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe

African Union/Group, ACP, least-developed countries (also known as .G-90., but with 64 WTO members):
Angola, Antigua and Barbuda, Bangladesh, Barbados, Belize, Benin, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Cuba, Democratic Republic of the Congo, Djibouti, Dominica, Dominican Republic, Egypt, Fiji, Gabon, The Gambia, Ghana, Grenada, Guinea (Conakry), Guinea Bissau, Guyana, Haiti, Jamaica, Kenya, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mauritius, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Papua New Guinea, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Senegal, Sierra Leone, Solomon Islands, South Africa, Suriname, Swaziland, Tanzania, Togo, Trinidad and Tobago, Tunisia, Uganda, Zambia, Zimbabwe

ASEAN (members of WTO):
Brunei, Cambodia (from October 2004), Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand

Cairns Group (G/AG/NG/W/11, 35, 54, 93):
Argentina, Australia, Bolivia, Brazil, Canada (G/AG/NG/W/11, 35, 93), Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, Philippines, South Africa, Thailand, Uruguay

Caricom:
Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, Suriname

Central American grouping.: Dominican Republic, Honduras, Nicaragua and Panama, sponsored paper WT/MIN(03)/W/10 at the Cancún Ministerial Conference

Developing country grouping. = joint sponsors of:
(**1**) G/AG/NG/W/13 (S&D and development box): Cuba, Dominican Republic, Honduras, Pakistan, Haiti, Nicaragua, Kenya, Uganda, Zimbabwe, Sri Lanka, El Salvador
(**2**) G/AG/NG/W/14 (Green Box): Cuba, Dominican Republic, Honduras, Pakistan, Haiti, Nicaragua, Kenya, Uganda, Zimbabwe, Sri Lanka, El Salvador
(**3**) G/AG/NG/W/37 + Corr.1 (market access): Cuba, Dominican Republic, El Salvador, Haiti, Honduras, Kenya, India, Nigeria, Pakistan, Sri Lanka, Uganda, Zimbabwe

European-East Asian grouping. = joint sponsors of:
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G-10:
Bulgaria, Iceland, Israel, Japan, Korea, Republic of, Liechtenstein, Mauritius, Norway, Switzerland, Chinese Taipei (See .European-East Asian grouping.)

G-20:
(**1**) WT/MIN(03)/W6/Add.2: Argentina, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Cuba, Ecuador, Egypt, El Salvador, Guatemala, India, Mexico, Nigeria, Pakistan, Paraguay, Peru, Philippines, South Africa, Thailand, Venezuela
(**2**) WT/L/559 (countries participating in the 11.12 December 2003 G-20 Ministerial Meeting): Argentina, Bolivia, Brazil, Chile, China, Cuba, Egypt, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Philippines, South Africa, Tanzania, Venezuela, Zimbabwe

G-33 (understood to comprise 42 countries):
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G-90 (see African Union/Group, ACP, least-developed countries)

MERCOSUR:
Argentina, Brazil, Paraguay, Uruguay

MERCOSUR+. = joint sponsors of:
(**1**) G/AG/NG/W/38: MERCOSUR + Bolivia, Chile, Costa Rica
(**2**) G/AG/NG/W/104: MERCOSUR + Bolivia, Chile, Colombia

MERCOSUR, Bolivia, Chile, Costa Rica, Guatemala, India and Malaysia sponsored proposal G/AG/NG/W/139 on export credits

Non-trade concerns. = 38 countries that sponsored note G/AG/NG/W/36/Rev.1 (conference papers on nontrade concerns):
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Recent new members (RAMS or recently acceded members): Albania, Croatia, Georgia, Jordan, Moldova and Oman sponsored unofficial paper JOB(03)/170

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(**2**) G/AG/NG/W/57 (market access): Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kyrgyz Republic, Latvia, Slovak Republic, Slovenia, Croatia, Lithuania

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(lxv) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications” organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003
(lxvi) This paper has been presented at the 4th BioEcon Workshop on “Economic Analysis of Policies for Biodiversity Conservation” organised on behalf of the BIOECON Network by Fondazione Eni Enrico Mattei, Venice International University (VIU) and University College London (UCL) , Venice, August 28-29, 2003
(lxvii) This paper has been presented at the international conference on “Tourism and Sustainable Economic Development – Macro and Micro Economic Issues” jointly organised by CRENoS (Università di Cagliari e Sassari, Italy) and Fondazione Eni Enrico Mattei, and supported by the World Bank, Sardinia, September 19-20, 2003
(lxviii) This paper was presented at the ENGIME Workshop on “Governance and Policies in Multicultural Cities”, Rome, June 5-6, 2003
(lxix) This paper was presented at the Fourth EEP Plenary Workshop and EEP Conference “The Future of Climate Policy”, Cagliari, Italy, 27-28 March 2003
(lxx) This paper was presented at the 9th Coalition Theory Workshop on "Collective Decisions and Institutional Design" organised by the Universitat Autònoma de Barcelona and held in Barcelona, Spain, January 30-31, 2004
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(lxxii) This paper was presented at the 10th Coalition Theory Network Workshop held in Paris, France on 28-29 January 2005 and organised by EUREQua.
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(lxxiv) This paper was presented at the ENGIME Workshop on “Trust and social capital in multicultural cities” Athens, January 19-20, 2004
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(lxxvii) This paper was presented at the Workshop on Infectious Diseases: Ecological and Economic Approaches held in Trieste on 13-15 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics.

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