

CEPAL

REVIEW

NUMBER 54
DECEMBER 1994
SANTIAGO, CHILE

ANIBAL PINTO
Director of the Review

EUGENIO LAHERA
Technical Secretary



UNITED NATIONS

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Central American *integration:* its costs and benefits

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This article sums up the benefits and costs of Central American economic integration. Increased economic growth, industrialization based on intra-industry trade, and greater competition in a broader subregional market represent significant benefits for the Central American countries, although for the most part these benefits are concentrated in the more developed countries. The costs of integration stem from the inter-country monetary flows occasioned by currency arbitrage, currency substitution, and the high transaction costs associated with inconvertibility. The elimination of these costs would have other costs, however, in the form of the reduction of national autonomy with regard to macroeconomic policy as a consequence of multilateral coordination and monitoring. The article closes with a call for the establishment of coordination schemes that reach beyond the realm of macroeconomic policy; such schemes would encompass a subregional agenda for structural change and would direct the subregion's efforts towards policy alignment as a means of doing away with disparities and making the Central American countries better able to integrate with one another and with the international economy.

I

Introduction

In the last three years, the Central American integration process has made considerable headway, thus putting an end to the stagnation of this process seen during the 1980s. Trade within Central America has been steadily on the rise since 1986, and in 1992 it totalled US\$892 million, which was close to the 1980 record high. The upturn can be accounted for by the economic growth of the Central American countries, an improvement in their external liquidity, and the major advances made in the elimination of trade barriers.¹ Progress has also been significant on the institutional front. Major accomplishments in this respect include the entry into operation of the secretariat of the Central American Integration System (SICA); Nicaragua's accession as a member of the Central American Parliament; the conclusion of trade and investment agreements between the subregion and Mexico, Venezuela and Colombia; advances in the coordination of economic policy; and the approval by the Central American presidents of the Protocol to the General Treaty on Central American Economic Integration. These events are a promising sign that Central American integration is entering into what may well prove to be a new era of great accomplishments.

Nevertheless, there is still a great deal to be done before full integration is achieved, for exports

between Guatemala and El Salvador still represent a full 59% of total intra-subregional trade. Moreover, in 1992 extra-subregional trade was below 1980 levels for all the countries except Costa Rica. Yet another factor is that the level of investment in physical infrastructure which is needed is considerable, as are the shortcomings existing in the social sectors of some countries.

In view of the progress made in the past few years, the ongoing process of economic globalization and the entry into force of the North American Free Trade Agreement (NAFTA) between Mexico, the United States and Canada, at this point in time it would be a good idea to analyse the contributions that integration could make to the Central American economies. The following article will therefore review the benefits that the Central American economies could derive from integration (section II), identify some of the obstacles that have prevented these potential benefits from becoming a reality (section III), discuss the possible costs of integration –and of failing to integrate– and propose certain policy-coordination and alignment schemes that might keep those costs to a minimum (section IV) and, finally, present a number of conclusions (section V).

II

What benefits would integration bring?

1. Domestic saving

One potential benefit is an increase in domestic saving as a result of the expansion of intra-subregional exports, given the causal relationship between

exports and saving in developing countries (J.K. Lee, 1971; Laumas, 1982). Based on annual data for the period 1971-1988, equations were estimated for domestic saving (S) as a function of exports directed outside Central America (X_o) and to Central America (X_{CA}) and for gross domestic income minus total exports ($Y-X$). The results are given in table 1.

It may be seen from this table that the chief determinant of national saving is extra-subregional exports. The coefficient for exports going to Central America is negative and statistically significant in Guatemala and Costa Rica and is positive but not

□ The author wishes to express his gratitude for the observations made by Iris Alvarez, Claudio Ansorena, Florencio Ballester, Gilber Chona, Uziel Nogueira, Oscar Núñez Sandoval, Luis Amado Sánchez and Gabriel Siri. The views expressed herein are, of course, the sole responsibility of the author.

¹ For a recent assessment of the Central American integration process, see ECLAC (1993).

TABLE 1

Central America: Saving and exports^a

	Equation	R ²	DW
Guatemala	55.5801 + 0.0389 (Y-X) + 0.0732 X _O - 0.3454 X _{CA} (1.97) (4.15) (12.57) (3.43)	0.98	1.53
El Salvador	99.5437 - 0.1915 (Y-X) + 0.8159 X _O + 0.5554 X _{CA} (1.99) (5.65) (6.01) (1.69)	0.87	2.16
Honduras	-17.8749 - 0.0285 (Y-X) + 0.5649 X _O + 0.5715 X _{CA} (0.57) (0.94) (6.23) (6.12)	0.91	1.33
Costa Rica	-101.4822 + 0.0192 (Y-X) + 1.00 X _O - 0.9359 X _{CA} (2.61) (0.64) (11.77) (2.97)	0.96	2.02

Source: Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), *Estadísticas macroeconómicas de Centroamérica*, Guatemala City, several issues. The series for Nicaragua was incomplete.

^a The statistical values of "t" are shown below the corresponding coefficients; R and DW stand for the coefficient of determination and the Durbin-Watson coefficient, respectively.

significant in the case of El Salvador. This indicates that extra-subregional exports do not stimulate saving, except in Honduras. This may be due to the fact that a large part of intra-subregional trade is made up of consumer goods whose production requires the importation of intermediate goods (Cáceres and Quintanilla, 1990).

2. Trade creation

Another possible advantage of integration is that trade creation could outweigh trade diversion in intra-subregional trade. Trade creation occurs when domestic production is displaced by less expensive imports from other member countries. Trade diversion takes place when goods produced at relatively low cost by a country not belonging to the integration scheme are replaced by more expensive products from a member country. Measurements of trade creation and diversion are based on the assumption that, in the absence of integration, the income elasticity of total imports would remain constant. When their income elasticity rises following integration, it is deduced that trade creation has occurred.

In order to identify the presence of this phenomenon, an equation was formulated for Honduras for the period 1950-1969 that expresses total imports (M) as a function of gross national product (Y), a dummy variable (W) to show up the change in the income coefficient during the post-integration period (1962-1969), and time (T):

$$\text{Log } M = -6.6249 + 1.8393 \text{Log } Y - 0.0157 W - 0.0251 T \quad R^2 = 0.97$$

(3.18) (5.37) (0.53) (2.88) DW = 1.68

The fact that the variable W is not statistically significant indicates that the income elasticity of imports did not change. Therefore, in Honduras there was no trade creation or diversion. A similar result was obtained when an equation was estimated for the period 1970-1991 and an attempt was made to detect a change in income elasticity during the period 1986-1991 using the variable W¹:

$$\text{Log } M = -6.5357 + 2.1244 \text{Log } Y + 0.0071 W^1 - 0.1327 T \quad R^2 = 0.96$$

(3.34) (5.39) (0.53) (2.88) DW = 1.76

In the equations for the other countries during the period 1962-1991 (see table 2), W1 and W2 show the change in the Log Y coefficient during the 1970s and 1980s, respectively. It may be seen from these equations that, with the exception of El Salvador, the dummy variables are not significant.

The foregoing indicates that integration did not lead to a change in resource allocation during the pre- or post-integration periods except in El Salvador, where this phenomenon may be attributable to the fact that intra-subregional trade does represent a large percentage of El Salvador's total exports, which -according to Balassa (1967)- is one of the conditions for the occurrence of trade creation.

TABLE 2

**Central America (three countries): Changes in the
marginal propensity to import**

	Equation	R ²	DW
Guatemala	-3.7466 + 1.2996 Log Y - 0.0241 T + 0.0171 W1 - 0.0205 W2 (3.88) (9.08) (1.24) (1.27) (0.93)	0.99	1.48
El Salvador	-1.1246 + 0.9896 Log Y - 0.0152 T + 0.0489 W1 + 0.0331 W2 (1.77) (11.17) (1.30) (5.44) (2.35)	0.99	1.56
Costa Rica	-0.6180 + 0.9211 Log Y + 0.0361 T - 0.0032 W1 - 0.0201 W2 (0.78) (9.12) (2.02) (0.38) (1.50)	0.99	1.49

Source: International Monetary Fund (IMF), *International Financial Statistics Yearbook*, 1993, vol. XLVI, Washington, D. C., 1993.

3. Increased economic growth

Integration generates spillover effects that propel economic growth in the member countries via the trade flows among them. Studies have shown that these forces are quite powerful, but in Central America they vary a great deal from country to country (Nugent, 1974; Cáceres, 1981; Cáceres and Seninger, 1980). A quantification of this effect can be obtained using the following model:

Country No. 1

$$C_{P1} = (1 - s_1)Y_1$$

$$I_1 = b_1 Y_1$$

$$V_1 = m_1 Y_1$$

$$M_1 = z_1 Y_1$$

$$Y_1 = C_{P1} + I_1 + E_{o1} + (V_2 - V_1) - M_1 + C_{g1}$$

$$Y_2 = C_{P2} + I_2 + E_{o2} + (V_1 - V_2) - M_2 + C_{g2}$$

where:

- Y = gross national product
- C_p = private consumption
- C_g = (exogenous) public consumption
- I = gross domestic investment
- M = extra-subregional imports
- V = intra-subregional imports
- E_o = (exogenous) extra-subregional exports

The above equations can be represented in the form of a matrix, as follows:

$$\begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix} \begin{bmatrix} s_1 - b_1 + z_1 + m_1 & -m_2 \\ -m_1 & s_2 - b_2 + z_2 + m_2 \end{bmatrix} = \begin{bmatrix} C_{g1} + E_{o1} \\ C_{g2} + E_{o2} \end{bmatrix}$$

from which the following can be worked out using the income vector:

$$\begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix} = \begin{bmatrix} s_1 - b_1 + z_1 + m_1 & -m_2 \\ -m_1 & s_2 - b_2 + z_2 + m_2 \end{bmatrix}^{-1} \begin{bmatrix} C_{g1} + E_{o1} \\ C_{g2} + E_{o2} \end{bmatrix}$$

For the five Central American countries, the model's parameters were calculated using average values from 1990-1992. The following matrix of multipliers was obtained:

$$\begin{bmatrix} Y_G \\ Y_{ES} \\ Y_H \\ Y_N \\ Y_{CR} \end{bmatrix} = \begin{bmatrix} 4.19235 & 0.49716 & 0.31855 & 0.48916 & 0.10548 \\ 0.21391 & 4.08816 & 0.12822 & 0.16093 & 0.06074 \\ 0.01681 & 0.03901 & 3.61925 & 0.02242 & 0.00218 \\ 0.01711 & 0.03289 & 0.03796 & 2.40346 & 0.01061 \\ 0.04455 & 0.05203 & 0.04302 & 0.17542 & 1.62662 \end{bmatrix} \begin{bmatrix} C_{gG} + E_{oG} \\ C_{gES} + E_{oES} \\ C_{gH} + E_{oH} \\ C_{gN} + E_{oN} \\ C_{gCR} + E_{oCR} \end{bmatrix}$$

This matrix of multipliers indicates that if, for example, El Salvador's extra-subregional exports were to rise by US\$100, then the country's GDP would grow by US\$409, while the GDPs of Guatemala, Honduras, Nicaragua and Costa Rica would increase by US\$50, US\$4, US\$3 and US\$5, respectively.

The multiplier effects are greater for Guatemala and El Salvador than they are for the other countries. This fits in with the findings of several studies which indicate that these two countries have received the lion's share of the benefits of integration (Cline, 1978).

Table 3 shows the multiplier effect on each country of a simultaneous US\$1 increase in exogenous expenditure (public consumption or exportation to the rest of the world) on the part of the other countries. It also gives the multiplier effect on the other countries of a US\$1 increase in the exogenous expenditure of each country.

TABLE 3

Central America: Multiplier effects across the economies of the subregion

	Multiplier effect of rest of Central America on each country	Multiplier effect of each country on rest of Central America
Guatemala	1.4102	0.2818
El Salvador	0.5612	0.6210
Honduras	0.0794	0.5710
Nicaragua	0.0990	0.8470
Costa Rica	0.3140	0.1788

As may be seen, Guatemala receives the greatest multiplier effect from the rest of the region (1.4102), followed by El Salvador (0.5612) and Costa Rica (0.3140), and the situation was the same in the 1960s and the 1970s (Cáceres, 1981). The countries having the greatest multiplier effect on the rest of Central America, on the other hand, are Nicaragua (0.8470), followed by El Salvador and then Honduras. Costa Rica has the smallest multiplier effect.

It is interesting to note that the size of the multipliers decreases with distance. In particular, the multiplier effects generated and received by Costa Rica—which is located at the far end of the subregion—are the smallest of all. This is a reflection of just how influential transport costs are in terms of the benefits of integration (see figures 1, 2 and 3).

The above indicates that the benefits of integration—in terms of the spread of economic growth—may, in part, be determined by the friction caused by distance. Hence the strategic importance of the road system and transport costs in the subregion.

FIGURE 1

Central America: Multiplier effects received by El Salvador

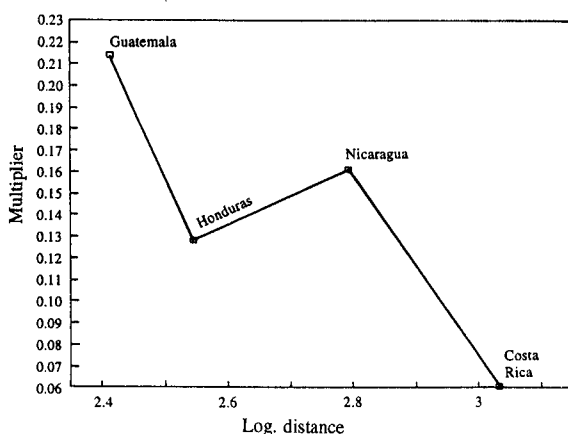


FIGURE 2

Central America: Multiplier effects received by Honduras

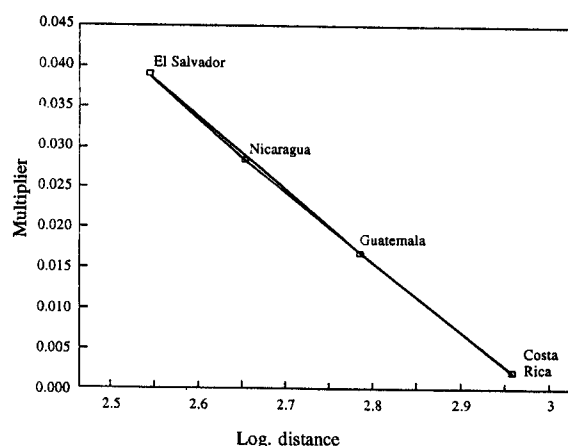
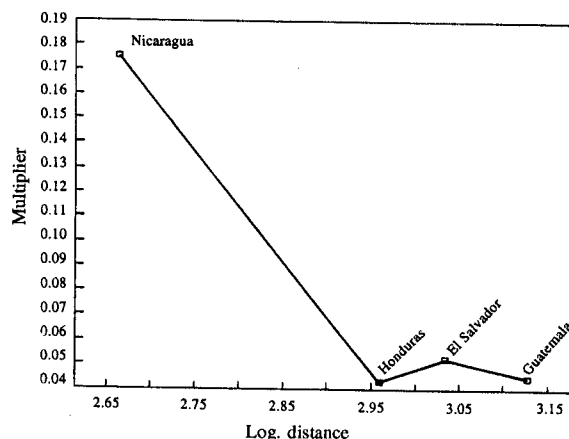


FIGURE 3

Central America: Multiplier effects received by Costa Rica



4. The stabilization of economic growth

The stabilizing effect that would arise as growth spreads to the different countries depends upon there being no synchronous fluctuations in these countries' economies. One of the main determinants of economic growth in the Central American countries is the trend in their terms of trade. However, since the correlation among these countries' terms of trade is positive (see table 4), intra-subregional trade could not be expected to have a stabilizing effect even if trade flows were to increase.

Given the synchronous nature of the trends in the exogenous variables that affect the Central American countries' economies, it should come as no surprise that fluctuations in extra- and intra-subregional trade exhibit a close correlation (see figures 4 and 5).

TABLE 4

Central America: Terms-of-trade correlation coefficients, 1981-1992

	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica
Guatemala	1	0.69	0.52	0.74	0.81
El Salvador		1	0.05	0.37	0.95
Honduras			1	0.30	0.08
Nicaragua				1	0.59
Costa Rica					1

Source: Calculated on the basis of data from the International Monetary Fund (IMF), *International Financial Statistics*, IMF, Washington, D.C., several issues.

FIGURE 4

Guatemala: Growth rates for exports inside and outside the subregion

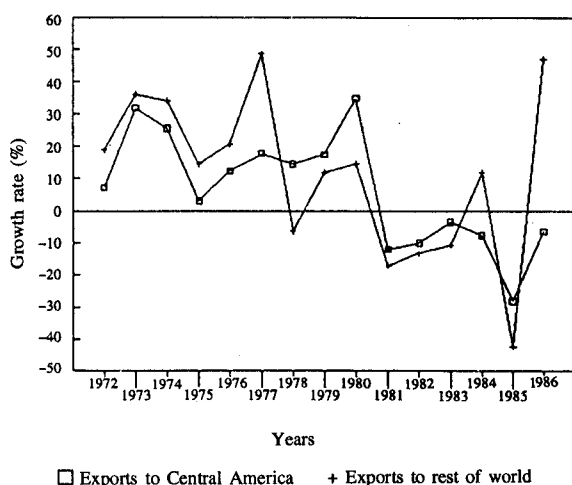
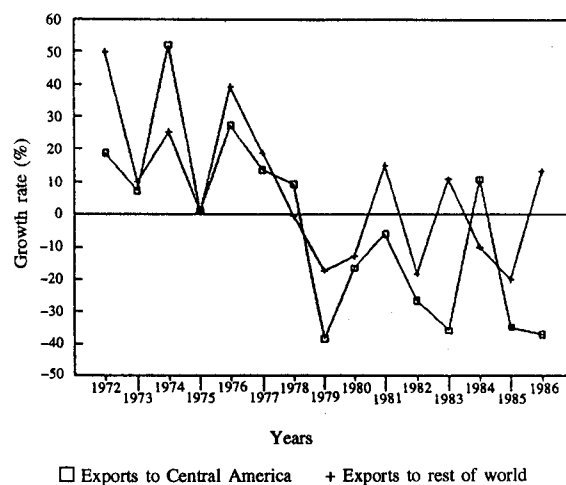


FIGURE 5

Nicaragua: Growth rates for exports inside and outside the subregion



5. Intra-industry trade

One of the potential benefits of integration is the stimulus it can give to industrialization based on intra-industry trade. A number of studies have observed that the similarity of consumer preferences in countries at the same level of development allows each country to specialize in the production of nearly identical goods which are then differentiated on the basis of marketing, packaging, appearance, etc. This two-way trade in similar products paves the way for industrialization because a country can thus focus its efforts on the efficient manufacture of a given product, regardless of the relative comparative advantages involved, thanks to the economies of scale that become possible in the broader market created by

integration.² In order to calculate how much of foreign trade is made up of intra-industry trade, exports and imports must be broken down into standardized product categories. This can be measured by the Grubel-Lloyd index (1975), defined as:

$$B = \frac{\sum (X_i + M_i) - \sum |X_i - M_i|}{\sum (X_i + M_i)}$$

where X_i and M_i represent exports and imports of product "i", respectively. Based on the data for 1987 shown in table 5, the values of B were estimated for intra-industry trade (see table 6).

² See Greenaway and Milner (1990) for a summary of the literature on intra-industry trade.

TABLE 5

Central American trade, 1987

	ISIC ^a division	Intra-subregional trade					ISIC ^a division	Extra-subregional trade				
		Exports Xi	Imports Mi	Diff- erence Xi-Mi	Total Xi+Mi	(Xi-Mi)		Exports Xi	Imports Mi	Diff- erence Xi-Mi	Total Xi+Mi	(Xi-Mi)
						(Xi+Mi)						(Xi+Mi)
EL SALVADOR												
Food, beverages and tobacco	31	9.80	27.80	-18.00	37.60	0.48	31	43.80	66.40	-22.60	110.20	0.21
Textiles, leather and footwear	32	24.60	13.80	10.80	38.40	0.28	32	36.10	30.10	6.00	66.20	0.09
Wood and furniture	33	0.40	9.10	-8.70	9.50	0.92	33	0.80	1.70	-0.90	2.50	0.36
Paper, printing and publishing	34	19.90	6.30	13.60	26.20	0.52	34	2.20	41.40	-39.20	43.60	0.90
Chemical products derived from petroleum, rubber and plastic products	35	35.90	60.90	-25.00	96.80	0.26	35	16.50	288.60	-272.10	305.10	0.89
Non-metallic mineral products	36	0.60	9.50	-8.90	10.10	0.88	36	0.10	10.40	-10.30	10.50	0.98
Basic metals industries	37	13.40	18.10	-4.70	31.50	0.15	37	1.20	54.50	-53.30	55.70	0.96
Metal products, machinery and equipment	38	12.10	13.60	-1.50	25.70	0.06	38	2.20	273.10	-270.90	275.30	0.98
Other manufactures	39	2.30	1.40	0.90	3.70	0.24	39	0.60	4.50	-3.90	5.10	0.76
				92.10	279.50	0.67				679.20	874.20	0.22
GUATEMALA												
Food, beverages and tobacco	31	40.60	22.30	18.30	62.90	0.29	31	127.30	97.90	29.40	225.20	0.13
Textiles, leather and footwear	32	28.40	22.20	6.20	50.60	0.12	32	14.80	54.50	-39.70	69.30	0.57
Wood and furniture	33	5.10	2.50	2.60	7.60	0.34	33	5.00	3.60	1.40	8.60	0.16
Paper, printing and publishing	34	6.70	14.00	-7.30	20.70	0.35	34	0.40	56.80	-56.40	57.20	0.99
Chemical products derived from petroleum, rubber and plastic products	35	85.60	42.70	42.90	128.30	0.33	35	45.10	543.20	-498.10	588.30	0.85
Non-metallic mineral products	36	10.20	1.30	8.90	11.50	0.77	36	4.80	19.50	-14.70	24.30	0.60
Basic metals industries	37	12.00	14.60	-2.60	26.60	0.10	37	1.80	79.60	-77.80	81.40	0.96
Metal products, machinery and equipment	38	10.50	12.90	-2.40	23.40	0.10	38	2.00	409.20	-407.20	411.20	0.99
Other manufactures	39	2.10	1.50	0.60	3.60	0.17	39	0.40	13.10	-12.70	13.50	0.94
				91.80	335.20	0.73				1 137.40	1 479.00	0.23
COSTA RICA												
Food, beverages and tobacco	31	14.40	17.30	-2.90	31.70	0.09	31	133.00	48.10	84.90	181.10	0.47
Textiles, leather and footwear	32	11.60	27.40	-15.80	39.00	0.41	32	63.20	58.50	4.70	121.70	0.04
Wood and furniture	33	2.40	0.80	1.60	3.20	0.50	33	11.10	1.80	9.30	12.90	0.72
Paper, printing and publishing	34	4.30	8.30	-4.00	12.60	0.32	34	6.20	94.60	-88.40	100.80	0.88
Chemical products derived from petroleum, rubber and plastic products	35	36.60	36.90	-0.30	73.50	-	35	64.00	440.20	-376.20	504.20	0.75
Non-metallic mineral products	36	6.40	2.60	3.80	9.00	0.42	36	6.80	19.30	-12.50	26.10	0.48
Basic metals industries	37	13.40	6.00	7.40	19.40	0.38	37	5.90	93.20	-87.30	99.10	0.88
Metal products, machinery and equipment	38	14.20	6.00	8.20	20.20	0.41	38	25.40	421.60	-396.20	447.00	0.89
Other manufactures	39	3.70	2.20	1.50	5.90	0.25	39	21.70	30.30	-8.60	52.00	0.17
				45.50	214.50	0.79				1 068.10	1 544.90	0.31
NICARAGUA												
Food, beverages and tobacco	31	1.50	3.00	-1.50	4.50	0.33	31	52.50	36.40	16.10	88.90	0.18
Textiles, leather and footwear	32	1.00	8.80	-7.80	9.80	0.80	32	1.90	49.30	-47.40	51.20	0.93
Wood and furniture	33	0.70	0.10	0.60	0.80	0.75	33	1.30	6.50	-5.20	7.80	0.67
Paper, printing and publishing	34	1.10	1.20	-0.10	2.30	0.04	34	0.10	21.50	-21.40	21.60	0.99
Chemical products derived from petroleum, rubber and plastic products	35	4.50	19.0	-14.50	23.50	0.62	35	1.40	338.80	-337.40	340.20	0.99
Non-metallic mineral products	36	0.30	0.50	-0.20	0.80	0.25	36		9.60	-9.60	9.60	1.00
Basic metals industries	37	3.40	1.80	1.60	5.20	0.31	37	1.10	40.70	-39.60	41.80	0.95
Metal products, machinery and equipment	38	2.00	5.70	-3.70	7.70	0.48	38	0.50	248.60	-248.10	249.10	1.00
Other manufactures	39	0.10	0.60	-0.50	0.70	0.71	39	3.60	7.40	-3.80	11.00	0.35
				30.50	55.30	0.45				728.60	821.20	0.11
HONDURAS												
Food, beverages and tobacco	31	4.00	6.40	-2.40	10.40	0.23	31	110.20	63.40	46.80	173.60	0.27
Textiles, leather and footwear	32	3.70	2.20	1.50	5.90	0.25	32	1.90	29.50	-27.60	31.40	0.88
Wood and furniture	33	3.80	-	3.80	3.80	1.00	33	40.20	0.80	39.40	41.00	0.96
Paper, printing and publishing	34	0.40	4.80	-4.40	5.20	0.85	34	2.60	38.50	-35.90	41.10	0.87
Chemical products derived from petroleum, rubber and plastic products	35	4.60	3.50	1.10	8.10	0.14	35	4.20	329.20	-325.00	333.40	0.97
Non-metallic mineral products	36	0.30	4.60	-4.30	4.90	0.88	36	2.60	14.20	-11.60	16.80	0.69
Basic metals industries	37	1.50	6.30	-4.80	7.80	0.62	37	0.20	40.90	-40.70	41.10	0.99
Metal products, machinery and equipment	38	1.40	1.30	0.10	2.70	0.04	38	0.10	247.90	-247.80	248.00	1.00
Other manufactures	39	0.50	0.20	0.30	0.70	0.43	39	0.80	18.90	-18.10	19.70	0.42
				22.70	49.50	0.46				792.90	946.10	0.16

Source: Data taken from Bulmer-Thomas (1992a).

^a The titles of the divisions of the International Standard Industrial Classification (ISIC) have been shortened.

TABLE 6

Central America: Grubel-Lloyd index of intra-industry trade

	Intra-subregional trade	Extra-subregional trade
Guatemala	0.73	0.23
El Salvador	0.67	0.22
Honduras	0.46	0.16
Nicaragua	0.45	0.11
Costa Rica	0.79	0.31

The figures show that in Central America a direct relationship exists between a country's level of development, as represented by per capita income, and the Grubel-Lloyd index in both intra- and extra-subregional trade. The highest values are for Costa Rica, followed by those for Guatemala, El Salvador, Honduras and Nicaragua. Indeed, 79% of Costa Rica's subregional commerce takes the form of intra-industry trade: a proportion similar to the figures for developed countries. The above indicates that integration enables the Central American countries to produce and export goods which otherwise would probably not be part of their foreign trade.

Costa Rica also has the highest value –0.31– for extra-subregional trade, followed by Guatemala (0.23), El Salvador (0.22), Honduras (0.16) and Nicaragua (0.11). In 1974, for the subregion as a whole, the indexes of intra-industry trade within Central America and outside the subregion were 0.505 and 0.025 (Laird, 1981).

The intra-industry trade indicators proposed by Balassa (1966) were also calculated for individual industrial branches. They are defined as:

$$\frac{|X_i - M_i|}{X_i + M_i}$$

This index goes from zero, when all trade is intra-industrial ($X_i = M_i$) to 1, when there is no two-way flow of such trade. Table 5 demonstrates that intra-industry trade is an important component of all the Central American countries' trade flows in the following industries: basic metals, metal products, machinery and equipment, and other manufactures. It is also an important factor in the textile and chemical industries. This might indicate a lack of specialization at the country level, which would mean that all the countries would have the same comparative advantages.

In trade flows directed outside the region –primarily to the United States, Japan and Germany– the intra-industry trade indexes for Honduras and Nicaragua are not significant for any branch of industry except food, beverages and tobacco. This industry has higher indexes in all the countries, which fits in with the postulates regarding comparative advantages.

The above results tally with those of a number of other studies in that they indicate that intra-industry trade is greatest among countries with similar income levels (Gray, 1988). Specifically, Balassa and Bauwens (1987) found that the intra-subregional trade flows occurring within the framework of the Latin American Free Trade Association (LAFTA) were chiefly of an intra-industrial nature, and Greenaway (1987) obtained a similar result for the EEC.

Thus, the prevalence of intra-industry trade in the Central American integration process facilitates these countries' industrialization, because this process allows similar yet differentiated products to find a broader market, thus paving the way for larger production series with consequent economies of scale (Balassa, 1979).³

6. Broadening the market

Traditionally, analyses of the benefits of economic integration have been based on an assumption of perfect competition, which does not always occur in developing countries where there is a heavy concentration of industrial enterprises (N. Lee, 1984 and 1992). This is the case in Central America (Rapoport, 1978). Accordingly, for these countries, the imperfect competition model may be more useful in illustrating the benefits of integration. This model assumes the existence of a monopolistic form of competition in the internal market. Consequently, prices are determined by the average costs of the firms in the relevant industry rather than by their marginal costs. As the number of firms in the industry rises, so do average costs, since the market for each individual firm shrinks (Helpman and Krugman, 1986).

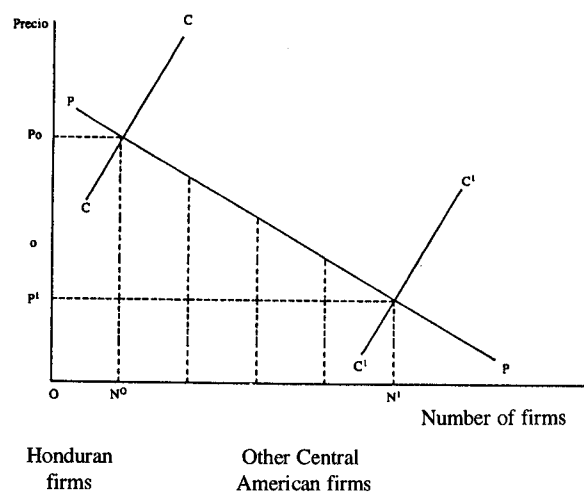
³ Bulmer-Thomas (1992a) has noted that the food, beverage and tobacco industry accounts for 50% of the subregion's manufacturing output but represents only 15% of its intra-subregional exports. This author states that the expansion of trade in the products of this industry through the elimination of existing non-tariff barriers would provide a strong stimulus for trade within Central America, especially in the cases of Honduras and Nicaragua. The indexes point to the desirability of expanding trade in these products so that the countries can take advantage of the economies of scale inherent in intra-industry trade.

In figure 6, taking the case of a single country (Honduras, for example), CC represents the direct relationship between the number of companies in the relevant industry and their average costs. As the number of firms rises, the competition among them increases and their prices decline. Thus, PP denotes the inverse relationship between the number of firms and the going price in that industry. The point of equilibrium is at the intersection of CC and PP, where the price (P_0) is equal to the average cost level that will not prompt firms to either enter or leave the sector, and thus determines the number of national companies (N^0). When integration takes place, the increase in monopolistic competition that will result from the participation of firms in the other countries will cause prices to go down. At the same time, the firms' average costs will now be influenced by the broader market and larger number of companies. The expansion of the market tends to push down the average cost, but the increase in the number of firms tends to raise it. As a result, CC shifts outward ($C'C'$), which implies lower average costs and a larger number of firms. The equilibrium solution involves having fewer companies than the total number of firms existing prior to integration, and a price below its pre-integration level as a result of larger sales volumes per firm and more competition. Figure 6 shows the new equilibrium price (P^1) and the new number of firms (N^1) which are the outcome of monopolistic competition on a subregional scale.

FIGURE 6

Honduras: Market expansion and monopolistic competition

Price



The above shows that integration gives each Central American country access to the markets of the other countries in the area. This does not occur in the case of a general unilateral liberalization of trade, which does not guarantee the initiating country access to any other market in exchange. In this case, the going price in the domestic industry would be the international price.

Rodrik (1988 and 1990) has shown that, once the assumption of perfect competition in the national market is discarded, trade reform manifests itself in three different ways, each of which has a positive impact when the situation unfolds as follows: (i) an expansion of imports of goods which had previously been protected and a contraction of the corresponding domestic sectors; (ii) an increase in the output of oligopolistic firms; and (iii) the growth of firms that take advantage of economies of scale. The first effect could run counter to the other two, since protected sectors are generally of an oligopolistic nature and enjoy economies of scale.⁴ In other words, in a more general analysis of the various implications of trade reform, the contraction of protected industries leads to an increase in well-being, but this effect might be cancelled out if these industries have an oligopolistic structure and if the technological efficiency provided by economies of scale is lost. In such a case, the net result could be ambiguous.

Rodrik (1988) says that this conflict could be resolved by an increase in the exports of formerly protected sectors. It should be emphasized that integration provides an opportunity to expand the exports of these and other sectors, which would ensure that the benefits associated with a unilateral liberalization of trade would actually be received. Hence, integration and liberalization can be complementary. It may also be seen that the assumption of perfect competition may be unsuitable for analysing the effects of liberalization and integration.

⁴ Cline (1978) has quantified the economies of scale in Central American industry. The heavy industrial concentration observed in the Central American countries has been highlighted by Rapoport (1978), who states that, at a subregional level, industrial concentration lessens in relation to the degree of national concentration, thus becoming similar to the level of concentration existing in the United States. In short, says the author, these measures exhibit an extremely high level of industrial concentration for each Central American country when considered individually but a significantly lower overall concentration—comparable to that existing in the United States—when the subregion is regarded as a single unit. He adds that the Central American Common Market probably played a substantial role in reducing monopolistic and oligopolistic power in Central America (p. 670).

Along these same lines, using a model of imperfect competition, Smith and Venables (1988) found that the integration of markets within the EEC has led to an increase in extra-regional exports, because of the price reductions occasioned by the economies of scale made possible by the European market. Other studies have found that, at the level of industries and firms, industrial concentration is inversely related to the expansion of exports (Glejser, Jacquemin and

Petit, 1980) and that such concentration diminishes with the size of the market (Meller, 1978).

It has also been observed that Costa Rica's increased sales of non-traditional exports to countries outside the subregion were preceded by a period in which it gained experience in exporting the same products to the Central American market. These findings have been interpreted as proof that integration offers exporters the opportunity to "learn by doing" (Webb and Fackler, 1993).

III

Obstacles to enjoyment of the benefits of integration

The preceding section showed that integration has benefited the Central American countries in terms of economic growth, industrialization driven by intra-industry trade and increased competition in a broader market. It has also been noted, however, that these benefits have been concentrated in the more developed countries of the subregion. The data also indicate that these benefits have been related to the size of a member country's share of trade within the subregion. We may then ask ourselves what types of factors determine the nature of the various countries' intra-subregional export performance. The argument has also been made that the larger size of the more developed countries' economies has facilitated the industrialization process based on economies of scale and better physical infrastructure (Cáceres, 1981). In other words, a higher level of activity in the export of commodities laid the groundwork for a greater industrial capacity when the integration programme began in the 1960s. Be this as it may, an examination of the variables that have been seen to influence exports within the subregion is a matter of special interest.

1. Transport costs

The high transport and insurance costs associated with the exports of Central American countries have gone relatively unnoticed. According to the International Monetary Fund (IMF), this cost can be calculated as the difference between one country's exports to another region or country and its imports from that same region or country. When the transport

costs involved in trade with developing countries—which, in this case, would essentially correspond to intra-subregional trade—are estimated on this basis, we find that they are particularly high for Honduras and Nicaragua (see table 7).

TABLE 7

Central America: Estimated transport and insurance costs, 1992
(Percentages of exports)

Guatemala	6.2
El Salvador	0.8
Honduras	52.8
Nicaragua	14.1
Costa Rica	2.41

Source: Calculated on the basis of figures from the International Monetary Fund (IMF), *Direction of Trade Statistics Yearbook*, 1993, Washington, D.C., 1993.

2. Low levels of human capital

Among the factors of production influencing a country's export capacity, the supply of human capital is of particular importance. The crucial role played by this type of capital in the creation of comparative advantages has been quantified for the EEC countries by Neven and Roller (1991). In addition, in a study on determinants of bilateral trade that made use of a sample composed of 18 developed and 20 developing countries, Balassa and Bauwens (1988) found that one of the variables influencing exports between trading partners was the ratio between the

TABLE 8

Central America: Human capital indicators, 1990

	Enrolment rate		Index	Exports to rest of Central America, 1992 (millions of dollars)
	Secondary level	Post-secondary level		
Honduras	32	9	77	34.3
Guatemala	21	353.0
El Salvador	29	17	114	207.1
Nicaragua	43	8	83	51.9
Costa Rica	41	24	161	224.5

Source: Calculated on the basis of data from the World Bank, *World Development Report, 1991*, Washington, D.C., 1991.

exporting country's and the importing country's supplies of human capital. According to these authors, if this ratio rose by 1%, exports would expand by between 0.123% and 0.233%, depending on whether the trade flow was between developing or developed countries.

The indicator for human capital used in the above-mentioned studies is the secondary-school enrolment rate plus five times the level of the post-secondary enrolment rate. This index has been calculated for the Central American countries as of 1990 (see table 8).

The importance of the role played by the size of a country's pool of human capital as a determinant of trade flows within Central America is illustrated by the use of an equation which expresses the exports of country "i" to country "j" (E_{ij}) as a function of the human capital indexes of the exporting (H_i) and importing (H_j) countries and the distance (in kilometres) between the two (D_{ij}). The results of this estimate—based on a sample of the intraregional trade of El Salvador, Honduras, Nicaragua and Costa Rica in 1992 and using the human capital indexes shown in table 8—are as follows:⁵

$$\begin{aligned} \text{Log } (E_{ij}) = & -4.8536 - 0.8027 \text{ Log } (D_{ij}) + 2.9216 \text{ Log } (H_i) \\ & (0.90) \quad (1.48) \quad (3.45) \\ & -0.1408 \text{ Log } (H_j) \quad R^2 = 0.54 \\ & (0.19) \quad \text{DW} = 1.62 \end{aligned}$$

This demonstrates that the determinant of trade within Central America is the exporting country's level of human capital.

A similar result was obtained using data from 1965 on the five Central American countries and incorporating GDP variables for the exporting (Y_i) and importing (Y_j) countries:

$$\begin{aligned} \text{Log } (E_{ij}) = & -7.8331 + 1.3591 \text{ Log } (Y_i) + 0.7179 \text{ Log } (Y_j) \\ & (1.93) \quad (4.01) \quad (2.12) \\ & -1.1416 \text{ Log } (D_{ij}) + 0.6901 \text{ Log } (H_i) \\ & (4.40) \quad (2.40) \\ & + 0.2749 \text{ Log } (H_j) \quad R^2 = 0.71 \\ & (0.95) \quad \text{DW} = 1.94 \end{aligned}$$

The exporting country's human capital index is significant, but less so than in 1990. This would appear to indicate that the role of human resources in intra-subregional trade has been gaining in importance as time has passed. Hence, the Central American countries' efforts to promote integration and economic modernization may be in vain unless they can raise their levels of human capital substantially.

An examination of the trends in human capital indexes for the period 1960-1990 (see table 9) reveals that Costa Rica displays higher values than the other countries, while Guatemala exhibits a slower rate of improvement. Furthermore, these indicators declined during the second half of the 1980s, except in El Salvador, which by 1990 had greatly improved upon the levels it had recorded in the early 1980s.

⁵ The data on trade within Central America are taken from ECLAC (1993).

TABLE 9

Central America: Human capital indicators

	Years					
	1960	1975	1978	1983	1985	1990
Guatemala	17	33	40	51	56	...
El Salvador	16	58	63	84	97	114
Honduras	13	43	48	83	81	77
Nicaragua	12	51	81	108	93	83
Costa Rica	46	128	141	174	171	161

Source: Calculated on the basis of data from the World Bank, *World Development Report*, Washington, D.C., several issues.

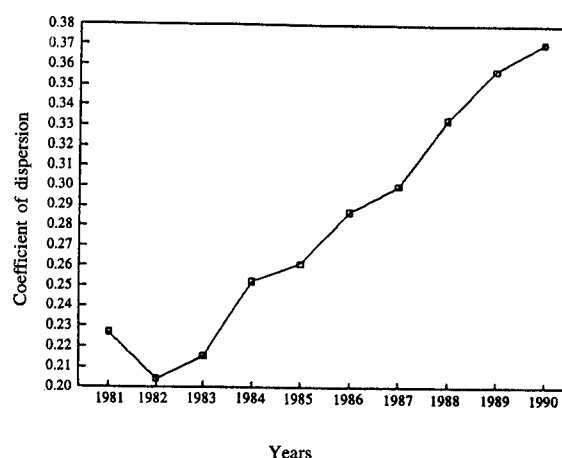
In view of the disparities existing among the countries' levels of development in terms of human capital, one appropriate subregional policy option might be to institute unrestricted mobility for the labour force. Such a step might well be more effective over time than an effort to achieve a rapid increase in the stock of human capital in the countries that have lagged furthest behind in this respect, although such an increase is at all events urgently needed. Indeed, according to the analyses carried out by De Franco (1993), the economic benefits of labour mobility are considerable.

3. The absence of measures to promote equity

Despite the differences observed in the various countries' abilities to take advantage of the benefits of integration, no policy has been formulated in Central America to promote equity in this regard or to provide the less developed countries with any sort of compensation. Furthermore, the economic disparities among the countries of the subregion deepened during the 1980s, and the coefficient of per capita income dispersion –i.e., the standard deviation divided by the average value– has tended to move upward (see figure 7). This could be interpreted as an indication that the Central American countries are becoming more heterogeneous. In the case of the European Union, the Maastricht Treaty sets forth the principle of cohesion –defined as the reduction of regional disparities– as the most basic

FIGURE 7

Central America: Dispersion of per capita income levels



canon of European integration⁶ (Begg and Mayes, 1993). It would therefore appear important to devise measures to promote equity within the context of Central American integration in order to maximize the benefits to be derived from the integration process.

⁶ In the countries belonging to the Organization for Economic Cooperation and Development (OECD), the index of per capita income dispersion fell from 0.45 in 1950 to 0.28 in 1985 (Dowrick and Nguyen, 1989).

IV

The costs of integration

In considering the costs of integration, a number of recent studies have computed the cost to the Central American countries of refraining from engaging in integration, with this "non-integration" option being defined as the suspension of intra-subregional trade. In particular, Gallardo (1992) has stated that this cost could be significant for all the countries except Honduras. The validity of these studies notwithstanding, there are other types of costs—which may prove to be quite substantial—that have received relatively little attention. These costs stem from a failure to coordinate the policies that have a bearing on integration efforts; in other words, even in areas where integration is already a reality, the lack of policy coordination could generate significant costs. These costs will be analysed below.

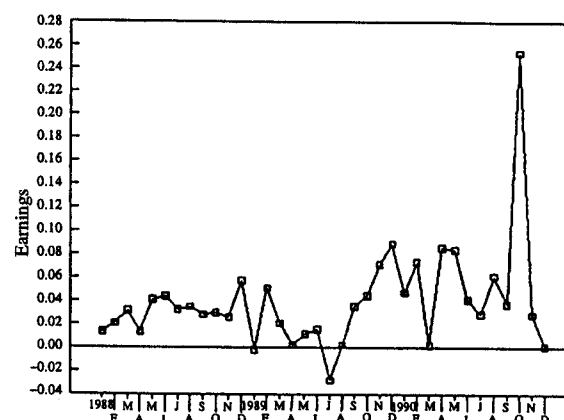
1. Currency arbitrage

One phenomenon that underscores the need for coordination is currency arbitrage, i.e., the practice of buying and selling a good (currency) that has different prices in two different markets in order to make a profit. By way of example, a person could travel from Guatemala to El Salvador and exchange his quetzales for colones at an exchange rate of C/Q and then buy dollars at an exchange rate of C/D . This individual could then return to Guatemala, exchange the dollars for quetzales at an exchange rate of Q/D and turn a profit. If the going exchange rate for converting colones to quetzales is higher than the cross-currency exchange rate (colón-dollar/quetzal-dollar), then a profit-making opportunity exists. In other words, if $C/Q > C/D \cdot Q/D$, then the conditions exist for the initiation of a flow of quetzales to El Salvador, and the demand for colones and dollars will therefore rise.

Figure 8 gives the earnings from the above operation $C/Q - C/D \cdot Q/D$, in colones per quetzal traded, for the period 1988-1990. In most cases, the result is positive, which means that El Salvador is a source of supply of dollars for Guatemala. It also means that, given this ongoing inflow of quetzales to El Salvador, Guatemala's monetary planners should seek to determine what portion of that country's money

FIGURE 8

Guatemala and El Salvador: Earnings from arbitrage
(Colones per quetzal traded)



supply is flowing into El Salvador. By the same token, El Salvador should try to ascertain how much of the money supply in that country is made up of quetzales. Thus, it is clear that at least two currencies are in circulation in these economies. This is an especially important factor in determining the degree of precision attained by financial planning and in the design of adjustment programmes, and calls for an effort on the part of the Central American countries to coordinate their exchange policies.

2. Currency substitution

In connection with the subject of the preceding section, it may be noted that some studies have found that in El Salvador and Guatemala the respective demands for those countries' currencies are interdependent, inasmuch as the demand for colones in El Salvador is partially determined by the supply of quetzales in Guatemala (Cáceres and Suay, 1988a). The question then arises as to which monetary aggregate would be the most effective tool for monetary planners to use in each country. There is also empirical evidence that the principal determinant of the inflation rate in El Salvador is a variable composed of the aggregation of the money supplies of Guatemala

and Costa Rica (Cáceres and Suay, 1988b). The same type of interdependence has also been found in the case of the exchange rates of these countries. In fact, the Granger test of causality shows that Guatemala's exchange rate determines the rate for El Salvador (Cáceres and Núñez-Sandoval, 1992). Since these countries' exchange rates are determined by their money supply, the expansion of one country's money supply has repercussions on the exchange rate of the other. Consequently, exchange stability—which is of particular importance for trade within Central America—would appear to depend in part on variables outside the country in question. This points to the need for an operational framework for the coordination of monetary policy, since the costs of not having such a system may be quite high.

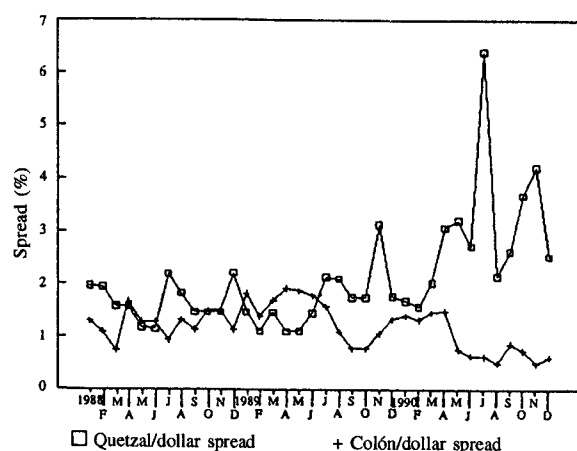
3. Exchange-rate spreads

Another phenomenon that shows up the need for coordination is the spread existing between the buying and selling rates for the dollar in Guatemala and El Salvador, which represents a significant transaction cost. The spread is wider in Guatemala than in El Salvador because the volume of currency traded is greater in the latter (see figure 9).

FIGURE 9

El Salvador and Guatemala: Exchange-rate spread in dollar markets

(Selling price-buying price/average price)

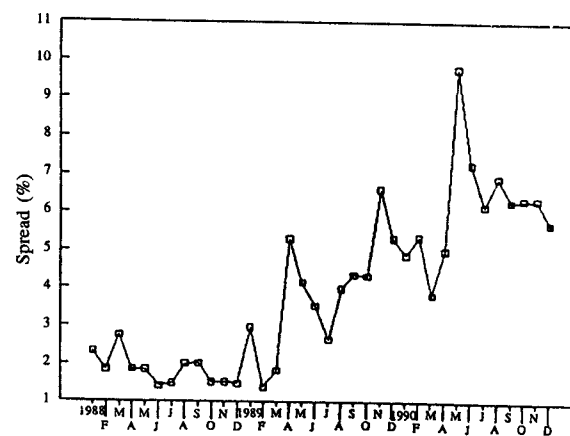


Moreover, the two spreads exhibit opposite trends, i.e., when the volume of exchange operations is low in one country, it is high in the other and vice versa. The spread in the exchange rate for the quetzal against the colón (see figure 10) is much higher than for the other two currencies due to the smaller volume of such transactions.

The above examples represent a genuine form of "monetary integration"; such *de facto* integration takes place due to the forces of supply and demand for these currencies, which, in turn, reflect the monetary and fiscal policies of these countries. The examples also make it clear that, without proper coordination, this sort of integration may be costly, thus highlighting the need to set up mechanisms for the convergence and multilateral oversight of these policies.⁷ If they are to eliminate the costs of integration, the countries will have to pay the "cost" of reducing the autonomy of their monetary and fiscal policies. In other words, the countries would not be able to establish their own monetary and fiscal programmes independently but would instead have to do so on a consensual basis whereby such policies would be subject to the needs of the entire subregion.

FIGURE 10

Colón/Quetzal exchange-rate spread



⁷ For an excellent overview of policy coordination in Central America, see López (1994).

V

The need to coordinate integration efforts

The preceding section stressed the need for a policy coordination system which would enable the countries to eliminate the costs of a *de facto* form of integration. Indeed, in order to take full advantage of the benefits of integration, the Central American countries should adopt a broader policy-coordination system with a view to the harmonization of their structural reform efforts.

1. Structural reform

Taking a subregional approach to the structural reform process would—in addition to permitting all the countries to advance at a more even pace while still allowing each to follow its own timetable and base its actions on its individual capabilities for implementing such reforms—permit the identification in each country of needs that could be met and opportunities that could be seized more effectively through joint efforts. It would also ensure that the results of the process in each country would be in keeping with those of the other countries in the subregion, particularly with regard to economic and sectoral policies. In the following paragraphs we will see just how a subregional approach could help to further the three components of the structural reform process: stabilization, adjustment and reform as such.

(a) *The subregional macroeconomic framework*

The first component of the structural reform process is stabilization. To that end, a coordinated agenda for the macroeconomic management of the five countries could play a particularly important role. Such an agenda should include a system for the coordination of macroeconomic policies⁸—which need not be identical but should be consistent with one another—and should be structured so as to keep certain macroeconomic variables in each country within a pre-established range. It would also lend greater credibility to the countries' economic reform efforts, since each of the national reform programmes would be perceived as forming part of a subregional commitment.

(b) *The framework for structural adjustment*

The subregional alignment of adjustment programmes for specific sectors (the second component) would create a harmonious framework within which the countries could pursue their sectoral policies, thus

contributing to a more balanced form of development that would not exacerbate existing disparities. Such an approach would be of particular importance in the transport sector, especially with regard to policies on competition; in the energy sector, where privatization and leasing arrangements would be advantageous for investors in the subregion; and in agriculture, because of the effects it would have on trade in agricultural products. What is more, if the reform of the State were to be carried out on a subregional basis, it would ensure a better articulation of the countries' public sectors and would pave the way for greater consistency in regard to labour codes, the civil service, occupational and other health standards, investment laws, etc.

Industrial retooling would be an extremely important item on this subregional agenda for structural adjustment. The countries need assistance in providing suitable business services of specific types, especially in the areas of human resources development, quality-control systems, marketing, storage and market information (Willmore and Máttar, 1991). Strategies for optimizing these services would be more effective within the framework of a subregional approach because they would then allow the countries to draw upon the lessons learned by the other countries and to build on the experience already gained in Central America. Training is a highly important factor in this regard.⁸

The subsectors in which industrial retooling should be undertaken would have to be selected from a subregional vantage point in order to enhance those subsectors' complementarity and vertical integration. Within this framework, each country would have access to a whole range of experiences and opportunities, and firms would find it easier to work together to win new markets and negotiate the use of relevant technologies.

⁸ A study conducted by Willmore and Máttar (1991) on the need for industrial retooling in Central America concluded that the steps that would contribute the most to an increase in plant efficiency were not the modernization of equipment or huge investments but rather the implementation of mechanisms for improving the quality of business administration, making the fullest possible use of raw materials, improving planning and control of incentives, and improving marketing techniques, all of which involves quite a low level of costs and investments.

(c) *Subregional structural change*

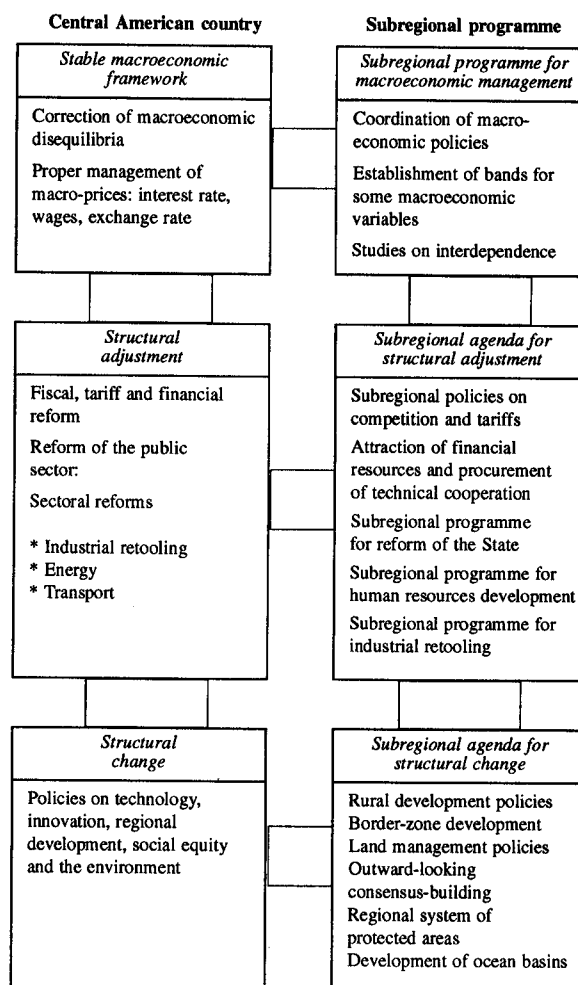
The third component of the reform process is structural change. Whatever programmes of this nature the countries might decide to implement on a joint basis – policies on technology, the promotion of innovation, the development of the poorest zones (especially in border areas) and the diversification of international economic relations – would be strengthened by the adoption of a subregional approach, especially through the increased access to financial resources and technical cooperation and the greater degree of policy convergence that would come with integration. A subregional approach would also be a valuable aid for governments in their efforts to remedy social imbalances, as well as having an important demonstration effect. A subregional agenda for social reform should therefore be drawn up that could serve as a basis for programming the steps needed to bring about the convergence of the social development process in the subregion, particularly with regard to basic education, primary health care and sanitation. Figure 11 provides an example of how a subregional agenda for structural reform might be formulated on the basis of national programmes.

An appropriate mechanism for framing such an agenda would be the Central American Cabinet of Ministers, which meets periodically to analyse issues of subregional scope. The meetings of this body would provide an opportunity to identify the various aspects to be covered in a given sector while differentiating between issues of national concern and those having implications for the entire subregion. The analysis of the latter types of questions would be directed towards ensuring that the countries are truly prepared for integration by making sure that they constitute congruent components of a Central Ameri-

can production matrix. This approach would also allow for the harmonization of the elements needed in order to permit the integration of the subregion, as a bloc, with the rest of the world.

FIGURE 11

Subregional agenda for structural change



VI

Conclusions

Economic integration has benefits to offer the Central American countries because it can stimulate economic growth, promote industrialization (through intra-industry trade) and help boost the efficiency of the production apparatus (as a result of increased monopolistic competition at the subregional level

and, in particular, by guaranteeing access to other markets). These benefits lay a more solid foundation from which to cope with the competition from other parts of the world that will emerge as these economies become more open. The countries' ability to take advantage of the opportunities offered by inte-

gration will, however, hinge upon the measures they take to strengthen their stock of human capital.

Integration also has its costs, however, due to the unforeseen repercussions that one country's monetary and fiscal policies may have on the others (especially as a result of currency substitution), which may make it more difficult for the countries to fine-tune their monetary policies. The cost associated with de facto monetary integration could be cancelled out by the lesser "cost" of establishing a coordination scheme that might diminish national authorities' autonomy in the area of macroeconomic policy management.

The Central American countries should take a subregional approach to the structural reform process, especially as it relates to social issues and in-

dustrial retooling. In order to ensure that such reforms facilitate and encourage subregional integration and are in keeping with that process, they need to be guided by common objectives and proceed according to a set timetable, although that timetable may be different for each country. A subregional agenda for structural change should therefore be formulated that will promote the advancement of all the countries and carry forward the integration process with greater institutional and sectoral consistency and harmony. The implementation of such an agenda would permit the identification of opportunities for greater economic complementarity and cross-sectoral integration, as well as promoting a harmonious form of integration with other regions.

(Original: Spanish)

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