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POLICY RESEARCH WORKING PAPER 1583

Trade Preferential Agreements in Latin America

An Ex-Ante Assessment

Michael Michaely

As a rule, preferential trade agreements between countries in Latin America and the Caribbean will probably be far less meaningful than they are in Europe or even than they are in the Asia-Pacific region. But most Latin American countries would benefit from such an agreement with the United States.

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Summary findings

In the past decade a sea change has taken place in trade policies in Latin America: within a few years, most of the region's economies have changed from restrictive to open policies. But unlike trade liberalization in Europe, most trade barriers in Latin America have been reduced unilaterally. Recently bilateral or multilateral agreements have been considered, especially preferential trade agreements within the region.

Michaely evaluates the relevance and desirability of multilateral free trade agreements (such as NAFTA) for the Latin American continent and the Caribbean, with an emphasis on how they affect trade flows. Is a preferential trade agreement among some Latin American countries more or less likely to be meaningful than others — important in intensity of impact, or beneficial, or both?

The evidence strongly suggests little likelihood that these agreements will succeed in Latin America. Paradoxically, the intense liberalization in recent years has made it less likely that such agreements would be beneficial — except possibly for agreements between some countries and Brazil, Mexico, or (to a lesser extent) Argentina.

When the level of tariffs and nontariff barriers is already low, a preferential agreement is more likely to have an adverse impact than a beneficial one (although in any case only a slight impact). Between countries, the patterns of exports and imports are similar, suggesting a potential for trade diversion.

Most countries would benefit from a preferential trade agreement with the United States, however. And U.S. agreements with blocks of Latin American countries are no more beneficial to those countries than are U.S. agreements with individual countries.

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TRADE-PREFERENTIAL AGREEMENTS IN LATIN AMERICA:

AN EX-ANTE ASSESSMENT

by

Michael Michaely*

A. Introduction

In the last decade a sea change has taken place in the nature of trade policies in Latin America: within a few years, most of the region's economies have turned from following the most restrictive policies to becoming among the world's most open.

Unlike other major trade liberalizations—say, in Europe—**unilateral** reductions of trade barriers have been the overwhelming avenue of each country's policies. Recently, however, policies determined by bilateral or multilateral agreements have been contemplated; specifically, preferential trade agreements within the region. Several agreements of this nature have long been in existence, going through cycles of concrete activity and dormancy, whereas others are more recent enterprises. By far the most important, in terms of expected trade flows, is NAFTA, the recently-completed free-trade agreement between the U.S.,

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Canada, and Mexico: even just in terms of **Mexico's** trade flows with the U.S. (and, to a much lesser extent, with Canada), this agreement is concerned with a substantial fraction of Latin America's trade. Other trade agreements, purely within LAC, are MERCOSUR—the agreement between Argentina, Brazil, Paraguay and Uruguay; the Andean Pact—an only partially effective agreement between Bolivia, Colombia, Ecuador, Peru and Venezuela; the Central America Common Market (CACM), a once-active, now semi-revived agreement of Central America's countries (Cost Rica, El Salvador, Guatemala, Honduras, and Nicaragua); CARICOM—a free trade agreement of the Caribbean countries; and a bilateral agreement between Colombia and Venezuela which has been expanded to include Mexico. Beyond these agreements, many other possibilities have been frequently discussed in the Continent, such as the expansion of NAFTA by accession of individual LAC countries; the expansion of MERCOSUR; the accession of MERCOSUR, as a bloc, to NAFTA; and several other variants of bilateral or multilateral arrangements. In general, a feeling is now prevalent that having gone so far through the unilateral route, multilateral free-trade agreements should now become the focus of the trade liberalization process in Latin America.

The present paper is an attempt to address the issue of relevance and desirability of this route for the Latin American and Caribbean continent (we shall use the acronym LAC, and sometimes, just for convenience, *Latin America*, to represent this continent).[1] Since a good part of the discussion is concerned with the relationship of LAC countries with NAFTA, or just with the U.S., we shall add the U.S., and on occasion Canada, into our observations; but the trade relationships **between** these two North American countries are **not**

1. See References at the end for, *inter alia*, several other recent studies of this issue.

part of our subject matter, nor shall we look at any arrangement from the point of view of these two countries. We shall be concerned only with **economic** rationale and economic impact—ignoring political considerations pro and con, which are often given the most weight in deliberations of policy makers. Moreover, among economic considerations, we shall confine ourselves to the effects on and of **trade** flows. We shall only briefly mention, towards the end, the relevance of other impacts (such as on investment) which are ignored in this study. Finally, we shall confine our observations to **free-trade-areas** (FTAs) rather than address customs unions: the latter, unlike the former, include the establishment of common external tariffs on non-partners—an element that will not be discussed in this paper.

Although we shall rely heavily—almost exclusively— on **quantitative** indicators, we aim to reach a **qualitative** assessment. That is, we shall attempt to form an **ex ante** judgement on whether a trade preferential agreement among some countries within the Latin American region is more or less likely to be meaningful than another—either important, in the intensity of its impact, or beneficial, or both. But we shall **not** try to get any quantitative approximations of expected welfare changes; nor shall we try to project the effect of one agreement or another on magnitudes such as trade flows, rates of economic growth, employment, or similar performance variables.[2]

B. The Effects of Preferential Agreements - A Priori Considerations

We know that a bilateral free-trade agreement of a country, or a multilateral preferential agreement, may be of little or of much relevance. When relevant, it may be

2. For recent studies that do attempt such projections, see Hufbauer and Schott (1994), or Primo Braga and Yeats (1992).

either beneficial or harmful to the economy—increasing or reducing its welfare. Following the old tradition set by Viner and Meade, the impact of a preferential agreement on the trade flows and, through them, on welfare may be classified into **trade diversion, trade creation,** and **consumption effect**. The agreement will be more **relevant** the larger is either of these three impacts. The first, trade diversion, works to **lower** the economy's welfare; the second and the third, trade creation and the consumption effect, work to **raise** welfare.[3]

In general, all of these effects are in operation, so that any outcome is conceivable. But a-priori considerations are a bit more helpful than just leading us to such a statement (although even going that far—recognizing that a preferential trade agreement may well lead to a net loss to the economy—was not a mean achievement). Specifically, we know, on a-priori grounds, that the likelihood of a benefit rather than a loss (or of a larger benefit, once there is one) is higher:[4]

(i) The higher is the level of the pre-union (uniform) tariff in the home country. This is the foremost criterion, and several others follow—at least partly—from it. As we shall see later, it is also of great significance for Latin America today. It may, therefore, deserve a word of elaboration. If **trade creation** occurs following the preferential agreement, it will be larger, and more beneficial (per unit of increased imports), when the price differential between the home production and the partner's (potential) export (the cheaper source) is larger; and this, in turn, would be made possible by a higher (pre-union) tariff

3. Viner (1950) and Meade (1955).

4. See Lipsey (1960) and Michaely (1977), Ch. 6, for analyses of the issue.

rate. The loss (per unit) from trade diversion, on the other hand, should this take place, is a function of the price differential between the two foreign "countries" (the partner and the rest of the world), which is independent of the home country's tariff level. Moreover, the size of potential trade diversion would be small with a high tariff level in the home country, since its level of trade would then be low and there would not be much trade to divert (this will also appear later as a separate consideration). In addition, a pre-union high tariff level, implying a large gap between the foreign and the domestic prices, would lead to a larger (and necessarily favorable) consumption effect when removed.

(ii) The higher is the tariff level of the partner country. This is self-evident: a removal of a higher tariff facing the home country's exports would lead to a larger expansion of exports and a larger gain from each unit of such expansion.

(iii) The smaller is the size of imports from the non-partner world: the smaller this is, the smaller is the potential for trade diversion.

(iv) Given the aggregate size of the country's pre-union imports, the higher is the proportion of imports from the partner country. This is a corollary of the preceding argument, describing a situation of a smaller potential for trade diversion.

(v) The closer the relative prices in trade with the partner country are to those prevailing in the rest of the world. This is another fundamental consideration, from which much of the rest follows. In the extreme case, in which the partner's prices (in sales to the home country, and assuming the

latter is "small") are equal to those of the rest of the world, there is no potential whatsoever for a loss from trade diversion; whereas the potential for gain from trade creation is at the maximum. In this extreme case, a preferential agreement with the partner country is in substance equivalent to an "agreement" with the world as a whole—a complete, universal opening of the economy.

(vi) The larger is the *economic size* of the country's partners to the agreement—whether it is due to the number of partners or to the economic size of each (where *economic size* is a representation of an economy's product—its GDP—and its trade). The larger the economic size of a country, the more likely it is that relative prices in it would not be unique but would resemble those of the rest of the world.

(vii) The more diversified is the structure of the country's partners to the union—again, whether this is due to the number of countries joining the union or to the degree of diversification of economic structure of each. The rationale is similar to that just indicated in the preceding considerations. In fact, the criteria suggested under the last three headings ((v) to (vii)) may be combined under the following heading:

(viii) The less unique is the partner, that is, the more it resembles the part of the world excluded from the preferential agreement. The probability of the partner having indeed such an attribute will be higher the larger is the economic size of the country's partners, and the more diversified their economic structure.

A partly-related, but separate, question is the following: Under what circumstances is a trade-preferential agreement likely to be—for better or for worse—more **relevant** in its impact on trade flows, production, and consumption; that is, when are trade creation (positive welfare effect), trade diversion (negative) or the consumption effect (positive) likely to be larger? By and large, the criteria for *relevance* are similar to the criteria for the likelihood of a positive impact; but they are obviously not identical: a larger size of trade diversion would make an agreement **relevant**, but possibly not **beneficial**! After the earlier discussion, the criteria for relevance may be presented in a more concise manner. A preferential agreement is more likely to be relevant (a) the higher is the home country's tariff level prior to the agreement; (b) the higher is the tariff level of the partner; (c) the larger is the economic size of the partner; (d) the more diversified are the partner's exports; and (e) the more diversified are the home country's own exports.

With these considerations as a framework, we shall turn now to the analysis of the concrete circumstances in the economies of Latin America.

C. Tariff Levels in Latin America

As we have noted at the outset, tariff levels among Latin American countries have gone down dramatically in recent years. The process of (sustained) trade liberalization started in Chile, in fact, already in the mid-1970s; but it was then an isolated event. In the mid-1980s, a more widespread development started to take place, beginning with Mexico—the most important case—and Bolivia. By the late 1980s and early 1990s the process engulfed almost the whole of Latin America, notably Argentina, Brazil, Colombia, Ecuador, Peru, Uruguay and Venezuela. It consisted of drastic reductions of tariff levels

and, perhaps even more importantly, the almost complete elimination of the previously predominant non-tariff barriers. Data about the latter are, by their nature, hard to get, and we thus cannot present here any quantitative estimates. But we know that before the start of the liberalization process, almost all imports, in almost all Latin American countries had been subject to non-tariff barriers; whereas at present, their existence is almost universally confined to trade in agricultural products.

For tariff levels, knowledge of dispersion as well as of averages is required. For the purpose on hand, one would preferably have data of tariff levels applying to goods that are traded (actually or potentially) among LAC countries; but the necessary data are not readily available.[5] Hence, we can present here only general tariff levels for most Latin American countries. This is done in Table 1, which shows data for a recent year in each country—as close to the present as is available—as well as for a year prior to the time in which the process of liberalization has started.

We can easily see that, first, tariff levels are now only a fraction, sometimes quite small, of what they had been prior to liberalization; and that they are very low today, almost universally (although, we know, low **average** levels may once-in-a-while conceal individual tariff rates which may still be pretty high, particularly when **effective** protection is concerned). This would mean that, by and large, the tariff level of the **home** country is low; and, at the same time, that the **partner's** tariff level is low, when the potential partner is another Latin American country or a group of countries. We should add to it that the

5. See Annex 1 for an approach to this issue.

Table 1: Tariffs in Latin America: Pre-Reform and Recent Levels

	Average Tariff Level (Arithmetical, Unweighted)		Range of Tariff Schedule (Min. - Max.)	
Country and Period Definition	**Pre-Reform**	**Recent**	**Pre-Reform**	**Recent**
Argentina (1987, 1991)	42	15	15-115	5-22
Bolivia[1] (1985, 1991)	20	8	0-20	5-10
	80	21	0-105	0-65
Brazil (1985, 1992)	35	11	35	11
Chile[1] (1984, 1991)	83	12	0-220	5-20
Colombia (1984, 1992)	92	15	1-100	5-20
Costa Rica (1985, 1992)	50	18	0-290	2-40
Ecuador (1985, 1991)	50	19	1-100	5-20
Guatemala (1985, 1992)	NA	20	NA	0-45
Jamaica (1991)	34	4	0-100	0-20
Mexico (1985, 1991)	72	16	0-44	3-86
Paraguay (1985, 1991)	64	15	0-120	5-25
Peru (1987, 1992)	32	18	10-55	12-24
Uruguay (1987, 1992)	37	19	0-135	0-50
Venezuela (1989, 1991)				

[1] For Bolivia and Chile, the earlier years too are post rather than pre reform.

Sources: *Edwards (1993), Ch. 5, Table 5.2*
Primo Braga, Safadi and Yeats (1994), Table 1;

These sources have drawn partly on Erzan et.al. (1989) and on Alam and Rajapatirana (1993)

average tariff level is low (in this case, it has been so for many years) also in the U.S.—another potential partner for preferential agreements with Latin American countries.

This—recalling our *a priori* grounds (i) and (ii) above—leads us immediately to an important inference, namely: unless indicated otherwise by other criteria, a strong *prima facie* presumption exists that preferential trade agreements among Latin American countries are **not** likely to yield positive results or to be *relevant*—less likely, that is, than in other places or at other times. This inference may be viewed as a bit paradoxical and counter-intuitive—it certainly differs from what appears to be today the conventional wisdom. It is stated quite often now that trade preferential agreements in Latin America are contemplated at present as part of the opening-up process, an extension of liberalization; and hence, by inference, that they are good. Whereas in the past—mainly in the 1960s—preferential agreements in the continent (e.g., the original Andean Pact, or the Central-American Common Market)—had been conceived as an extension of the trade-restrictive, import-substituting regime, and as such must have been, by inference, harmful—the regime itself being so. Although such statements about **intentions** and atmosphere are certainly correct, in fact the **outcome** is quite the opposite; other things being equal, preferential trade agreements in Latin America **prior** to the process of liberalization were **more** likely to yield a positive impact than preferential agreements would be today[6] (but that does **not** mean, by itself, that past agreements had indeed had a positive consequence!).

6. This inference is restricted to the **trade** aspect: past agreements pertained also to determination of comparative advantage, a pattern of specialization, and allocation of investment—a highly damaging component which, fortunately, would not form a part of any agreement contemplated at present. It should also be noted that the past levels of common external tariffs—an element abstracted from in the present analysis—were much higher than any levels that may follow preferential agreements which are contemplated today.

D. Shares of Intra-Regional Trade

We recall that, given any size of a country's trade, a trade-preferential agreement is likely to be more relevant and to lead to less trade diversion and more trade creation the higher is the share of imports from the potential partner. Similarly, a higher share of exports to the partner would be beneficial, contributing more to an improvement of the country's terms of trade following the removal of tariff by the partner. The share of trade with the partner is thus an important consideration in pre-judging the likelihood of a beneficial agreement.

Table 2 shows the shares of each Latin American country, as well as the U.S., as a provider of imports of each other Latin American country and as a buyer of its exports. Its results are quite revealing.

Overall, the share of any single Latin American country in the trade of another is always low. Brazil and, to a lesser extent, Mexico, are the only two countries in Latin America trade with which is of any importance to any other Latin American country. But even here, the highest observed ratios, in Uruguay's and Paraguay's trade with Brazil, are only of the order of 20-25 per cent (of these two countries' exports or imports). Other than in trade with Brazil, Bolivia's trade with Argentina is the only case in which a trade flow from one Latin american country to another exceeds 10 per cent of either country's trade; even ratios above 5 per cent are not common.

Even in observing the share of the **whole** of Latin America in the trade of each individual country in the group, the role of the continent does not look impressive—the trade shares being moderate at best. They are distinctly higher than all the rest—around 40-45 per cent, for each country's trade flows—for **Bolivia** and **Paraguay**. Perhaps not

coincidentally, these are the two landlocked countries in the Continent. This raises the probability that the trade flows in question involve to a large extent **transit** trade, rather than transactions originating from the partner country's producers and consumers. Naturally, if the aggregate share of Latin America is generally low, so would *a fortiori* be the shares of sub-groups within it. In Table 2, the sub-groupings that at present have **some** measure of preferential agreements are shown: MERCOSUR (Argentina, Brazil, Paraguay, and Uruguay); the Central-American Common Market (CACM-Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua); and the Andean Pact (Bolivia, Colombia, Ecuador, Peru, and Venezuela). The pattern appearing here is not much different from that emerging from the observation of single countries as partners. MERCOSUR, dominated by Brazil, is the only group trade with which is of significance to some countries: to Bolivia and to Paraguay, the same two countries discussed earlier, and to Uruguay—itself a member of MERCOSUR (as is Paraguay). Uruguay's trade with its two large neighbors, Brazil and Argentina, is in fact the only case in Latin America in which trade with the country's immediate neighbors is of cardinal importance. The Central American grouping becomes more important than any of its components for El Salvador and Guatemala, whose trade with the CACM is of some significance. From the point of view of **outsiders** contemplating joining an existing grouping, Bolivia's relationship with MERCOSUR is the only one which appears, by the yardstick on hand, to be of some relevance.

As an aside, it may be noted that following the establishment of the MERCOSUR, a significant change in the geographical pattern of trade of its members has taken place, namely: a substantial increase in the share of trade within the bloc. This is shown in Table 3.

Table 2: Shares of Intra-Regional Trade in Latin America, 1991

(Trade flow of country in column to or from country in row,
in percentage of aggregate trade flows of the former)

	ARG		BOL		BRA		CHL		COL		CRI		ECU		SLV		GTM		HND		JAM		MEX		NIC		PRY		PER		URY		VEN		LAC Tot		MERCO		CACM		ANDEA		USA	
	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M	X	M
ARG	0.0	0.0	1.0	3.0	12.4	19	4.1	2.8	0.7	0.4	0.1	0.0	0.6	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.0	2.2	0.0	0.0	1.5	0.5	1.7	0.6	2.6	2.0	1.7	0.3	28.5	30.7	19.1	23.4	0.3	0.0	5.6	4.6	10.4	18.1
BOL	29.2	11.2	0.0	0.0	4.6	14.3	3.7	6.4	3.4	0.7	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.0	0.2	0.4	6.0	2.1	0.2	0.3	0.4	0.4	48.4	37.0	37.8	32.2	0.0	0.0	10.0	3.4	21.9	25.9
BRA	4.7	7.6	0.8	0.1	0.0	0.0	2.1	2.3	0.5	0.3	0.2	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	2.4	1.0	0.0	0.0	1.6	1.0	0.7	0.5	1.1	1.9	1.4	2.4	16.0	17.2	7.9	11.8	0.4	0.0	3.8	3.4	20.2	23.5
CHL	2.9	7.4	1.3	0.3	5.3	9.4	0.0	0.0	0.6	2.1	0.1	0.0	0.6	1.6	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5	1.9	0.0	0.0	0.4	0.8	1.6	0.9	0.3	0.3	0.6	2.7	14.5	27.3	8.4	17.1	0.3	0.1	4.8	7.5	15.5	21.2
COL	0.5	1.8	0.1	0.5	0.7	3.2	2.5	0.9	0.0	0.0	0.9	0.1	1.7	0.7	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.8	3.3	0.2	0.0	0.0	0.0	2.9	2.3	0.1	0.2	5.9	6.9	16.8	20.1	3.8	6.1	1.5	0.2	10.7	10.4	38.8	35.0
CRI	0.0	0.6	0.0	0.0	0.0	3.1	0.1	0.7	0.2	1.6	0.0	0.0	0.2	0.5	2.7	2.3	3.6	3.7	1.2	0.3	0.4	0.0	0.8	3.9	3.6	0.5	0.0	0.0	0.0	0.4	0.0	0.1	0.3	5.2	13.2	22.9	0.2	4.4	11.0	6.9	0.8	7.7	47.6	51.3
ECU	0.5	2.4	0.0	0.0	0.3	5.9	3.7	2.7	1.1	4.1	0.1	0.2	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.7	1.4	0.0	0.0	0.0	0.0	5.8	1.5	0.0	0.1	0.2	1.8	13.2	20.9	4.5	11.1	0.9	1.0	7.1	7.4	49.2	31.9
SLV	0.2	0.7	0.0	0.0	0.0	2.0	0.1	0.4	0.0	0.5	7.6	2.9	0.0	0.0	0.0	0.0	18.4	11.6	3.7	1.3	0.0	0.0	1.4	9.7	4.0	1.2	0.0	0.0	0.0	0.2	0.1	0.0	0.0	4.1	35.6	34.7	0.4	3.2	33.6	17.0	0.1	4.8	34.8	41.1
GTM	0.0	0.9	0.0	0.0	0.0	1.9	0.1	0.5	0.3	0.8	6.3	2.3	1.1	2.4	12.9	5.3	0.0	0.0	3.6	0.5	0.4	0.0	5.2	6.6	4.2	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0	4.5	34.2	26.3	0.2	3.4	27.0	8.5	1.5	7.8	37.8	42.6
HND	0.0	0.3	0.0	0.0	0.0	1.9	0.0	0.4	0.2	0.8	0.4	2.1	0.5	0.1	2.7	2.1	1.4	4.4	0.0	0.0	0.0	0.0	0.6	5.5	0.7	0.9	0.0	0.0	0.0	0.2	0.0	0.0	0.1	5.2	6.6	24.0	0.0	2.6	5.2	9.6	0.7	6.4	53.9	48.7
JAM	0.0	0.1	0.0	0.0	1.2	0.9	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	1.3	10.9	1.2	1.1	0.1	0.4	0.0	5.6	31.7	52.4
MEX	0.7	1.0	0.0	0.0	0.7	2.0	0.5	0.1	0.6	0.1	0.3	0.1	0.2	0.0	0.4	0.1	0.8	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.3	0.1	0.1	0.4	0.4	5.6	4.4	1.9	3.2	1.8	0.4	1.5	0.8	69.5	64.7
NIC	0.0	0.1	0.0	0.0	0.0	0.9	0.0	0.2	0.5	0.6	4.5	9.8	0.0	2.8	7.2	3.8	4.3	8.6	3.3	1.3	0.0	0.0	4.9	2.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.8	24.7	32.2	0.0	1.2	19.3	23.5	0.5	5.4	20.0	25.6
PAN	0.1	0.4	0.2	0.0	0.0	1.4	0.0	0.8	1.0	2.0	7.8	2.8	0.8	6.2	1.9	0.5	1.9	1.3	1.1	0.1	0.1	0.0	3.8	1.8	0.9	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.8	2.7	20.8	20.5	0.2	2.7	13.5	4.7	3.2	11.3	40.6	35.8
PRY	6.1	12.0	0.3	0.1	27.5	17.2	6.5	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.5	0.0	1.5	0.8	1.6	0.1	44.4	33.9	41.7	32.7	0.1	0.0	2.5	0.4	4.7	15.0
PER	1.1	7.3	0.7	0.8	3.5	5.9	2.3	3.0	3.3	7.5	0.3	0.0	1.4	4.8	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	2.4	3.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.4	2.7	3.5	18.2	36.8	7.0	16.7	0.6	0.0	8.1	16.6	19.1	25.7
URY	10.4	17.5	0.2	0.1	24.4	24.0	1.4	1.7	0.5	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.9	0.0	0.0	0.7	0.7	0.5	0.2	0.0	0.0	0.3	2.3	40.4	48.4	36.2	43.2	0.1	0.0	1.6	2.6	10.1	9.9
VEN	0.4	2.2	0.0	0.0	2.2	4.5	1.0	0.5	2.0	2.9	0.5	0.0	0.3	0.1	0.4	0.0	0.5	0.0	0.2	0.0	0.4	0.1	0.9	1.5	0.0	0.0	0.0	0.1	0.6	0.9	0.2	0.1	0.0	0.0	9.6	12.8	3.8	7.2	1.6	0.1	2.9	3.9	52.0	47.8
USA	0.5	0.3	0.0	0.0	1.5	1.4	0.4	0.3	0.5	0.6	0.3	0.2	0.2	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	8.0	6.2	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.0	1.1	1.7	13.7	11.9	2.4	2.0	0.8	0.6	2.1	2.8	0.0	0.0
AVL	0.3	0.4	0.0	0.0	0.6	1.0	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1.5	1.3	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.4	3.6	4.1	1.1	1.7	0.2	0.2	0.7	0.9	13.6	11.9

Source: Estimated from data in Comtrade, U.N. Statistical Office

Table 3: Shares of Trade within MERCOSUR, 1988-1993

	Percentage of Trade with MERCOSUR in					
	Exports			Imports		
Country	1988	1992	1993	1988	1992	1993
Argentina	9.6	19.1	28.1	21.6	23.4	25.1
Brazil	4.7	7.9	13.9	7.3	11.8	12.7
Paraguay	30.4	41.7	39.6	43.0	32.7	37.5
Uruguay	24.3	36.2	41.2	42.5	43.9	44.9

Source: Based on data from Comtrade, U.N. Statistical Office

The large trade flows within MERCOSUR are, obviously, those between Brazil and Argentina. These flows have increased materially during the last few years. Explaining it by the establishment of MERCOSUR may not be done without some further research; but a strong presumption of at least a partial relationship may exist. Another explanatory factor must be the opening of the two economies—regardless of the preferential agreement—which has led to the expansion of trade of the two economies and hence to each becoming a more important trader with the other.[7]

The low levels in intra-regional trade flows in Latin America are, undoubtedly, primarily a consequence of the small size of trade of most countries. This is recorded in Table 4.

It may be seen that even trade of the largest countries—Brazil and Mexico—barely reaches one percent of world trade. For most countries, the share is below one quarter of one percent. It might have been expected that geographical and cultural proximity would have made trade among Latin American countries substantially more important that their shares in world trade would indicate. But this tends to be outweighed by structural attributes of production and trade of these economies, to which we now turn.

7. See Annex 2 for a methodologicial discussion of this issue.

Table 4: Shares of Trade of Latin American Countries in World Trade

IMPORTS--1991

Country	Size of Imports ($b.)	Percentage of World Imports
ARGENTINA	8.28	0.25%
BOLIVIA	0.99	0.03%
BRAZIL	22.98	0.70%
CHILE	7.45	0.23%
COLOMBIA	4.97	0.15%
COSTA RICA	2.23	0.07%
ECUADOR	2.33	0.07%
EL SALVADOR	0.88	0.03%
GUATEMALA	1.85	0.06%
HONDURAS	0.96	0.03%
JAMAICA	1.70	0.05%
MEXICO	38.07	1.15%
NICARAGUA	0.67	0.02%
PANAMA	1.69	0.05%
PARAGUAY	1.46	0.04%
PERU	2.81	0.09%
URUGUAY	1.55	0.05%
VENEZUELA	10.04	0.30%
LAC TOTAL	110.93	3.36%
USA	508.94	15.43%
WORLD	3,297.90	100.00%

EXPORTS--1991

Country	Size of Exports	Percentage of World Exports
ARGENTINA	11.97	0.39%
BOLIVIA	0.90	0.03%
BRAZIL	31.62	1.03%
CHILE	8.96	0.29%
COLOMBIA	7.27	0.24%
COSTA RICA	1.63	0.05%
ECUADOR	2.85	0.09%
EL SALVADOR	0.37	0.01%
GUATEMALA	1.20	0.04%
HONDURAS	0.62	0.02%
JAMAICA	1.05	0.03%
MEXICO	26.96	0.88%
NICARAGUA	0.27	0.01%
PANAMA	0.34	0.01%
PARAGUAY	0.74	0.02%
PERU	3.09	0.10%
URUGUAY	1.57	0.05%
VENEZUELA	15.13	0.49%
LAC TOTAL	116.53	3.53%
USA	400.98	13.07%
WORLD	3,068.46	100.00%

Source: Comtrade, U.N. Statistical Office and Michaely, M. (1994)

E. Diversity of Economies

An economy may, as a rule, be expected to be highly diversified when it is highly developed, in the sense of having a high level of per capital product; and in particular - a closely related attribute - when it is mostly engaged in manufacturing, rather than in primary production.[8]

Table 5 presents the shares of agriculture, mining, and manufacturing, as well as the levels of per-capita income, for the Latin-American countries and the U.S.A. Most Latin-American economies are quite similar in per-capita income, sharing a moderately low level—within the range of $1,000-$3,000 per year, contrasting with a level of $23,000 for the U.S. (and a roughly similar level for other highly-developed economies). The majority of Latin American economies also display a relatively large role of the primary sectors—agriculture and mining. But the "minority" consists of Argentina, Brazil, Mexico, Peru, and Uruguay—a group of countries that accounts for most of the continent's income and trade: in these, the manufacturing sector provides roughly 70 per cent of the production of goods, versus a range of some 25 to 55 per cent for the rest. Not surprisingly, those countries (excluding Peru) also enjoy the region's higher per-capita income levels. They also tend to be (here Uruguay is the exception) the region's larger economies, in terms of population and aggregate income levels, as we shall see soon. Judged **solely** by this criterion, this would be the list of Latin-American countries which may be considered as

8. In fact, part of the diversification which is normally an element of development is the increased size and proliferation of a variety of **services**. We ignore these in the present context since most of the services are predominantly non-tradable, whereas the economic relationships which are relevant for the purpose on hand are those which concern only **tradable** activities.

Table 5: Per-Capita Income and Shares of Major Sectors, 1992				
	Per-Capita Annual GDP	Percentage in Aggregate Production of Goods		
	($)	Agriculture	Mining	Manufacturing
Argentina	6,050	22.9	5.8	71.3
Bolivia	680	53.9	18.6	26.5
Brazil	2,770	23.5	4.5	72.0
Chile	2,730	20.2	36.8	43.0
Colombia	1,290	38.0	14.0	48.0
Costa Rica	2,000	45.8	0	54.2
Ecuador	630	31.5	21.6	46.9
El Salvador	1,170	43.9	0.5	55.5
Guatemala	980	62.2	0.7	37.1
Honduras	580	56.0	4.0	40.0
Jamaica	1,340	20.1	24.9	54.9
Mexico	3,470	20.6	8.6	70.8
Nicaragua	410	61.3	1.1	37.6
Panama	2,440	61.7	0.4	37.9
Paraguay	1,340	63.2	1.0	35.8
Peru	950	20.5	5.5	73.9
Uruguay	3,340	32.0	0.4	67.6
Venezuela	2,900	18.8	31.1	50.2
U.S.A.	23,120			

Source: World Bank data

promising partners to a trade-preferential agreement. Obviously, the U.S. is, by this criterion, a more promising partner than any Latin-American economy.

By the same token, it appears that with the exceptions noted above, multiplication of the **number** of partner countries, within the region of Latin America, is not going to add much to diversity of the "partner" bloc. That is, a low measure of diversification **within** one (partner) country is not going to be compensated by variations **among** (partner) countries, which might have made the "partner" bloc diversified despite the absence of diversity in each of its components. We shall come back soon to other representations of this nature of the economies.

The economic size of a country is, we recall, another indicator of whether it is likely to be diversified; to resemble, in its structure other economies; and, hence, to be a promising candidate in conferring the benefits of trade creation. The single best yardstick for "economic size" is a country's aggregate value of income or production. Table 6 presents the GDP of Latin America's economies, along with that of the U.S.A.

It is immediately apparent that the size of most Latin-America's economies is very small indeed. In only three of them does the country's share in world GDP reach one percent or exceed it: Brazil (about 2 percent of world income); Mexico (about 1.4 percent); and Argentina (close to 1 percent). The **combined** share of all the rest of Latin America reaches only about one percent. It thus appears that only a "partner" grouping to a trade agreement which includes Brazil, Mexico and Argentina would have an economic size of some significance; and that any grouping which does **not** include at least one of these three, particularly either Brazil or Mexico, would have a minute economic size, and would have little promise of any trade creation.

Table 6: Shares of Latin America's Economies in World Income, 1992

Country	Aggregate Annual GDP ($b.)	Percentage of World GDP
Argentina	200	.98
Bolivia	5	.02
Brazil	425	2.05
Chile	37	.18
Colombia	45	.21
Costa Rica	6	.03
Ecuador	12	.05
El Salvador	6	.03
Guatemala	10	.05
Honduras	3	.01
Jamaica	3	.01
Mexico	285	1.41
Nicaragua	1	.01
Panama	6	.03
Paraguay	6	.03
Peru	21	.14
Uruguay	10	.05
Venezuela	59	.26
U.S.A.	5,904	28.50
MERCOSUR	641	3.41
CACM	26	.13
Andean Group	142	.71

Source: Data from the World Bank Atlas

In contrast, of course, the U.S. income is a full one-fourth of the world's income. By this criterion, a preferential agreement with the U.S., or with any grouping which includes the U.S.[9], would seem to have a high potential for trade creation.

F. Indices of Compatibility

We shall now try to assess the potential impact of trade-preferential agreements in Latin America with the help of two synthetic indices. They represent, in essence, a combination of several of the structural attributes of trade and production we have discussed thus far. The use of such indices **cannot,** nor is it meant to, yield an inference of a **cardinal** nature, (such as the expected size of trade, or trade diversion or creation), following one agreement or another; nor, for that matter, will they tell whether the agreement is expected to be "good" or "bad". They will, on the other hand, provide an **ordinal** inference (even that, of course, only in a partial way, as one of several indicators): we shall infer from them whether one agreement makes more sense than another, either in comparing potential agreements of Latin America or when another agreement, outside the region, is used as a yardstick.

9. The share of NAFTA countries (the U.S., Canada and Mexico) in world GDP was roughly 30 per cent in 1992.

We shall use three indices of compatibility, defined in the same way.[10] First is the compatibility of a **home country's** imports with the potential **partner-country exports.** This is defined as:

$$Sm_j x_k = 1 - \frac{\sum_i |m_{ij} - x_{ik}|}{2}$$

and

$$Sx_j m_k = 1 - \frac{\sum_i |x_{ij} - m_{ik}|}{2}$$

where

$Sm_j x_k$ = index of compatibility of imports of country j with exports of country k;

$Sx_j m_k$ = index of compatibility of exports of country j with imports of country k;

$| \ |$ indicates absolute values (i.e., regardless of sign)

x_{ij} = share of good i in total exports of country j;

m_{ij} = Share of good i in total imports of country j;

x_{ik} = share of good i in total exports of country k;

m_{ik} = Share of good i in total imports of country k;

10. These indices are another variant of the index of trade similarity and of the index of intensity of multilateral trade transactions, developed long ago in my studies (1962a) and (1962b), respectively) and adopted since for a variety of purposes (such as the measurement of intra-industry trade). For an analysis of the properties of the index, comparing it with others and concluding that it is indeed the preferred tool for the measurement of similarity of trade patterns, see Jacob Kol and Loet B.M. Mennes (1986) and Jacob Kol (1988).

The range of values of this index of compatibility (say, between j's imports and k's exports) is between zero and unity. It will be zero when the trade flows have **no similarity whatsoever**: there is no good imported at all, by one country, which is exported to any extent by the other. The index will reach unity, on the other hand, its maximum level, when the structures of the two trade flows are **identical**: in proportion of each aggregate, one country exports precisely what the other imports.

In a similar way, we define the index of compatibility between the home-country's **production** and the partner-country's **exports**. It is:

$$Cx_j q_k = 1 - \frac{\sum_i |x_{ij} - q_{ik}|}{2}$$

where

$Cx_j q_k$ = index of compatibility of exports of country j with production of country k

x_{ij} = (as before) share of good i in total exports of country j; and

q_{ik} = share of good i in total **production of tradables** of country k.

Once more, the index ranges potentially from zero to unity. It will be zero when one country exports **none** of what the other country is producing; and unity when the structure of one country's exports is identical with that of the other's production.

The third index, finally, describes the compatibility of the structures of the <u>two export flows</u> - one of the home country and the other of its partner. It is defined as:

$$Tx_j x_k = 1 - \frac{\sum_i |x_{ij} - x_{ik}|}{2}$$

where

$Tx_j x_k$ = index of compatibility of exports of country j with exports of country k

x_{ij} = (as before) share of good i in total exports of country j; and

x_{ik} = (as before) share of good i in total exports of country k.

As is self evident by now, the index ranges from zero - where no good is exported jointly by the two countries - to unity, when the structures of exports in the two countries are identical.

The first index (S), relating one country's imports to the other's exports, is an indication of potential for **trade diversion**. The nature of that diversion is a replacement of imports from other ("third") countries by imports from the (potential) partner to the preferential agreement. If the structure of exports of "third" countries to the home country (which is the structure of the latter's imports[11]) is very similar to the export structure of the partner country, the potential for displacement of the former's exports by the latter - which is precisely the diversion of the home country's source of imports - will be large. If, at the

11. Strictly speaking, the two are not identical: "third" countries' exports to the home country are equal to the latter's total imports minus its imports from the partner country. But in practice, the difference between the composition of the two aggregates will not normally be substantial.

other extreme, the partner country exports nothing similar to what the "third" countries export to the home country, no trade diversion at all would be possible.

The index of trade (export-import) compatibility thus provides an indication—qualitative in nature—of the **scope** of trade expansion following a preferential agreement. This may be referred to as an indication of "relevance" of such an agreement. But it should be noted that as far as this information is concerned, large scope, or strong "relevance", do **not** necessarily mean large benefits: trade diversion has a negative production effect, and a positive consumption effect, so that its net welfare effect is ambiguous. In other words: from the fact that a large expansion of trade between two partners may be expected from the agreement due to trade diversion would not follow necessarily a judgement that such an agreement should be pursued.

In a similar way, though this may be less immediately obvious, the index of compatibility (C) between the structure of the home-country's production and of the partner-country's exports indicates the potential for **trade creation**. The essence of the latter is a displacement of the country's own production by the partner's exports. The more similar the structure of the two flows, the more likely is the replacement of one (own production) by the other (imports from the partner); that is, the higher the potential for trade creation. When the partner country exports nothing of what the home country produces, no substitution of imports (from the partner) for own production is possible; and, thus, the potential for trade creation would be nil.[12]

12. It is worth emphasizing again that we refer here to **partial** indicators. The **size** of the partner country would obviously be one of the other criteria for judging the potential of trade expansion with that partner, whether it is trade diversion of or trade creation.

So far as this indication is concerned, strong "relevance" of an agreement would also imply a large benefit from it, since trade creation is unambiguously welfare enhancing. A comparison of the two indices of compatibility (of the partner country's exports with the home country's imports and with its production) may thus also yield an inference—again, strictly in a qualitative way—of whether a potential agreement is not only "relevant" but is also more or less likely to be beneficial.

The third index (T), of compability of exports structures, does not have a life of itself: it is designed to be used in conjunction with the index of production-exports compatibility, to lower the risk of a misguided interpretation of the latter. Suppose that two countries specialize in the same goods (and would do so without import barriers); for instance, both specialize in oil. That good would then form a high proportion, in both countries, of both production and exports. The production-exports index of compatibility would then tend to be high; but in this case, an inference of a high potential of replacement of local production by imports from the partner country would manifestly be unwarranted. An attribute of such case, however, is that the export structures of the two countries are similar (in the example, oil would form a high proportion of both countries export flows). That is, a high level of compatibility of export structures should indicate a low potential of trade creation; and this index should be used to check the indications provided by the production-exports index of compatibility.

The levels of the three indices, and inferences drawn from the data will be discussed at some length in the following two sections. Here, a few problems faced in construction of the indices will be noted.

Constructing the first index (S) and the third index (T) - indices of compatibility of trade flows - is a relatively straightforward procedure. Data of trade flows, classified by a uniform scheme—the SITC (Standard International Trade Classification)—are almost universally available. A minor problem encountered when comparisons with earlier periods are concerned (such as the 1960's) is that the precise classification scheme has slightly changed over the years; but in the present context these changes are of very little significance—the use of one scheme and not the other would be almost immaterial for the size of the index. A more general problem is the selection of **degree of detail** of the classification scheme. Obviously, adopting the "two-digit" level (which distinguishes among 69 items) would group together goods which are widely different from each other.[13] We have experimented with the next two levels of classification -the "three-digit" (with 239 items) and the "four-digit" (with 790 items). Although the indices constructed under the two alternatives are naturally different from each other, it was found that in general the differences were minor; and, moreover, that they are immaterial for the **relative** levels of the indices in comparisons of the countries. We have therefore selected just one scheme—the "three-digit" level; and all the indices presented are based on data thus classified.

Construction of the other index (C), of compatibility between trade and production, is a much bigger challenge. To start with, the index is to match a flow of trade with a flow of production of **tradables** (which are the component of the national product subject to replacement by imports). A determination of what is or is not "tradable" is subject to to a large degree of arbitrariness, due to both conceptual problems (e.g. a "non-tradable" activity

13. For example, coffee, tea, cocoa, chocolate, and spices would be classified as one good.

at one price range would become "tradable" at another); and practical problems of data availability. In fact, we have equated here, as is often done for lack of a better practical alternative, the production of "tradables" with that of **goods**; whereas **services** constitute the "non-tradables". Once in a while, this pragmatic solution may distort the outcome.[14]

Next, data of structure of production is classified differently than trade (using the SIC—Standard Industrial Classification- rather than the SITC). Moreover, unlike the richness of trade data—which allows, **inter alia**, a selection of the degree of fineness of classification—production data are available at best at one classification level, which is generally less detailed than the three-digit SITC level. Indeed, sometimes data which are generally available do not go beyond the **one**-digit level: minerals are the most important case in point. At this level, comparisons of structures of production and trade flows would yield inferences of very little value. We have therefore constructed ourselves a more finely classified data when this was required, ending up with a classification into 75 items—a less satisfactory scheme than that applied for trade data.

G. Trade Compatibility: Potential for Trade Diversion

The index of compatibility of trade flows of the country and its partner is, we have argued, an indicator of the potential for trade diversion; as such, it also is an indicator of the

14. An obvious case in point is that of Panama, in which most "tradables" would actually be found in the **services** sectors.

relevance of a contemplated preferential agreement. This index for 1990 is presented in Table 7, in a matrix form.[15]

The countries listed in the vertical column are exporters, and they are the potential partners to each importing country listed horizontally. A high coefficient would mean that a preferential agreement between an "importing" country and an "exporting" one would have a high likelihood of diverting imports of the former from the "rest of the world" to the "exporting" country. For instance, the column for Argentina will show the compatibility of its imports with the exports of, in turn, Bolivia, Brazil, Chile and so on. Thus, the column would show the potential for diversion of Argentina's imports from the rest of the world to, in turn, Bolivia, Brazil,Chile, etc.

It is immediately evident that almost all the indices are rather low. The exceptions occur mainly where the exporting country is either Brazil or Mexico or, to a lesser extent, Argentina. Thus, for all the Latin American countries as importers, a preferential agreement with almost any other Latin American country is not likely to lead to much trade diversion. The **averages** for the importing countries are shown as a separate row (they are.16 for Argentina, .15 for Bolivia, and so on). As can be seen, these averages are remarkably similar for the different countries—and are all low: they range from a high of .23 for Panama to a low of .15 for Bolivia and Paraguay. Interestingly enough, the average index of compatibility is within this range (it is .21) also for the U.S.; that is, as an **importing** country, the U.S. would realize little trade diversion in potential preferential agreements with

15. 1990 has been selected because it is the latest year for which data are available for all countries. We have constructed the indices also for 1988 and 1989, as well as for the averages of 1988-1990, and found only minor differences in comparing them with the indices for 1990.

Table 7: Indices of Trade Compatibility in Latin America, 1990

Exports \ Imports	ARG	BOL	BRA	CHL	COL	CRI	ECU	GTM	HND	JAM	MEX	NIC	PAN	PER	PRY	SLV	URY	VEN	AVG	USA	CAN	NAFT	ME
ARG	0.24	0.28	0.28	0.29	0.37	0.36	0.33	0.37	0.36	0.34	0.37	0.31	0.32	0.41	0.26	0.41	0.32	0.36	0.34	0.28	0.28	0.29	0.29
BOL	0.13	0.03	0.09	0.06	0.05	0.05	0.05	0.06	0.05	0.07	0.10	0.06	0.08	0.09	0.03	0.08	0.07	0.08	0.07	0.08	0.07	0.08	0.10
BRA	0.38	0.33	0.31	0.38	0.40	0.37	0.43	0.36	0.36	0.37	0.43	0.31	0.39	0.37	0.30	0.39	0.34	0.43	0.37	0.42	0.42	0.43	0.35
CHL	0.18	0.11	0.16	0.12	0.15	0.14	0.11	0.12	0.12	0.15	0.16	0.11	0.14	0.12	0.09	0.14	0.13	0.18	0.14	0.16	0.17	0.17	0.17
COL	0.15	0.13	0.37	0.29	0.17	0.24	0.14	0.23	0.27	0.21	0.18	0.31	0.33	0.24	0.22	0.25	0.31	0.16	0.24	0.31	0.23	0.29	0.34
CRI	0.19	0.19	0.19	0.20	0.18	0.29	0.18	0.21	0.22	0.26	0.24	0.22	0.26	0.18	0.18	0.22	0.19	0.18	0.20	0.26	0.26	0.27	0.20
ECU	0.06	0.03	0.26	0.17	0.09	0.12	0.05	0.15	0.17	0.11	0.07	0.22	0.20	0.14	0.14	0.15	0.22	0.05	0.14	0.18	0.11	0.17	0.23
GTM	0.19	0.21	0.19	0.20	0.16	0.24	0.19	0.23	0.28	0.23	0.22	0.25	0.30	0.20	0.19	0.31	0.22	0.16	0.22	0.21	0.22	0.21	0.20
HND	0.09	0.07	0.08	0.08	0.06	0.09	0.06	0.07	0.08	0.11	0.12	0.09	0.10	0.08	0.05	0.08	0.09	0.07	0.08	0.12	0.11	0.12	0.08
JAM	0.10	0.08	0.10	0.09	0.08	0.10	0.08	0.09	0.10	0.11	0.13	0.12	0.16	0.09	0.11	0.11	0.10	0.11	0.10	0.14	0.13	0.14	0.11
MEX	0.35	0.34	0.53	0.45	0.35	0.37	0.33	0.41	0.42	0.30	0.35	0.52	0.45	0.34	0.34	0.38	0.50	0.38	0.40	0.52	0.48	0.51	0.52
NIC	0.09	0.09	0.10	0.10	0.08	0.10	0.09	0.09	0.10	0.11	0.13	0.08	0.10	0.12	0.06	0.12	0.09	0.10	0.10	0.09	0.10	0.10	0.10
PAN	0.15	0.16	0.16	0.14	0.13	0.16	0.13	0.17	0.20	0.21	0.20	0.16	0.21	0.17	0.13	0.20	0.17	0.15	0.16	0.17	0.18	0.18	0.17
PER	0.15	0.10	0.13	0.14	0.17	0.18	0.12	0.20	0.20	0.21	0.16	0.12	0.15	0.16	0.15	0.23	0.15	0.16	0.16	0.17	0.14	0.17	0.14
PRY	0.05	0.06	0.06	0.05	0.07	0.06	0.05	0.06	0.08	0.10	0.09	0.06	0.08	0.08	0.02	0.09	0.08	0.09	0.07	0.07	0.06	0.07	0.06
SLV	0.19	0.21	0.16	0.20	0.18	0.25	0.21	0.24	0.26	0.23	0.23	0.22	0.31	0.18	0.19	0.27	0.21	0.19	0.21	0.22	0.21	0.22	0.18
URY	0.16	0.20	0.18	0.18	0.18	0.21	0.18	0.20	0.21	0.23	0.20	0.23	0.27	0.23	0.15	0.23	0.19	0.18	0.20	0.20	0.20	0.21	0.19
VEN	0.13	0.10	0.31	0.23	0.11	0.14	0.11	0.17	0.18	0.10	0.12	0.26	0.23	0.14	0.14	0.17	0.24	0.11	0.17	0.20	0.16	0.20	0.28
USA	0.53	0.48	0.52	0.54	0.56	0.52	0.50	0.48	0.44	0.50	0.63	0.40	0.43	0.48	0.39	0.46	0.46	0.58	0.49	0.60	0.68	0.64	0.55
CAN	0.41	0.45	0.43	0.43	0.42	0.48	0.41	0.45	0.44	0.41	0.44	0.41	0.42	0.40	0.35	0.42	0.39	0.44	0.42	0.59	0.59	0.60	0.46
NAFTA	0.52	0.50	0.53	0.55	0.55	0.56	0.50	0.53	0.49	0.51	0.61	0.43	0.46	0.49	0.42	0.50	0.49	0.58	0.51	0.67	0.72	0.71	0.57
MERCO	0.37	0.33	0.32	0.37	0.41	0.39	0.41	0.39	0.39	0.38	0.44	0.34	0.40	0.40	0.29	0.43	0.37	0.44	0.38	0.42	0.40	0.43	0.36

Source: Estimated from data in Comtrade, U.N. Statistical Office

Latin American countries. Once more Brazil and Mexico (for the latter this is, of course, more than a "potential") are the exceptions. This is a remarkable contrast to the position of the U.S. as an **exporter** in such agreements, which will be noted shortly.

As **exporters**, the indices of compatibility of any given Latin American country with imports of the others naturally vary somewhat. But, for each individual exporting country, the variance is small enough to make the **average** index a meaningful representation of its position. These averages are shown in the column following that of Venezuela (they are .34 for Argentina, .07 for Bolivia, and so on). In Table 8, we rank the countries by this average, and show the latter along with four other variables: the degree of commodity concentration of exports, measured by the Gini-Hirschman coefficient; the level of per capita income; the size of aggregate income; and the share of manufacturing in the total production of goods.

These variables are clearly interrelated to each other; they all represent factors we have discussed earlier as likely to lead to a high relevance of a preferential agreement. A formal analysis of the relationships of the index of compatibility to these variables is provided in Annex 3. But even without it, a cursory look at the findings suggests a clear-cut pattern, in the expected directions. The index of compatibility tends to be higher when the country is large (in terms of aggregate GDP); rich (in terms of high per-capita income); having a production pattern in which manufacturing is predominant; and having diversified exports. At the top of the list stand, as a group apart, Mexico, Brazil and, to a lesser extent, Argentina: Latin America's largest countries which are also among the richest, with highly diversified exports (less exceptionally for Mexico) and with the highest shares of industrial production. The indices of all other economies are substantially lower. At the bottom are

Table 8: Average Indices of Trade Compatibility and Explanatory Variables

Country		Average Index	Coefficient of Export Concentration	Per Capita Income ($)	Aggregate Income ($b.)	Percentage of Manufacturing in Production of Goods
1.	Mexico	.41	.36	3,470	295	70.8
2.	Brazil	.38	.16	2,719	425	72.0
3.	Argentina	.32	.20	6,050	200	71.3
4.	Colombia	.25	.34	1,290	45	48.0
5.	Costa Rica	.22	.33	2,000	6	54.2
6.	Guatemala	.22	.32	980	10	37.1
7.	El Salvador	.22	.45	1,170	6	55.5
8.	Uruguay	.20	.27	3,340	10	67.6
9.	Panama	.17	.34	2,440	6	37.9
10.	Venezuela	.17	.80	2,900	59	50.2
11.	Peru	.16	.32	950	21	73.9
12.	Chile	.14	.44	2,730	37	43.0
13.	Ecuador	.14	.52	630	12	46.9
14.	Jamaica	.11	.66	1,340	3	54.9
15.	Nicaragua	.10	.37	410	1	37.6
16.	Honduras	.09	.46	580	3	40.0
17.	Bolivia	.07	.36	680	5	26.5
18.	Paraguay	.07	.47	1,340	6	35.8
	U.S.A.	.52	.14	23,120	5,904	

Source: Author's estimates and World Bank data

Nicaragua, Honduras, Bolivia, and Paraguay—among the poorest economies (except for Paraguay), the smallest (in economic size), the least industrialized, and with a relatively concentrated structure of exports. The outlier, in its position, seems to be Uruguay: despite its small economic size, the other variables would lead us to expect a higher compatibility of its exports with other trade flows than its index actually shows.

By this measure, then, Mexico, Brazil and Argentina would appear to be the likeliest candidates as partners for a relevant preferential agreement (but **not** necessarily a beneficial one—the promise here is for trade **diversion**!). Interestingly enough, a shift from Brazil to the whole of MERCOSUR does not change materially the index of compatibility of the area's exports: the predominance of Brazil, and the varied structure of its exports, make the addition of other countries (in essence, of Argentina) of only small significance in increasing the diversity of exports. This is true not just for the average index (it is .38 for MERCOSUR vs. .37 for just Brazil) but also for the indices which relate the area's (Brazil, or MERCOSUR) export flows with the imports flows of each individual country. By this yardstick, thus, Brazil is about as relevant as the whole of MERCOSUR as a potential partner for a preferential agreement. The Andean Group, in distinction from MERCOSUR, appears by the present yardstick to be of very small relevance: the compatibility indices of the trade of its members are mostly very low, in relationship to the trade of other members as well as to trade with other Latin American countries. This is almost as true for the CACM countries, whose indices are only slightly higher—again, with almost no difference between intra-group and other trade flows.

How does Latin America as a whole look on this score? For a meaningful answer, the continent must be compared with other parts of the world. To start with, and of

immediate significance for the purpose on hand, Table 7 shows also the indices of trade compatibility for the U.S. These are substantially higher than any of the indices of Latin American countries, either in their average level (.48 vs. .40 and .37 for, respectively, Mexico and Brazil), or in relationship to any individual Latin American country (the U.S. indices range from a low of .39 for trade with Paraguay to a high of .63 for trade with Mexico). This, of course, is not surprising in view of the U.S. aggregate income and per capita income levels, and the high degree of dispersion of its export structure. Similarly to the comparison of Brazil alone with MERCOSUR, the index for NAFTA is not much different from that of the U.S. by itself—again, not surprising in view of the dominant size of the U.S. and its varied export structure. By this yardstick, thus—as by judgements made on the basis of earlier observations—the U.S., whether alone or through NAFTA, would be significantly a more relevant partner for a trade preferential agreement, to any Latin American country, than any other Latin American country by itself (including Brazil and Mexico) or any combination of countries within Latin America.

As a comparator for Latin America, it should be useful to present European countries; specifically, members of the most successful—at least, most effective—contemporary customs-union organization, the European Economic Union (until recently, the Economic Community). This is done in Table 9, where the indices of present members of the E.U. as well as the three Scandinavian countries likely to join it soon—Finland, Norway and Sweden—are presented. The U.S. is again added to the list.

It is immediately apparent that the compatibility indices are uniformly higher—mostly substantially so—than they are for Latin American economies. In fact, the lowest (by far) indices in Europe—those of Greece and Norway—are about as high as those of Argentina,

Table 9: Indices of Trade Compatibility in Europe, 1990

		Imports														
		BLX	DNK	ESP	FIN	FRA	GER	GRC	ITA	NLD	NOR	PRT	SWE	U.K.	USA	AVG	Xcc
Exports	BLX	0.72	0.61	0.56	0.58	0.63	0.62	0.61	0.63	0.59	0.53	0.57	0.57	0.60	0.55	0.59	0.17
	DNK	0.55	0.61	0.53	0.56	0.54	0.53	0.56	0.51	0.55	0.55	0.48	0.56	0.53	0.45	0.53	0.13
	ESP	0.61	0.62	0.62	0.62	0.65	0.64	0.60	0.60	0.60	0.57	0.61	0.63	0.63	0.61	0.61	0.17
	FIN	0.48	0.53	0.49	0.49	0.48	0.47	0.49	0.46	0.49	0.48	0.46	0.50	0.48	0.44	0.48	0.28
	FRA	0.69	0.67	0.71	0.69	0.74	0.72	0.68	0.69	0.69	0.64	0.69	0.70	0.72	0.62	0.68	0.12
	GER	0.67	0.68	0.71	0.72	0.73	0.69	0.65	0.67	0.67	0.64	0.68	0.74	0.69	0.62	0.68	0.14
	GRC	0.40	0.36	0.30	0.34	0.35	0.40	0.35	0.36	0.35	0.34	0.33	0.35	0.34	0.33	0.35	0.18
	ITA	0.61	0.64	0.60	0.67	0.67	0.67	0.61	0.56	0.63	0.62	0.63	0.69	0.63	0.58	0.63	0.12
	NLD	0.65	0.66	0.59	0.60	0.66	0.65	0.59	0.63	0.67	0.58	0.55	0.61	0.62	0.54	0.61	0.13
	NOR	0.36	0.39	0.40	0.38	0.39	0.37	0.37	0.38	0.38	0.36	0.37	0.37	0.36	0.38	0.38	0.38
	PRT	0.45	0.46	0.43	0.46	0.47	0.43	0.44	0.43	0.46	0.45	0.43	0.46	0.46	0.46	0.45	0.16
	SWE	0.58	0.61	0.65	0.67	0.63	0.61	0.57	0.59	0.60	0.57	0.61	0.66	0.61	0.59	0.61	0.16
	U.K.	0.65	0.68	0.72	0.71	0.73	0.70	0.66	0.69	0.71	0.65	0.66	0.74	0.76	0.66	0.69	0.12
	USA	0.61	0.61	0.68	0.63	0.64	0.64	0.54	0.63	0.65	0.59	0.61	0.64	0.68	0.60	0.63	0.14

Source: Estimated from data in Comtrade, U.N. Statistical Office

Brazil and Mexico, the three countries whose indices far exceeded all the rest among Latin American countries. Not surprisingly, in Europe too the determinants of the level of trade compatibility seem to be the level of development and the degree of dispersion of exports: of the four countries with distinctly lower indices than the rest, two—Greece and Portugal—have substantially lower per capita income than the rest of Europe; whereas the other two—Finland and Norway—have a substantially less diversified structure of exports. Compatibility of U.S. exports with imports of the European countries is on the same level as that found among the European countries themselves; and it is somewhat higher than U.S. compatibility with imports of Latin American countries—equal to the highest of these, i.e., the level recorded in the U.S. trade with Mexico.

It may be argued that a particularly high degree of compatibility among European trade flows in fact reflects the effect of the long existence of trade preferences practiced in this bloc (although, given the levels of development and of export diversification, compatibility of trade of the three countries that are only about to join the Union appears to be similar to that of the trade flows of long-existing partners). For that reason, it may be interesting also to make a comparison with European Union trade flows when the integration process just started. Table 10 presents, thus, the indices of compatibility in trade among the six original members of the Community (Belgium and Luxembourg combined, France, Germany, Italy, and the Netherlands) in 1962, an early year of the Community's existence.

It may be seen that indices of compatibility had, indeed, been lower in this group in the early 1960's than they became by the early 1990's. To what extent this may be explained by preferential agreements rather than by factors such as much higher income levels or

Table 10: Indices of Trade Compatibility in Europe, 1962

		Imports						
		BLX	FRA	GER	ITA	NLD	AVG	Xcc
Exports	BLX	0.58	0.46	0.50	0.46	0.55	0.49	0.16
	FRA	0.64	0.56	0.57	0.54	0.66	0.60	0.14
	GER	0.56	0.50	0.40	0.49	0.58	0.54	0.19
	ITA	0.55	0.48	0.49	0.41	0.56	0.52	0.18
	NLD	0.52	0.47	0.53	0.46	0.58	0.50	0.15

Source: Estimated from data in Comtrade, U.N. Statistical Office

Table 11: Indices of Trade Compatibility in Asia-Pacific Group, 1990

Exports			Imports																	
			AUS	CAN	CHL	CHN	HKG	IDN	JPN	KOR	MEX	MYS	NZL	OAN	PHL	PNG	SGP	THA	USA	AVG	Xcc
	Australia	AUS	0.3	0.28	0.25	0.26	0.24	0.27	0.39	0.32	0.24	0.30	0.26	0.34	0.43	0.25	0.25	0.29	0.28	0.29	0.27
	Canada	CAN	0.5	0.59	0.43	0.40	0.33	0.43	0.51	0.45	0.44	0.42	0.50	0.48	0.47	0.39	0.40	0.48	0.59	0.45	0.18
	Chile	CHL	0.2	0.17	0.12	0.13	0.15	0.14	0.26	0.16	0.16	0.16	0.16	0.19	0.16	0.14	0.13	0.17	0.16	0.16	0.44
	China	CHN	0.4	0.46	0.41	0.42	0.56	0.38	0.47	0.39	0.43	0.34	0.43	0.43	0.39	0.32	0.42	0.41	0.50	0.42	0.14
	Hong Kong	HKG	0.4	0.33	0.27	0.29	0.53	0.20	0.26	0.24	0.31	0.30	0.35	0.28	0.23	0.25	0.39	0.28	0.36	0.29	0.20
	Indonesia	IDN	0.2	0.25	0.29	0.19	0.28	0.21	0.47	0.30	0.20	0.20	0.26	0.25	0.30	0.19	0.34	0.24	0.36	0.27	0.31
	Japan	JPN	0.6	0.62	0.55	0.47	0.43	0.50	0.30	0.47	0.55	0.56	0.55	0.54	0.41	0.43	0.59	0.56	0.58	0.53	0.20
	Korea	KOR	0.4	0.42	0.39	0.38	0.62	0.35	0.36	0.40	0.39	0.47	0.46	0.45	0.35	0.35	0.50	0.39	0.50	0.43	0.16
	Mexico	ME	0.4	0.48	0.45	0.28	0.29	0.40	0.47	0.42	0.35	0.34	0.46	0.42	0.43	0.31	0.44	0.37	0.52	0.40	0.36
	Malaysia	MYS	0.3	0.34	0.38	0.30	0.40	0.28	0.48	0.43	0.31	0.42	0.37	0.41	0.37	0.24	0.54	0.34	0.45	0.37	0.24
	New	NZL	0.3	0.27	0.22	0.20	0.25	0.21	0.36	0.28	0.29	0.23	0.25	0.29	0.24	0.24	0.24	0.27	0.28	0.26	0.23
	Taiwan	OAN	0.5	0.44	0.39	0.38	0.62	0.34	0.33	0.38	0.45	0.43	0.46	0.42	0.34	0.35	0.51	0.42	0.50	0.43	0.14
	Philipines	PHL	0.3	0.27	0.20	0.22	0.35	0.18	0.31	0.24	0.23	0.24	0.24	0.29	0.37	0.21	0.26	0.23	0.34	0.26	0.33
	Papua New	PNG	0.1	0.11	0.09	0.11	0.08	0.09	0.15	0.11	0.08	0.14	0.10	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.51
	Singapore	SGP	0.5	0.45	0.41	0.36	0.50	0.35	0.38	0.45	0.46	0.50	0.46	0.50	0.34	0.40	0.65	0.46	0.49	0.44	0.25
	Thailand	THA	0.4	0.34	0.28	0.27	0.52	0.22	0.36	0.29	0.35	0.31	0.32	0.32	0.27	0.33	0.39	0.32	0.43	0.33	0.16
	USA	USA	0.7	0.68	0.54	0.49	0.46	0.54	0.50	0.58	0.63	0.59	0.61	0.65	0.53	0.52	0.56	0.61	0.60	0.57	0.14

Source: Estimated from data in Comtrade, U.N. Statistical Office

American countries (Chile and Mexico). The indices of compatibility of trade within this group are presented in Table 11.

As may be seen from a comparison of Tables 11 and 7, trade compatibility in this group is much higher than within Latin America, although the differences are not as stark as in the comparison with European countries. As was the case in relationship to Latin American countries—by now, this should certainly not be a surprise—compatibility is highest in trade relationships with the U.S.; in this sense, the U.S. position within the Asian-Pacific group is very similar to its position versus the Latin American economies. As in the other groups of economies, compatibility appears to be determined by economic size, level of development, and export diversification. Next to the U.S. comes Japan—a country of a roughly similar economic size and level of development as the U.S., but with a somewhat less diversified structure of exports. Interestingly, Japan's trade is not more but somewhat less compatible than that of the U.S. in relationship even with practically all of its Asian neighbors (Singapore is a slight exception); this supports the hypothesis that the aforementioned factors (size, richness, diversity of exports, and the share of manufacturing) rather than geographical proximity are the important determinants of compatibility of trade flows among countries. In the same vein, it may be seen that Mexico's indices of compatibility are roughly the same in the present group as in trade with its neighbors in Latin America; or, similarly, that Chile's exports—due to their very high level of concentration—are as incompatible in relationship to Asian countries as in trade with Chile's neighbors in Latin America. In sum, overlooking the U.S. and Canada as potential partners, it appears that a preferential group of Asian-Pacific countries, while not promising to be as

Table 12: Indices of Trade-Production Compatibility in Latin America

		Production																	
		ARG	BOL	BRA	CHL	COL	CRI	ECU	GTM	HND	JAM	MEX	NIC	PAN	PER	PRY	SLV	URY	VEN	AVG
Exports	ARG	0.50	0.34	0.49	0.35	0.36	0.39	0.37	0.46	0.34	0.32	0.43	n.a.	0.32	n.a.	n.a.	n.a.	0.41	0.37	0.38
	BOL	0.13	0.31	0.15	0.27	0.13	0.14	0.15	0.15	0.16	0.14	0.15	n.a.	0.12	n.a.	n.a.	n.a.	0.11	0.12	0.15
	BRA	0.48	0.28	0.57	0.36	0.41	0.45	0.41	0.46	0.33	0.31	0.42	n.a.	0.29	n.a.	n.a.	n.a.	0.41	0.37	0.38
	CHL	0.31	0.28	0.32	0.49	0.27	0.28	0.28	0.28	0.26	0.28	0.30	n.a.	0.25	n.a.	n.a.	n.a.	0.29	0.27	0.28
	COL	0.39	0.28	0.30	0.20	0.40	0.42	0.43	0.38	0.31	0.26	0.40	n.a.	0.24	n.a.	n.a.	n.a.	0.27	0.36	0.33
	CRI	0.33	0.26	0.35	0.24	0.38	0.57	0.42	0.50	0.49	0.31	0.32	n.a.	0.51	n.a.	n.a.	n.a.	0.35	0.29	0.37
	ECU	0.28	0.31	0.19	0.16	0.29	0.31	0.46	0.23	0.35	0.23	0.38	n.a.	0.30	n.a.	n.a.	n.a.	0.18	0.44	0.28
	GTM	0.32	0.24	0.32	0.21	0.35	0.49	0.39	0.54	0.39	0.26	0.28	n.a.	0.31	n.a.	n.a.	n.a.	0.31	0.25	0.32
	HND	0.16	0.21	0.17	0.17	0.20	0.41	0.29	0.34	0.41	0.20	0.14	n.a.	0.40	n.a.	n.a.	n.a.	0.17	0.14	0.23
	JAM	0.34	0.28	0.34	0.24	0.32	0.38	0.35	0.38	0.32	0.37	0.32	n.a.	0.35	n.a.	n.a.	n.a.	0.34	0.29	0.33
	MEX	0.48	0.31	0.44	0.30	0.40	0.24	0.46	0.26	0.19	0.27	0.59	n.a.	0.18	n.a.	n.a.	n.a.	0.30	0.62	0.34
	NIC	0.21	0.21	0.17	0.11	0.26	0.41	0.26	0.35	0.33	0.20	0.17	n.a.	0.27	n.a.	n.a.	n.a.	0.20	0.12	0.25
	PAN	0.40	0.40	0.41	0.36	0.44	0.56	0.49	0.51	0.55	0.40	0.37	n.a.	0.62	n.a.	n.a.	n.a.	0.43	0.37	0.44
	PER	0.37	0.36	0.35	0.38	0.33	0.39	0.36	0.41	0.30	0.30	0.35	n.a.	0.28	n.a.	n.a.	n.a.	0.37	0.30	0.37
	PRY	0.25	0.22	0.21	0.17	0.18	0.24	0.22	0.28	0.22	0.21	0.19	n.a.	0.23	n.a.	n.a.	n.a.	0.25	0.15	0.23
	SLV	0.20	0.09	0.20	0.12	0.19	0.30	0.21	0.32	0.19	0.09	0.14	n.a.	0.13	n.a.	n.a.	n.a.	0.22	0.12	0.19
	URY	0.37	0.28	0.33	0.21	0.34	0.40	0.33	0.35	0.26	0.27	0.29	n.a.	0.34	n.a.	n.a.	n.a.	0.49	0.23	0.31
	VEN	0.17	0.13	0.09	0.13	0.11	-0.00	0.20	0.00	0.00	0.06	0.27	n.a.	0.00	n.a.	n.a.	n.a.	0.03	0.38	0.09
	USA	0.48	0.30	0.57	0.37	0.39	0.33	0.34	0.36	0.30	0.32	0.46	n.a.	0.28	n.a.	n.a.	n.a.	0.39	0.38	0.38
	AVG	0.32	0.26	0.30	0.25	0.30	0.35	0.34	0.35	0.30	0.25	0.31	n.a.	0.28	n.a.	n.a.	n.a.	0.28	0.29	0.29

Source: Estimated from data in Comtrade, U.N. Statistical Office; UNIDO; FAO; IECIT Metals and Minerals data; World Bank data

effective as a grouping of European economies, would still be more relevant than any contemplated grouping within Latin America. This is undoubtedly due to Latin American economies being (with the important exceptions of Brazil and Mexico) much smaller, poorer, and less diversified economically than those in the Asian-pacific group.[17]

H. Trade-Production Compatibility: Potential for Trade Creation

The indices of compatibility of a country's own production with exports of another are shown in Table 12. The row represents the producing ("home") country; and the column the exporting ("potential partner") country. The higher the index in any box the stronger is the potential for trade creation in an agreement of the "importing" with the "exporting" country—replacing home production in the former by imports from the latter.

Probably the most striking feature of the findings of Table 12, particularly when compared with with indices of Table 7, is the **low variance** among countries. For each ("exporting") country, the indices with the other individual Latin American countries do differ from each other; but the average levels of the indices are mostly rather similar. By and large, we may thus infer that the potential for trade creation, as it is indicated by the yardstick on hand, does not provide a strong ground for distinguishing one or another country as a clearly preferred partner for a trade agreement. In particular, Brazil, Mexico and Argentina, which appear on other scores to be the most relevant potential partners for

17. Intra-industry trade follows the patterns of trade compatibility: it is, overall, higher in the Asian-Pacific group than in Latin America, but substantially lower than the norm in Europe. Aside from the U.S. and Canada, the index of intra-industry trade reaches European levels only in Singapore—an economy with an exceptionally high proportion of essentially transit trade. The real surprise, in this sense, is the very low level of intra-industry trade in Japan; only slightly less surprising is the low level of such trade in Australia. In both economies, protection of importables is high. This, presumably, leads to the absence or low levels of many imports whose existence would otherwise have meant a higher level of intra-industry trade.

Table 12: Indices of Trade-Production Compatibility in Latin America

Exports \ Production	ARG	BOL	BRA	CHL	COL	CRI	ECU	GTM	HND	JAM	MEX	NIC	PAN	PER	PRY	SLV	URY	VEN	AVG
ARG	0.50	0.34	0.49	0.35	0.36	0.39	0.37	0.46	0.34	0.32	0.43	n.a.	0.32	n.a.	n.a.	n.a.	0.41	0.37	0.38
BOL	0.13	0.31	0.15	0.27	0.13	0.14	0.15	0.15	0.16	0.14	0.15	n.a.	0.12	n.a.	n.a.	n.a.	0.11	0.12	0.15
BRA	0.48	0.28	0.57	0.36	0.41	0.45	0.41	0.46	0.33	0.31	0.42	n.a.	0.29	n.a.	n.a.	n.a.	0.41	0.37	0.38
CHL	0.31	0.28	0.32	0.49	0.27	0.28	0.28	0.28	0.26	0.28	0.30	n.a.	0.35	n.a.	n.a.	n.a.	0.29	0.27	0.28
COL	0.39	0.28	0.30	0.20	0.40	0.42	0.43	0.38	0.31	0.26	0.40	n.a.	0.24	n.a.	n.a.	n.a.	0.27	0.36	0.33
CRI	0.33	0.26	0.35	0.24	0.38	0.57	0.42	0.50	0.49	0.31	0.52	n.a.	0.51	n.a.	n.a.	n.a.	0.33	0.29	0.37
ECU	0.28	0.31	0.19	0.16	0.29	0.31	0.46	0.23	0.35	0.23	0.38	n.a.	0.30	n.a.	n.a.	n.a.	0.18	0.44	0.28
GTM	0.32	0.24	0.32	0.21	0.35	0.49	0.39	0.54	0.39	0.26	0.28	n.a.	0.31	n.a.	n.a.	n.a.	0.31	0.25	0.32
HND	0.16	0.21	0.17	0.17	0.20	0.41	0.29	0.34	0.41	0.20	0.14	n.a.	0.40	n.a.	n.a.	n.a.	0.17	0.14	0.23
JAM	0.34	0.28	0.34	0.24	0.32	0.38	0.35	0.38	0.32	0.37	0.32	n.a.	0.35	n.a.	n.a.	n.a.	0.34	0.29	0.33
MEX	0.48	0.31	0.44	0.30	0.40	0.24	0.46	0.26	0.19	0.27	0.59	n.a.	0.18	n.a.	n.a.	n.a.	0.30	0.62	0.34
NIC	0.21	0.21	0.17	0.11	0.26	0.41	0.26	0.35	0.33	0.20	0.17	n.a.	0.27	n.a.	n.a.	n.a.	0.20	0.12	0.25
PAN	0.40	0.40	0.41	0.36	0.44	0.56	0.49	0.51	0.55	0.40	0.37	n.a.	0.62	n.a.	n.a.	n.a.	0.43	0.37	0.44
PER	0.37	0.36	0.35	0.38	0.33	0.39	0.36	0.41	0.30	0.30	0.35	n.a.	0.28	n.a.	n.a.	n.a.	0.37	0.30	0.37
PRY	0.25	0.22	0.21	0.17	0.18	0.24	0.22	0.28	0.22	0.21	0.19	n.a.	0.23	n.a.	n.a.	n.a.	0.25	0.15	0.23
SLV	0.20	0.09	0.20	0.12	0.10	0.30	0.21	0.22	0.19	0.09	0.14	n.a.	0.13	n.a.	n.a.	n.a.	0.22	0.12	0.19
URY	0.37	0.28	0.33	0.21	0.34	0.40	0.43	0.43	0.36	0.23	0.29	n.a.	0.34	n.a.	n.a.	n.a.	0.49	0.23	0.31
VEN	0.17	0.11	0.09	0.13	0.11	0.00	0.50	0.00	0.00	0.06	0.27	n.a.	0.00	n.a.	n.a.	n.a.	0.01	0.38	0.09
USA	0.48	0.30	0.57	0.37	0.39	0.33	0.34	0.36	0.30	0.32	0.46	n.a.	0.28	n.a.	n.a.	n.a.	0.39	0.38	0.38
AVG	0.32	0.26	0.30	0.25	0.30	0.35	0.34	0.35	0.30	0.25	0.31	n.a.	0.28	n.a.	n.a.	n.a.	0.28	0.29	0.29

Source: Estimated from data in Comtrade, U.N. Statistical Office; UNIDO; FAO; IECIT Metals and Minerals data; World Bank data

agreements within Latin America, do not possess any uniqueness in the case on hand. Their indices of compatibility (as the *partner*) are somewhat higher than those of most others; but they do not form any exception.

The indices of compatibility appear to be relatively high for relationships among Central American countries (the four that are represented in the table are Costa Rica, Guatemala, Honduras, and Panama). The average of the indices for this group is .41, *vs.* .28 for the rest of the relationships within Latin America. On this score, thus, Central American economies do present themselves as more promising than others as candidates for trade preferential agreements. But it should be recalled that by all other yardsticks, agreements within this group would be judged to have only little promise.

Of more interest would have been comparisons of relationships within Latin America to those which involve the U.S.; and, for the sake of acquiring perspective, to relationships in other groups of countries in Europe and Asia. The difficulties involved in establishing the data of structures of production have prevented such comparisons at this juncture; but they should be pursued in any further extension of the study of this topic.

I. Conclusions

We have used in this study several criteria to asses ex-ante the chances for meaningful and successful trade preferential agreements among Latin American countries and between them and North-America, particularly the U.S..

The inferences from practically all of these yardsticks are almost uniform: the evidence strongly suggests that the likelihood of agreements within Latin america being indeed successful is rather low. To start with, the intense liberalization of recent years has

paradoxically **lowered** the likelihood of a beneficial agreement: with a low starting level of tariffs (and non-tariff barriers) on trade flows among Latin-American countries, a preferential agreement is more likely to have an adverse rather than a beneficial impact (though this impact would be small in any case). Other criteria point in the same direction: small shares of Latin American's countries in world trade, and in trade with each other; small shares of these countries in world income; a low level of economic development of most of these economies and, associated with it, absence of economic diversification in the majority of countries.

Some of these factors are represented in the levels of two composite indices that were devised for the purpose on hand. One describes the similarity between the structures of a country's imports and a partner's exports; and it indicates the potential for trade diversion. The other index, from which the potential for trade creation may be inferred, describes the similarity between the pattern of the country's own production and that of its partner's exports. These indices are generally higher the higher the partner country's level of economic development, its economic size, and the degree of diversity of its exports. The indices give the same indication as those of the other criteria: that is, generally, a small likelihood of successful preferential agreements within Latin America. As a rule, such agreements would be far less meaningful than they are in today's Europe, or even of what could be predicted when the European Economic Community was formed. Perhaps less expected is the indication that such agreements within latin America are also, by and large, less promising than potential agreements among countries in the Asian-Pacific region—another part of the world in which a discussion of intra-regional preferences has become recently popular.

On the other hand, the U.S. is, by the above criteria, a promising partner for preferential agreements with the large majority of Latin-America's counties. It is interesting to note that conclusion of agreements between **blocs** of countries with the U.S. is not more meaningful than U.S. agreements with **individual** countries. Thus, to cite an important example, a U.S. agreement with just Brazil would have the same promise as an agreement with the whole of MERCOSUR. Going beyond the scope of the study, it should be pointed that the target of "locking in" the (hitherto multilateral) process of trade liberalization through a commitment undertaken in a bilateral or multilateral agreement would also be served much better in an agreement with the U.S. than in any intra-regional agreement in Latin America.

Given that any intra-Latin American agreement must be of little significance, those that would still be of some relevance are only agreements that would involve Brazil, Mexico or, to a lesser extent, Argentina. Since Mexico is a NAFTA member, involvement of Mexico would most probably mean an agreement with (perhaps accession to) NAFTA—where the major impact would be due to the involvement of the U.S. This leaves practically only Brazil as a Latin American partner to at least a marginally significant preferential agreement. Within the present context of existing regional agreement, this would mean an accession to MERCOSUR—a relationship with which would be only slightly more meaningful than an agreement which involves just Brazil. Judging by indicators of this study, Bolivia is the distinct case in which a preferential agreement with Brazil, or an accession to MERCOSUR, might be fruitful.

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ANNEX 1

Partner-Specific Tariff Levels

For purposes such as the one discussed in the text, we would wish to know not just what the level of tariffs of a country is in general, but what it is in relation to some specific trade partners. An index, which might be constructed for the purpose on hand, is the following:

$$T_{jk} = \sum_i t_j^i \, m_{jk}^i,$$

where

T_{jk} = Average level of tariffs imposed by country j on imports from country k;

t_j^i = Rate of tariff imposed in country j on imports of good i; and

m_{jk}^i = Share of good i in country j's aggregate imports from country k.

Such an index would suffer from well-known deficiencies of measurements of average tariff levels: it does not incorporate (as a *true* index should) the elasticities of supply and demand; and it is biased **downward**, since it assigns small weights to imports with high tariff rates which tend, due to this high barrier, to be low. Nevertheless, the index would have given some rough impressions about tariff levels in Latin America's intra-regional trade (as well as, if needed, any other trade flows among countries). Of the two components of the index, data are available about the m_{jk}^i *'s* —the commodity trade composition of trade flows among countries. Data of the t_j^i *'s* —tariff levels by goods—are not yet available for a system of i's classified in a manner (such as the SITC) which would make them useful. But they may become available soon.

ANNEX 2

Changes in Geographical Trade Shares

In general, changes in shares of trade of a home country with a partner may be decomposed in two parts: One, a "neutral" or "objective" component, is due simply to the changing over time of the partner's relative size in world trade. The other component, a residual, reflects the "net" change that could be assigned to changes in specific factors which may affect the size of trade between the two countries: the establishment of (positive or negative) discrimination in the trade policies of the two (such as the conclusion of a preferential tariff agreement); specific changes in transportation costs; and similar factors.

Let

j = home country; k = partner country; O = starting period; 1 = ending period

(1) $\overline{S_{kj}}$ = *(actual) share of j's exports in k's imports*

(2) $S_{k,w}$ = *(actual) share of k's imports in world imports*

(3) S^{e}_{kj} = *"expected" share of j's exports in k's imports at end of period* 1.

(4) C^{n}_{xj} = *"neutral" coefficient of the share of j's exports in k's imports*

(5) C^{a}_{kj} = *"adjusted" coefficient of the share of j's exports in k's imports*

where:

$$(6)\ C^{h}_{xj} = \frac{S^{1}_{kw}}{S^{o}_{kw}}$$

$$(7)\quad C^{a}_{kj} = \overline{S^{1}_{kj}} \,/\, S^{e}_{kj}$$

$$(8)\quad S^{e}_{kj} = S^{o}_{kj}\, C^{h}_{xj} = S^{o}_{kj}\, \frac{S^{J}_{kw}}{S^{o}_{kw}}$$

hence:

$$(9)\quad C^{a}_{kj} = \overline{S^{1}_{kj}} \,/\, \overline{S^{o}_{kj}}\, \frac{S^{1}_{kw}}{S^{o}_{kw}}$$

This could be refined (in practice, at a high cost) to address the total change in the share of k's imports in j's exports as the aggregate of changes in the shares of individual goods. Thus, for each good i:

$$(10)\quad C^{ai}_{kj} = \overline{S^{1i}_{kj}} - \overline{S^{oi}_{kj}}\, \frac{S^{1i}_{kw}}{S^{oi}_{kw}}$$

$$(11)\quad C^{a}_{kj} = \sum_{i} (C^{ai}_{kj}) = \sum_{i} (\overline{S^{1i}_{kj}} - \overline{S^{oi}_{kj}}\, \frac{S^{1i}_{kw}}{S^{oi}_{kw}})$$

The corrected changes in the share of **k's exports** in **j's imports** will be defined in a parallel way, *mutatis mutandis*.

Table A-1 presents the adjusted trade coefficients for several Latin American countries between 1984 and 1994. It shows the rate of growth of exports of the country or

region listed in the column to the region listed in the row. Where the coefficient is larger than one, these exports have increased faster than the growth of total imports of the respective region.

Table A-1

The Adjusted Change in the Share of Partners in Home Countries Trade (1984, 1994)

	ANDEAN	MERCOSUR	NAFTA	EEC	EAST ASIA	LA
ARG	0.5	1.7	0.9	0.8	0.7	1.3
BOL	2.8	0.1	1.1	0.7	0.2	0.3
BRA	0.4	1.0	0.6	0.8	0.6	0.8
CHL	1.1	0.9	1.1	1.0	1.2	1.2
COL	1.9	0.7	1.4	0.8	0.6	1.5
ECU	1.2	3.7	0.6	4.2	0.4	0.8
MEX	0.8	0.2	1.6	0.3	0.2	0.4
PRY	1.1	0.7	2.1	0.6	0.9	0.8
PER	0.3	0.6	0.4	0.9	0.6	0.6
URY	0.9	1.0	0.7	0.8	0.4	1.1
VEN	0.6	0.2	0.6	0.2	0.3	0.4
ANDEAN	-	0.3	0.8	0.9	0.6	0.7
MERCOSUR	0.4	-	0.6	0.8	0.6	1.0
LA	2.0	2.9	2.3	1.5	1.6	-

Source: Author's estimates

Annex 3

Determinants of the Index of Trade Compatibility

The discussion in the text suggests that the index of compatibility of a country's exports with the imports of its trading partners is a function of four major attributes of size and structure, namely: (i) the degree of commodity concentration of the country's exports; (ii) the economic size of the country; (iii) the country's wealth; and (iv) the share of manufacturing in the economy. The index of compatibility was asserted to be negatively related to the first attribute—export concentration; and positively related to the other three. This hypothesized functional relationship is tested in this Annex through a regression analysis.

The four explanatory variables are represented in Table 8 in the text: (i) export concentration—through the coefficient of commodity concentration of export (see text); (ii) economic size—through the level of the country's aggregate GDP; (iii) wealth—through the level of per-capita GDP; and (iv) the share of manufacturing—through the proportion of this sector in GDP. The dependent variable—the index of compatibility of the country's exports with its partners' imports—is derived as follows: First, for each country, the level of the index with each other individual country (i.e., all other countries in the world) is estimated. Then an (unweighted) average of these individual indices is calculated, to yield the observation which stands for the country on hand.

The analysis include 44 observations, referring to the countries which appeared in the text's discussions of LAC, Europe, and East Asia and the Pacific: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Paraguay, Uruguay, and Venezuela; Belgium, Denmark,

Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, and the U.K.; Australia, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, and Thailand; and Canada and the U.S.

The findings of the regression analysis are presented in Table A-2. The suggest the following inferences:

Table A-2: Regression Coefficients

Explanatory Variable	Coefficient	T-statistic
Constant	.326	4.748
Concentration of exports	-.587	-5.417
Aggregate GDP	1.46E-14	1.167
Per-capita GDP	8.22E-06	5.383
Share of manufacturing	.461	2.168
Adjusted R^2	.807	
D-W statistic	2.137	

(1) The four independent variable do indeed provide a major explanation of the level of the index of trade compatibility: the adjusted R^2 is around .8. Thus, only minor potential other explanatory factors are left out.

(2) The impacts of the explanatory variables are all in the hypothesized directions: a negative relationship between compatibility and the degree of commodity concentration of exports; and positive relationships with the three other explanatory attributes.

(3) The levels of confidence in the inferences are indisputably high for three of the relationships: with export concentration, per-capita income, and the share of manufacturing. But it is low (only a confidence level of .25) for the fourth—the relationship with the

economic size of the country. This may possibly be due to the presumably high interrelationships between this variable and the other three.

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