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Working Paper

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WTO Staff Working Paper, No. ERAD-98-10

Provided in Cooperation with:

World Trade Organization (WTO), Economic Research and Statistics Division, Geneva

Suggested Citation: Grether, Jean-Marie; Olarreaga, Marcelo (1998) : Preferential and non-preferential trade flows in world trade, WTO Staff Working Paper, No. ERAD-98-10, World Trade Organization (WTO), Geneva,
<https://doi.org/10.30875/dd58ce9d-en>

This Version is available at:

<https://hdl.handle.net/10419/90682>

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Preferential and non-preferential trade flows in World Trade

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Manuscript date:

September, 1998

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Preferential and Non-Preferential Trade Flows in World Trade*

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September 1998

Abstract. This paper quantifies the extent of preferential trade as a share of total world trade in different regions of the world and for two periods. Results show that: i) preferential trade represented 40% of world trade in the period 1988-1992 and it slightly increased to 42% during the period 1993-1997; ii) during the second period, agricultural products generally benefited more from the existence of preferential trade agreements than industrial products (maybe due to GATT-exemption); iii) the regional distribution of preferential trade is relatively uneven with a significant share of preferential trade in Western Europe (around 70 per cent), relatively low values in the Western Hemisphere (around 25 per cent), very low shares in Asia and Oceania (around 4 per cent) and average values in the rest-of-the-world (Eastern Europe and Africa); iv) the largest increase in shares of preferential trade between the two periods has occurred in the Western Hemisphere and in Eastern-Europe and Africa; v) at the country level there is an inverted-u-shape relationship between the share of preferential trade and the size and GDP per capita of individual countries; vi) countries which are highly open to trade tend to have a larger share of preferential trade on total trade in the period 1993-1997, suggesting that preferential and non-preferential trade can be seen as complements.

* We are indebted to Sanoussi Bilal, Patrick Low and Jaime de Melo for helpful comments. We are also grateful to Mariana Gagliardi and Daniel Morales from SISD-WTO for providing us with information on existing preferential trade agreements and to Philip Rauh for patient help with data collection. All errors are ours. The views expressed here are those of the authors and do not necessarily reflect those of the institutions with which they are associated.

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Non-technical summary

In the last decade regionalism has become the most important policy issue in the global trading system and whether it brings bad or good news for the world trading system remains a relatively open question (see Baldwin, 1997 for a recent discussion). However, estimates of what preferential trade represents at the world level are relatively rare and often provide large ranges depending on the methodology that has been used. Ideally, one would need to dig into customs statistics to know what is the origin of each imported good and under which trade regime each good has entered the country. Indeed, the existence of a Preferential Trade Agreement (PTA) does not necessarily imply that products traded among PTA members enter the importing country under the preferential regime. The reason is that economic and administrative costs of satisfying rules of origin within the PTA may be so high that importers prefer to face the MFN tariff.

Some authors provide such estimates, but only for a particular region, as Sapir (1998) for the European Community. However, to provide an estimate for the share of preferential trade in world trade using this method faces the constraint that customs statistics are often difficult to obtain, if not confidential in many countries.

The aim of this paper is to quantify the share of world trade that occurs under preferential trade agreements (PTAs) using a parallel method. The approach we followed is to proxy the actual share of trade that enters under preferential treatment by considering only imports within a PTA that take place under tariff lines where the MFN tariff is higher than 3 percent. The idea is that if the MFN tariff is below 3 percent, then incentives to satisfy rules of origin, and therefore benefit from preferential treatment vanish. For preferences under the

Generalized System of Preferences (GSP) we only included imports where there are full preferences (i.e., duty free) and no quantitative limitations. We identify PTA by using WTO notifications to article XXIV and the enabling clause by members and accession countries (e.g., China).

Shares of preferential trade were calculated using two different averages: an import-weighted average of countries in the sample which indicates the "true" share of preferential trade in the world or region, and a non-weighted average, which indicates the extent of preferential trade in the "representative" country. Hence, the import-weighted average naturally tend to give more importance to large trading countries, whereas the non-weighted average gives more importance to small trading countries.

Results are summarised below:

- Preferential trade represented 40 percent of world trade in the period 1988-1992 and it slightly increased to 42 percent during the period 1993-1997. The representative country in the world (non-import weighted average) increased its share of preferential trade from 19 percent to 27 percent. This suggests that relatively large countries tend to have a larger share of preferential trade, but that small countries had a proportionately larger increase in their share of preferential trade between the two periods.
- Preferential trade of agricultural products have experienced a larger increase than industrial products during the two periods, maybe due to GATT-exception.
- The share of GSP on total preferential trade has significantly declined from 7 to 3 percent between the two periods. Erosion of GSP preferences as countries were opening up to

trade after the Uruguay Round and engaging in other forms of PTAs, may explain the decline in the share of GSP world-wide.

- The regional distribution of preferential trade is relatively uneven with a significant share of preferential trade in Western Europe: 70 for the region as a whole (import-weighted average) and 43 percent for the representative country during the period 1993-1997. The Western Hemisphere has relatively low values as a region (27 percent), but the representative country's share of preferential trade is close to world levels (28 percent). Asia and Oceania have low values, both at the region level and at the representative country level (3 and 5 percent respectively). Africa and Eastern Europe (rest-of-the world) have values close to the average world levels, but they experienced the most dramatic increase between the two periods.
- At the world level, there seems to be an inverted-u shape relationship between the share of preferential trade, and both the size of the country and its level of development (i.e. GDP/capita). More precisely, a country with a population of 12 million and a GDP/capita around 7200 dollars will tend to have the largest share of preferential trade whereas, either smaller and poorer, or larger and richer countries will tend to have smaller shares of preferential trade. This may reflect both bargaining power and negotiation capacity issues.
- Countries which are highly open to trade tend to have a larger share of preferential trade on total trade during the period 1993-1997, suggesting that preferential and non-preferential trade can be seen as complements.

1. Introduction

Article I of the General Agreement on Tariffs and Trade (GATT) clearly forbids the existence of preferential trade among GATT members, through its Most-Favoured-Nation clause under which "any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties". It was only 23 articles later that in 1947 the original GATT members accommodated (and under the insistence of the future members of the European Community) for the existence of Preferential Trade Agreements (PTAs), under the condition that the agreement eliminates internal barriers to trade on "substantially all trade".

The necessity to consider the needs of developing countries, which were turning away from GATT to UNCTAD, and the "pragmatic approach"¹ to GATT's decision-making, as it was recently called by Baldwin (1998), led to an extension of provisions for PTAs in 1965, by introducing Part IV of GATT, which dealt with trade and development and which led to the introduction of the General System of Preferences (GSP). This allows developing countries to benefit from preferential tariff reductions in developed countries' markets. Interests of developing countries were further concealed in 1979 by the introduction of the Enabling Clause that allows PTAs among developing countries to be formed without having to fulfill all the conditions of article XXIV.²

Partly because of these loopholes in article I and because of the fears that the Uruguay Round might never be concluded, PTAs spread all over the world. Although the European Union is

¹ As opposed to a rule-based approach.

² Article 5 of GATS also allows for preferential treatment in trade in services.

involved in more than 75% of total notifications to the WTO, there is a growing number of agreements being signed in other regions of the world. As an example, between 1990 and 1994, 26 agreements were signed in the Western Hemisphere alone.³

The literature on preferential trade has also enormously widened and our understanding of PTAs and their consequences, is much better today than a decade ago. Fears that the proliferation of PTAs may undermine the multilateral process were more often heard, which led to the creation of a WTO Committee on Regional Trade Agreements in February 1996. Whether regionalism can stimulate or jeopardise the multilateral trading system remains an open question and the literature generally argues that its effects depend on the institutional form of preferential agreements.⁴ In general, both shallow and deep forms of preferential agreements such as Free Trade Areas (FTAs) or Customs Unions (CUs) respectively have advantages and disadvantages, when it comes to enhancing the multilateral trading system.

For example, the growing number of FTAs may lead to what has been called by Bhagwati (1995) the "spaghetti-bowl" phenomenon, i.e. a complex system of crisscrossing trade preferences, where products in one particular country enjoy access on widely varying terms depending on their alleged origin.⁵ This is not a problem when it comes to deep forms of integration such as CUs, but there are risks that this type of PTAs may lead towards inward-looking trading blocks, such as the so-called "Fortress Europe" threat.⁶ The drawbacks and

³ Only 4 were notified to the WTO by the end of 1995 and three through the enabling clause (only NAFTA was notified through article XXIV).

⁴ For a thorough review of the literature on this issue, see Winters (1996).

⁵ Krueger (1993) describes also how rules of origin can be used to enhance protection against non-members in the case of FTAs.

⁶ The theoretical literature on the formation of PTAs with terms of trade effects generally supports this view (see, for example, Krugman, 1991, Bagwell and Staiger 1993 and Bond, Syropoulos and Winters, 1996) and the line of reasoning is the following: as countries form trading blocks, their market share gets larger and therefore they have higher incentives to increase their tariffs on external members. This has been recently empirically verified by Winters and Chang (1997) who show some evidence for Spanish accession to the

benefits of different types of agreements has led some authors (see Wonnacott, 1996) to argue for hybrid FTAs-CUs agreements in the future, to avoid the worst trade-impeding aspects of PTAs.

The importance of preferential trade has therefore been growing, both in the real world and in the international trade literature. The aim of this paper is to quantify the share of world trade that occurs under PTAs to give an estimate of its actual importance. Note that from a theoretical perspective, it is not clear whether a larger or smaller share of preferential trade leads to higher or lower levels of welfare. It is clear that if preferential trade occurs at a zero tariff and all world trade is preferential, then we have world free trade which will maximise welfare. However, it is unclear whether a 20 or a 50 per cent share of preferential trade means a higher or lower level of welfare. In other words, the figures reported in this paper have no normative value, but should be seen as an illustration of the relative importance of PTAs in the world trading system.

Recent studies that provide some quantification of preferential trade include Sapir (1998) for the European Union (EU). Extra-EU preferential trade in 1995 represented 30 per cent of its total imports of which 18 percentage points are reciprocal trade agreements such as the EEA, and the Europe Agreement. The rest accounts for unilateral preferential trade, such as trade under the GSP. In his study, Sapir considers as preferential, imports where the MFN tariffs is above zero. The idea is that if the MFN tariff of the EU is zero, then the implementation of a PTA does not provide any preference on these tariff lines for exporting members to the EU. When he includes imports that occur at zero tariffs, the share of extra-EU imports within

European Community. The literature on endogenous tariff formation through lobbying also tends to support this view; Levy (1997) has shown that a move towards bilateral trade agreements may decrease the incentives to

PTAs raises to 51 per cent. Contrary to Sapir's study, which focuses exclusively on the EU, our objective is to estimate the share of preferential trade at the world level.

Serra Puche (1998) provides an estimate of the share of preferential trade at the world level by subtracting from total world trade the trade of all countries that do not belong to PTAs. Thus, he assumes that all intra-PTA trade is conducted on preferential terms and he concludes that 53 per cent of world trade is conducted on preferential terms. This estimate has several biases. First, it has an upward-bias, since as suggested by Sapir's study, an important share of intra-PTA trade is conducted on non-preferential terms (i.e., at zero MFN tariffs). Second, and also suggesting an upward bias, not all trade among PTA partners takes place on a preferential basis, as rules of origin may be extremely costly (this bias is also present in Sapir, 1998). Third, Serra Puche (1998) estimates do not include preferential trade that occurs in a non-reciprocal basis as, for example, trade under the GSP.

This paper will try to correct these biases and will also provide comparisons across regions for two different periods (1988-1992 and 1993-1997) across regions. Moreover, we also report results regarding the share of preferential trade disaggregated into agriculture and industrial products.

The paper is organized as follows: section 2 discusses the different types of PTA that exist; section 3 describes the methodology used to estimate the share of preferential trade on total trade and presents the results for different regions and for two different periods (1988-1992 and 1993-1997), which will allow both cross-country and time comparisons. In section 4 we

participate in the multilateral negotiations. Cadot, de Melo and Olarreaga (1998) have shown that tariffs may also endogenously raise through industry lobbying after deepening of a PTA.

test, at the country level, the relationship that may exist between the share of preferential trade and the size and GDP/capita of individual countries. Section 5 concludes.

2. Qualifying Preferential Trade Agreements

PTAs can be decomposed into two broad categories: Partial PTAs (PPTAs) and Full PTAs (FPTAs). PPTAs are defined as those where trade preferences are only granted to either some specified products or unilaterally to a particular set of member countries by more developed members. FPTAs are defined as those where there exists a full product coverage and where all members grant preferential access to other members.

Product-specific PPTAs often have some political dimension and are seen as a first step towards further inter-dependence among members in order to avoid future conflicts. They generally lead towards deeper or wider forms of PTAs. As they do not satisfy article XXIV requirement of including "substantially all trade", these are more common among developing countries which notify them to the WTO under the enabling clause. However, a first example of sectoral PPTAs is the European Coal and Steel Community of 1951 which was the first step towards the European Community (EC). A second and more recent example of PPTA which led towards a FPTA are the different sectoral bilateral agreements that led to the creation of MERCOSUR such as CAUCE and PEC both signed in the mid 1970s among future MERCOSUR members.⁷ Product-specific PPTAs do not necessarily imply a zero tariff among members in the specified products but rather tariffs below MFN levels.

⁷ Note that all these PPTAS, both in Europe and Latin America, had also an important political dimension.

The classic example of unilateral concession in PPTAs is the GSP, where developing countries receive special and differential treatment on their exports to developed markets. The first concessions under the GSP schemes were introduced by the EU and Japan in 1971 and 1972 whereas Canada and the US introduced their schemes in 1974 and 1976, respectively. The GSP has a limited product coverage and a significant number of included products are subject to quotas and non-zero tariff preferences.

FPTAs include FTAs, CUs, Common Markets (CMs) and Economic Unions (EUs).⁸ In FTAs, trade barriers between partner countries are abolished, but each member country determine its own external (i.e. non-FTA) trade barriers independently (e.g., NAFTA). In CUs, a common external trade policy is adopted by member countries (e.g., MERCOSUR). The next two categories of FPTAs imply a deeper form of integration where the elimination of the internal barriers to trade are not directly related to trade policy. Indeed, CMs adopt further provisions to facilitate the free movements of goods, services, and factors of production, and the harmonisation of trading and technical standards (e.g., the European Community). These clearly reduce the costs of internal trade relative to external trade. Finally, EUs extend the harmonisation to fiscal and monetary policies, as well as social and legal policies (e.g., the European Union). This reduces uncertainty within the internal market and therefore gives further preferential access to members relative to non-members.

Our definition of preferential trade in this paper includes all forms of FPTAs, but only one type of PPTAs, i.e., trade subject to GSP preferences where the preferential duty is zero. This is to focus on preferential trade that takes place duty free. We believe that this is a better indicator for economically meaningful preferential trade. PPTAs without full elimination of

tariffs tend to have a political dimension only and often rules of origin requirements lead to non-preferential trade.

3. Quantifying Preferential trade

Ideally, to estimate the share of preferential trade on world trade, one would need customs information which will indicate under which regime different products enter the importing country. Indeed, the existence of a PTA does not necessarily imply that products traded among PTA members enter the importing country under the preferential regime. The reason is that the economic and administrative costs of satisfying rules of origin within the PTA may be so high that importers prefer to face the MFN tariff. Unfortunately, this type of data is not available for a large sample of countries.

The approach we followed here is to proxy the actual share of trade that enters under preferential treatment by considering only imports within a PTA that take place under tariff lines where the MFN tariff is higher than 3 per cent. The idea is that if the MFN tariff is below 3 per cent, then incentives to satisfy rules of origin disappear. This figure is based on a study for European and Free Trade Association and the EC by Herin (1986). He estimates the total costs of rules of origin for firms to be at least 2 per cent of the value of the imported goods. Herin (1986) also provides a "conservative" estimate of 5 per cent of the value of the product as the total economic costs of applying rules of origin, that is including the administrative cost of border formalities needed to determine the origin of a product. Thus, it seems reasonable to assume that any product for which the MFN tariff is below 3 per cent will enter the importing country on an MFN basis rather than preferential. Note that by using

⁸ See Winters (1991).

this as a proxy for preferential trade we exclude all trade, which takes place at MFN duty-free (as in Sapir, 1998), as by definition this should not be considered as preferential trade.

FPTAs are identified by using WTO notifications to article XXIV and the enabling clause by members and accession countries (i.e., like China for example); import data are also based on notifications by WTO members; regarding imports under GSP schemes, we included only imports from GSP beneficiaries where there are full preferences (i.e. duty free) and no quantitative limitations.

The sample includes 53 countries (counting the EU as one country) listed in appendix A. For 33 countries we have data for two different periods: the first between 1988 and 1992 and the second one between 1993 and 1997. For the remaining 20 countries we only have information for one of the two periods. The sample contains 85 and 86 per cent of world trade for the first and second period respectively.⁹ Table 1 below gives the sample representation for different regions. The sample includes around 95 per cent of Western Europe total trade, 87 per cent of the Western Hemisphere total trade and oscillates around 95 and 84 per cent for Asia and Oceania. The rest of the world is relatively badly represented as we only have information for 16 to 20 per cent of rest-of-the-world trade. This bias is due to the lack of notifications to the WTO by African countries and the fact that some Eastern European countries are still in the process of accession. Therefore, our results for the rest-of-the world

⁹ To calculate the share of world trade included in our sample we applied the following method. First, we obtained data from United Nation COMTRADE on total trade by region from 1988 to 1997. Then we calculated for each period (1988-1992 and 1993-1997), the share of each year world trade on total trade over the period. For example, in the first period the year 1988 represent 67 per cent of total trade within our sample for the period 1988-1992. In other words, there is an over-representation of the year 1988 in the first period of our sample. For the second period the year for which we have the largest representation is 1995 (67 per cent of total trade within our sample for the period 1993-1997). We then use this weights to calculate the average trade at the world level and by region. The percentage of trade is then given by the sum of total trade for one period divided by the average trade for the period.

should be interpreted with caution. On the other hand, the representation in our sample for other regions is relatively high and therefore results can be seen as reasonably significant.

TABLE 1. Percentage of trade represented in the sample (by region)

Region	1988-1992	1993-1997
Western Hemisphere	87	87
- MERCOSUR	100	100
- NAFTA	100	100
Western Europe	95	96
- EU 15	100	100
Asia – Oceania	95	84
Rest-of-the-world	16	20

We computed the share of preferential trade on total world and regional trade using two different methods. The first method uses an import-weighted average of each country's share of preferential trade whereas the second one is a non-weighted average of these shares. These two averages have different economic meanings. The weighted average indicates the total share of preferential trade within the region or at the world level, and therefore is heavily influenced by large trading countries. The non-weighted average gives more importance to small trading countries and indicates the average share of preferential trade within the region or at the world level.

For both of the above methods we have computed two different shares. One for the entire sample that we will call "the open-sample shares" and the second one only for countries for which we had observations in the two periods and that we will call "closed-sample shares". The reason for this is that when comparing over time, we do not want to introduce a bias by adding or deleting one country from the sample.

Table 2 gives the values of both preferential trade share averages at the world level (import weighted and non-weighted). Open-sample shares are given in *italic* whereas closed-sample shares are reported in parenthesis. Note that the values are relatively similar. Figures in brackets indicate the import-weighted share of GSP trade on preferential trade. Table 2 suggests that the share of preferential trade has remained relatively constant at the world level if one focuses on import-weighted averages. Using the closed-sample shares, which are more accurate for time comparisons, one observes that preferential trade has modestly increased from 41 to 42 per cent despite the spread of regional integration agreement throughout the world. However, if one focuses on the non-weighted average which indicates the share of preferential trade of a representative country, then the change is relatively important as there is a 29 per cent increase in the share of a representative country preferential trade (from 21 to 27 per cent). Thus, as regionalism was spreading world-wide, it seems that smaller trading partners were more involved in this wave and the representative country of the world has experienced a significant increase on the share of preferential trade.

Note also that the increase in total world trade over the 5 year period has been close to 34 per cent which indicates that total preferential trade has increased by 66 per cent in absolute terms. This represents an average increase of 12 per cent per year.

Table 2 also contains the disaggregation for agriculture and industrial products.¹⁰ Both averages indicate a large increase in relative terms for preferential trade in agriculture, which would suggest that the PTAs notified to the WTO during the period 1993-1997 were relatively important to stimulate trade in agricultural products. The reason may be that

Uruguay Round results in agriculture negotiations were relatively poor, hence inducing countries to seek an alternative bilateral path to promote agriculture trade.

Table 2. Share of preferential trade on total world trade (percentage)

	import-weighted average 1988-1992	import-weighted average 1993-1997	non-weighted average 1988-1992	non-weighted average 1993-1997
Agriculture	39 (40) [4]	45 (46) [2]	23 (26)	34 (35)
Industry	40 (41) [8]	41 (41) [3]	19 (21)	26 (26)
Total	40 (41) [7]	42 (42) [3]	19 (21)	27 (27)

The share of GSP on total preferential trade has significantly declined from 7 to 3 per cent during these two periods, which could indicate that countries do not see anymore GSP, as an efficient instrument for development. Erosion of GSP preferences as countries were opening up to trade during the Uruguay Round and engaging in FPTAs may also explain the decline in the share of GSP world-wide. This is true for both agriculture and industrial products which have declined from 4 to 2 percent and from 8 to 3 per cent, respectively.

General trends at the world level cannot necessarily be transposed to different regions. Thus, table 3 reports computed shares for the four main regions (Western Hemisphere, Western Europe, Asia and Oceania, and the rest-of-the-world). Closed-sample shares, reported in appendix B, are almost identical to the open-sample shares in table 3. The Western Hemisphere and the rest-of-the world (essentially, Eastern Europe and Africa) have been by far the regions of the world where there has been the most dramatic increase in the share of

¹⁰ Agriculture is defined as the first 24 tariff lines of the 2 digit Harmonised System classification.

preferential trade (note that one should be careful when interpreting rest-of-the-world share, given the low representation for this region in our sample).

Table 3. Share of preferential trade by region (percentage)

	import-weighted average 1988-1992			import-weighted average 1993-1997			non-weighted average 1988-1992			non-weighted average 1993-1997		
	Agr	Ind	Tot	Agr	Ind	Tot	Agr	Ind	Tot	Agr	Ind	Tot
	Western Hem.	15	19	19	30	26	27	30	18	19	42	26
- MERCOSUR	56	14	18	51	14	18	47	16	19	59	27	31
- NAFTA	11	19	19	26	28	28	11	22	21	41	47	47
Western Europe	65	69	69	71	70	70	40	48	48	42	43	43
- EU 15	66	72	72	72	73	73	47	61	73	72	73	73
Asia-Oceania	3	5	4	2	3	3	10	8	8	7	5	5
Rest-of-the-world	9	4	4	43	46	46	11	8	8	50	52	52

The high increase in preferential trade in the Western Hemisphere is valid for both large and small trading countries, as both import-weighted and non-weighted shares experience an important increase. Using closed-sample shares, the share of preferential trade increases by 40 per cent. The comparable figure for open-sample shares is 45 per cent and again regardless of whether the average share is import-weighted or non-weighted.

The rise in preferential trade has been experienced for both agriculture and industrial products. Note, however, that small trading countries seem to have a significant larger share of agriculture products being traded preferentially (as the non-weighted shares for agriculture are a 100 and 40 per cent higher in the first and second period, respectively).

The two major trading blocks that were created at the end of the first period, (i.e., MERCOSUR and NAFTA) experience different evolutions. NAFTA members significantly increase their share of preferential trade in both agriculture and industrial products (note that these do not correspond to intra-block shares, as for example, Mexico also trades preferentially within the G-3, the US with Israel and Canada with Chile). On the other hand, MERCOSUR members have different evolutions depending on whether they are large or small trading countries. This is indicated by the relative stable share of preferential trade for MERCOSUR when these are computed using import-weights and the significant increase when using non-weighted shares. This suggests that if Brazil and Argentina have a relative stable share of preferential trade, Paraguay and Uruguay have dramatically shifted towards preferential trade. Note again that these shares do not correspond to intra-block shares as all MERCOSUR members have PTAs signed with other Latin American countries within the Latin American Integration Agreement. Thus, if MERCOSUR as a region has not increased its share of preferential trade, the representative MERCOSUR country has experienced a twofold increase in its share of preferential trade.¹¹

Western Europe has experienced a slight increase in its share of preferential trade and this is also true for the EU (shares include intra-EU trade). If both import-weighted and non-weighted shares give similar values in the case of the EU, this is not true for the whole Western Europe where it seems that small trading countries have a smaller share of preferential trade as the non-weighted shares are smaller than the import-weighted shares.

Asia and Oceania have extremely low shares of preferential trade, generally below 10 per cent, and there seems to be a slight decline between the two periods. Moreover, as reported in

¹¹ Recall that by "representative country", we understand that each country is given the same weight in

table 4, more than 60 per cent of Asia and Oceania preferential trade is GSP. On the other hand, the rest-of-the-world (Africa and East Europe) have experienced a dramatic increase in their share of preferential trade between the two periods.¹² As these countries tend to be relatively small trading partners, this partly explains why, at the world level, the share of preferential trade increases from 21 to 27 per cent when computing non-weighted shares whereas it remain stable when using import-weights to calculate average shares.

Concerning the share of GSP trade on preferential trade, table 4 reports their value using an open-sample and import-weighted technique for different regions. The fall on the share of GSP trade observed at the world level and reported in table 2 can be transposed to all regions except Asia and Oceania where it seems to remain relatively stable. The more dramatic fall has been experienced in the rest-of-the-world where the share of GSP trade on preferential trade fell from 22 to 2 per cent. In the Western Hemisphere and Western Europe there has been a 50 per cent decline which roughly corresponds to the fall at the world level.

One may be tempted to attribute the erosion in the share of GSP trade on preferential trade to the important increase in other forms of preferential trade (i.e., FPTAs). This is obviously part of the story, but not all.¹³ The share of GSP trade on total trade has also declined in all regions. By multiplying the shares in table 4 by the shares in table 2 one obtains the share of GSP trade on total trade. This yields that, even for Asia and Oceania where the share of GSP trade on preferential trade has remained relatively constant, there has been a decline on the share of GSP trade on total trade from 2.5 to 1.8 per cent.

the sample, i.e. in this case, Brazil has the same weight as Paraguay.

¹² This is true regardless of whether we use an open-sample or a closed-sample computation as could be seen from comparing figures in table 3 with those in table 3b in appendix B.

Table 4. Share of GSP trade on preferential trade (percentage)

	1988-1992			1993-1997		
	Agr	Ind	Tot	Agr	Ind	Tot
Western Hemisphere	33	18	19	8	9	9
- MERCOSUR	0	0	0	0	0	0
- NAFTA	49	19	21	13	10	10
Western Europe	2	4	4	0	0	0
- EU 15	1	4	4	0	0	0
Asia-Oceania	28	64	62	42	62	60
Rest-of-the-world	71	8	22	18	0	2

Figures in table 4 tend to confirm what was suggested by looking at aggregate figures in table 2. There has been a move away from GSP and into other forms of preferential trade as a mean for developing countries to integrate into the world market. North-South FPTAs, as NAFTA or the Europe Agreements, may be seen as a more efficient way of achieving this objective.

4. Which countries go preferential rather than MFN?

The computation of import-weighted and non-weighted shares of preferential trade in the previous section has suggested that large trading countries may have a different behaviour than small trading countries when it comes to PTAs. It appears from comparing the figures reported in table 2 that small trading countries tend to have a smaller share of preferential trade, as the import-weighted computed values are generally larger than the non-weighted

¹³ This conclusion should be taken cautiously as there may have been a composition effect within GSP trade and our proxy for GSP trade only includes trade that occurs in tariff lines where there is a full GSP preference (i.e., GSP duty free) and no quantitative limitations.

shares. This, however, does not seem to extend to all regions as the opposite is true for the Western Hemisphere.

The objective of this section is twofold. First, at the country level, we will test for possible relationships between the share of preferential trade and the size of the country measured both in terms of population and GDP. We will also test for the relationship between share of preferential trade and GDP/capita. Second, we will rank countries according to their share of preferential trade after correcting for possible biases in this indicator. We will then explore the correlation between the corrected share of preferential trade indicator and overall trade openness indicators for the countries in the sample. This will give us some hint towards whether preferential trade is conducted by relatively open or closed countries and may help answer the question of whether regionalism works hand in hand with the multilateral trading system.

4.1 What is the size and the GDP/capita of countries going preferential?

Let us first focus on the relationship between the share of preferential trade and the size of the country. The idea behind is that small countries may have relatively little to gain from a bilateral or (preferential) approach to trade negotiations, as their bargaining power is relatively small.¹⁴ It has often been suggested that the MFN clause of the GATT significantly increases the potential gains for small countries of participating to multilateral negotiations, as they can more easily "free-ride" on concessions among large trading partners. This obviously does not extend to bilateral agreements. From a bargaining power perspective, the only case where potential gains for small countries may be larger in a bilateral agreement is when the partner is also a small country. However, in this case, the share of preferential trade

will remain relatively low as the PTA partner is by definition a small trading country. Therefore, one should expect small countries to have a relatively small share of preferential trade. Recall that this was also suggested by the comparison of import-weighted and non-weighted shares in table 2.

We capture the notion of size of the country by using two different proxies: population and GDP. We will test for both, log-linear and "u-shaped" relationships. As suggested above, we expect a positive correlation between size and share of preferential trade, but by allowing for "u-shaped" curves, one may capture the fact that extremely large countries may also have incentives to negotiate multilateral rather than bilateral agreements. The idea is that very large countries have little to gain from bilateral agreements with smaller members and may prefer to focus on multilateral negotiations which open the world market rather than some particular country's market.¹⁵

We tested for these relationships by running the following OLS regressions on double-log form:

$$\log(s_{i,t}) = \beta_0 + \beta_1 \log(size_{i,t}) + \mu_{i,t} \quad (1)$$

$$\log(s_{i,t}) = \alpha_0 + \alpha_1 \log(size_{i,t}) + \alpha_2 \log(size_{i,t})^2 + \varepsilon_{i,t} \quad (2)$$

¹⁴ Schiff (1997) argues, however, that small countries gain more than large countries in preferential trade agreements, but abstract from bargaining power issues.

¹⁵ The attitude of the US until the late 80s towards bilateral agreements, as described by Panagariya (1998) may be seen as an example of large countries preferring the multilateral approach.

where $s_{i,t}$ is the share of preferential trade of country i in period t ; $size_{i,t}$ is the proxy for size, i.e., population or GDP; $\varepsilon_{i,t}$ and $\mu_{i,t}$ are the error terms and the α and β are the estimated coefficients.

We run regressions for agriculture and industry and for first and second periods separately, but coefficients were not statistically different and therefore the results reported in table 5 below are those for pooled regressions on total shares.

Table 5 suggests that there is no clear relationship between the share of preferential trade and GDP. However, it appears that there is an "inverted-u-shape" relationship between the share of preferential trade and population. This may seem surprising as the negotiation power of a country would seem to be better represented by its GDP rather than its population. One should therefore cautiously interpret this statistical relationship. Nevertheless, it seems to indicate that very large and very small countries in terms of population tend to have a smaller share of preferential trade.

Table 5. Share of Preferential trade and size of the country^a

	<i>Population</i>		<i>GDP</i>	
	(1)	(2)	(1)	(2)
CST	-1.2 (-2.1)**	-3.1 (-3.2)**	-1.5 (-0.9)	10.2 (1.3)
GDP			-0.1 (-0.7)	-2.2 (-1.5)
GDP ²				0.1 (1.5)
Pop	-0.4 (-2.7)**	0.9 (1.7)*		
Pop ²		-0.2		

(-2.4)**

R ² -adjusted	0.08	0.13	-0.01	0.01
F-value	7.1**	6.6**	0.4	1.3
# obs.	75	75	75	75

^a All regressions are double-log. Figures in parenthesis are t-statistics. "*" stands for significance at the 90 per cent level and "**" at the 95 per cent level.

Using the estimates of equation (2) in the second column of table 5, one can calculate the size of a country in terms of population that maximises the share of preferential trade. To this end, differentiate the right hand side of equation (2) with respect to $size_{i,t}$ (population in this case), equalise the result to zero and solve for size. It yields:

$$Pop^* = e^{-\alpha_1/(2\alpha_2)} \quad (3)$$

where Pop^* is the population size that maximises the share of preferential trade and e is the exponential function. Using the non-rounded estimated coefficients, it yields that countries with a population of 12 millions should be the ones more inclined to trade preferentially. Note that a country like Chile which is heavily involved in preferential trade has a population of 14 millions.

Let us now turn to the relationship between GDP/capita and share of preferential trade. The idea here is that to engage in both bilateral and multilateral negotiations countries need a certain negotiating capacity which in turn requires financial resources. Thus, we may expect poor countries to have a small share of preferential trade given their financial constraints. We also test for u-shaped relationships as it may turn out that at certain levels of GDP/capita the

financial resources necessary to negotiate both bilateral and multilateral become negligible and therefore the financial constraint becomes irrelevant. Hence, the equations to estimate are given by:

$$\log(s_{i,t}) = \delta_0 + \delta_1 \log(GDP/capita_{i,t}) + \mu_{i,t} \quad (4)$$

$$\log(s_{i,t}) = \gamma_0 + \gamma_1 \log(GDP/capita_{i,t}) + \gamma_2 \log(GDP/capita_{i,t})^2 + \varepsilon_{i,t} \quad (5)$$

Again, we tested for differences in coefficient for agriculture and industrial products and between the first and second period, but these were not statistically different than the ones for the pooled regression on total shares. Results reported in table 6 below confirm the existence of an inverted-u-shape relationship between GDP/capita and the share of preferential trade.

Given the inverted-u-shape relationship, one can calculate the value of GDP/capita that maximises the share of preferential trade by differentiating the right hand side of (5) with respect to GDP/capita, equalising the result to zero and solving for GDP/capita. It yields:

$$GDP/capita^* = e^{-\gamma_1/(2\gamma_2)} \quad (6)$$

and the value is closed to 7200 dollars which again is similar to the GDP/capita of a country like Chile.

To conclude this section, one should note that the move towards preferential trade seems to depend on the size of the country and its level of GDP per capita. Very poor and small, and very rich and large countries seem to prefer the multilateral and its MFN clause to the

bilateral approach. This may capture both bargaining power incentives and financial constraints.

Table 6. Share of preferential trade and GDP/capita

	(1)	(2)
CST	-6.4 (-3.8)**	-29.7 (-2.3)**
GDP/capita	0.5 (2.3)**	6.3 (2.0)**
(GDP/capita) ²		-0.4 (-1.9)**

R ² -adjusted	0.06	0.09
F-value	5.5**	4.6**
# obs.	75	75

^a All regressions are double-log. Figures in parenthesis are t-statistics.

" stands for significance at the 90 per cent level and "*" at the 95 per cent level.

4.2 Corrected share of preferential trade and overall trade openness

An important question in the preferential trade literature is whether regionalism is a complement or substitute to multilateralism.¹⁶ A way of exploring this issue is to test whether more open countries tend to have a larger or smaller share of preferential trade. If relatively open countries tend to have large shares of preferential trade, then one would tend to conclude that regionalism does not seem to jeopardise the multilateral trading system, but that they can be seen as complements towards a similar objective: global free-trade.

¹⁶ Foroutan (1998) explores this issue and concludes that there is not a systematic relationship between preferential trade and overall levels of protection. Our study differs from Foroutan's on its time-comparison dimension.

Thus, our objective here is to look into the relationship between overall trade openness and share of preferential trade at the country level. The overall trade openness indicators we use are the ones developed in Low *et al.* (1998).¹⁷ They are essentially trade to GDP ratios that have been corrected to account for the size of the country, differences in domestic prices and share of non-traded sector in the economy. We will use the openness ranking obtained by Low *et al.* (1998) for the countries in our sample and will check for changes between the two periods in Spearman rank correlation coefficients with a ranking of countries according to the share of preferential trade.

However, as suggested in the previous subsection, there seems to be some inherent bias when comparing shares of preferential trade across countries. Indeed, it appears that the share of preferential trade of any country will depend on both its size and its GDP/capita, which can be seen as proxies for bargaining power and financial constraints, respectively. Therefore, one needs to correct our shares of preferential trade for these two biases before giving a ranking of countries. This is done by running the following OLS unconstrained regression (to avoid multi-collinearity problems) in double-log:

$$\log(s_{i,t}) = \varphi_0 + \varphi_1 \log(GDP) + \varphi_2 \log(GDP)^2 + \varphi_3 \log(Pop) + \varphi_4 \log(Pop)^2 + \varepsilon_{i,t} \quad (7)$$

The fitted value from this regression, denoted $\hat{s}_{i,t}$, tell us what is the "normal" share of preferential trade of a country with a given population and GDP per capita. This is given by:

$$\hat{s}_{i,t} = e^{[\log(s_{i,t}) - \hat{\varepsilon}_{i,t}]} \quad (8)$$

¹⁷ They are extracted from table 5 of Low *et al.* (1998).

Then, our corrected share of preferential trade indicator is computed by taking the actual deviation from its normal value for a particular country. That is:

$$s_{i,t}^* = \frac{S_{i,t}}{\hat{S}_{i,t}} \quad (9)$$

Regression results of the estimation of equation (7) and ranking of countries according to $s_{i,t}$, $\hat{S}_{i,t}$ and the overall trade openness indicator from Low *et al.* (1998) can be found in appendix C.

The Spearman rank correlation between the corrected share of preferential trade, $\hat{S}_{i,t}$, and the overall trade openness indicator, t^* , suggests a change in the type of countries that tend to trade preferentially between the first and second period.¹⁸ Indeed, the Spearman rank correlation for the first period is negative ($s = -0.28$) and statistically significant ($z = -1.8$), suggesting that countries that tend to share preferentially are more likely to be closed economies. However, in the second period, the Spearman rank correlation becomes positive ($s = 0.11$) and also statistically significant ($z = 0.62$), which indicates that countries that tend to have a large share of preferential trade are open countries.¹⁹

¹⁸ The Spearman rank correlation is given by: $s = 1 - 6 \sum_i D_i^2 / (n(n^2 - 1))$, where n is the number of observations, and D_i is the difference in ranking for a given country with respect to the trade openness and share of preferential trade. Its z -value follows a normal distribution and is given by: $z = s\sqrt{n-1}$.

¹⁹ Note that these qualitative results are also obtained when computing the Spearman rank correlation for the non-corrected indicator of share of preferential trade and overall trade openness. The Spearman rank correlation between the ranking of countries according to the non-corrected indicator of share of preferential trade and the corrected indicator is 0.84 and 0.69 for the first and second period, respectively.

Thus, it appears that in the late 80s and early 90s countries that engaged in PTAs were relatively closed economies. However, there has been a shift in the mid 90s and countries which had a large share of preferential trade became relatively more open. This in turn tend to suggest that if the regionalism of the late 80s may have jeopardised the multilateral trading system, the new vague of regionalism started in the early 90s seems to be working hand in hand with the multilateral trading system.²⁰

5. Conclusions

The quantification of the share of preferential trade on total trade may be seen as an indicator of the importance of the move towards PTAs world-wide. This paper estimates the share of preferential trade in the world at around 42 per cent for the period 1993-1997, and 40 per cent for the period 1988-1992.

This estimate of 42 per cent, and the small 5 per cent increase at the world level, cannot be transposed to all regions of the world. Indeed, in Western Europe the share of preferential trade is close to 70 per cent, whereas the increase was below world levels. In the Western Hemisphere, the share of preferential trade is around 25 per cent for the second period, whereas the increase during the two periods is around 40 per cent. Asia and Oceania have stable shares but are still well below the world average (i.e. between 3 and 4 per cent) whereas the rest of the world (Eastern Europe and Africa) has shares close to the world average, but with a tenfold increase between the two periods.

²⁰ Note that this is consistent with Baldwin (1997) domino theory of regionalism, which suggests that "regionalism is half of the trade liberalization 'wheel' that has been rolling towards global free-trade...".

The share of GSP trade on preferential trade significantly declined between the two periods (from 7 to 3 per cent) and this has been observed in all regions of the world except Asia and Oceania. This is due not only to the important increase in other forms of preferential trade at the world level (note that preferential trade has increased at an average of 12 per cent per year, compared to 6 per cent for world total trade), but also to an absolute decline on GSP trade. This in turn may suggest that countries may now see GSP as a less efficient mean for integration into the world economy and move towards other forms of PTAs, such as North-South agreements.

This move towards preferential trade seems to depend on the size of the country and its level of GDP/capita. This may capture both bargaining power incentives and financial constraints when governments compare the potential gains between a multilateral (non-preferential) and a bilateral (preferential) approach. A country with a GDP/capita of 7200 dollars and a population of 12 millions would tend to have the largest share of preferential trade on total trade. This is roughly the case in a country like Chile.

Finally, it seems that if in the late 80s and early 90s countries with large shares of preferential trade tended to be relatively closed countries in terms of overall trade openness, this changed in the mid 90s, where relatively open countries tended to have larger shares of preferential trade. This may be interpreted as the rise in PTAs in the early 90s, being an engine for the multilateral trading system, rather than a jeopardising force.

References

Bagwell, K. and R. Staiger (1993), "Multilateral cooperation during the formation of a Free-trade area", NBER working paper no. 4364, Boston.

Baldwin, Richard (1997), "The causes of Regionalism", *World Economy* **20**, 865-888.

Baldwin, Robert (1998), "Pragmatism versus Principle in GATT Decision-making: A Brief Historical Perspective", paper presented at the WTO Symposium, *50 Years: Looking Back, Looking Forward*, 30 April 1998, Geneva.

Bhagwati, Jagdish (1995), "US Trade Policy: The Infatuation with Free Trade Areas", in Jagdish Bhagwati and Anne O. Krueger, *The Dangerous Drift to Preferential Trade Agreements*, AEI Press, Washington, DC.

Bhagwati, Jagdish and Arvind Panagariya (1996), *The Economics of Preferential Trade Agreements*, AEI Press, Washington, DC.

Bond, Eric, Constantinos Syropoulos and Alan Winters (1996), "Deepening of regional integration and multilateral agreements", CEPR discussion paper #1320, London.

Cadot, Olivier, Jaime de Melo and Marcelo Olarreaga (1998), "Regional Integration and Lobbying for Tariffs against non-members", *International Economic Review*, forthcoming.

Foroutan, Faezeh (1998), "Does Membership in a Regional Preferential Trade Arrangement Make a Country More or Less Protectionist?", The World Bank, Policy Research working paper #1898.

Herin, Jan (1986), "Rules of Origin and Differences between Tariff Levels in EFTA and the EC", EFTA occasion paper no. 13, Geneva.

Krueger, Anne O. (1993), "Rules of Origin as Protectionist Devices", NBER working paper no. 4352.

Krugman, Paul (1991), "Is bilateralism bad?" in E. Helpman and A. Razin, eds., *International trade and trade policy*, MIT Press, Boston.

Levy, Philip (1997), "A political-economy analysis of Free Trade Agreements", *American Economic Review*, **87**, 513-526.

Low, Patrick, Marcelo Olarreaga and Javier Suarez (1998), "Does Globalization cause a higher concentration of international trade and investment flows?", WTO, Economic Research and Analysis Division, discussion paper ERAD-98-08, Geneva.

de Melo, Jaime and Arvind Panagariya (1993), *New Dimensions in Regional Integration*, Cambridge University Press, Cambridge, UK.

Panagariya, Arvind (1998), "The Regionalism Debate: an overview", mimeo, Economic Research Division, World Trade Organization, Geneva.

Sapir, André (1998), "The Political Economy of EC Regionalism", *European Economic Review*, May issue.

Serra Puche, Jaime (1998), "Regionalism and the WTO", paper presented at the WTO Symposium, *50 Years: Looking Back, Looking Forward*, 30 April 1998, Geneva.

Schiff, Maurice (1997), "Small is beautiful: Preferential trade agreements and the impact of country size, market share and smuggling", *Journal of Economic Integration* **12**, 359-87.

Winters, Alan (1991), *International Economics*, 4th edition, Routledge, London.

Winters, Alan (1996), "Regionalism versus Multilateralism", CEPR discussion paper no. 1525, London.

Winters, Alan and Won Chang (1997), "Regional Integration and the Prices of Imports", Policy Research Working Paper no. 1782, The World Bank, Washington, DC.

Wonnacott, Paul (1996), "Beyond NAFTA-The Design of a Free Trade Agreement of the Americas", in Jagdish Bhagwati and Arvind Panagariya, eds. *The Economics of Preferential Trade Agreements*, AEI Press, Washington, DC.

Appendix A

The table below gives the list of countries included in the sample and the year for which we have WTO notifications within the two different periods.

Country	1988-1992	1993-1997
Argentina	88	94
Australia	88	95
Brazil	89	95
Canada	88	96
Chile	88	94
China	92	96
Colombia	91	95
Costa-Rica	88	95
Czech Republic	90	97
European Union	88	95
Ecuador	92	95
Hong-Kong	92	95
Hungary	91	95
Iceland	88	94
India	88	95
Indonesia	89	94
Japan	88	95
Korea	88	96
Macau	91	95
Mexico	88	96
Norway	88	96
New Zealand	91	96
Paraguay	89	96
Peru	88	94
Poland	89	95
El Salvador	89	94
Singapore	89	95
Switzerland	88	94
Thailand	88	95
Turkey	89	95
Uruguay	89	96
United States	89	94
Venezuela	90	94
<hr/>		
Austria	88	NA
Bolivia	NA	95
Bulgaria	92	NA
Cyprus	NA	93
Finland	88	NA
Guatemala	NA	95
Honduras	NA	95
Jamaica	91	NA
Madagascar	NA	96
Malaysia	88	NA
Morocco	NA	95
Nicaragua	NA	95
Philippine	91	NA
Romania	91	NA
Senegal	89	NA
Slovakia	90	NA
Sri-Lanka	91	NA
Sweden	88	NA
Tunisia	89	NA
Zimbabwe	87	NA

Appendix B

The table below gives closed-sample shares of preferential trade by region and can be compared to table 3 in section 3 where similar figures are given but shares are computed over an open-sample.

Table 3b. Closed-sample shares of preferential trade by region (percentage)

	import-weighted average 1988-1992			import-weighted average 1993-1997			non-weighted average 1988-1992			non-weighted average 1993-1997		
	Agr	Ind	Tot	Agr	Ind	Tot	Agr	Ind	Tot	Agr	Ind	Tot
	Western Hem.	15	19	19	30	26	27	32	19	20	45	28
- MERCOSUR	56	14	18	51	14	18	47	16	19	59	27	31
- NAFTA	11	19	19	26	28	28	11	22	21	41	47	47
Western Europe	65	69	69	71	70	70	40	48	48	45	43	43
- EU 15	66	72	72	72	73	73	47	61	73	72	73	73
Asia-Oceania	2	4	4	2	3	3	8	6	6	7	5	5
Rest-of-the-world	10	0	2	56	51	52	11	0	2	50	52	52

Appendix C

Table 7c below reports OLS regression results of the estimation of equation (7). The fitted value of the share of preferential trade from this regression, noted $\hat{s}_{i,t}$ is then used to compute the corrected indicator of the share of preferential trade, $s_{i,t}^*$ which is used to rank countries according to their share of preferential trade in table 8c below.

Table 7c. Correcting the share of preferential trade indicator^a

	(7)
CST	10.9 (1.4)
GDP	-2.8 (-2.0)**
GDP ²	0.1 (2.3)**
Pop	1.0 (1.7)*
Pop ²	-0.3 (-3.0)**

R ² -adjusted	0.21
F-value	6.0**
# obs.	75

^a All regressions are double-log. Figures in parenthesis are t-statistics. "*" stands for significance at the 90 per cent level and "***" at the 95 per cent level.

**Table 8c. Ranking of countries according to their share of preferential trade
and overall trade openness^a**

1988-1992				1993-1997			
country	$s_{i,t}^*$	$s_{i,t}$	t^*	country	$s_{i,t}^*$	$s_{i,t}$	t^*
TRK	1	7	22	IND	1	31	16
INS	2	28	25	MEX	2	1	19
ECM	3	1	12	CYP	3	10	10
BRA	4	15	32	POL	4	3	4
AUT	5	2	13	TRK	5	7	14
NOR	6	6	24	HNG	6	4	1
FIN	7	5	21	INS	7	28	18
ARG	8	9	40	ECM	8	2	6
SWE	9	3	10	BRA	9	24	24
COL	10	14	38	URU	10	8	26
THA	11	21	16	PER	11	12	30
CHI	12	11	29	NOR	12	6	17
PER	13	12	37	COL	13	16	32
PHL	14	25	7	PAR	14	9	3
SAL	15	8	14	ECU	15	14	21
CAN	16	4	15	CHI	16	15	22
SWI	17	10	18	BOL	17	11	31
COS	18	13	27	ARG	18	18	35
NZL	19	17	35	CAN	19	5	8
MAL	20	19	3	THA	20	26	9
SRI	21	16	30	SWI	21	13	12
URU	22	20	34	VEN	22	21	25
ECU	23	23	28	NZL	23	23	27
PAR	24	18	8	NIC	24	17	33
VEN	25	29	33	SAL	25	19	7
ZIM	26	24	19	COS	26	25	20
MEX	27	33	26	HON	27	22	13
SEN	28	27	17	GUA	28	27	29
USA	29	22	39	USA	29	20	34
IND	30	37	23	AUS	30	30	23
JAM	31	30	4	JAP	31	29	28
POL	32	35	9	KOR	32	32	2
JAP	33	26	36	CHN	33	34	5
TUN	34	32	20	SIN	34	33	11
AUS	35	31	31	MOR	35	35	15
HNG	36	34	2				
SIN	37	36	1				
CHN	38	39	11				
KOR	39	38	6				
ROM	40	40	5				

^a The difference between the sample in appendix A and countries in table 8, is due to missing data concerning GDP and population for some of the countries in the sample.