

Where Do Developing Countries Go After Doha?

An analysis of WTO positions and potential alliances

by

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Abstract

In the wake of the November 2001 Ministerial Conference in Doha, the positions of most members of the World Trade Organisation diverge, reflecting a large extent of disagreement within the organisation. This paper attempts to organise these positions and thereby inspire a debate on the possibility of collusion in the coming round of trade negotiations with a particular focus on the options of developing countries.

Members' positions on a range of issues identified as important in the coming round are rated and used as inputs in a correlation analysis and two forms of cluster analyses to identify potential alliances between members with reasonably similar positions. The paper identifies nine clusters of countries that are internally similar. Among these clusters, the positions of most developing countries are most similar to the positions of the so-called Cairns group and the US, whereas the European Union and Norway are significantly isolated and positioned far away from the developing countries. The paper concludes that developing countries have opportunities of forming alliances with specific developed countries in order to promote their trade objectives in the coming round of negotiations.

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1. Introduction

The Ministerial Conference in Doha, November 9-15 2001, aimed at agreeing on the directions for the next round of negotiations in the World Trade Organisation (WTO). Following the failure of the 1999 Seattle meeting and the September 11 terror attack, countries were both better prepared and more willing to negotiate all areas of the trade agenda at the Doha meeting. As a consequence, following the meeting most countries now agree on the desired direction on many issues. However, on the threshold of a new round of negotiations, a few issues stick out where key players strongly disagree.

It is therefore the aim of this paper to survey the current positions of the WTO members' on a number of these central, but disputed issues. The survey is undertaken with a view towards describing the main areas of contention and their economic implications. Based on this survey, the paper analyses the positions with a view to identifying developing countries' possible negotiation partners and strategies in the Doha Round.

The paper is divided into six sections: Section 2 provides a short background of the current situation in the WTO, leading directly to a separate treatment of four main topics. Positions on (1) market access issues - which cover tariffs, tariff rate quotas, standards and the special safeguard clause; (2) positions on export support and state trading positions; and on (3) domestic support – the green, blue and amber boxes, and the question of a future development box are surveyed in section 3. In addition, the section summarises findings from a number of quantitative studies in order to provide an overview of the relative importance of the issues. The fourth main topic, various non-trade concerns expressed by members including positions on a broad vs. a narrow round, labour standards, environmental concerns and the concept of 'multifunctionality', are treated in section 4.

Following the descriptive sections, the paper employs two formal approaches, correlation analysis and cluster analysis, to measure the overall degree of contention in the WTO and to identify 'natural' groups of negotiation partners. The paper is concluded by section 6, which summarises the positions of the key players and any potential strategic alliances that developing countries could pursue in order to benefit from the coming round of WTO negotiations.

2. The WTO – a background

The World Trade Organisation is the successor of the GATT – the General Agreement on Tariffs and Trade, which initiated a series of negotiation rounds beginning in 1947. Following the latest round of negotiations, the Uruguay Round in 1986-94, the WTO was formed in 1995. The GATT now serves as the WTO rulebook for trade in goods, which has been substantially liberalised to the benefit of virtually all countries.

2.1. A short WTO history

The GATT was signed by 23 nations in 1947, a number that has grown rapidly since. At the Doha meeting in 2001, China and Taiwan joined the organisation as members number 143 and 144. The success of the organisation, reflected in the large number of member countries, is based on both the peculiar situation of the United Nations Conference on Trade and Development, which was blocked by the US in the 1970s, and on a special characteristic of the WTO: it has a formal dispute settlement organ. In other words, the WTO is distinguished from most other international organisations by being able to impose real sanctions on members not following the rules and directions of the organisation. Notwithstanding, all decisions in the WTO must be reached by consensus, which has created a number of reverse salients in the efforts to liberalise and regulate international trade.

As early as 1958, the so-called Haberler Report documented to the GATT that agricultural protectionism in industrialised countries limited the benefits for developing countries in participating whole-heartedly in international trade negotiations (Kenwood and Loughheed, 1992). Yet, the achievements of the GATT have primarily been reductions of tariffs on industrial goods through the Kennedy (1964-67) and Tokyo Rounds (1973-79). The Kennedy Round reduced industrial tariffs by 36-39 % and the Tokyo Round by a further 30 % (Kenwood and Loughheed, 1992, ch. 19). In addition, both rounds harmonised tariffs by reducing tariff peaks.

The Uruguay Round of negotiations (1986-94) therefore had a stronger focus on agriculture. As developing countries typically trade in mostly agricultural commodities, this was also supposed to have been the focus of the development round envisioned to follow the 1999 WTO Ministerial meeting in Seattle. The Seattle meeting unfortunately ended without members reaching a consensus - most people probably only remember the violent street scenes from numerous demonstrations. The Uruguay Round provisions therefore continued.

The implementation of the Uruguay Round Agreement has meant that most developed countries now have low tariffs on industrial products. The round also brought attention to tariffs and border protection on agriculture reflected in the three main agreements resulting from the round: the Agreement on Agriculture, the Agreement on Sanitary and Phytosanitary Measures, and the Ministerial Decision concerning Least Developed and Net Food-Importing Developing Countries (Walter-Jørgensen and Jensen, 2001).

As part of the Agreement on Agriculture, members committed themselves to reducing border protection and lowering subsidies and domestic agricultural support. For example, the agreement stipulated that non-tariff barriers were to be tariffied, and tariffs were to be reduced by 36 % on average (24 % for developing countries) relative to their 1986-88 levels by 2000. The value of export subsidies were to be reduced by 36 %, and subsidised export quantities by 21 %. Domestic support was supposed to be substantially reduced too, exempting the *de minimis* levels agreed upon.

Nevertheless, as can be seen in table 2.1, developed countries in general account for more than half of world agricultural trade. As these countries maintain generally high import barriers on agricultural products, developing countries still have a strong interest in having a ‘development round’ with an agricultural focus.

Tabel 2.1 Distribution of exports, world and developing countries, 1999								
	Agriculture		Mining		Manufacture		Total	
	Billion US\$	%	Billion US\$	%	Billion US\$	%	Billion US\$	%
Developing countries	125	43	290	60	1115	34	2660	65
Developed countries	161	57	196	40	2198	66	1388	35
World	289	100	486	100	3313	100	4048	100

Source: WTO (2001a)

In other words, an ‘unfinished agenda’ remains after the Uruguay Round. As table 2.2 shows, Tariffs and border protection on agriculture continue to be very high in developed countries, and the domestic support of certain rich countries carry on distorting international agricultural trade (Walter-Jørgensen and Jensen, 2001). Burfisher (2000) add that domestic support has increased in recent years. Developing countries therefore have a strong interest in a new round of negotiations with a particular focus on their specific interests in agricultural trade. The next section, which summarises the positions of countries in the WTO, is mainly focused on agricultural issues.

Tabel 2.2 Average tariff on agricultural imports, selected countries

	Canada	The EU	Japan	Norway	The US
Average tariff, %	24	21	33	152	12

Source: Burfisher (2000).

The question of treating agriculture separately has up till now divided the WTO, and has been part of the discussion of whether to have a broad or narrow round. After Doha, however, the WTO seems en route to treating agriculture in a way that is comparable to e.g. industrial sectors. This paper therefore employs the term ‘broad round’ to denote a position reflecting that a country wants to include new issues not directly related to trade in the future WTO negotiations. All of these issues have profound economic implications for all countries.

2.2. Liberalising world trade – what is at stake?

In a recent report on “Global Economic Prospects”, the World Bank forecasts the growth and development of the world with a fully liberalised trade regime (World Bank, 2001). The Bank creates a free trade scenario by inducing a policy change that implies phasing out all import tariffs, export subsidies and domestic support during the period 2005-2015. Comparing to a baseline with unchanged policies, the result is a staggering US\$2.8 trillion addition to global incomes of which more than half is reaped by developing countries. Purely static gains contribute to a 1.6 % income gain in developing countries – 52 % of the total global gains, while a full dynamic simulation shows that developing countries gain up to 65 % of the total global gains, adding 5 % to incomes in 2015.¹ These long-run gains in turn imply a reduction of global poverty by 15 %.

Agricultural reforms, which account for some of the most disputed issues in the WTO, contribute around 70 % of the gains through a US\$200 billion increase in global agricultural trade. As a result, the gains for developed countries are mostly captured by Western Europe as a consequence of dismantling the EU Common Agricultural Policy. In absolute numbers, Western Europe receives an additional US\$83 billion in static gains. The study also demonstrates the importance of tariff escalation, which, when removed, generates a 139 % expansion in developing countries’ exports

¹ The difference between the static and dynamic scenarios is the inclusion of technology transfers and learning, which leads to increasing total factor productivity.

from the food-processing industries that are currently facing substantially higher tariffs than non-processed foods.²

An earlier joint study by the International Monetary Fund and the World Bank (IMF, 2001) documents that the gains from a full liberalisation of international trade are small in the short run. Moving into the medium term, dynamic effects increase the gains to between US\$250-550 billion with developing countries capturing the largest percentage gains, emphasising the importance of ‘new trade theory’ effects such as the impact of imperfect competition, technology transfers and international learning.

The results of a full liberalisation of the international agricultural trade presented by Burfisher (2000) are broadly comparable, although smaller than the World Bank results above. The findings from a series of quantitative simulations show that if all tariffs, export subsidies and domestic support are eliminated, the world market agricultural prices would increase by 12 % on average, generating a US\$56 billion gain for the global economy as a whole. In the short term, some (but far from all) net food importing developing countries may suffer welfare losses due to the higher food prices, but moving into the medium term, all countries benefit from removing barriers to agricultural trade. In particular, the agricultural exports of developing countries increase by 24 %. Eliminating tariffs in itself accounts for 52 % of the price increase, eliminating domestic support accounts for 31 %, while the remaining 13 % are obtained by eliminating all export subsidies, which underlines the relatively dominant importance of market access issues.³ The bulk of these gains derive from dismantling the European Common Agricultural Policy.⁴

SJFI (1999) draws similar conclusions regarding the distortionary effects of the agricultural policy in developed countries using a model comparable to the one employed by the World Bank (2001). With a forecast 25 % increase in world trade following a

² Tariffs are not the only potentially trade-limiting measures. In addition, as the example by Otsuki et al. (2001) documents, SPS standards can also function as very effective barriers to trade

³ Although not as important as market access or domestic support, Panagariya (2000) and the OECD (2001a) document that export support of all forms distort international trade and destabilise world markets without being an efficient means to boosting the exports of developing countries. As such, export subsidies is an expensive, politically motivated support to the agricultural sectors, which prevents international efficiency gains.

⁴ The EU accounts for 25 % of tariff elimination gains, 56 % of domestic support gains, and most of the gains from eliminating export subsidies. The study, however, relies partly on official US data that treat export credits as non-distortionary, and as such may underestimate the American domestic support and export subsidies significantly. The study is based on an American representation of EU policies, which creates further differences relative to other studies.

full liberalisation, the report estimates that 80 % of the European gains derives from liberalising agriculture. Out of these purely agricultural gains, 70 % is explained by increasing the market access for agricultural products, thereby emphasising the relative importance of reducing tariffs and other direct barriers to trade.

Domestic support, however, also limits trade in agriculture and thus harms developing countries. In a quantitative study, the Australian Bureau of Agricultural and Resource Economics estimates that a 50 % reduction in agricultural support levels will result in an annual US\$53 billion increase in global incomes by 2010 (ABARE, 2000). Although developed countries reap most of these entirely static gains in the form of efficiency gains, approximately a quarter of the income increase, around US\$14 billion, are reaped by developing countries. If the models are adjusted to incorporate dynamic gains, the total gains increase to US\$123 billion with more than half going to developing countries through e.g. international learning spill-overs. That many countries, notably the EU, the US and Japan, continue to provide generous support to agriculture must therefore be attributed to political considerations (or ignorance) as a purely economic rationale virtually does not exist. Moreover, ABARE (2001) also documents the effects of various standards and other support motivated by so-called non-trade concerns that a group of wealthy countries is seeking to put on the WTO agenda, which is the subject of the following section.

Table C.1 in Appendix C summarises the findings from a number of these studies, some of which have been referred to above. The lessons learned from these studies document that trade liberalisation does indeed lead to welfare gains for almost everyone involved. For some countries, terms-of-trade losses following liberalisation can be outweighed by domestic reforms allowing the full transmission of international prices leading to efficiency gains in the domestic economy (Ingco, 1997; Burfisher et al., 2000). In particular, Burfisher (2000) emphasises the importance of liberalising developing countries' economies to allow for the effective transmission of international price signals to the agricultural sector.

These reports are only a few of a large number of studies showing large positive gains from liberalising trade and removing domestic distortions. The differences between the quantitative studies naturally question the sources of the different conclusions, but are mainly the result of studies employing slightly different data sets, assumptions and policy representations. As mentioned above, some studies do not take the potentially distortionary effects of export credits into account. Moreover, as the World Bank (2001) report documents, whether dynamic 'new trade theory' effects are incor-

porated in the model or not, and how they are incorporated, has profound implications for the findings. However, these differences should not remove the focus of the discussion from the fact that all these studies show that liberalising trade and removing distortions and support is significantly beneficial for virtually all countries and a potentially powerful development instrument.

3. Market Access, Export Support and Domestic Support

This section, which surveys the official position of WTO members on a number of issues, is based on information collected from three primary sources: proposals submitted to the agricultural negotiations in 2000 and 2001, official statements during these negotiations, and official statements and declarations during and following the Doha meeting. It proved impossible to find sufficient information on 24 members of the WTO. The survey therefore only reflects the positions of the remaining 120 members immediately following the Doha meeting, i.e. as of ultimo November 2001.

As the survey is the basis for rating WTO members' positions on these issues, these ratings are included in the tables in this and the following section. The ratings are given to each country on each issue on a scale from zero to four where a higher rating indicates more dedication to trading free of any barriers or support. Section 5 discusses the ratings in detail before employing them in formal analyses.

3.1 Market Access

Basically, market access is what the WTO was originally all about. The topic covers issues concerning tariffs, tariff peaks and escalation, tariff rate quotas (TRQ), sanitary and phyto-sanitary (SPS) standards, export support and state trading enterprises (STE), all of which influence countries' access to both other countries' markets and the international market.⁵ These issues are one half of the agenda stressed by the proponents of a 'narrow' round of negotiations, e.g. the Cairns group and a number of developing countries. The other half, export and domestic support, is surveyed in section 3.2 and 3.3.

⁵ SPS standards are treated separately within the WTO legal framework, but are placed under the market access in this paper, as the positions on these standards correlate with positions on market access, and by nature are designed to restrict market access of non-compliant products.

Tariffs

Based on Ricardo's theory of comparative advantages, tariff reductions have been known to enhance global efficiency since the early 1800's. Although some countries may lose from tariff reductions through an erosion of preference margins, the wide disparities between developed and developing countries in general implies that all countries are better off by reducing tariffs, as the highest tariffs are placed on agriculture and labour-intensive products in which developing countries have sizable comparative advantages. In most cases, even regional trade liberalising agreements have very large net trade creating effects and lead to welfare gains for all countries (Robinson and Thierfelder, 1999).

Most countries are ready to negotiate tariff reductions. The Cairns group and the US are not surprisingly eager to reduce tariffs, while a number of developing countries and Norway would like to have certain staple products exempted from further tariff reduction commitments. As a further observation, it is worth noting that the EU has not expressed a clear official position on the issue and that only a few countries, most notably India, do not want to agree to any further reductions before the developed countries have fulfilled all obligations agreed upon in the Uruguay Round. Some developing countries, e.g. the ACP group, are also concerned about the erosion of special preferences they may have under regional agreements. In summary, the question is not whether to reduce tariffs or not, but only how to do it and by how much.

Tariff peaks and escalation

Although tariffs can be low on average, tariff peaks and tariff escalation can limit trade. For example, the EU has relatively low tariffs on beef, but prohibitively high tariffs on high quality frozen beef meat, which effectively prevents trade from a number of countries (Bjørnskov and Krivonos, 2001). As such, tariffs peaks limit trade deriving from specific sectors and specific countries, and can thereby harm countries exporting those specific products. In addition, tariffs are in general low on raw agricultural products, but increase steeply with the degree of processing, so-called tariff escalation, which slows the trade-driven development of food-chain industries in many developing countries.

As a consequence, 22 developing and transition countries would like to see tariff peaks and tariff escalation eliminated. An additional 22 countries led by Canada and the US officially support substantial reductions of tariff peaks and escalation, while 29 countries in the African Group alongside India and Norway are concerned that a multilateral reduction of peaks and escalation could erode special preferences, primar-

ily through the EU-ACP Cotonou agreement and other preferential access agreements. As part of the outcome of the Doha meeting, countries agreed to negotiate reductions of both overall tariff levels, tariff peaks and tariff escalation.⁶

Tariff Rate Quotas

Tariff rate quotas can regulate the imports of sensitive commodities in detail (see box 3.1) and are used extensively by particularly the EU and the US. The widespread use of quotas was one of the outcomes of the Uruguay Round, but has proven to create adverse effects, most notably in the case of European TRQ on Caribbean bananas (see World Bank, 2001). The OECD (2001b) document that TRQ may facilitate the continued use of certain forms of domestic support, e.g. by enabling countries to maintain guaranteed prices above the world market level. On the other hand, a considerable expansion of the quotas accompanied by a reduction of in-quota tariffs is thought to lead to a significant increase of developing countries' market access if administered liberally. However, contrary to the view officially motivating the policies of some developed countries, TRQ are also trade-distorting, and although they may have contributed to increasing the market access of developing countries, further expansions of the quotas without tariff reductions will have an only marginal impact on market access, partly due to the finding that the real degree of market access also depends on the administration of the TRQ (OECD, 2001b).

Box 3.1 Tariff Rate Quotas

Tariff Rate Quotas are used extensively in many developed countries to regulate imports on a more detailed level than is possible using tariffs alone. Through a TRQ, countries commit to providing market access for a certain amount of a product at reduced tariffs. For example, within a number of TRQ, the ACP countries receive approximately a 50 % cut in EU tariffs (Bjørnskov and Krivonos, 2001). In addition, countries often receive guaranteed prices based on internal EU prices within a quota.

Three countries (Bolivia, Colombia and Turkey) hold that TRQ should be expanded continuously with a view to ultimately eliminating the use of quotas, while 78 WTO

⁶ Surprisingly, it proved impossible to extract any clear information on EU positions on issues of tariffs or tariff escalation and peaks from any official sources. As a consequence, the EU has not been rated on these issues.

members wish to see TRQ expanded substantially.⁷ However, the EU wishes to maintain the current use of TRQ, and a number of countries, most notably in the ACP group, are concerned about the possibility that increasing quotas will erode their preferential access to developed countries' markets. In the Doha Round, the WTO will therefore probably have to strike a balance between the benefits of expanding quotas within the TRQ system and the potential short to medium term costs to some countries of losing market shares in developed countries in order to reach a consensus on the issue.

The special safeguard clause

Through the special safeguard clause, countries can protect domestic production if they are threatened by low entrance prices on imports, i.e. the clause allows countries to impose special tariffs in order to protect domestic production. The clause has been thought of as a necessary means of securing food supply and protecting against illegal dumping practices. It can, however, be used effectively as a protectionist measure by a number of countries (Krishna, 1997).

WTO members are divided on the issue of whether or not to continue the special safeguard clause. The EU wants to continue with the clause unchanged, whereas Turkey and a few Cairns members want it completely eliminated. Situated between these positions, many African and Caribbean countries want to limit the use of the special safeguard to developing countries. However, the question of the special safeguard was only a minor issue at the Doha meeting, but could probably surface as a difficult issue once more in the Doha Round negotiations.

Sanitary and phyto-sanitary standards

Another concern for many developing countries is the use of sanitary and phyto-sanitary standards. SPS standards are a legal concern for most countries wanting to protect their citizens from products that are harmful to the health or otherwise risky. Examples of fish caught using toxic substances or crops sprayed with chemicals detrimental to human health abound, illustrating the importance of such standards. However, excessively strong SPS standards can harm developing countries' exports, as demonstrated by Otsuki et al. (2001) who found that strengthened standards on the contents of aflatoxins in agricultural commodities would lead to a 64 % decrease in

⁷ The US seems to have moved from working for a full elimination to supporting a substantial expansion of the quotas.

African exports of cereals, dried fruits and nuts.⁸ Moreover, the implementation of such standards may matter, as for example the EU works to replace product-based standards with process-based standards. If such process-based standards imply that developing countries are required to produce commodities by processes similar to those used in developed countries, the requirements to investments and human capital could work as an effective technical barrier to trade.

As SPS standards can work as technical barriers to trade, the issue is of major interest to most countries. However, most countries endorse the aim of these standards and the WTO treatment of the issue as such, but would like to see changes in the way standards are implemented and addressed in the member countries (Jensen, 2001). In addition, most developed countries expressed support at the Doha meeting for the idea of giving technical assistance to developing countries to comply with SPS standards.

3.2. Export support

The use of export support given as direct subsidies or export credit was one of the most hotly disputed issues at the Doha meeting. Many countries have supported exports, either by giving direct export subsidies or by providing indirect subsidies in the form of export credits as a means to boosting export performance. Both forms of supporting exports work through lowering the price on the exported good, but although such support may in theory be beneficial to a single country while being to the detriment of the rest of the world, empirical studies documents that export subsidies in either form is a costly and inefficient way to expand and diversify countries' exports (e.g. Panagariya, 2000).

The use of export subsidies leads to artificially low world market prices on a number of agricultural commodities. This is to the detriment of the world economy as such and in particular to many developing countries. These countries typically produce agricultural commodities at substantially lower costs than developed countries, but nevertheless cannot make full use of their comparative advantages in the world market as developed countries lower prices on relatively inefficiently produced commodities by subsidising exports. As world market prices thus depends more on the policies of subsidising countries and less on world market conditions per se, export subsidies tend to

⁸ The 64 % trade decrease is 'paid for' by a probable decrease of deaths in the EU of 1.4 persons per billion per year (Otsuki et al., 2001).

destabilise world markets (OECD, 2001a). Export state trading enterprises may work in much the same way.

Export subsidies and export credit

71 WTO members, mainly developing countries and the Cairns group, therefore want to eliminate the use of export subsidies, while 9 other members want to either reduce or discipline the use of export subsidies. I.e., more than 80 % of members with an official position on the issue are strongly opposed to the use of these subsidies. Nevertheless, the issue was hotly debated in Doha because export subsidies form part of the foundation of the European Common Agricultural Policy and export credits are important to the US agricultural policy. Without being able to dump excess production in the world market using export subsidies, the EU will in all likelihood be unable to continue the current system of guaranteeing high prices on agricultural commodities. As a consequence, the EU is unwilling to accept negotiating any reductions in these subsidies unless the American use of export credits is treated equivalently to European subsidies. Despite persistent French opposition, the EU nevertheless agreed on a wording calling for negotiating reductions in export subsidies “with a view to phasing [them] out” (WTO, 2001b), but the EU does not interpret the wording as meaning that export subsidies will actually be phased out. In the words of EU Farm Commissioner Franz Fischler, the phrase is “an indication of direction, of hope, of ambition” (EU Press Release, 2001). The dispute of export subsidies, one of the hardest nuts to crack in Doha, therefore continues.

State trading enterprises

Many WTO members, especially transition and developing countries, use state trading enterprises to regulate their exports or imports. Import STE are often used on the presumption that they can insulate the market against price volatility in the international markets. Nevertheless, the effect of STE is to make international markets more volatile (McCorrison and McLaren, 2001), and these enterprises are often simply used to carry out certain policy objectives that may not be in accordance with the spirit of the WTO. For example, STE can dilute the increase in market access attributable to trade liberalisation and export STE most often secure higher than normal market shares. In other words, such enterprises are trade distorting, although McCorrison and McLaren (2001) conclude that STE “may be put in place to provide greater price certainty for producers and greater food security for consumers” in developing countries.

On this basis, it should not be surprising that before the Doha meeting, 29 WTO members officially supported either stricter disciplines or the full elimination of STE. Even Japan, which uses state trading to support its exports, is ready to review the current provisions for STE. Only two, Mali and Mauritius, supported maintaining STE as a fully legitimate policy option within the WTO, both countries arguing on the basis of food security concerns. As a consequence of these positions, ministers at the Doha meeting reached a consensus to review these enterprises with a view to imposing stricter disciplines.

Market access and export support: an overview

Summarising, table 3.1 below shows the very severe disagreement on market access issues. The EU positions in particular are far from the average attitudes to market access and trade liberalisation among WTO members – a feature that shows its importance in the analyses in section 5. The economic implications of increasing market access as analysed in the studies mentioned above are summarised in Appendix C. As mentioned above, the ratings in the table are given on a scale from zero to four, where a higher rating reflects more dedication to free trade. This disagreement is further underlined by members' positions on domestic support, which in some instances are intricately intertwined with the positions on market access.

Tabel 3.1 Positions on market access and export support

Tariffs			Escalation and peaks		TRQ size		Special safeguard		Export subsidies		Export credit	
Canada	Reduce	3	Reduce	3	Increase	3	-		Eliminate	4	Discipline	2
Djibouti	Exempt	2	Reduce	2	Increase	3	Review	3	Eliminate	4	Discipline	2
EU	-	-	-	-	Maintain	1	Maintain	1	Maintain	0	Discipline	2
Japan	-	-	-	-	-	-	-	-	Reduce	3	Discipline	2
Norway	Exempt	2	Reduce	2	Increase	3	Maintain	1	Discipline	2	-	-
US	Reduce	3	Reduce	3	Increase	3	Review	3	Eliminate	4	Discipline	2
Average	2.35 (0.48)		2.88 (0.84)		2.70 (0.78)		2.18 (0.92)		3.20 (1.51)		2.31 (0.71)	

Note: parentheses beside the averages are standard deviations. 'Exempt' means that Norway wants certain agricultural products (produced in Norway) exempted from any reduction commitments. The zero rating on the EU position on export subsidies reflects the European unwillingness even to consider talking about this issue. On the issues of tariffs, the EU has not revealed an unequivocal position. As Djibouti has submitted no proposals of its own, the country is selected as representing a 'pure' African Group position.

3.3 Domestic support

Under the current WTO regime, domestic agricultural support measures are divided into one of three categories – the so-called green, blue and amber boxes (see box 3.2). In addition, a number of countries have proposed to introduce a new development box containing special provisions for developing countries, including potentially trade-distorting support measures.

During the previous round of negotiations, the Uruguay Round, WTO members agreed on using the so-called Aggregate Measure of Support (AMS) as the basis for agreeing on commitments to reduce domestic support. However, only support above the so-called *de minimis* levels is included in the AMS, which measures support across boxes. Domestic support remains one of the most disputed issues in WTO negotiations as some forms can distort international trade severely. As a consequence, many countries therefore aim at negotiating reductions and a review of domestic support in the Doha Round.

Box 3.2 The WTO colour coding

The WTO rules divide domestic support into three categories / boxes, each with a colour.

Green: includes so-called de-coupled domestic support to agriculture, i.e. support that is in principle non-distortionary and therefore allowed under the WTO regime. The green box includes support for research and development, control, education and investments in infrastructure, storage for food security purposes, support for environmental and regional initiatives, production-independent income support, retirement programmes, structural adjustment through investment support, compensation for crop failures, and national food aid.

Blue: contains legitimate trade-distorting measures, which are linked to factors of production but not to the price and volume of output, and implemented under production-limiting programmes. Members are not committed to reduce these measures, which include deficiency payments and acreage and headage support, but must notify the organisation when using blue box support.

Amber: (sometimes also called the yellow box) contains the most trade-distorting measures, including product-specific support based on administrative prices, direct transfers etc, and support for capital and factor use and insurance. The Uruguay Round stipulated that the box was to be reduced by 20 % (13.3 % for developing countries) over the period 1995-2000.

Domestic support is the other half of the narrow agenda proposed by the Cairns group and a number of developing countries. The EU, on the other hand, wants to have a broad round, partly in order to have a possibility of receiving concessions in return for reducing its significant levels of domestic support. In 1998/99, for example, the EU spent 19.2 billion euro in the green box, 20.5 billion euro in the blue box, and 46.7 billion euro in the amber box (Melgaard, 2001).⁹ As the majority of developing coun-

⁹ The figures in US dollars are 17 billion, 18 billion and 41 billion. American support levels are broadly comparable but hard to quantify, as the American notifications to the WTO for a variety of reasons are incomplete.

tries are unable to afford such support levels, they are calling for reductions in order to have a more level playing field in international agricultural trade.

Green box measures

The green box includes so-called de-coupled domestic support to agriculture, i.e. support that is not (or only marginally) production or trade-distorting and therefore in principle non-distortionary. The box includes for example support for research and development, support for environmental and regional initiatives, compensation for crop failures, and national food aid (Walter-Jørgensen and Jensen, 2001).

Countries disagree on the future of the green box. Supported by Mexico, the EU's position, - to maintain the green box as it is – is quite strongly held, mainly due to Southern European opposition to reducing any domestic support. Norway, Switzerland, Israel, South Korea and Japan want to enhance the green box to cover measures such as farmers' income safety nets and the miscellaneous box of 'multifunctionality' (see section 4). Contrary to this position, led by the Cairns group and ASEAN, a strong faction consisting of 38 developed and developing countries wish to cap or discipline the use of the green box. These countries hold that even de-coupled support in large quantities can distort production and trade. Such distortions can occur through for example US green box measures that provide indirect price support to farmers via countercyclical payments. Other measures can implicitly insure farmers or simply keep farmers in business through fully de-coupled support, thereby maintaining a production levels above market equilibrium.¹⁰

Blue box measures

As a compromise between the EU and the US, the blue box was originally conceived as a transitory measure in the process of converting the heavily distorting amber box agricultural support to non-distorting forms of support belonging in the green box. It therefore contains legitimate trade-distorting measures, which are linked to factors of production but not to price and volume of output, and implemented under production-limiting programmes. As such, blue box measures distort international trade by affecting the quantities produced and thereby also affecting the international prices. These measures, which include deficiency payments and acreage and headage support, are not subject to reduction requirements. Only 6 WTO members have notified the WTO

¹⁰ Support for insurance to agriculture as such belongs in the amber box.

that they are currently using the blue box.¹¹ However, countries including the US officially seek to convert the distorting blue box support to other forms of measures belonging in the green box. However, the US has in recent years expanded the use of the blue box.

Many WTO members (53) believe that the blue box should be either substantially reduced or completely eliminated. A number of countries led by the Cairns group and Mexico strongly believe that the blue box should be reduced at an accelerated pace and eventually eliminated. The African Group subscribes to this view – Kenya even holds that developing countries should be exempt from reduction commitments until all blue and amber box measures in developed countries are eliminated. On the other hand, along with a number of transition countries, Jordan is ready to accept the blue box as a transitory measure as it was originally conceived.

However, the EU, Norway, Poland, South Korea and Japan strongly believe that both the green and blue boxes should be maintained as they presently are, although Japan and South Korea made concessions on the issue at the Ministerial Meeting in Qatar. The EU (cf. section 3.1) holds that any reductions are unacceptable unless the US reduces the use of export credits, and maintains the position that the blue box needs re-defining to include support for multifunctionality purposes.

Amber box measures

The amber box (sometimes also called the yellow box) contains the most trade-distorting measures, which are generally not allowed under the WTO rules. Those measures are product-specific support – direct support, administrative prices etc., and non-specific support such as insurance and support for factor use (Walter-Jørgensen and Jensen, 2001). Only 30 WTO members are allowed to use the amber box, which should be reduced over a 6-year period as part of the outcome of the Uruguay Round.

Almost all countries agree that these measures must be phased out under the present WTO regime. Japan is currently the only developed country supporting the maintenance of the amber box, while the EU is willing to reduce amber box support on the provision that the blue box is enhanced to cover various non-trade concerns. The Democratic Republic of the Congo is isolated with the view that both the green and am-

¹¹ These members are the EU (counting as one member), Iceland, Norway, Japan, the Slovak Republic and Slovenia. Other countries, including the Czech Republic, are using blue box measures without notifying the WTO.

ber box should be increased to allow for specific initiatives in order to enable developing countries to go beyond the current AMS levels. On the other hand, a number of countries including Mexico have expressed the view that the current process of dismantling the box is too slow and should be accelerated.

Development box measures

A number of developing countries have jointly suggested that there is a need for a specific 'development box' to contain support for development initiatives. As such initiatives often include allowing investment and input subsidies (currently in the amber box), developing countries hold that certain trade-distorting support measures are necessary for purposes of development and poverty alleviation.¹² Most countries imagine that such measures will include subsidies on inputs, investments, and production support to small-scale farmers. Some countries also include food self-sufficiency and special provisions for small developing island states.¹³

21 developing countries and Norway are actively supporting the introduction of a development box in the WTO framework. However, most other countries, among these the EU, Egypt and the Cairns group, support the view that enhancing the green box to include development and food security initiatives in developing countries is the more desirable solution. 64 WTO members officially support different degrees of flexibility for developing countries.

The WTO (2001) Ministerial Declaration agreed upon in Doha does not contain any specific mentioning of the possibility of a development box. However, the concurrent agreement on implementation issues does provide more room for a number of specifically development oriented support measures undertaken by developing countries widely supported by members (WTO, 2001c, Article 10.2). The Declaration remains ambiguous by avoiding to specify which measures are included.

Overall support

Only support exceeding the *de minimis* levels agreed upon by WTO members is included when calculating AMS levels, and is hence subject to reduction commitments. LDC are not committed to support reductions. For developed countries, the *de minimis* level is 5 % of total agricultural production value, for developing countries 10 %.

¹² The countries involved in the proposal are Cuba, Dominican Republic, Honduras, Pakistan, Haiti, Nicaragua, Kenya, Uganda, Zimbabwe, Sri Lanka and El Salvador (WTO, 2000a).

¹³ The provisions for small developing island states is proposed by Mauritius (WTO, 2000b) and supported by the Caribbean Community among others.

The AMS includes support categorised in any of the three boxes. However, AMS is an aggregate measure, i.e. most countries have ample opportunities to comply with the reduction commitments while maintaining high tariff barriers on sensitive products. Several countries have therefore argued that AMS reductions should be disaggregated on a sector level.

Canada and Egypt wish to cap domestic support in boxes of all colours and thereby reduce total AMS levels. Many countries support such a reduction of the AMS, specifically the US, who proposes to reduce AMS to a fixed percentage of agricultural production value. Reductions in developed countries' AMS is supported by most developing countries, although many proposals call for relatively larger AMS reductions in developed countries' amber and blue boxes. Morocco, for example, has proposed that developed countries' AMS should be reduced by 10 % initially, with a view to eliminating it in the long term, supplemented by a 50 % reduction of *de minimis* levels, whereas developing countries' AMS should be allowed to increase (WTO, 2001d). Such asymmetry is thought desirable by many developing countries.

Domestic support positions: an overview

The US position on domestic support is clear: the green box should be reviewed with a view towards a possible inclusion of rural development initiatives, while the rest of the agricultural support (blue and amber boxes) should be eliminated.¹⁴ Canada and most of the rest of the Cairns group go even further in stating that all domestic support should be phased out, except for some support measures in developing countries.

The position of the EU is somewhat ambiguous. On the one hand, the EU countries are ready to commit to AMS reductions, but on the other hand, the union wishes to maintain both the blue and green box, and in addition introduce support for multifunctionality for all countries in the green box. A few countries, most notably Norway, go as far as wanting to expand the opportunities for supporting agriculture in all boxes. The disagreement is illustrated by the ratings in table 3.2.

¹⁴ The US officially wants domestic support for agriculture split into two groups: distortionary and non-distortionary measures (presently in the green box) with a view to eliminating all distortionary measures. Norway has proposed a similar arrangement, although with a significantly different policy objective.

Tabel 3.2 Positions on domestic support

	Green box		Blue box		Amber box		Development		De minimis		AMS	
Canada	Review	2	-	-	-	-	In green	2	Reduce	3	Eliminate	4
Djibouti	Reduce	3	Eliminate	4	Review	2	In green	2	-	-	Flexibility	2
EU	Maintain	1	Maintain	1	-	-	In green	2	Maintain	1	Reduce	3
Japan	Expand	0	Maintain	1	Maintain	1	In green	2	Maintain	1	-	-
Norway	Maintain	1	Maintain	1	-	-	New box	4	Expand	0	Expand	0
US	Review	2	Eliminate	4	Eliminate	4	-	-	Reduce	3	Reduce	3
Average	2.38 (1.20)		3.17 (1.32)		3.85 (0.52)		2.51 (0.88)		1.82 (1.00)		2.66 (0.80)	

Note: parentheses beside the averages are standard deviations. The Norwegian ratings on *de minimis* levels and AMS reflect the country's strong support for including support for 'multifunctionality'. As Djibouti has submitted no proposals of its own, the country is selected as representing a 'pure' African Group position, which wants flexibility for developing countries on the question of AMS reductions.¹⁵

Much of developed countries' agricultural support – even certain green box measures – is distorting the international trade to the detriment to developing countries. The African Group and a number of non-African developing countries are therefore working to have the support provisions reduced within the WTO. Moreover, as the table demonstrates, developing countries exemplified by Djibouti are in general opposed to agricultural support since they do not have the financial capability to compete in supporting any sector.

In summary, domestic support will probably be one of the most contented issues in the Doha Round, as support to agriculture continues to be a hot political issue in both the EU and the US.¹⁶ Nevertheless, reducing domestic support in connection with trade liberalisation could benefit developing countries significantly.

4. Non-trade issues

As the previous section surveyed the topics of market access and domestic support – the narrow-round topics, this section covers the broad-round agenda issues, particu-

¹⁵ Countries wanting a separate development box receive the rating four. Although potentially counterintuitive, this rating given to free-trade oriented positions, reflect that putting specific development measures in a development box could serve to exclude these measures from other boxes, thereby making the WTO categories more transparent and stringent by specifying precisely which development-oriented support measures are legal.

¹⁶ The level of contention is perhaps best illustrated by the relatively large standard deviations on the country ratings on domestic support issues used for analysis in section 5. However, simple correlations also show a strong relation between GDP and support for maintaining the current green and blue boxes, i.e. domestic support can be said to be a developed country issue.

larly non-trade concerns. These issues, which include the European and American attempts to put environmental protection and labour standards on the WTO agenda, is the focus of the group of countries wanting a broad agenda. Broader still, non-trade concerns also covers the push for allowing support for the so-called ‘multifunctionality’ of agriculture.

A broad versus narrow round

First of all, countries disagree on the number and nature of issues to be incorporated in a new round of WTO negotiations. Proponents of a narrow round argue that focusing on a small number of issues will facilitate the WTO members in reaching the needed consensus in the Doha Round. Proponents of a broad round maintain the opposite position, arguing that incorporating more (and softer) issues will provide all countries with something to bargain with on a *quid pro quo* basis, thereby facilitating the negotiations.¹⁷ While both views present themselves as acceptable and rational, it should be noted that apart from the Cairns group position, wanting a broad agenda is predominantly a rich country position.

The EU, Norway and Switzerland heavily support a broad agenda. Part of the Cairns group, a number of developing countries and to a smaller extent the US support the view that the Doha Round should be narrow, whereas Canada has sought a neutral position on the issue. Developing countries in particular see the broad agenda as a covert introduction of protectionist measures. As a consequence, the language on non-trade concerns in the Doha meeting Ministerial Declaration is ambiguous.

Multifunctionality

The new buzzword in European agriculture seems to be ‘multifunctionality’. The concept captures a wide array of disparate topics, including the value of traditional agricultural production and landscapes, animal welfare, the viability of rural areas, and food safety and security concerns in both developed and developing countries. The concept as such builds on the argument that agriculture delivers a range of non-food benefits that should be accounted for in trade negotiations. A number of predominantly rich countries support the notion that the WTO rules should be modified in order to enable countries to account for and support the multifunctionality of agriculture. Nevertheless, SJFI (2000) assesses that the objectives of multifunctionality

¹⁷ A second reason for incorporating soft issues in the round is mostly held by non-governmental organisations. On the basis that the WTO has an effective dispute settlement organ, these organisations envision that the WTO could serve the role as a global organisation with real power to force members into compliance, contrary to the United Nations.

can be pursued in a minimally distorting way within the existing WTO framework, e.g. within the current definition of the green box.

Yet the EU and in particular Japan, Norway, South Korea and Switzerland support the introduction of support for multifunctionality in the WTO and want it as part of a broad agenda of negotiations. A number of developing countries support the notion of multifunctionality due to considerations of rural development and food security. Only a few countries (Namibia and South Africa) have been outspoken in their rejection of the concept, yet developing countries in general seem to be against multifunctionality per se, as it will lead to increasing levels of support of agriculture in developed countries, all other things being equal.¹⁸ Only the European support for subsidising animal welfare has provoked strong negative reactions from developing countries.¹⁹

Labour standards

A number of predominantly wealthy countries have sought to introduce labour standards in the WTO framework. Most proponents have argued that such international standards would prevent child labour and ensure that workers receive a proper pay. However, introducing labour standards and thereby increasing wages and employment costs erodes many developing countries comparative advantages in labour-intensive production. Thereby, core labour standards becomes counterproductive when trying to increase workers' welfare and even efforts to prevent child labour may reduce the welfare of children in particularly poor countries (Martin and Maskus, 1999; Basu, 1998). Thus, introducing Western standards and workers' rights will effectively work as a technical barrier to trade and be harmful to the trade of a large number of developing countries. In quantitative terms, ABARE (2000) estimates that if developed countries impose trade sanctions on developing countries not in accordance with a set of international labour standards, global income would suffer a US\$37 billion reduction in 2010 compared to an unchanged baseline scenario. All developing countries would be worse off in addition to e.g. the US and Australia.

Officially, one of the top EU priorities prior to the Doha meeting was to ensure that labour standards were incorporated in the WTO negotiations. The US originally sup-

¹⁸ The paradoxical situation that some developing countries lend support to aspects of multifunctionality while opposing it only serves to illustrate the ambiguous character of the concept itself.

¹⁹ The representative of Argentina, in an official comment on an EU proposal on animal welfare, sarcastically expressed the concern that the EU would "not find it easy to be consistent in this respect", i.e. treating for example French geese for foie gras and Danish bacon pigs in a similar and animal-friendly way (WTO, 2000c).

ported the introduction of certain core labour standards, but at the Doha meeting, the US position on the issue was invisible. A number of developing countries are opposing the EU proposal with the view that such standards will erode the comparative advantages of poor countries in labour-intensive production. Given the potential losses, these countries do not seem likely to yield to European pressure without receiving substantial concessions on other sensitive issues.

Positions on the environment in WTO negotiations

Like the question of introducing labour standards, the issue of imposing environmental standards on trade between WTO members is largely a developed country issue, and countries supporting labour standards also tend to support environmental standards. Yet, a number of developing countries are reluctant to accept negotiating these standards as they could potentially work in the same way as labour standards. Moreover, like many SPS standards, developing countries fear that the introduction of environmental standards could piggyback hidden protectionism by requiring considerable adjustment costs. As such process-based standards will probably require even higher costs than product-based standards would.

Similarly to labour standards, the EU has strong views on negotiating environmental standards in the Doha Round. A few relatively wealthy transition countries and Japan are ready to negotiate the issue, but with less enthusiasm than the EU. However, supported by Egypt and Namibia, most of the Cairns group is strongly against discussing environmental standards in any form in a WTO context.

Geographical indicators

A number of WTO members want strengthened disciplines on the right to use specific names for products, technically termed geographical indicators. Although the notion of protecting specific names may be intuitively appealing, strong rules could work as a partial ban on the production of certain commodities in countries not situated within these special geographical regions and thereby do severe harm to the trade of a number of countries.

The EU holds the view that for example only port wine from Portugal should be allowed to be marketed under the name 'port', and India holds that only rice from specific areas should be allowed to use the name 'basmati rice'. A few countries have argued that most names have to do with the contents of the product, not the origin, and that geographical indicators as such should only be protected in special cases. The

middle position, that the issue should be treated within the current TRIPS framework, is held by for example Norway and Canada.

Non-trade concerns: an overview

As can be seen in table 4.1, there is hardly any consensus on whether or not to include non-trade concerns in the Doha Round. The low averages mainly reflect that mostly rich countries have expressed an official position on the issues, whereas most developing countries have official positions on market access and domestic support only, and as such may support a narrow round implicitly.

Tabel 4.1 Positions on non-trade issues

	Broad vs. narrow		Non-trade concerns		Geographical indicators		Labour standards		Environment	
Canada	Broad	2	-	-	In TRIPS	3	-	-	-	-
Djibouti	-	-	-	-	-	-	-	-	-	-
EU	Very broad	1	Support	1	-	-	Support	1	Support	1
Japan	Very broad	1	Support	1	Support	1	-	-	Weak	2
Norway	Very broad	1	Extreme	0	In TRIPS	3	Support	1	Support	1
US	Very narrow	4	Opposed	3	-	-	-	-	-	-
Average	2.27 (1.27)		1.78 (1.13)		1.77 (0.99)		2.10 (1.29)		2.15 (1.17)	

Note: parentheses beside the averages are standard deviations. The Canadian position on a broad vs. narrow round seems to reflect the countries' environmental concerns. The position 'in TRIPS' implies that countries believe that the issue should be treated within the current TRIPS framework. As Djibouti has submitted no proposals of its own, the country i is selected as representing a 'pure' African Group position.

In summary, non-trade concerns seem to be on their way into the WTO framework. Yet without very stringent and transparent rules, implementing support and standards on some of these concerns could do substantial harm to developing countries' trade and development either by working as hidden protectionism or by eroding developing countries' comparative advantages. As a consequence, members' positions on these non-trade concerns divide the WTO, as is illustrated by the analyses of the following section.

5. Correlation and cluster analyses

In making an attempt to identify which countries agree the most, i.e. answering whether there are any 'natural' coalition partners in the Doha round, two forms of analysis are presented. Both analyses are based on a rating of each WTO member's

position on a number of the issues surveyed in sections 3 and 4. First, a correlation analysis of the ratings is presented, which presents a preliminary overview. Secondly, based on these ratings, a cluster analysis identifies groups of potential negotiation alliances in the Doha Round.

5.1 Data

Based on the positions summarised in sections 3 and 4, each of the 120 WTO countries have been assigned a rating between zero and four on a number of issues, where a higher rating in general indicates more dedication to freeing international trade of any potential or real barriers.²⁰ The ratings providing the basis for the analyses are given after reading all official negotiation proposals and statements from the 2000-2001 agricultural negotiations in the WTO and all statements from all members given during the Ministerial Conference in Doha in 2001.

As an illustrative example, Kenya has participated in 4 joint proposals to the agricultural negotiations. A proposal on special and differential treatment with 8 other countries, which advocates for a development box, implies that Kenya receives the rating 4 on the question of a development box (WTO, 2000a). Kenya also participated in joint proposals on green box measures with 10 other countries (WTO, 2000d) and on market access with 11 other countries (WTO, 2000e) and signed the joint African Group proposal (WTO, 2001e). In addition, Kenya had its own proposal, arguing for a “complete elimination of all trade-distorting subsidies by developed countries”, implying that the country receives a rating of 4 on all domestic support issues (WTO, 2001f). These ratings have in some cases been adjusted after reading the official statements during and after the Doha meeting, WTO (2001g) in the case of Kenya.

Contrary to Kenya, Norway receives the rating zero on its position on AMS, which reflects that the country wants to move in the opposite direction by allowing increasing levels of support, including potentially trade-distorting measures. The rating two, which Côte d’Ivoire receives on the subject of AMS, in general implies a yes to liberalisation or domestic support reductions, but with special and differential treatment of

²⁰ The 15 EU countries all receive the same ratings, as they negotiate as one in the WTO. This naturally hides the significant disagreement on specific issues within the Union. It is therefore an open question if, for example, the generally more liberally minded Northern European countries would be clustered with non-EU countries when within-Union differences were taken into account.

developing or transition countries. The ratings imply the position summarised in table 5.1.

As a final example, the EU has submitted six proposals and four official statements during the agricultural negotiations, and sixteen official statements during the Doha meeting. After the meeting, the EU released several statements to the international press. This information formed the basis for rating the EU positions. On the question of a broad or narrow round, the EU receives a one (cf. table 5.1) reflecting that the Union wants a very broad and comprehensive round by bringing in a number of non-trade concerns. Likewise, the rating of one on non-trade concerns reflects much the same, while the ratings of one on TRQ sizes and the green and blue boxes reflect that the EU wants no changes to the current WTO framework regarding these issues. On the question of export subsidies, the EU receives the rating zero. This extreme rating has been given as a reflection of the strong desire of the EU to couple negotiations on export subsidies with several other issues, of the fact that EU resistance to discuss this issue prolonged the Doha meeting by a day, and further as a reflection of the contents of a press release issued the day after the meeting, where EU Commissioner Fischler attempted to disassociate the EU from aim of the official declaration.

Tabel 4.1 Ratings		
Rating	Rating interpretation	Observations
0	A zero-rating in general implies that the member wish to expand the current provision and possibilities for support and protection.	33
1	The rating 1, received by the EU on many issues, implies that the member wishes to maintain the current provisions and rules unchanged. The rating 1 on the broad vs. narrow round issue implies strong support for introducing broad agenda issues into the WTO.	133
2	A rating of 2 in general implies support for reducing tariffs / domestic support, but with special and differential treatment or exemptions given to developing, and in some cases transition economies.	356
3	Members receiving a rating of 3 want to reduce tariffs or the provisions for using domestic support on a specific issue.	272
4	Members receiving the 'highest' rating, 4, wish to eliminate or at least substantially reduce the possibility of protecting domestic production by providing support or imposing tariffs within a specific issue. Members receiving 4 on the question of a broad or narrow round wish a round as narrow as possible.	237
All		1031

Note: there are 120 countries with positions on 13 issues, yielding 1560 possible observations, but only 1031 ratings, i.e. 529 missing data points where countries have no clear official positions. The column ‘ observations’ gives the total number of observations across all issues with a given rating.

The selected, rated issues entering in the analyses are shown in table 5.2. The countries entering the analyses are listed in table A.1, and the complete distribution of ratings is shown in table A.2 in Appendix A.

Tabel 5.2 Selected issues in the data set				
	Market access	Export support	Domestic support	Non-trade concerns
Included in the analysis	Tariffs Tariff peaks and escalation Tariff rate quotas Special safeguard clause	Export subsidies Export credit	Green box Blue box Development box AMS De minimis levels	Broad vs. narrow round Labour standards and environment
Excluded from the analysis	SPS standards	State trading	Amber box	Geographical indicators Multifunctionality

The selection puts somewhat more weight on the narrow agenda issues of market access and domestic support than on non-trade concerns. This is partly due to much multicollinearity between separate non-trade issues, particularly reflected in high correlations between countries’ position on a broad vs. narrow round and multifunctionality, geographical indicators and environmental concerns, which automatically assigns more weight to the topic, and partly as a reflection of the relative weight of the issue at the Doha meeting. Table 5.3 below shows the ratings for the EU, the US, Canada and Norway.

As in any exercise of this sort, the ratings were given on a subjective basis. Therefore, two types of relative reality check were made: for each issue, an average and a standard deviation were calculated to indicate the degree to which the ratings captures the general direction of the Doha meeting, the range of the positions and the degree of contention on each issue.²¹ Averages and standard deviations are reported in sections 3 and 4, and in table A.2 in Appendix A.

²¹ These checks resulted in small adjustments of the points given on two issues. As a further check, the points have been discussed with other researchers.

Tabel 5.3 Ratings, selected issues

Issue	The EU		The US		Canada		Norway	
Broad or narrow round	Broad	1	Very narrow	4	Narrow	3	Broad	1
Tariff reductions		-	Reduce	3	Reduce	3	Exempt ^a	2
Tariff peaks and esc.		-	Reduce	3	Reduce	3		-
TRQ	Maintain	1	Increase	3	Increase	3	Increase	3
Green box	Maintain	1		-	Review	2	Maintain	1
Blue box	Maintain	1	Eliminate	4		-	Maintain	1
Development box	In green box	2		-	In green box	2	Support	4
Export subsidies	No change	0	Eliminate	4	Eliminate	4	Discipline	2
Non-trade concerns	Strong	1		-		-	Very strong	0
Overall average		1.45		2.97		2.76		1.66

Note: non-trade concerns include labour standards, environment and multifunctionality. Low points indicate higher support for incorporating post-modern issues in WTO negotiations. ^a indicates that Norway wants certain agricultural products produced in Norway exempted from reductions.

The data were created for the purpose of performing formal analyses on the country positions in the WTO negotiations. Two general types of analyses were applied: a correlation analysis and cluster analyses.

5.2. Correlation analysis

A correlation analysis was performed on three slightly different data sets: a correlation matrix based on the simple, non-weighted points; a matrix based on points weighted with countries' GDP as indicative of the relative negotiation strength or willingness to invest in the negotiations of each country; and a matrix based on points weighted with countries' trade as a percentage of GDP to capture the relative interest in trade. These analyses perform the task of providing a preliminary overview of any potential WTO factions or alliances.

In general, the weighted matrices produce the same qualitative results as the simple matrix, although the weights should serve to exacerbate any differences in bargaining power. Table 5.4 outlines which countries' positions correlate with key players in the Doha round. For the sake of exposition, the extreme case of Norway is also reported in the table.

Tabel 5.4 High correlations with key players

Countries with correlation>0.5 in all matrices	
Canada	Australia, Brunei, Burma, Costa Rica, Ecuador, Estonia, India, Japan, Jordan, Mexico, Mongolia, Philippines, Singapore, Slovenia, Switzerland, Thailand, Turkey, Uruguay and Venezuela
African Group	Australia, Bolivia, Colombia, Dominica, Ecuador, Egypt, Estonia, Grenada, Jamaica, Lithuania, Mongolia, New Zealand, St. Kitts, St. Lucia, Slovenia, South Africa, Suriname, Trinidad, Tunisia, the US, Uruguay and Venezuela
European Union	Israel
India	Albania, Barbados, The Democratic Republic Congo, Cuba, Ecuador, Estonia, Japan, Jordan, Mexico, Mongolia, Philippines, St. Vincent, Slovenia, Switzerland and Thailand
Japan	Barbados, Canada, the Democratic Rep. Congo, Cuba, Haiti, India, Nicaragua, Peru, Singapore and Turkey
Norway	Antigua, Barbados, The Democratic Republic of the Congo, Indonesia and Nigeria
South Africa	The African Group, Argentina, Australia, Bolivia, Brazil, Brunei, Chile, Colombia, Costa Rica, Fiji, Jamaica, Malaysia, Morocco, New Zealand, Paraguay, Thailand and Uruguay
United States	The African Group, Australia, Brazil, Brunei, Chile, Colombia, Costa Rica, Fiji, Guatemala, Mexico, New Zealand, Paraguay and Uruguay

Note: Colombia and New Zealand correlate highly (>0.85) with the US. Where countries match the African Group, the match is with the general positions held by the group, exemplified by Djibouti. Some African countries have special positions on selected issues, most specifically Mauritius.

The table shows that only one country agrees strongly with the EU, namely Israel. Canada seems to agree with parts of the Cairns Group, and South Africa agrees with the African Group. However, contrary to official declarations, the simple correlation analyses demonstrate that the EU is not a staunch defender of developing countries in the WTO. Most of the African Group actually has a large negative correlation with EU positions, cf. table 5.5. The African Group agrees much more with the Cairns group and the US on these WTO-related issues. Table 5.4 also demonstrates the peculiar finding that the positions of Norway are supported by a rather heterogeneous group of countries in the WTO.

Another vital question in the next round of negotiations sought answered by the simple correlation analysis is whether the key players agree? A tentative answer follows from the table below.

Tabel 5.5 Correlations between key players

	Canada	Djibouti	European Union	India	Japan	Norway	South Africa	United States
Canada	1	0.30	0.07	0.54	0.51	0.02	-0.16	0.21
Djibouti	0.30	1	-0.67	0.17	-0.07	0.00	0.68	0.54
European Union	0.07	-0.67	1	-0.02	0.32	-0.13	-0.50	-0.28
India	0.54	0.17	-0.02	1	0.61	0.05	-0.41	0.08
Japan	0.51	-0.07	0.32	0.61	1	0.38	-0.43	0.16
Norway	0.02	0.00	-0.13	0.05	0.38	1	-0.26	-0.26
South Africa	-0.16	0.68	-0.50	-0.41	-0.43	-0.26	1	0.59
United States	0.21	0.54	-0.28	0.08	0.16	-0.26	0.59	1

Note: the correlations are averages of the three matrices. As Djibouti has submitted no proposals of its own, the country is selected as representing a 'pure' African Group position.

The table illustrates the disagreement between central players in the WTO. The Canadian position, supporting tariff reductions and more free trade, but with tangible special provisions for developing countries, seems to be close to the average. The EU position is closest to Japan, but otherwise in strong opposition to the other main players, Canada, South Africa and the US. These differences are also evident in the more formal cluster analyses discussed below.

5.3 Cluster analyses

Complementing the simple correlation analysis, a number of different cluster analyses inspired by the approach adopted by Diaz-Bonilla et al. (2000) were performed, using the data described above. The cluster analyses start with a hierarchical method where clusters are merged according to the smallest increase in a dissimilarity index following Ward's method, which yields the suitable number of clusters. Taking the number as given, the clusters are further refined using a non-hierarchical method, k-means, which reduces the Euclidean distance between cluster centres and the members of any given cluster. Appendix B provides a technical description of the clustering methods utilised in the analyses.

Hierarchical clustering

The hierarchical clustering technique starts out with 120 clusters each comprising one country. At each subsequent stage in the cluster analysis the two closest clusters are merged, and the procedure continues with diminishing number of clusters until all countries have been merged into one cluster. The particular number of clusters and

their composition at each stage is called a partition. The task of the analyst is then to choose the partition that provides the ‘best’ number of clusters and distribution of countries, and thus the ‘best’ empirical structuring of the data. Applying Ward’s hierarchical clustering technique to the data described above yields a number of clusters consisting of countries with relatively common goals in the WTO. The clusters computed by this method are displayed in table 5.6. In general, Ward’s method sorts out two main groups in the WTO divided into nine clusters explaining 78 % of the variation in the data. The two groups are formed by respectively the EU / Israel cluster and all other clusters.

Tabel 5.6 Clusters, Ward’s method

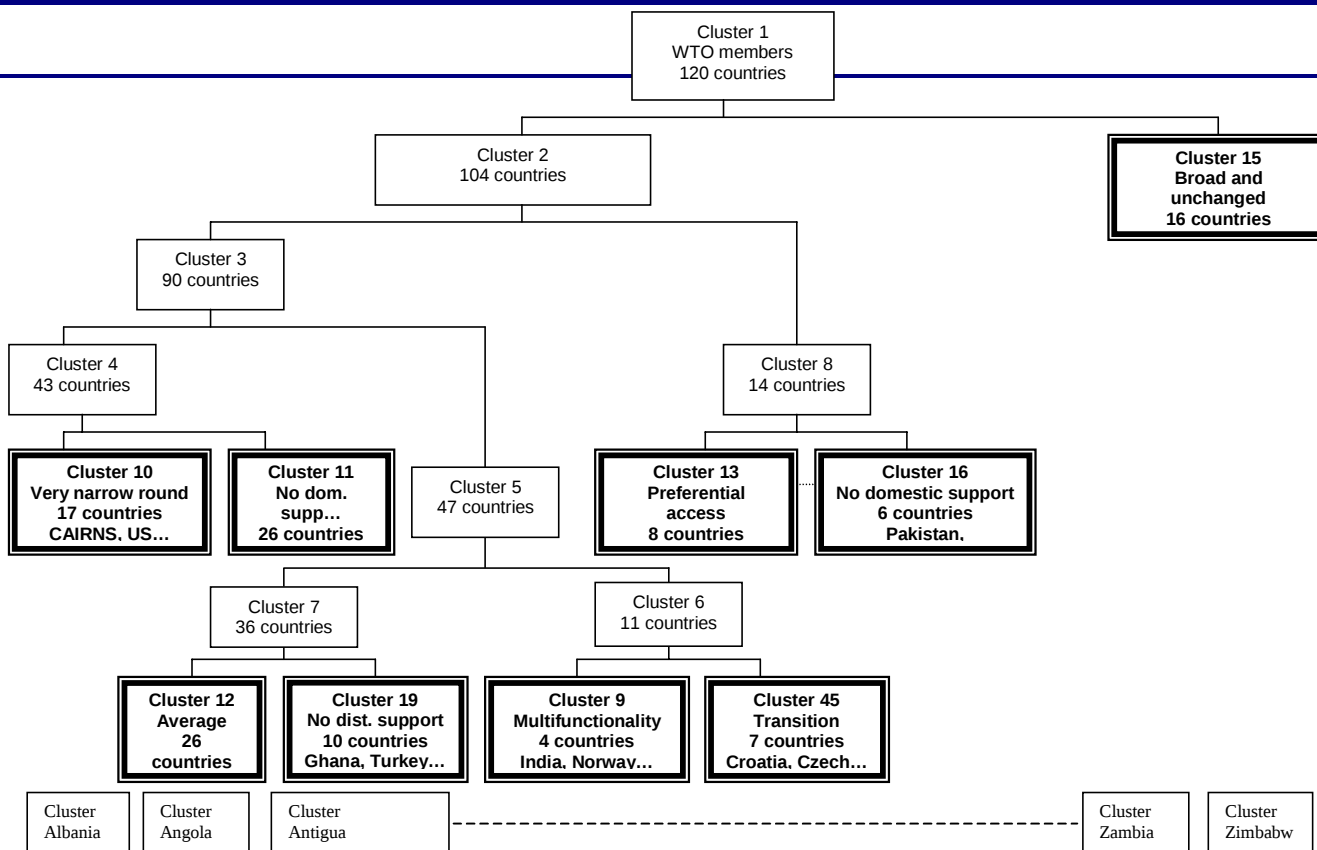
No.	Name	Countries	Average GDP, US\$	Trade / GDP, %
9	Multifunctionality	The Democratic Republic Congo, India, Japan and Norway	13,948	23
10	Very narrow round	Argentina, Australia, Bolivia, Brazil, Chile, Colombia, Costa Rica, Fiji, Guatemala, Malaysia, Morocco, New Zealand, Paraguay, South Africa, Thailand, Uruguay and the US	9,723	26
11	No domestic support in developed countries	Angola, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Djibouti, Gabon, the Gambia, Guinea, Guinea-Bissau, Madagascar, Malawi, Mali, Mauritania, Mauritius, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Togo, and Zambia	1,775	24
12	Average	Albania, Antigua, Barbados, Canada, Dominica, Ecuador, Estonia, Grenada, Indonesia, Jamaica, Jordan, Mexico, Mongolia, the Philippines, Poland, St. Kitts, St. Lucia, St. Vincent, Slovenia, South Korea, Suriname, Swaziland, Switzerland, Trinidad, Tunisia and Venezuela	8,161	41
13	Preferential access	Cuba, Egypt, Haiti, Kenya, Nicaragua, Nigeria, Peru and Uganda	2,027	16
15	Broad and unchanged	The EU and Israel	22,388	67
16	No domestic support	The Dominican Republic, El Salvador, Honduras, Pakistan, Sri Lanka and Zimbabwe	3,261	19
19	No distorting support	Benin, Brunei, Burma, Côte d'Ivoire, Ghana, Lesotho, Namibia, Singapore, the Slovak Republic and Turkey	6,766	55
45	Transition	Bulgaria, Croatia, the Czech Republic, Hungary, the Kyrgyz Republic, Latvia, Lithuania, All WTO	7,293	32
			8,268	36

Note: GDP is PPP-adjusted per capita. The hierarchical cluster numbers correspond to those in figure 5.1.

Figure 5.1 displays the cluster tree, i.e. the cluster creation sequence, where the bold boxes denote the partition or taxonomy with nine clusters. Cluster 13 and cluster 16 merge to yield a new cluster if only eight clusters are selected. Thus, in the latter case the 'Preferential access' cluster merges with the 'No domestic support' countries. Although the cluster procedure allows for cumulating these two quite similar clusters, the method suggests that the clusters are 'good', i.e. the general stance of these two groups of countries provides for two distinctly different clusters. Naturally, like considerations carry over when only five clusters are considered. In this case, the 'Average', 'No distorting support', 'Multifunctionality' and 'Transition' clusters merge, illustrated by the dotted lines in figure 5.1, to form a single cluster agreeing on a need to reduce tariffs.²² However, choosing five clusters only explains 68 % of the variation in the data while nine clusters explain an additional ten percent by for example separating the transition countries.

²² The names of the hierarchical clusters should not be confused with the names of the non-hierarchical clusters in the following subsection.

Figure 5.1 Tree of the hierarchical cluster procedure



The two main groups in figure 5.1, which are joined only in the last step of the clustering sequence, are significantly different. The left group of clusters is on average relatively poor (having an average GDP of 6,095 US\$ per capita, of which 31 % are traded), whereas the right group is relatively rich and relatively more open (with an average GDP of 23,388 US\$ per capita of which 67 % is traded). This result of the hierarchical cluster method therefore serves to underline the finding that wanting a relatively broad round of negotiations is predominantly a rich European country position.

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

Non-hierarchical clustering

The non-hierarchical clustering method employed is the so-called k-means method. The method yields slightly more refined results than Ward's hierarchical method, although the main trends of the analysis are unaffected. In fact, the non-hierarchical method brings the results in even further concordance with the preliminary results of the correlation analysis in the beginning of this section. The clusters computed by the k-means method are shown in table 5.7.

Tabel 5.5 Clusters, k-means method

No.	Name	Countries	Average GDP, US\$	Trade / GDP, %
1	Gradual liberalisation	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Djibouti, Gabon, the Gambia, Ghana, Guinea, Guinea-Bissau, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania, Togo, and Zambia	1,866	24
2	Market access	Cuba, Haiti, Nicaragua, and Peru	2,495	18
3	Average	Albania, Antigua, Brunei, Bulgaria, Burma, Canada, Croatia, the Czech Republic, Dominica, Ecuador, Estonia, Grenada, Hungary, Jamaica, Japan, Jordan, the Kyrgyz Republic, Latvia, Lithuania, Mongolia, Poland, St. Kitts, St. Lucia, St. Vincent, Singapore, the Slovak Republic, Slovenia, South Korea, Suriname, Switzerland, Trinidad, Tunisia, Turkey and Venezuela	9,160	46
4	Narrow round	Argentina, Australia, Bolivia, Brazil, Chile, Colombia, Costa Rica, Fiji, Guatemala, Honduras, Indonesia, Malaysia, Namibia, New Zealand, Paraguay, South Africa, Thailand, Uruguay and the US	9,087	26
5	Small changes	India, Mexico and the Philippines	4,659	20
6	-	The EU and Israel	22,388	67
7	Free trade	The Dominican Republic, Egypt, El Salvador, Kenya, Nigeria, Pakistan, Sri Lanka, Uganda and Zimbabwe	2,599	16
8	-	Norway	27,981	64
9	Developing multifunc- tionality	Barbados and the Democratic Republic Congo	7,391	18
		All WTO	8,268	36

Note: GDP is PPP-adjusted per capita.

As can be seen when comparing tables 5.6 and 5.7, there are movements between the nine clusters when the hierarchical clustering method is complemented by the non-hierarchical method. The clusters resulting from employing the non-hierarchical method, which refines the selection by maximising the similarity of the positions of countries within the clusters, are described below.

Table 5.8 below summarises the distances between the clusters and thereby the closest allies in the WTO. Figure 5.2 depicts the relations between the clusters, i.e. which clusters agree the most.

Cluster 1 – gradual liberalisation

As the African Group has submitted a comprehensive joint proposal, the non-hierarchical analysis quite naturally picks a separate African cluster. Although a number of African countries have submitted their own proposals and statements concerning other issues, in some cases also expressing differing positions on several issues, these differences have only made very few countries move out of the African cluster when employing the k-means method, while moving other countries in. The remaining 32 countries form a fairly homogenous cluster, agreeing on reducing domestic support substantially. Nearly all African countries want to eliminate the use of the blue box and export subsidies. Tariffs should also be reduced, but with special provisions for developing countries, i.e. a gradual liberalisation and integration of Africa into the world economy. However, the cluster averages also show that the African countries in general want to incorporate development measures in the green box instead of creating a development box per se. As can be seen in figure 5.2, the closest ally of the African cluster is cluster 3, the average cluster.

Cluster 2 – market access

Cuba, Haiti, Nicaragua and Peru form a cluster by agreeing on wanting a complete elimination of all export support in addition to all tariff peaks and escalation and a desire to increase the TRQ sizes substantially (cf. table 5.9). Nevertheless, they also want special tariff provisions for developing countries and a development box, and very substantial reductions in domestic support. As the African cluster, the market access cluster is fairly homogenous. As can be seen in figure 5.2, the closest ally of cluster 2 is cluster 7, the free trade cluster, due to the similar positions on market access and domestic support.

Cluster 3 – average

34 countries compose the average cluster, which contains virtually all transition countries in the WTO, most of the CARICOM, a few relatively wealthy developing countries and some rather protectionist developed countries. The cluster also contains Canada, which is a member of the Cairns group. As is obvious in table 5.9, the cluster is close to a WTO average on both single issues and the overall position. This cluster is, however, analytically troublesome, as many of the included countries do not have official positions on most issues.²³ In other words, due to the approach taken on miti-

²³ In order to be able to perform the cluster analyses, missing data points were replaced by the overall average position on any given issue, which is an endogenous reason for forming this average cluster. Sensitivity analyses of both the correlation and cluster analyses reveal that most of the countries in cluster 3 can relatively easily be made to switch clusters. However, by placing

gating the problem of missing data points, the placement of several countries in cluster 3 may be spurious, but Canada, Brunei and part of the CARICOM do in all likelihood belong to the same cluster. As can be seen in figure 5.2, the average cluster agrees the most with the African group, but is by definition the cluster with the least distance to any other cluster (cf. table 5.8).

Cluster 4 – narrow round

Not surprisingly, most of the Cairns group is clustered together in this 19-country cluster, which also contains Honduras, Namibia and the US. As is evident in table 5.9, the narrow round cluster is characterised by a strong opposition to bringing non-trade concerns into the WTO, i.e. the countries share an overall focus on the narrow-agenda issues. Cluster 4 is also united in wanting substantial reductions in domestic support and export subsidies, and being willing to increase the market access for all countries, but for developing countries in particular. Figure 5.2 illustrates that the cluster situated closest to the narrow round countries is the African cluster.

Cluster 5 – small changes

Cluster 5, which only contains three countries, is the most heterogeneous cluster.²⁴ The countries, India, Mexico and the Philippines, are united in wanting relatively substantial improvements in market access for developing countries and substantial reductions in developed countries' use of the blue box. However, the countries in cluster 5 also want significantly more opportunities for developing countries to support the agricultural sectors while developed countries' support should be reduced. Evaluated in relation to the number of missing data points in cluster 5, which tends limit the distances between clusters by moving a cluster close to the average position, the distances to other clusters reported in table 5.8 are relatively large. This reflects the quite strong positions on increasing market access for developing countries while maintaining the possibilities of supporting agriculture. Yet, as a consequence of the missing data, cluster 5 agrees the most with the average cluster, as figure 5.2 demonstrates.

Cluster 6 – the EU and Israel

Like the correlation analysis and the hierarchical clusters, the non-hierarchical cluster method groups the EU with Israel, while showing that the positions of this cluster is isolated in the WTO. Officially, the countries are prepared to reduce tariffs, but do no

these countries in an average cluster, problems relating to missing data points are limited mainly to one cluster.

²⁴ The within-cluster standard deviation is 0.67, compared to an average deviation of 0.46 for all clusters (cf. Appendix B).

want to change the current TRQ system. In addition, the cluster focuses on a very broad, comprehensive new round of negotiations, including standards on labour rights and environment, and provisions for the so-called multifunctionality of agriculture. Moreover, the cluster is opposed to reducing neither export subsidies nor domestic support in the green or blue boxes. Although far removed, the closest ally of cluster 6 is Norway.

Cluster 7 – free trade

Table 5.9 demonstrates that the comparatively heterogeneous cluster 7 is united in a broad and strong dedication to free trade. These countries, including the Dominican Republic, Egypt and Kenya that belong to what may be termed a ‘political elite’ of the developing world, want asymmetric reductions in the *de minimis* levels of support to ensure that developing countries have sufficient opportunities to support adjustments and development in the agricultural sectors while reducing the overall protection of agriculture. On all other issues, the countries are working for substantially increased market access and a nearly complete ultimate elimination of domestic support, in addition to being against the introduction of non-trade concerns in the WTO. As such, the market access position and the opposition to domestic support unite the free trade cluster with cluster 2, which is a rather close ally, demonstrated by the low distance in table 5.8.

Cluster 8 – Norway

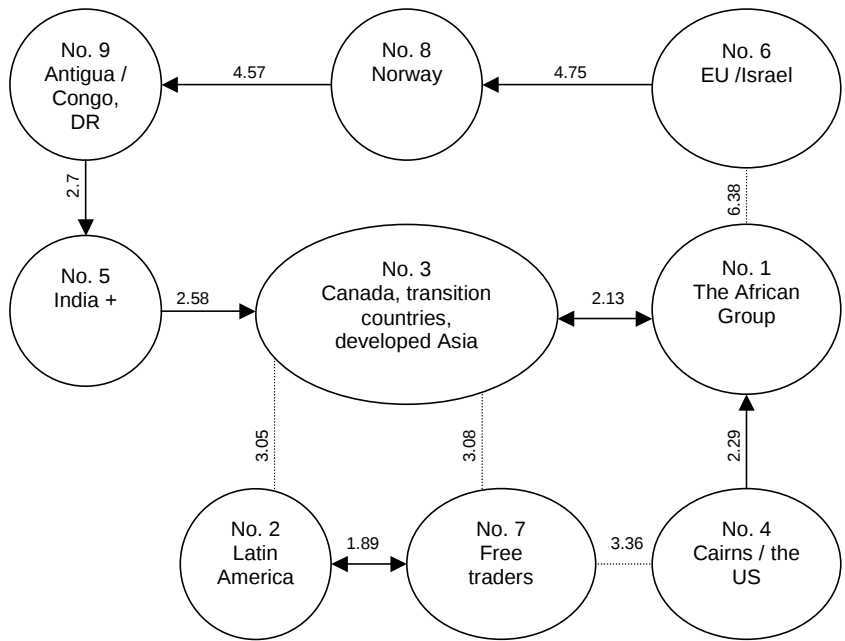
In the hierarchical clusters, Norway was united with the Democratic Republic of Congo, India and Japan in a ‘multifunctionality’ cluster. One of the results of refining the clustering is that Norway is fully isolated from the position of any other country. Norway wants a broad round with increased market access for developing countries and a development box. However, the country also wants to increase the opportunities for supporting agriculture, especially by allowing support measures for the ‘multifunctionality’ of agriculture.²⁵ As such, although being almost as isolated as the EU / Israel cluster, Norway agrees slightly more with the developing countries wanting multifunctionality in cluster 9.

²⁵ It must be stressed that Norway – one of the richest countries of the world – has extremely high agricultural tariffs averaging 152 %, and substantial support to its vastly uncompetitive agricultural sector.

Cluster 9 – developing multifunctionality

The relatively small distance between cluster 9 and Norway reflects the multiple meanings that WTO members attach to the multifunctionality concept. The cluster, which is united in a strong support for allowing distortionary support to be used in developing countries, consists of only two countries: Antigua and the Democratic Republic of Congo. The few official positions of the countries are not particularly similar and the similarity to the Norwegian position on allowing domestic support may be entirely spurious. Cluster 9 hence agrees the most with the average group.

Figure 5.2 Closest allies, k means method



The clusters: an overview

Figure 5.2 depicts, which countries are identified by the analyses as potential allies in the WTO. As an addition to the descriptions and figure 5.2, table 5.8 lists the distances between all clusters. The table clearly illustrates the similarity between the findings of both types of analysis, showing that the EU and Norway are isolated and that the Canadian group, cluster 3, is relatively close to a WTO average position, listed in the bottom row.

Tabel 5.6 Cluster distances

	1	2	3	4	5	6	7	8	9
Gradual lib.	0	4.05	2.13	2.29	3.41	6.38	3.65	6.00	3.84
Market access	4.05	0	3.05	4.01	3.53	6.34	1.89	6.38	3.15
Average	2.13	3.05	0	2.48	2.53	4.88	3.08	4.99	2.75
Narrow round	2.29	4.01	2.48	0	3.12	6.65	3.36	6.79	3.99
Small changes	3.41	3.53	2.53	3.12	0	5.81	4.12	5.75	2.70
EU / Israel	6.38	6.34	4.88	6.65	5.81	0	6.99	4.75	5.52
Free trade	3.65	1.89	3.08	3.36	4.12	6.99	0	6.93	3.67
Norway	6.00	6.38	4.99	6.79	5.75	4.75	6.93	0	4.57
Dev. multifunc.	3.84	3.15	2.75	3.99	2.70	5.52	3.67	4.57	0
Average	3.53	3.60	2.88	3.63	3.44	5.26	3.74	5.13	3.35

Note: the distances in bold marks minimum, i.e. the closest ally.

By studying table 5.8, it is relatively easy to get an impression of the common picture of WTO positions before the Doha round of negotiations starts and identify potential coalition partners, i.e. friends and foes.

5.4 Correlation and cluster analyses – potential alliances?

A number of features follow from both the correlation analysis and the cluster analyses. As referred to above, table 5.9 illustrates the average cluster positions on the three main topics, thereby adding to explaining these cluster formations.

Tabel 5.7 Average cluster positions, main topics

	1	2	3	4	5	6	7	8	9	Av.
GDP pr capita, US\$	1,866	2,495	9,160	9,087	4,659	22,388	2,599	27,981	7,391	8,268
Trade as % of GDP	24	18	46	26	20	67	16	64	18	36
Market access	2.54	2.75	2.64	2.83	2.43	1.84	3.06	2.00	2.33	2.46
Export support	2.95	4.00	2.77	2.95	3.10	1.01	2.81	2.15	3.38	2.91
Domestic support	2.70	3.08	2.40	2.77	2.59	1.63	3.18	1.20	2.25	2.42
Non-trade concerns	2.32	2.10	2.21	3.31	2.26	1.04	3.02	1.00	2.30	2.17
Total cluster average	2.57	2.88	2.45	2.85	2.52	1.47	3.06	1.66	2.49	2.52

Note: GDP pr capita is PPP-adjusted. All figures are simple averages.

In summary, using correlation and cluster analyses on the rated WTO positions, the following findings emerge:

- The EU / Israel position is isolated in the WTO, as the significant distances in table 5.8 document. The closest ally is Norway, which is comparably isolated.

Both clusters are advocating for bringing additional support to agriculture by allowing potentially distorting support to so-called ‘multifunctionality’. As can be seen in table 5.9, these countries are rich and open to trade.

- A small group of multifunctionality / high special treatment developing countries emerge, consisting of Antigua, the Democratic Republic of Congo, India, Mexico and the Philippines, which are primarily backed in their objectives by Norway. These middle-income countries, averaging a GDP of US\$7391, are relatively closed.
- Latin American countries end up either in a small cluster (Cuba, Haiti, Nicaragua and Peru, i.e. countries doing relatively poorly), a closely related small cluster including relatively wealthier developing countries, or a related Cairns group cluster, heavily devoted to free trade and thereby positioned close to the other clusters. This cluster, which is relatively rich but less open than the average WTO country, also includes the US. As illustrated by table 5.9, the other clusters including Latin American countries are relatively poor and closed, but significantly more devoted to free trade than any other groups of countries.
- The Cairns / US cluster is not far removed from the cluster containing most of the African Group as the distance is only marginally larger than the distance to cluster 3, as the clusters have remarkably similar positions on export support and domestic support. This particularly robust result also follows directly from the correlation analysis.²⁶ As table 5.9 documents, the African cluster is relatively less open than the rest of the WTO and by far the poorest of the nine clusters, whereas the Cairns / US cluster is relatively rich and open.
- Finally, Canada and a number of other average position countries are placed in a cluster in the middle of the WTO with the smallest average distance to any other clusters. The countries included in this cluster are on average more open and richer than the WTO average country. However, the formation of this specific cluster is partly a result of particularly many missing data points for the countries included in the cluster. However, the correlation analysis similarly shows that Canada is relatively centrally positioned in the organisation.

²⁶ Sensitivity analyses reveal that most of the results above, with the exception of findings related to cluster 3, are remarkably robust, given the type of analysis and data.

The analyses therefore point to a number of clusters or alliances between clusters with compatible policy objectives. Several developing WTO members could potentially benefit from cooperating with some of the countries situated in clusters relatively close to their own position. In particular, if the Cairns / US cluster or the two Latin American clusters should have success in reaching their official objectives in the WTO, their positions are theoretically relatively beneficial for the economic development of these countries as well as the rest of the world, based on the finding that the countries included in the cluster are officially working for a substantial reduction of domestic support to agriculture in developed countries, and a significant increase in the market access of all countries. As the short survey in section 2 documented, a move towards these goals will lead to an increase in the welfare in virtually all countries.

Contrary to the African Group and most of the Caribbean, only a small number of developing countries seem to have any incentives to forming alliances with the EU or Norway. The relatively protectionist policies of these countries are in opposition to the declared interests of most developing countries, and only the unique positions of Antigua and the Democratic Republic of Congo create sufficiently similar objectives in the WTO negotiations. In other words, although both Norway and large parts of the EU believe themselves to be more friendly to the developing countries than the rest of the world, these countries are isolated and in strong opposition to the developing countries in the WTO. Based on the findings of the analyses, any alliances between developing countries and either Norway or the EU / Israel cluster based on purely trade-related objectives therefore seem irrational.

6. Conclusions and policy recommendations

This paper has surveyed the positions of WTO members immediately following the Ministerial Conference in Doha. It documents the severe differences among some members' opinions on the focus and contents of the coming round of negotiations in the organisation. However, a number of countries agree on several issues and as such, forming alliances with other members could be a rational strategy for many countries, and in particular for developing countries without sufficient bargaining power or administrative capacity.

Working with the survey, thirteen particularly sensitive issues were identified. These issues were divided into four distinct topics: (1) market access – the question of tariff reductions, tariff peaks and escalation, the sizes of tariff rate quotas, whether to con-

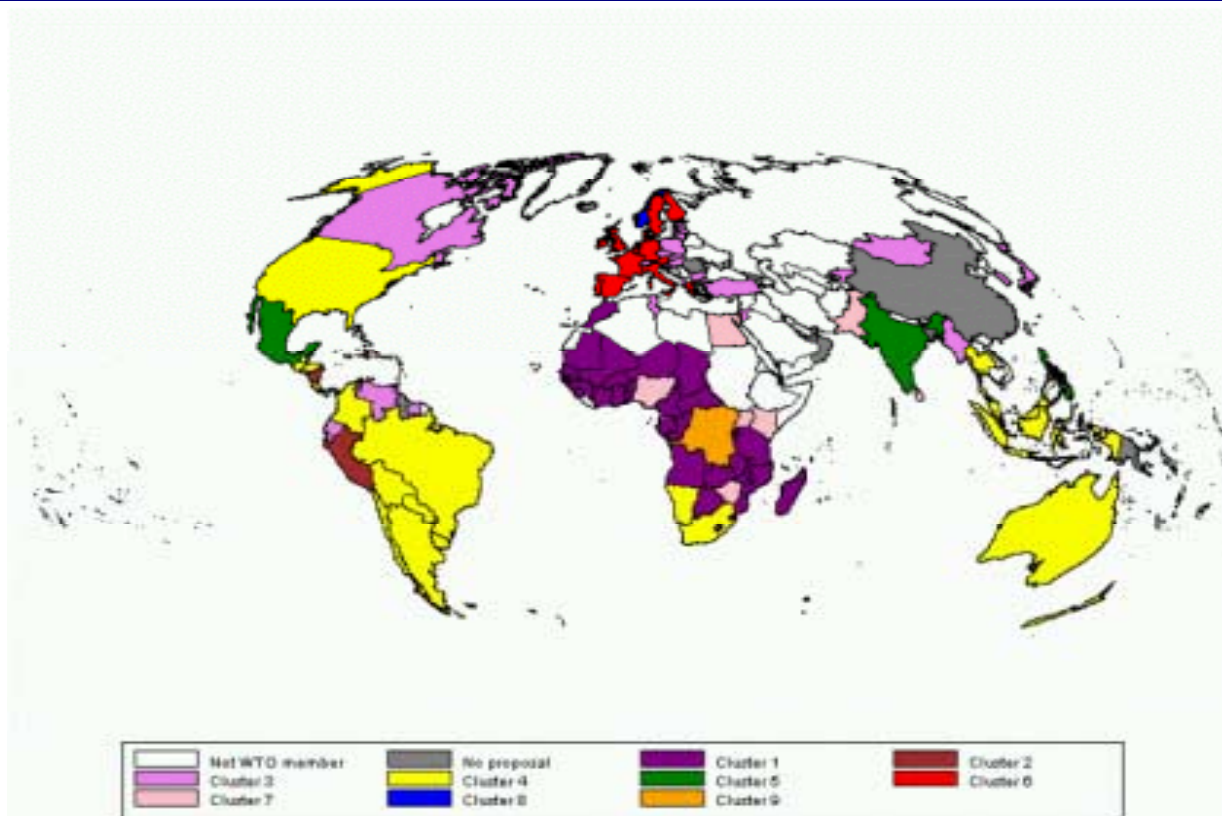
tinue the special safeguard and problems relating to sanitary and phyto-sanitary standards; (2) export support - the use of export subsidies, export credit and state trading enterprises; (3) domestic support – the future of the green, blue and amber boxes, the possibility of a development box, *de minimis* levels and the aggregate measure of support; and (4) non-trade concerns - the questions of whether to have a broad or narrow round, allowing support for ‘multifunctionality’, introducing labour and environmental standards and the question of geographical indicators.

The information allowed for 120 WTO members to be rated on a scale from zero to four on each of these issues. These ratings were subsequently used for performing more formal analyses. The paper employed two different methods in order to identify potential alliances in the WTO. First, a simple correlation analysis of the WTO positions surveyed in sections 3 and 4 was employed to yield a preliminary overview of the relative positions of a number of key players. Thereafter, two complementary forms of clustering methods were employed to identify the number of potential negotiation alliances and refine the identification of these alliances.

The analyses point to a number of clusters / alliances, which rationally could form in the coming round of negotiations. These clusters are depicted in the map in figure 6.1. The main finding is that developing countries seem to be able to gain support for their arguments from players that do not normally maintain a particularly high profile on international development. Specifically, the trade policy of the African Group is quite similar to the American policy, to the extent that both Namibia and South Africa are clustered with the US and most of the Cairns group in both types of analysis.

This is also the case for a number of African countries placed outside the general African position. A cluster including Kenya, Nigeria, Uganda and Zimbabwe is on average even more free trade oriented and could as such join forces with the Cairns group, the US and most of Latin America. The position of these developing countries would thereby gain significantly more bargaining power through an alliance with the US and the influential Cairns countries.

Figure 6.1 Cluster Map



The cluster containing Canada may be a potentially unifying force in the WTO as it is close to an average position. In addition, Canada has a relatively high profile on development aid and good political relations to most of the world. As a consequence, both the African Group, the Cairns / US Group and a small residue cluster of developing countries are relatively closely positioned to this cluster. Due to the disturbance introduced by missing data points in the cluster analyses, this cluster is, however, analytically problematic, and any conclusions regarding it should be correspondingly tentative.

The analyses thus show that there are ample incentives for many developing countries to join in informal or semiformal alliances with the free-trade oriented countries. Only a few relatively wealthy developing countries have official trade policy objectives substantially different from the Cairns / US cluster. These countries, which include Antigua, the Democratic Republic of Congo and India, will probably not be able to find other negotiation partners than countries in the analytically problematic cluster 3, which includes Canada and Central and Eastern Europe.

The analyses show that the positions of most developing countries are in opposition to the EU or Norway in the WTO, which are actively promoting policies in direct conflict with the official positions of most developing countries in Africa and the Caribbean. Moreover, economic research document that these policies are detrimental to the development efforts of developing countries. The EU should therefore probably strive for a better balance between the official development-friendly attitude and the conflicting positions in the WTO.

The outlook for the coming round of negotiations is therefore optimistic for the developing countries. Should they form alliances as analysed in this paper, they could potentially be able to gain bargaining power and support for their objectives within the WTO to force significant changes. In other words, if developing countries act rationally by cooperating with partners with coinciding interests, it might be possible to gain what they came for in Doha.

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Appendix A

Tabel A.1 WTO members					
Country	Group	Country	Group	Country	Group
Albania		Georgia		Norway	
Angola	AF	Germany	EU	Oman	
Antigua and Barbuda	CARICOM	Ghana	AF	Pakistan	
Argentina	Cairns	Grenada	CARICOM	Panama	
Australia	Cairns	Guatemala	Cairns	Papua New Guinea	
Austria	EU	Guinea	AF	Paraguay	Cairns
Bahrain		Guinea-Bissau	AF	Peru	
Bangladesh		Guyana	CARICOM	Philippines	
Barbados	CARICOM	Haiti		Poland	
Belgium	EU	Honduras		Portugal	EU
Belize	CARICOM	Hungary		Qatar	
Benin	AF	Iceland		Romania	
Bolivia	Cairns	India		Rwanda	AF
Botswana	AF	Indonesia	Cairns	St. Kitts and Nevis	CARICOM
Brazil	Cairns	Ireland	EU	St. Lucia	CARICOM
Brunei Darussalam	ASEAN	Israel		St. Vincent and the G.	CARICOM
Burkina Faso	AF	Italy	EU	Senegal	AF
Burma	ASEAN	Jamaica	CARICOM	Sierra Leone	AF
Burundi	AF	Japan		Singapore	ASEAN
Cameroon	AF	Jordan		Slovak Republic	
Canada	Cairns	Kenya	AF	Slovenia	
Central African Rep.	AF	Kuwait		Solomon Islands	
Chad	AF	Kyrgyz Republic		South Africa	AF
Chile	Cairns	Latvia		South Korea	
China		Lesotho	AF	Spain	EU
Colombia	Cairns	Liechtenstein		Sri Lanka	
Congo	AF	Lithuania		Suriname	CARICOM
Congo, Dem. Rep.	AF	Luxembourg	EU	Swaziland	AF
Costa Rica	Cairns	Madagascar	AF	Sweden	EU
Côte d'Ivoire	AF	Malawi	AF	Switzerland	
Croatia		Malaysia	Cairns	Taiwan	
Cuba		Maldives		Tanzania	AF
Cyprus		Mali	AF	Thailand	Cairns
Czech Republic		Malta		Togo	AF
Denmark	EU	Mauritania	AF	Trinidad and Tobago	CARICOM
Djibouti	AF	Mauritius	AF	Tunisia	AF
Dominica	CARICOM	Mexico		Turkey	
Dominican Republic		Moldova		Uganda	AF
Ecuador		Mongolia		United Arab Emirates	
Egypt	AF	Morocco	AF	United Kingdom	EU
El Salvador		Mozambique	AF	United States of Am.	
Estonia		Namibia	AF	Uruguay	Cairns
Fiji	Cairns	Netherlands	EU	Venezuela	
Finland	EU	New Zealand	Cairns	Zambia	AF
France	EU	Nicaragua		Zimbabwe	AF
Gabon	AF	Niger	AF		
Gambia	AF	Nigeria	AF		

Note: AF denotes the African Group, ASEAN is the Association of South East Asian Nations, CARICOM is the Caribbean Community, EU the European Union. Indonesia, Malaysia and Thailand are also members of ASEAN; South Africa is also member of the Cairns Group. Countries in *italics* are excluded from the survey and analyses.

Tabel A.2. WTO members' positions

	Broad or narrow	Tariffs	Peaks and escalation	TRQ size	Special safeguard	Green box	Blue box	Development box	AMS	Geo. indicators	Export subsidies	Export credit	De minimis	Labour / environment
Albania	-	3	-	-	1	2	-	-	2	-	-	-	2	-
Angola	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Antigua	-	2	-	3	2	-	-	4	-	-	-	-	-	-
Argentina	4	3	3	3	-	3	4	2	-	4	2	2	3	4
Australia	4	-	3	3	-	2	4	2	3	3	4	2	3	-
Austria	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Barbados	-	2	-	3	2	1	-	4	-	-	-	-	-	-
Belgium	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Benin	-	2	3	3	3	3	4	2	2	-	4	2	2	-
Bolivia	4	-	3	4	-	-	4	2	-	3	4	2	3	4
Botswana	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Brazil	4	-	3	3	-	2	-	2	-	3	4	2	3	-
Brunei	3	3	4	-	-	-	-	2	-	-	4	2	-	-
Bulgaria	-	3	-	-	-	-	-	-	-	1	-	-	0	-
Burkina Faso	-	2	2	3	3	3	4	2	2	-	2	2	2	-
Burundi	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Cameroon	-	2	2	3	3	3	4	4	2	-	4	2	2	-
Canada	2	3	3	3	-	2	-	2	4	3	4	2	3	-
Central African Rep	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Chad	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Chile	4	3	3	3	-	-	4	2	3	3	4	2	3	3
Colombia	4	-	3	4	4	2	4	2	3	-	4	2	3	-
Congo DR	-	2	2	-	2	0	-	4	-	4	4	4	0	-
Congo, Rep	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Costa Rica	3	-	3	3	-	2	3	2	-	-	4	2	3	-
Côte d'Ivoire	-	2	4	3	3	3	4	2	2	-	4	2	2	-
Croatia	2	3	-	-	-	-	-	-	-	-	3	-	0	-
Cuba	0	2	4	3	2	-	-	4	4	-	4	4	-	3
Czech Republic	2	3	-	-	-	-	-	-	-	2	2	2	0	2
Denmark	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Djibouti	-	2	2	3	3	3	4	2	2	-	4	2	-	-
Dominica	-	2	-	3	2	-	-	-	-	-	-	-	-	-
Dominican Republic	4	2	4	3	2	-	-	4	4	-	4	4	-	-
Ecuador	-	3	3	3	-	-	-	-	-	3	4	2	-	-
Egypt	3	3	4	3	3	4	4	2	3	2	4	4	-	3
El Salvador	4	2	4	3	2	-	-	4	4	-	4	4	-	-
Estonia	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Fiji	4	-	3	3	-	-	-	2	-	-	4	2	3	-
Finland	1	-	-	1	1	1	1	2	3	1	0	2	1	1
France	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Gabon	-	2	2	3	3	4	4	2	2	-	4	2	-	-
Gambia	-	2	2	3	3	3	4	2	2	-	4	2	-	-
Ghana	3	2	4	3	3	3	4	2	2	-	4	2	-	-
Germany	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Greece	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Grenada	-	2	-	3	2	-	-	-	-	-	-	-	-	-
Guatemala	4	-	3	3	-	2	-	2	-	-	4	2	3	3
Guinea	-	2	2	3	3	4	4	4	2	-	4	2	2	-

Tabel A.2. WTO members' positions, continued

	Broad or narrow	Tariffs	Peaks and escalation	TRQ size	Special safeguard	Green box	Blue box	Development box	AMS	Geo. indicators	Export subsidies	Export credit	De minimis	Labour / environment
Guinea-Bissau	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Haiti	-	2	4	3	2	-	-	4	4	-	4	4	-	-
Honduras	4	-	3	3	-	-	-	4	-	-	4	2	-	4
Hungary	1	3	-	-	-	-	-	-	-	2	-	-	0	-
India	0	3	2	3	1	0	-	-	3	1	4	-	2	4
Indonesia	3	3	3	3	-	-	-	4	2	-	4	2	3	-
Ireland	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Israel	1	-	-	-	1	1	-	2	-	1	0	-	-	-
Italy	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Jamaica	3	-	-	3	2	-	-	2	2	-	-	-	-	-
Japan	1	-	-	-	-	0	1	2	-	-	3	2	1	2
Jordan	-	3	-	-	1	-	-	2	-	-	4	2	2	-
Kenya	-	2	4	3	2	4	4	4	-	-	4	4	0	-
Kyrgyz Rep	-	3	-	-	-	-	-	-	3	-	-	-	0	-
Latvia	2	3	-	-	-	-	-	-	-	-	-	-	0	-
Lesotho	-	2	4	3	3	3	4	2	2	-	4	2	2	-
Lithuania	2	2	-	-	-	-	-	-	3	-	-	-	0	-
Luxemburg	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Madagascar	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Malaysia	4	3	3	3	-	-	-	2	-	-	4	2	3	4
Malawi	-	2	2	3	3	3	4	2	2	-	4	2	-	-
Mali	-	2	2	3	3	4	4	-	3	-	4	2	2	-
Mauritania	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Mauritius	1	2	2	3	2	4	4	4	-	1	4	2	2	-
Mexico	2	-	-	-	-	1	4	-	-	3	4	-	3	-
Mongolia	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	2	3	2	3	1	4	4	2	2	-	4	2	4	3
Mozambique	-	3	2	3	3	3	4	2	2	-	4	2	2	-
Myanmar	3	3	4	-	-	-	-	-	-	-	4	2	-	-
Namibia	3	2	4	3	3	3	4	2	2	-	4	2	3	3
Netherlands	1	-	-	1	1	1	1	2	3	1	0	2	1	1
New Zealand	4	2	3	3	4	-	-	2	-	-	4	2	3	2
Nicaragua	-	2	4	3	2	-	-	4	4	-	4	4	-	-
Niger	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Nigeria	-	2	4	3	-	4	4	4	2	-	4	4	0	-
Norway	1	2	2	3	1	1	1	4	0	3	2	-	0	1
Pakistan	4	2	4	3	2	-	4	4	4	2	4	4	-	4
Paraguay	4	-	3	3	-	-	3	2	-	-	4	2	3	-
Peru	-	2	4	3	2	-	-	4	4	-	4	4	-	-
Philippines	3	3	3	3	1	1	4	4	3	-	4	2	3	-
Poland	2	3	-	3	1	-	1	-	-	1	3	3	2	2
Portugal	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Rwanda	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Senegal	2	2	2	3	3	4	4	2	2	-	3	2	2	-
Sierra Leone	3	2	2	3	3	3	4	2	2	-	4	2	2	3
Singapore	-	3	4	-	-	-	-	-	-	-	4	2	-	-
Slovak Republic	-	3	4	-	-	-	-	-	-	-	-	-	2	2
Slovenia	2	3	-	-	-	-	-	-	-	2	-	-	2	2

Tabel A.2. WTO members' positions, continued

	Broad or narrow	Tariffs	Peaks and escalation	TRQ size	Special safeguard	Green box	Blue box	Development box	AMS	Geo. indicators	Export subsidies	Export credit	De minimis	Labour / environment
Spain	1	-	-	1	1	1	1	2	3	1	0	2	1	1
St Kitts	-	2	-	3	2	-	-	-	-	-	-	-	-	-
St Lucia	-	2	-	3	2	-	-	-	-	-	-	-	-	-
St Vincent	2	2	3	3	2	-	-	-	-	-	-	-	-	4
South Africa	4	3	3	3	3	4	4	2	2	-	4	2	3	3
South Korea	1	2	-	-	1	-	-	-	-	-	-	-	1	-
Sri Lanka	3	2	4	3	2	-	-	4	4	2	4	4	-	4
Surinam	-	2	-	3	2	-	-	-	-	-	-	-	-	-
Swaziland	-	2	2	3	-	-	-	-	-	-	-	-	3	-
Sweden	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Switzerland	1	-	-	-	1	-	-	-	-	1	3	-	-	-
Tanzania	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Thailand	3	3	3	3	-	-	4	2	3	-	4	2	3	4
Togo	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Trinidad	-	2	-	3	2	-	-	-	-	-	-	2	-	-
Tunisia	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Turkey	2	3	4	4	4	-	3	-	3	1	4	2	2	2
Uganda	-	2	4	3	2	4	4	4	4	-	4	4	2	-
United Kingdom	1	-	-	1	1	1	1	2	3	1	0	2	1	1
Uruguay	3	3	3	3	-	-	4	2	-	3	4	2	3	-
USA	4	3	3	3	4	2	4	-	3	-	4	2	3	-
Venezuela	2	-	-	-	-	-	4	-	-	-	-	-	-	2
Zambia	-	2	2	3	3	3	4	2	2	-	4	2	2	-
Zimbabwe	3	2	4	3	2	4	4	4	4	-	4	2	2	4
Average	2.32	2.39	2.88	2.72	2.19	2.38	3.20	2.51	2.65	1.77	3.20	2.30	1.83	2.29
Standard deviation	0.94	0.42	0.83	0.76	0.92	1.19	1.31	0.88	0.80	0.99	1.51	0.71	1.00	1.22

Appendix B. Cluster analysis

This paper employs two types of complementary cluster analyse methods, which are described in technical details below. Cluster analysis is a multivariate technique for grouping elements according to their characteristics. The purpose of cluster analysis is to create a taxonomy where the elements are grouped together in clusters. These clusters are formed according to the objective that the elements within a cluster are similar to one another with respect to their characteristics, whereas elements in different clusters are dissimilar. Thus, the outcome of a cluster analysis should exhibit within cluster homogeneity and between cluster heterogeneity.

A wide variety of techniques can be used to group the elements into clusters. The techniques differ according to various properties of the techniques. One important property is the definition of distance or similarity between clusters that can take a variety of forms. Furthermore, the techniques differ according to what type of clusters is formed such as hierarchical, disjoint and / or fuzzy. In the analyses in this study all clusters are disjoint, but both hierarchical and non-hierarchical clusters are formed. The program SAS has been used to carry out the cluster analysis.

Ward's method

A hierarchical cluster procedure is carried out on 120 WTO member countries. The particular procedure employed is known as Ward's method. Ward's method is an agglomerative hierarchical clustering procedure, where each observation begins in a cluster by itself. Subsequently, the two closest clusters are merged to form a new cluster that replaces the two old clusters. Merging of the two closest clusters is repeated until only one cluster is left.

In Ward's method the distance or similarity between clusters is the sum of squares between the clusters summed over all the variables. At each stage in the clustering procedure, the within-cluster sum of squares is calculated for all partitions obtainable by combining two clusters from the previous stage. The partition yielding the minimum sum of squares is selected for the next step in the hierarchical clustering procedure. Ward's method is also denoted the minimum-variance method. The Ward method has the property that it tends to favour clusters that are not too dissimilar with respect to number of members in the clusters.

The hierarchical clustering procedure is irreversible in the sense that when a country has been clustered together with other countries at some stage, those countries stay together at all subsequent stages. This property of the hierarchical clustering procedure is both an asset and a drawback. The drawback is that it is conceivable that later agglomerations of clusters could change the clusters so much that a country placed in a cluster at an early stage would at a later stage be a more natural candidate for another cluster. The pros are that the hierarchical procedure by its very nature tells a coherent story and can be a great help in facilitating a theoretical interpretation of the unfolding order of clusters as well as the particular partition selected.

In table B.1 the results of the cluster analysis are displayed. The eigenvalues of the thirteen variables as well as the difference between the eigenvalue and its successor, the proportion of total variation associated with each individual eigenvalue and the

cumulative proportion of total variation. Evidently, the first seven variables account for 91% of total variation, and the first two for more than half the total variation.

Tabel B.1. Variance Analysis, Ward's Minimum Variance Cluster Analysis

Eigenvalues of the Covariance Matrix				
Variable	Eigenvalue	Difference	Proportion	Cumulative
Broad vs. narrow	17.3050722	12.0058158	0.4508	0.4508
Tariffs	5.2992564	1.2918739	0.1380	0.5888
Tariff peaks and escalation	4.0073825	0.7670645	0.1044	0.6932
TRQ size	3.2403180	1.0784129	0.0844	0.7776
Special Safeguard	2.1619051	0.6154740	0.0563	0.8339
Green box	1.5464311	0.1400561	0.0403	0.8742
Blue box	1.4063750	0.3848605	0.0366	0.9108
Development box	1.0215145	0.1392435	0.0266	0.9374
AMS	0.8822710	0.3358823	0.0230	0.9604
Export subsidies	0.5463887	0.0313394	0.0142	0.9746
Export credit	0.5150493	0.1335038	0.0134	0.9880
De minimis levels	0.3815455	0.3033315	0.0099	0.9980
Labour and environment	0.0782141		0.0020	1.0000

Note: Root-Mean-Square Total-Sample Standard Deviation = 1.71849, Root-Mean-Square Distance Between Observations = 8.762616

Table B.2 displays the hierarchical clustering procedure using Ward's method. Column one labelled NCL shows the cluster number. The two next columns under the heading Clusters Joined display the two clusters that merges to form a cluster with the number given in the NCL column. If the number(s) in this column is preceded by CL, then this cluster is a previously formed cluster with the number from the NCL column. If the number(s) is not preceded by CL, then the number represents a country. From the outset each of the 120 countries form their own cluster. Subsequently, the two closest clusters are combined forming a new cluster, which has the number 119 in the NCL column in table B.2. This cluster is formed by merging country 6 and 8, which is Austria and Belgium, and the cluster is denoted CL119. The next step is to merge country 2 and 11 (Angola and Botswana) to form CL118. In the third step, the previous created cluster CL118 and country 16 (Burundi) merges to form CL117. This procedure continues until all countries have been merged together in one big cluster. Thus, the hierarchical cluster analysis forms partitions of the countries with number of clusters ranging from the number of objects (120 countries in this case) to one. The column labelled FREQ displays the number of objects in each cluster. Along this route the problem is to select the partition that for some reason or another forms the 'best' partition.

Unfortunately, cluster analysis does not come with a solid statistical foundation. Therefore, selecting among the choices presented based on strictly objective criteria is not possible - the researcher is forced to use his / her own subjective evaluation. However, some indicative measures can help guide the researcher. In table two the columns denoted CCC, PSF and PST2 displays indicative measures. The CCC column shows the cubic clustering criterion. The larger the value of CCC the better is the cluster, indicating more internally similar clusters. Values greater than 2 or 3 indicate good clusters; values between 0 and 2 indicate potential clusters, but they should be considered with caution; large negative values can indicate outliers. The PSF column is a pseudo F statistic. Large values of PSF relative to the previous and subsequent clusters indicate a stopping point. The PST2 column displays a pseudo t^2 statistic. Moving down the column the rule is to stop at the first value markedly higher than the previous value and move one cluster up. These three columns provide guidelines in choosing the most appropriate partition of clusters. However, they are only indicative and are not, as stated above, as authoritative as 'proper' statistical tests. Indeed, the researcher needs to take into account whether the taxonomy given by the chosen partition makes any sense from a theoretical viewpoint. It is essential that the clusters formed can be justified by the perceived properties of the members and not just by the cluster analysis procedure.

From a typological viewpoint, if the number of clusters becomes too big, not much structure is imposed upon the objects. Hence, the cluster analysis would not reveal much in such a case. On the other hand, if the number of clusters becomes too small, too much 'structure' is forced on the data, which may not be in accordance with the actual properties. In the present case, remembering each cluster represents a common viewpoint in the WTO negotiations, more than 15 clusters would seem inappropriate from a typological viewpoint. Furthermore, quite a large number of countries have submitted common proposals to the WTO. Consequently, less than 5 clusters would not seem in accordance with the data.

In table B.2, the CCC column shows that as long as the number of clusters is more than three or four the clusters are relatively good. Naturally, greater number of clusters implies less heterogeneity in any given cluster. Therefore, the CCC is bound to increase as the number of clusters goes up. Moving down the PSF column the values begin to increase around 17 clusters, however, with small increments. A relative big increase occurs at 9 clusters, with a value of 36.6 at 10 clusters and 37.9 at 9 clusters. Likewise, the PSF values indicate that 8, 7, 5 and 4 clusters could be possible. Moving down the PST2 column a large increase is observed when moving from 16 to 15

clusters (value of 2.1 and 12.1) suggesting 16 clusters. Likewise, the PST2 column suggests 9, 8, 5 and 4 clusters. Thus, the indicative measures provide a choice between 9, 8 or 5 clusters given our typological restrictions.

To aid the selection of clusters three columns provide a measure of the proportion of variance accounted for by the clusters. The columns denoted SPRSQ displays semi-partial R^2 , which represents the decrease in the proportion of variance accounted for by joining the two clusters. The next column labelled RSQ is the squared multiple correlation, R^2 , which shows the proportion of variance accounted for by the clusters. ERSQ is the expected R^2 . With five clusters, 61% of the variance is accounted for, eight clusters yield 71% and nine clusters provide 73%.

Tabel B.2. Ward's Minimum Variance Cluster Analysis, Cluster History

NCL	Clusters joined	FREQ	SPRSQ	RSQ	ERSQ	CCC	PSF	PST2	FREQ
119		6	8	2	0.0000	1.00			
118		2	11	2	0.0000	1.00			
117	CL118		16	3	0.0000	1.00			
116	CL117		19	4	0.0000	1.00			
115	CL116		20	5	0.0000	1.00			
114	CL115		24	6	0.0000	1.00			
113	CL119		30	3	0.0000	1.00			
112		33	36	2	0.0000	1.00			
111	CL113		39	4	0.0000	1.00			
110	CL111		40	5	0.0000	1.00			
109		31	42	2	0.0000	1.00			
108	CL110		44	6	0.0000	1.00			
107	CL108		45	7	0.0000	1.00			
106		32	46	2	0.0000	1.00			
105	CL114		49	7	0.0000	1.00			
104	CL107		55	8	0.0000	1.00			
103	CL104		57	9	0.0000	1.00			
102		26	64	2	0.0000	1.00			
101	CL103		66	10	0.0000	1.00			
100	CL105		67	8	0.0000	1.00			
99	CL109		69	3	0.0000	1.00			
98	CL100		71	9	0.0000	1.00			
97		37	74	2	0.0000	1.00			
96	CL101		79	11	0.0000	1.00			
95		50	81	2	0.0000	1.00			
94	CL98		82	10	0.0000	1.00			
93	CL95		87	3	0.0000	1.00			
92	CL96		90	12	0.0000	1.00			
91	CL94		91	11	0.0000	1.00			
90	CL92		97	13	0.0000	1.00			
89	CL106		98	3	0.0000	1.00			
88	CL89		99	4	0.0000	1.00			
87	CL88		104	5	0.0000	1.00			
86	CL90		106	14	0.0000	1.00			
85	CL91		108	12	0.0000	1.00			
84	CL85		110	13	0.0000	1.00			
83	CL86		115	15	0.0000	1.00			

Tabel B.2. Ward's Minimum Variance Cluster Analysis, Cluster History, continued

NCL	Clusters joined	FREQ	SPRSQ	RSQ	ERSQ	CCC	PSF	PST2	FREQ
82	CL84	119	14	0.0000	1.00				
81		27	63	2	0.0000	1.00		43E3	
80		38	83	2	0.0000	1.00		13E3	
79		14	62	2	0.0001	1.00		5390	
78	CL82		CL99	17	0.0001	1.00		3280	
77	CL87		111	6	0.0001	1.00		2372	
76		12	CL80	4	0.0001	1.00		1737	5.1
75		13	77	2	0.0001	1.00		1313	
74	CL79		CL81	4	0.0001	0.999		1048	3.5
73	CL97		96	3	0.0001	0.999		883	
72	CL77		112	7	0.0002	0.999		686	17.0
71	CL102		43	3	0.0003	0.999		538	
70	CL75		94	3	0.0003	0.998		441	2.7
69	CL76		47	4	0.0004	0.998		365	7.0
68		102	107	2	0.0004	0.998		313	
67		17	48	2	0.0005	0.997		271	
66		5	21	2	0.0005	0.997		240	
65		41	92	2	0.0005	0.996		214	
64		34	CL73	4	0.0006	0.995		192	8.8
63		25	116	2	0.0007	0.995		171	
62		1	60	2	0.0007	0.994		155	
61		9	CL71	4	0.0008	0.993		143	4.8
60	CL70		95	4	0.0008	0.992		132	3.4
59		22	117	2	0.0008	0.992		124	
58		85	103	2	0.0008	0.991		117	
57	CL74		65	5	0.0008	0.990		111	11.7
56		68	109	2	0.0008	0.989		106	
55	CL72		118	8	0.0009	0.988		101	16.3
54	CL78		93	18	0.0009	0.987		97.3	205
53	CL54		76	19	0.0009	0.986		93.8	16.4
52		3	7	2	0.0009	0.986		90.8	
51	CL65		70	3	0.0010	0.985		87.9	1.8
50	CL57		52	6	0.0011	0.983		85.0	4.0
49	CL55		58	9	0.0011	0.982		82.3	6.6
48	CL59		80	3	0.0011	0.981		79.9	1.5
47		10	CL56	3	0.0012	0.980		77.9	1.4
46	CL66		CL69	6	0.0012	0.979		75.9	4.9
45	CL50		29	7	0.0013	0.977		74.0	3.1
44	CL61		78	5	0.0015	0.976		71.9	4.1
43	CL46		CL63	8	0.0016	0.974		69.8	3.2
42	CL49		105	10	0.0019	0.973		67.3	6.5
41		61	114	2	0.0019	0.971		65.2	
40		18	73	2	0.0021	0.969		63.2	
39	CL62		CL64	6	0.0022	0.966		61.2	5.8
38	CL67		72	3	0.0022	0.964		59.6	4.6
37		54	88	2	0.0024	0.962		58.0	
36		15	CL51	4	0.0028	0.959		56.0	3.7
35	CL42		100	11	0.0028	0.956		54.4	6.1
34	CL112		CL58	4	0.0032	0.953		52.7	8.1
33	CL41		83	3	0.0032	0.950		51.3	1.7
32		4	101	2	0.0034	0.946		50.0	
31		51	120	2	0.0035	0.943		48.8	
30	CL32		CL47	5	0.0037	0.939		47.8	2.0
29	CL52		CL37	4	0.0038	0.935		46.9	2.3
28	CL39		CL35	17	0.0039	0.931		46.3	5.4
27	CL53		CL36	23	0.0039	0.927		45.8	13.1
26		28	CL93	4	0.0043	0.923		45.2	

Tabel B.2. Ward's Minimum Variance Cluster Analysis, Cluster History, continued

NCL	Clusters joined	FREQ	SPRSQ	RSQ	ERSQ	CCC	PSF	PST2	FREQ
25	CL60	113	5	0.0043	0.919			44.9	10.5
24		89	CL68	3	0.0048	0.914	0.810	19.4	11.3
23	CL28		CL40	19	0.0057	0.908	0.804	18.7	5.9
22		35	CL33	4	0.0060	0.902	0.798	16.4	2.3
21		53	59	2	0.0072	0.895	0.792	15.6	42.3
20	CL23		CL24	22	0.0073	0.888	0.786	14.9	5.3
19	CL44		CL25	10	0.0077	0.880	0.779	14.3	7.5
18	CL43		CL48	11	0.0077	0.872	0.772	13.7	10.6
17	CL30		75	6	0.0078	0.865	0.764	13.2	3.4
16	CL34		CL31	6	0.0080	0.857	0.757	12.8	4.3
15	CL83		56	16	0.0094	0.847	0.748	12.2	41.6
14		23	CL21	3	0.0096	0.838	0.739	11.8	42.1
13	CL26		CL22	8	0.0107	0.827	0.730	11.3	4.2
12	CL20		CL29	26	0.0111	0.816	0.719	9.68	6.3
11	CL27		CL38	26	0.0117	0.804	0.708	9.34	21.9
10	CL17		CL18	17	0.0122	0.792	0.696	9.09	5.9
9	CL14	84	4	0.0146	0.777	0.682	8.75	48.5	1.7
8	CL13		CL16	14	0.0146	0.763	0.666	8.61	4.2
7	CL12		CL19	36	0.0216	0.741	0.648	6.95	10.7
6	CL45		CL9	11	0.0227	0.719	0.626	6.71	5.9
5	CL7		CL6	47	0.0408	0.678	0.598	5.51	12.4
4	CL11		CL10	43	0.0599	0.618	0.560	3.78	36.2
3	CL5		CL4	90	0.0791	0.539	0.505	1.76	68.3
2	CL3		CL8	104	0.1016	0.437	0.405	1.25	22.9
1	CL2		CL15	120	0.4372	0.000	0.00	0.00	91.7

Note: The shaded area with nine clusters is the level chosen as most appropriate for the analysis.

The k-means method

In order to be able to refine the clustering resulting from employing Ward's method, a non-hierarchical method is employed. In the non-hierarchical procedure clusters are based on least-squares estimation and Euclidean distances, which is also denoted a *k-means* method. Clusters are disjoint meaning that observations are placed in one and only one cluster. The number of clusters has to be assigned before the procedure begins. This number could have come from a hierarchical cluster procedure. Subsequently, each cluster is assigned a seed, which can be derived in a number of ways. Then, as observations are assigned to clusters the seeds are updated as cluster means. An observation is assigned to the cluster with the nearest seed. An advantage of the non-hierarchical procedure compared to the hierarchical is that an observation can change cluster if the updating of clusters leads to another cluster being nearer to the observation. On the other hand, the non-hierarchical procedure cannot give the number of clusters. Neither can the non-hierarchical procedure produce a tree showing the partitions at different cluster aggregation levels.

In the present case the number of clusters, nine, are found in the hierarchical cluster procedure. Given this number the k-means procedure produce table B.3.

Tabel B.3. Summary, non-hierarchical clusters.

Cluster	Frequency	RMS standard deviation	Maximum distance from seed to observ.	Nearest cluster	Distance between cluster centroids
Gradual lib.	32	0.3571	3.0819	3	2.1303
Market access	4	0.3365	1.8197	7	1.8869
Average	34	0.4491	3.4181	1	2.1303
Narrow round	19	0.4595	2.4581	1	2.2919
Small changes	3	0.6748	2.4741	3	2.5346
EU / Israel	16	0.2232	3.0181	8	4.7527
Free trade	9	0.5825	2.5800	2	1.8869
Norway	1	-	0	9	4.5664
Dev. multfunc.	2	0.5795	1.4775	5	2.6966

The column labelled frequency displays the number of countries in each cluster, whereas the next column labelled 'RMS standard deviation' shows the root mean square standard deviation. A good cluster has a small within cluster standard deviation. In this respect, cluster 8 is the best and cluster 5 the worst. However, cluster 8 has only 1 member implying no or zero standard deviation. Ceteris paribus, increasing the number of members in a cluster increase the standard deviation. Cluster 5 has only 3 members, whereas e.g. cluster 3 has 34 members. Therefore, cluster 3 is a good cluster relative to cluster 5 since it has both a lower standard deviation and more members. Maximum distance from seed to observation is the largest distance (Euclidean) from the cluster seed (cluster mean) to any observation within the cluster. This measure can show potential outliers and the heterogeneity of the clusters. Cluster 3 has the largest mean-observation distance indicating that one observation is relative far from the cluster average. However, this cluster also has the greatest number of members implying that one would expect this cluster to have the greatest mean-observation distance. The last column labelled distance between cluster centroids displays the distance from the cluster mean to the mean of the nearest cluster. In the column labelled nearest cluster the number of the nearest cluster is showed. Two clusters stand out namely clusters 6 and 8. They both have a distance to nearest cluster almost twice of any other cluster and, therefore, have quite distinct proposals relative to the rest of the population. Since cluster 8 consists of only one country this country represents an outlier. In general, this distance measure is indicative of the between cluster heterogeneity.

Tabel B.4. Statistics for variables

Variable	Total STD	Within STD	R-square	RSQ/(1-RSQ)
Broad vs. narrow	0.93881	0.49950	0.735951	2.787171
Tariffs	0.93881	0.33234	0.402418	0.673409
Esc. and peaks	0.66062	0.41012	0.640507	1.781692
TRQ size	0.68235	0.24385	0.880872	7.394361
Special safeguard	0.76874	0.47671	0.641309	1.787917
Green box	0.90789	0.44906	0.771797	3.382065
Blue box	1.00101	0.42701	0.830262	4.891445
Development box	0.74330	0.49038	0.594009	1.463108
AMS	0.62837	0.31125	0.771129	3.369457
Export subsidies	1.34489	0.36757	0.930324	13.352136
Export credit	0.61487	0.24136	0.856265	5.957248
De minimis levels	0.84209	0.57651	0.562800	1.287284
Labour and env.	0.71345	0.46563	0.602692	1.516941
Overall	0.81925	0.41867	0.756392	3.104950

Note: STD is standard deviation; the Cubic clustering criterion is 46.948.

In table B.4, statistics for the variables used in the non-hierarchical cluster procedure are presented. The column labelled ‘Total STD’ displays the standard deviation for the variable across the total sample. In the column labelled ‘Within STD’, the within cluster standard deviation for the variable is shown. Since the objective of the cluster analysis is to minimise the within cluster variance and maximise the between cluster variance, the within standard deviation should be as small as possible. R-square is the R^2 value, which is a measure of how good the clusters are at predicting the variable. The last column is the ratio of between variance to within variance. The bigger this number is the better are the clusters.

The table shows that the clusters formed are very good at predicting the various positions on export subsidies, TRQ and export credits, whereas they are relatively poor at predicting the positions on tariffs. Likewise with tariffs, the within cluster variance is actually bigger than the between cluster variance. If larger emphasis on the positions on tariffs is desirable, the cluster analysis could be run with a higher weight allocated to this issue. In the present analysis all issues have the same weight. Overall the clusters are pretty good at predicting the various positions on the issues as indicated by the overall R^2 value of 0.76. Likewise, the overall between variance is more than three times bigger than the within variance. The value of the cubic clustering criterion is displayed in the note to the table. Values greater than two or three indicate good clusters, thus, the cubic clustering criterion evidently supports the partition chosen.

Table B.5 illustrates the cluster means of the respective variables.

Tabel B.5. Cluster positions									
Cluster	1	2	3	4	5	6	7	8	9
Broad vs. narrow	2.30	1.74	2.13	3.74	1.67	1.00	3.11	1.00	2.32
Tariffs	2.06	2.00	2.62	2.61	2.80	2.39	2.11	2.00	2.00
Esc. and peaks	2.22	4.00	3.06	3.05	2.63	2.88	4.00	2.00	2.44
TRQ size	3.00	3.00	2.86	3.11	2.91	1.11	3.00	3.00	2.86
Special safeguard	2.88	2.00	2.02	2.56	1.40	1.00	2.13	1.00	2.00
Green box	3.17	2.38	2.29	2.41	0.67	1.00	3.28	1.00	0.50
Blue box	3.98	3.20	3.09	3.60	3.73	1.14	3.73	1.00	3.20
Development box	2.22	4.00	2.48	2.24	3.01	2.00	3.78	4.00	4.00
AMS	2.07	4.00	2.68	2.64	2.88	2.98	3.67	0.00	2.65
Export subsidies	3.88	4.00	3.31	3.89	4.00	0.00	4.00	2.00	3.60
Export credit	2.01	4.00	2.23	2.00	2.20	2.02	3.78	2.30	3.15
De minimis levels	2.07	1.83	1.47	2.94	2.67	1.05	1.46	0.00	0.92
Labour and env.	2.33	2.47	2.28	2.87	2.86	1.08	2.94	1.00	2.29

The table can be used to classify the clusters according to positions. For instance, cluster one is quite determined to eliminate the blue box and export subsidies. This is done in section 5, where table 5.9 displays the main topics average characteristics of the clusters found by the k-means method.

Appendix C. Study summary

Tabel C.1 Summary of studies on WTO issues			
Study	Market access	Domestic support	Non-trade concerns
Ingco (1997) – on the impact of Uruguay Round on LDC welfare	Terms of trade changes between –1.19 % (Gambia) to 0.63 % (Malawi) ^a	Removing distorting domestic policies can complement liberalisation, reverse terms of trade losses and increase welfare by transmitting international prices to the domestic economy	
Burfisher et al. (2000) – on the impact of the NAFTA	Terms of trade changes between -0.92 % (Mexico) to 0.56 % (US)		
Burfisher (2000) – on full liberalisation of agricultural trade	Eliminating all distortions to agricultural trade results in US\$56 billion gains, resulting in a 12 % increase of world market prices with positive medium term gains in all countries. 52 % comes from tariff elimination, 31 % from domestic support and 13 % from export subsidies. Liberalising developing countries' domestic policies may be necessary.		
IMF (2000) – on full liberalisation of agricultural trade	Eliminating all distortions to agricultural trade results in static medium-term gains between US\$250-550 billion with the largest percentage gains captured by developing countries. Some countries will experience short-term losses.		
World Bank (2001) – on full liberalisation	US\$2.8 trillion gains in 2015 with up to 65 % going to developing countries, or a 5 % increase in incomes. Agricultural liberalisation accounts for 70 % of the gains.		
Otsuki et al. (2001) – on European aflatoxin standards	Strengthening SPS standards reduces African trade in cereals, dried fruits and nuts by 64 %		
Panagariya (2000) - on the use of export subsidies and credit	Direct and indirect export subsidies are costly and inefficient means to promote exports		
OECD (2001a) – on the use of export subsidies and credit	Direct and indirect export subsidies distort international trade and destabilise world markets		
ABARE (2000) – on domestic support and standards		Including dynamic gains, reducing domestic support by 50 % would increase global income by US\$123 billion of which more than half are captured by developing countries	Imposing demands on labour standards in developing countries would result in a US\$37 billion decline in world income by 2010 with all developing countries being worse off
Martin and Maskus (1999) – on core labour standards			Labour standards are counterproductive when trying to increase workers' welfare
Basu (1998) – on child labour			Child labour should not be banned, but addressed through compulsive schooling, as very poor economies will suffer from international standards

Note: ^a Ingco (1997) reports that Guyana receives a terms of trade gain of 4.66 %. However, Guyana is no longer an LDC.

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