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CONSEQUENCES OF THE COMMODITY COMPOSITION OF TRADE IN LATIN AMERICA

Sheila Amin Gutiérrez de Piñeres
University of Texas at Dallas
and
Michael J. Ferrantino
Research Division
Office of Economics
U.S. International Trade Commission

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address correspondence to:
Office of Economics
U.S. International Trade Commission
Washington, DC 20436 USA

"Consequences of the Commodity Composition of Trade in Latin America"

Sheila Amin Gutiérrez de Piñeres and Michael Ferrantino[1]

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We construct measures of export similarity among Latin American countries, and use them in an attempt to explain the evolution of intra-Latin trade. While primary products exports have declined in importance for Latin America, they still play a significantly large role. Thus, one might expect intra-Latin trade to be conducted on a Heckscher-Ohlin basis. There is no evidence of trading patterns based on complementary resource endowments; rather, macroeconomic factors including the debt crisis and its workout explain much of intra-Latin trade. Latin American countries turn to each other as trading partners in part to economize on hard currency. We discuss the implications of our results for the recent Latin American export boom and regional integration schemes.

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[1]Sheila Amin Gutiérrez de Piñeres
University of Texas at Dallas
School of Social Sciences
P.O. Box 830688
Richardson, TX 75083
e-mail: pineres@utdallas.edu
[Contact Author]

Michael Ferrantino
International Trade Commission
Office of Economics
500 E. Street, SW
Washington, D.C. 20436
(P) 202-205-3241

I. INTRODUCTION

Intra-Latin trade has boomed substantially in recent years. According to WTO data, Latin American exports to other Latin American countries, in nominal dollars, grew by 13 percent in 1991, 23 percent in 1992, 15 percent in 1993, and 14 percent in 1994, amounting to a compounded growth rate of over 16 percent over the period 1990-94. This compares with a growth of 5 percent in world exports and 6 percent in Latin American exports to the world as a whole. This rapid growth has fueled optimism about the prospects for success of the plethora of new trade liberalization initiatives in the region, including MERCOSUR and a variety of bilateral agreements. It is thus of interest to explain the recent intra-Latin trade boom, particularly since these initiatives in fact lowered relatively few barriers in the period in question.

This paper focuses on the possible role of the commodity composition of Latin American trade in the boom. Historically, these countries have specialized in primary product exports, and while substantial diversification has taken place (Amin and Ferrantino, 1996) a good deal of primary product specialization remains. The question is what impact this would have on intra-Latin trade? Traditional Heckscher-Ohlin trade theory suggests trade is most beneficial between countries with different endowments and export packages. The factor endowment theory clearly states that countries with different endowments of resources have the most to gain from trade as they can now specialize in the production of the good in which they have a comparative advantage (Krugman and Obstfeld, 1994). The vent-for-surplus theory states that the benefit of trade is not that it reallocates resources between sectors but that underutilized agrarian resources, in the case of Latin America, are absorbed into the economy. Newer trade theories suggest that

there should be a lot of trade in similar products, but these are usually thought to apply to higher-end manufactures. In the manufacturing sector we do in fact see industrialized countries trading significant quantities within the same categories, for example, the trade of automobiles between the United States, Japan, and Germany. Manufacturing goods markets reflect imperfect competition in that while a car is just means of transportation subtle differences differentiate the product for buyers. For Latin American countries, however, one would think Heckscher-Ohlin theory is more appropriate since differentiation among primary products is minimal in general. So, why then do we see so many intra-regional trade agreements?

We construct export similarity indices (E.S.I.) for seventeen Latin American and Caribbean countries (Noland, 1995). We find that patterns of comparative advantage persist over time, and that countries specializing in metals, oil, tropical agriculture and temporal agriculture in the early 1960s continue to do so today, although to a lesser degree. It has been speculated that this pattern of specialization would have a negative impact on intra-Latin integration (Michaely, 1994). But export specialization has no determinable impact on the pattern of intra-Latin trade in recent years. Macroeconomic factors such as fluctuations in economic growth and the resolution of the debt crisis have been substantially more important. We find that regional economic growth stimulates intra-Latin trade substantially. Heavy foreign debt burdens also stimulated intra-Latin trade as countries sought to conserve on foreign currency. The alleviation of these burdens in the 1990s suppressed trade, but this was outweighed by the return of economic growth.

These results suggest that the extent of South-South intraregional trade agreements may based less on capturing the maximum gains from trade than on macroeconomic policy. It may

be preferable to import from some country other than the low cost producer, if the exporter will facilitate the transaction in other ways. For example, the low-cost producer may only accept hard currency, while a neighboring developing country will consider countertrade arrangements. What may appear to be trade diversion could well be a rational response to foreign currency constraints.

II. SOME STYLIZED FACTS

Intra-Latin trade, expressed as a share of global trade, collapsed in the early 1980s and rebounded in the 1990s (Figure I). From this perspective, the recent boom is just a return to historical levels. The deep recession with the onset of the debt crisis in 1982 reveals a slight increase in intra-Latin trade. By any measure, the debt crisis hits hard in 1980-82, and the recovery from that crisis begins sometime in 1988-91, depending on how one reads the data (Figure 3 and 4). The rapid current growth rates arise from Latin American growth which out paces world growth (Figure 2). The rise in intra-Latin trade in 1990 is consistent with the increase in local trading agreements. Since 1990, MERCOSUR, NAFTA, the Group of Three, Andean Trade Preference Act (ATPA), Caricom-Venezuela, Caricom-Colombia, and a whole host of bilateral agreements were implemented. These trading arrangements created incentives for Latin American countries to trade amongst themselves, thereby increasing the volume on intra-Latin trade. However, it should be noted that levels of intra-Latin trade have just recently reached their historical levels.

We analyzed two-digit export data from the United Nations trade database for the years 1962-1993 in an attempt to derive empirical measures of the export similarity index

(ESI). The seventeen Latin American countries included in this study are Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Trinidad & Tobago, and Venezuela, which among them account for the bulk of economic activity in Latin America.

Using the export data from the United Nations we construct a series of export similarity indices. First we take nominal export data denominated in U.S. dollars and create a series of export shares for each country. Then a series of ESI's for all seventeen country pairs using the industry export shares for the years 1962 through 1993 was constructed. The ESI is constructed in the following manner:

$$S(a,b) = \sum_i \min(X_{ia}, X_{ib})$$

where X_{ia} (X_{ib}) is industry I's export share in country a's (b's) exports (Noland, 1995).[2] The ESI varies between 0 and 1, 1 indicates an identical export commodity portfolio and 0 indicates a completely dissimilar portfolio. The time series of ESI's allows us to see how the export commodity composition varies through time. Additionally, by examining similar and dissimilar pairs we can see the evolution of the export packages among the various Latin American countries. Table 2 and Table 3 point out the countries with the most and least similar export commodity portfolios for 1962 and 1993. There are 136 pairs among the 17 countries. There is some persistence over time, 9 of the 25 most similar pairs (Table 2) are the same for both 1963 and 1993 (you would expect 4.6 by random chance). But there has been some

[2] Noland (1995) points out that this measure was also used by Finger and Kreinen (1979), Kellman and Schroeder (1983), and Pearson (1994).

movement. In particular, Argentina/Brazil and Brazil/Mexico have converged, which reflects in part large-country manufactured trade. Table 3 shows the least similar exports, and reflects that the oil exporters (Trinidad and Tobago and Venezuela) and the mining countries Bolivia and Peru are persistently specialized vis-a-vis the rest of Latin America.

Additionally we did a number of different types of cluster analysis with real export share data using a variety of clustering algorithms, such as Ward's minimum distance, average linkage, centroid, McQuitty's similarity analysis, Gower's median method, and looking at year-by-year results as well as longer time periods. There is some variation among the methods, but broadly the countries fit into four clusters which are described in Appendix Tables A1-A5; a tropical agriculture cluster consisting of Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, and Honduras. The mining cluster is made up of Bolivia, Chile , and Peru. Argentina, Mexico, and Nicaragua are in the temperate agriculture cluster. Finally, in the oil cluster we find Trinidad& Tobago and Venezuela. Jamaica and Panama are *sui generis* and do not fit neatly in any cluster. Within each cluster specialization the characteristic goods has decreased, but the initial specialization is still apparent in the 1990s, particularly for oil exporting countries.

Changes in principal exports of the tropical agriculture cluster reveal that over the last thirty years while the two or three key exports are still the same the degree of specialization in primary commodities has declined. In 1962 the key exports were coffee/tea, fruit/vegetables and wood. In 1992 coffee/tea and fruit/vegetables are still key exports even though their share of real exports declined considerably. The portfolio of exports, however, has shifted away from primary products to semi-industrial and processed products illustrating a trend towards diversification. Yet, this is not the case in the oil cluster, oil still remains a key export with a large share of real

exports. Jamaica and Panama are the two outliers whose export shares of the principal commodities changed relatively little over the years. The temperate agriculture and mining clusters do show a decline in the relative importance of the largest exports over time. In the mining cluster, ores and nonferrous metals still are the largest exports, yet, there is more of a diversification into manufactured exports than in the case of the temperate agriculture cluster. The temperate agriculture cluster has a fall in reliance on textile fibers and coffee/tea but still has not clearly diversified out of primary products. Additionally, the few manufactured goods exported by the temperate agricultural cluster are of the same class of machinery. Thus we see a pattern of diversification in the tropical agriculture and mining clusters with a less pronounced trend in the temperate agriculture and oil clusters, respectively.

The regression results focus on the period from 1980 to 1993. This subset is utilized due to the convenience of obtaining bilateral aggregate trade flows from the Statistics Canada datbase (1996). Table 4 presents the Sachs-Warner (1995) dummy variable for openness. According to the fairly generous criteria they use, most of Latin America adopts "open" policies between 1985-1991. The two oil exporters are still closed at the end of the sample in 1993.

In addition to the ESI's, the following variables were included in the analysis: the debt service-to-exports ratio (DEBTSVC), foreign exchange reserves expressed in months of import requirement (FXRES), the Sachs-Warner measure for openness (SWOPEN), real GDP of the exporting country (GDPX), real GDP of the importing country (GDPI), population for the exporting (POPX) and importing(POPI) countries, distance between principal cities measured in kilometers (DIST), a linguistic similarity index(LANG) (see Boisso and Ferrantino (1994)), and a dummy variable for bordering countries (BORD). DEBTSVC, FXRES and SWOPEN are

defined as characteristics of the importer in the regression analysis The ESIs were calculated for each year from 1962-93, while the regression analysis only covers 1980-93.

The underlying gravity specification (Table 1), to which we add variables for indebtedness, export similarity, and openness, gives a reasonably good fit (R-sq. between .47 and .63 in each year) and the traditional signs for all variables are strong and significant. The results for 1993 are anomalous with respect to distance. Also, the absolute value of the coefficients seems to regress towards zero over time. We have no explanation for this but it is not particularly troublesome. We made no attempt to correct for generalized heteroscedasticity a la White, but most of the variables are in logs (except the border dummy) so heteroscedasticity should not be too severe.

Table 5 shows the marginal effects of indebtedness (DEBTSVC, FXRES), export similarity (ESI) and Sachs-Warner openness (SWOPEN). Based on Table 1, we think it is not unreasonable to pool the sample. Note that the control (gravity) variables' coefficients are relatively unperturbed. FXRES turns out to be better statistically than DEBTSVC. Low foreign exchange reserves (in months) means more intra-Latin trade, suggesting that indebted countries engaged in some sort of countertrade practices to conserve foreign exchange. These results suggest that intra-regional trade agreements may have less to do with capturing the maximum gains from trade and more to do with macroeconomic policy. For example, when there are reserve constraints trade among neighboring countries will increase as opposed to times when a surplus of foreign currency allows the country to buy from the low cost producer. So what may appear to be trade diversion is in fact an optimal solution given foreign currency constraints. The positive sign on DEBTSVC, though not significant, tells the same story as the negative sign

on FXRES (high debt service and low foreign exchange reserves are both indicators of the same problem). A country with an extra month of foreign exchange reserves imports about 8 percent less from its Latin American partners (equation (7)).

ESI is never significant in any specification; if anything, there is more trade between similar countries, which is pathological if your prior is that Latin export specialization is based on resource endowments. SWOPEN is also negative, suggesting that open countries buy less, and closed countries buy more, from their Latin American partners. The coefficient on SWOPEN in our "best" specification (equation (7)) suggests that countries under "closed" regimes import about $2.66 from their Latin partners for every $1 imported by "open" regimes, ceteris paribus, which is a substantial effect.

Table 6 looks at the behavior of FXRES, ESI, and SWOPEN over time. Generally, either FXRES or SWOPEN is significant (but not both) suggesting they may be to some extent proxies for each other. Early in the sample (from 1980-88 when only a few countries are "open") open countries import more, and in 1991-93 they import substantially less. Very late in the sample SWOPEN is in effect a proxy for oil-importing countries. Similar results were obtained when excluding these countries from the sample, however..

The "perverse" result on ESI is strongest in the years 1985-1991, in the immediate workout of the debt crisis. In 1980 (which is arguably before the crisis could affect trade much) and in 1993, intra-Latin trade is markedly Heckscher-Ohlin (negative sign on ESI). The results in fact do support the standard Heckscher-Ohlin theory of gains from trade being maximized by trade with countries of differing endowments. However, the results are only significant during the good times suggesting that when a foreign exchange crisis occurs countries must revert to

survival.

III. CONCLUSION

One explanation for our results is that the nature of Latin American-World trade and intra-Latin trade are considerably different. The boom in intra-Latin trade involves different goods than what Latin American exports to the rest of world (IDB, 1995). Our data on real export shares of Latin American revealed that in general primary and semi-processed goods are still their key exports to the rest of the world. Yet, the commodity composition of intra-Latin trade has a much larger share of manufactured goods (IDB, 1995). If Latin America sells primary products to the world, but manufactures to itself, is this a sign of emerging Helpman-Krugman trade? Maybe, but it could also interact perversely with the particular integration schemes now in favor, i.e. the MERCOSUR customs union with a relatively high external barrier, and a membership potentially including all of South America soon (De Jonquieres, 1996). The vice-president for the World Bank's Latin American and Caribbean region "admitted that some of the fastest growth in intra-MERCOSUR trade had been in products which could not be sold in world markets because they were not internationally competitive" (De Jonquieres, 1996). This admission comes as another senior economist at the World Bank, Mr. Alexander Yeats points out that these regional trade agreements are creating high tariff barriers and leaving the low cost producer out in the cold, a recipe for "mutual impoverishment" is what he calls these trade agreements (Wolf, 1996). Michaely (1994) points out that many trade agreements have failed in that past "when countries' production structures are similar and their exports match the imports of their partners only poorly." So then why are regional trading agreements in

Latin America thriving, with new multi and bi- lateral treaties coming into existence annually? Our results indicate as foreign exchange earnings fall, which they do when the industrial world enacts protectionist policies, Latin American countries trade with each other. The costs of trade diversion may be perceived in the region as a sort of insureance policy against new episodes of industrial-country protection or capital flight. Whether this policy is a reasonable response to risk or imposes excessive costs remains to be seen. It is clear, nonetheless, that the overall macroeconomic situation must be considered when judging the benefits of certain trade agreements.

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Table 1-Baseline Gravity Results

Year	C	GDP X	GDPI	POPX	POPI	DIST	LANG	BORD	R^2(N)
1980-1993	-45.3	3.21	1.71	-1.77	-1.26	-1.93	0.202	1.34	.473
s.e.	1.35	0.10	0.10	0.11	0.11	0.085	0.015	0.16	3794
1980	-63.0	4.08	2.33	-2.08	-1.48	-2.74	0.288	1.46	.511
s.e.	6.43	0.48	0.48	0.53	0.53	0.41	0.068	0.77	271
1981	-52.1	3.38	1.65	-1.54	-0.87	-2.50	0.260	1.51	.524
s.e.	5.69	0.42	0.43	0.46	0.47	0.36	0.060	0.68	271
1982	-52.8	3.47	2.07	-1.67	-1.30	-2.80	0.219	1.23	.559
s.e.	5.22	0.39	0.39	0.43	0.43	0.33	0.055	0.63	271
1983	-46.9	2.98	1.69	-1.12	-1.08	-2.52	0.135	1.68	.531
s.e.	5.28	0.39	0.39	0.43	0.43	0.33	0.056	0.63	271
1984	-47.0	3.23	1.44	-1.36	-0.86	-2.54	0.167	1.29	.564
s.e.	4.91	0.37	0.37	0.40	0.41	0.31	0.053	0.59	271
1985	-43.2	3.05	1.47	-1.23	-1.04	-2.51	0.166	1.00	.559
s.e.	4.78	0.36	0.37	0.40	0.41	0.30	0.051	0.58	271
1986	-42.5	2.93	1.57	-1.27	-1.17	-2.23	0.189	1.22	.574
s.e.	4.34	0.33	0.34	0.37	0.38	0.28	0.048	0.54	271
1987	-39.3	3.03	1.23	-1.60	-0.80	-1.93	0.134	1.12	.570
s.e.	3.91	0.30	0.30	0.34	0.34	0.25	0.043	0.48	271
1988	-41.4	3.16	1.49	-1.83	-1.05	-1.89	0.172	1.07	.532
s.e.	4.21	0.34	0.34	0.38	0.38	0.27	0.046	0.51	271
1989	-40.2	2.90	1.30	-1.42	-0.79	-2.10	0.160	0.83	.599
s.e.	3.80	0.31	0.31	0.34	0.34	0.24	0.041	0.45	271
1990	-41.5	2.91	1.34	-1.51	-0.78	-1.96	0.172	0.88	.603
s.e.	3.68	0.29	0.29	0.32	0.33	0.23	0.040	0.43	271
1991	-37.4	2.69	1.17	-1.45	-0.63	-1.78	0.157	0.76	.632
s.e.	3.08	0.24	0.24	0.27	0.27	0.20	0.034	0.37	271
1992	-37.0	2.42	1.29	-1.24	-0.66	-1.78	0.140	0.49	.630
s.e.	2.91	0.22	0.22	0.25	0.25	0.19	0.032	0.35	271
1993	-51.9	2.54	1.47	-1.61	-0.97	0.58	0.156	1.05	.549
s.e.	3.61	0.28	0.28	0.31	0.31	0.32	0.039	0.44	271

Table 2
Countries with Most Similar Exports 1962-1993

1962	Trinidad	Venezuela	0.87776	1993	El Salvador	Guatemala	0.64662
1962	Brazil	Guatemala	0.79357	1993	Honduras	Panama	0.64446
1962	El Salvador	Guatemala	0.78630	1993	Costa Rica	Panama	0.64180
1962	Brazil	El Salvador	0.75021	1993	Costa Rica	Honduras	0.58820
1962	Costa Rica	Guatemala	0.73958	1993	Colombia	Guatemala	0.53874
1962	Colombia	Guatemala	0.70005	1993	Bolivia	Chile	0.52497
1962	Brazil	Colombia	0.67556	1993	Guatemala	Honduras	0.52345
1962	Ecuador	Honduras	0.66247	1993	Argentina	Brazil	0.48537
1962	Brazil	Costa Rica	0.65892	1993	Brazil	Mexico	0.48224
1962	Colombia	El Salvador	0.64051	1993	Guatemala	Nicaragua	0.47392
1962	Colombia	Costa Rica	0.63708	1993	Colombia	El Salvador	0.47067
1962	Costa Rica	El Salvador	0.61600	1993	Costa Rica	Guatemala	0.46040
1962	Costa Rica	Ecuador	0.57967	1993	Colombia	Costa Rica	0.45771
1962	El Salvador	Nicaragua	0.54563	1993	Honduras	Nicaragua	0.45256
1962	Mexico	Nicaragua	0.53366	1993	Trinidad	Venezuela	0.44737
1962	Bolivia	Jamaica	0.52839	1993	Mexico	Peru	0.44344
1962	Panama	Trinidad	0.51398	1993	Bolivia	Jamaica	0.43798
1962	Panama	Venezuela	0.49512	1993	Guatemala	Panama	0.43773
1962	Honduras	Panama	0.48855	1993	Colombia	Mexico	0.43165
1962	Guatemala	Nicaragua	0.48628	1993	El Salvador	Nicaragua	0.42314
1962	Brazil	Nicaragua	0.48458	1993	Colombia	Ecuador	0.42174
1962	Mexico	Peru	0.47731	1993	Costa Rica	Jamaica	0.41515

Table 3
Countries with Least Similar Exports 1962-1993

1962	Bolivia	El Salvador	0.04787	1993	Peru	Venezuela	0.17384
1962	Bolivia	Colombia	0.04765	1993	Bolivia	Panama	0.16670
1962	Bolivia	Costa Rica	0.04758	1993	El Salvador	Trinidad	0.16600
1962	Bolivia	Ecuador	0.04758	1993	Chile	Venezuela	0.16567
1962	Chile	Costa Rica	0.04521	1993	Argentina	Jamaica	0.16424
1962	Honduras	Trinidad	0.04290	1993	Peru	Trinidad	0.15779
1962	Chile	Ecuador	0.04286	1993	Guatemala	Trinidad	0.15679
1962	Argentina	Ecuador	0.04274	1993	Costa Rica	Trinidad	0.15368
1962	Peru	Venezuela	0.04251	1993	Chile	Trinidad	0.15137
1962	Argentina	Trinidad	0.04046	1993	Bolivia	Honduras	0.15116
1962	Ecuador	Trinidad	0.03271	1993	El Salvador	Venezuela	0.14933
1962	Chile	Trinidad	0.02626	1993	Ecuador	Jamaica	0.14445
1962	Brazil	Venezuela	0.01838	1993	Costa Rica	Venezuela	0.14409
1962	Bolivia	Trinidad	0.01765	1993	Guatemala	Venezuela	0.14171
1962	El Salvador	Venezuela	0.01762	1993	Nicaragua	Venezuela	0.13700
1962	Nicaragua	Venezuela	0.01742	1993	Panama	Trinidad	0.11897
1962	Honduras	Venezuela	0.01689	1993	Bolivia	Venezuela	0.11756
1962	Argentina	Venezuela	0.01573	1993	Bolivia	Ecuador	0.11685
1962	Guatemala	Venezuela	0.01572	1993	Nicaragua	Trinidad	0.10423
1962	Jamaica	Venezuela	0.01488	1993	Jamaica	Trinidad	0.10298
1962	Chile	Venezuela	0.01391	1993	Honduras	Trinidad	0.09344
1962	Ecuador	Venezuela	0.01346	1993	Jamaica	Venezuela	0.08368
1962	Costa Rica	Venezuela	0.01221	1993	Bolivia	Trinidad	0.08301
1962	Bolivia	Venezuela	0.01118	1993	Panama	Venezuela	0.08011
1962	Argentina	Bolivia	0.00601	1993	Honduras	Venezuela	0.07013

Table 4 - Sachs/Warner Openness

Country	Open during
Argentina	1991-present
Bolivia	1985-present
Brazil	1991-present
Chile	1976-present
Colombia	1986-present
Costa Rica	1961-present
Ecuador	1950-82, 1991-present
El Salvador	1950-61, 1989-present
Guatemala	1950-61, 1988-present
Honduras	1950-61, 1991-present
Jamaica	1962-73, 1989-present
Mexico	1986-present
Nicaragua	1950-60, 1991-present
Panama	not rated
Peru	1948-67, 1991-present
Trinidad & Tobago	never open
Venezuela	1989-92

See Sachs and Warner (1995) for methodology

Table 5
Additional Specifications-Pooled Sample
(standard errors in parentheses)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	-45.3	-45.2	-45.9	-45.3	-46.0	-45.2	-45.9
	(1.35)	(1.35)	(1.40)	(1.35)	(1.40)	(1.37)	(1.43)
GDPX	3.21	3.21	3.19	3.21	3.19	3.06	3.05
	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)	(0.18)	(0.11)
GDPI	1.71	1.74	1.81	1.71	1.81	1.77	1.86
	(0.10)	(0.10)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)
POPX	-1.77	-1.76	-1.76	-1.78	-1.76	-1.57	-1.57
	(0.11)	(0.11)	(0.12)	(0.11)	(0.12)	(0.12)	(0.13)
POPI	-1.26	-1.30	-1.32	-1.26	-1.33	-1.31	-1.38
	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
DIST	-1.93	-1.97	-1.93	-1.90	-1.90	-1.92	-1.88
	(0.085)	(0.087)	(0.088)	(0.094)	(0.096)	(0.087)	(0.100)
LANGINDX	0.202	0.197	0.193	0.202	0.193	0.208	0.202
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
BORD	1.34	1.28	1.31	1.34	1.31	1.39	1.38
	(0.16)	(0.16)	(0.17)	(0.16)	(0.17)	(0.17)	(0.17)
DEBTSVC		.0029					
		(.0031)					
FXRES			-0.076		-0.076		-0.077
			(0.019)		(0.019)		(0.020)
ESI				0.268	0.210		0.244
				(0.322)	(0.327)		(0.336)
SWOPEN						-1.03	-0.99
						(0.10)	(0.11)
N	3794	3715	3587	3794	3587	3570	3376
R^2	.473	.473	.471	.474	.471	.493	.489

For variable definitions see text

Table 6
Dynamic Behavior of FXRES, ESI, SWOPEN
(standard errors in parentheses)

Year	FXRES	ESI	SWOPEN
1980	-0.1093	-2.840*	2.248***
	(0.0693)	(1.458)	(0.730)
1981	-0.0950	-1.634	1.738**
	(0.0950)	(1.249)	(0.371)
1982	0.0345	-0.345	1.902**
	(0.0755)	(1.085)	(0.627)
1983	-0.0602	-0.145	1.379
	(0.0793)	(1.119)	(0.838)
1984	-0.1165	-0.153	1.249**
	(0.0831)	(1.091)	(0.613)
1985	-0.1412**	1.263	0.534
	(0.0630)	(1.119)	(0.498)
1986	-0.1357*	1.924	1.067***
	(0.0808)	(1.188)	(0.384)
1987	-0.0464	1.522	0.904***
	(0.0776)	(1.071)	(0.329)
1988	-0.0245	2.615**	1.399***
	(0.1015)	(1.149)	(0.330)
1989	-0.2067***	0.451	-0.151
	(0.0778)	(1.154)	(0.258)
1990	-0.2429	1.566	-0.243
	(0.2726)	(1.083)	(0.273)
1991	-0.0483	2.129**	-2.047***
	(0.0460)	(0.915)	(0.697)
1992	-0.0372	0.616	-1.867***
	(0.0619)	(0.900)	(0.655)
1993	0.0853	-2.387*	-2.164***
	(0.0747)	(1.379)	(0.888)

***significant at .01, ** significant at .05, * significant at .10

Figure 1

Intra-Latin Trade

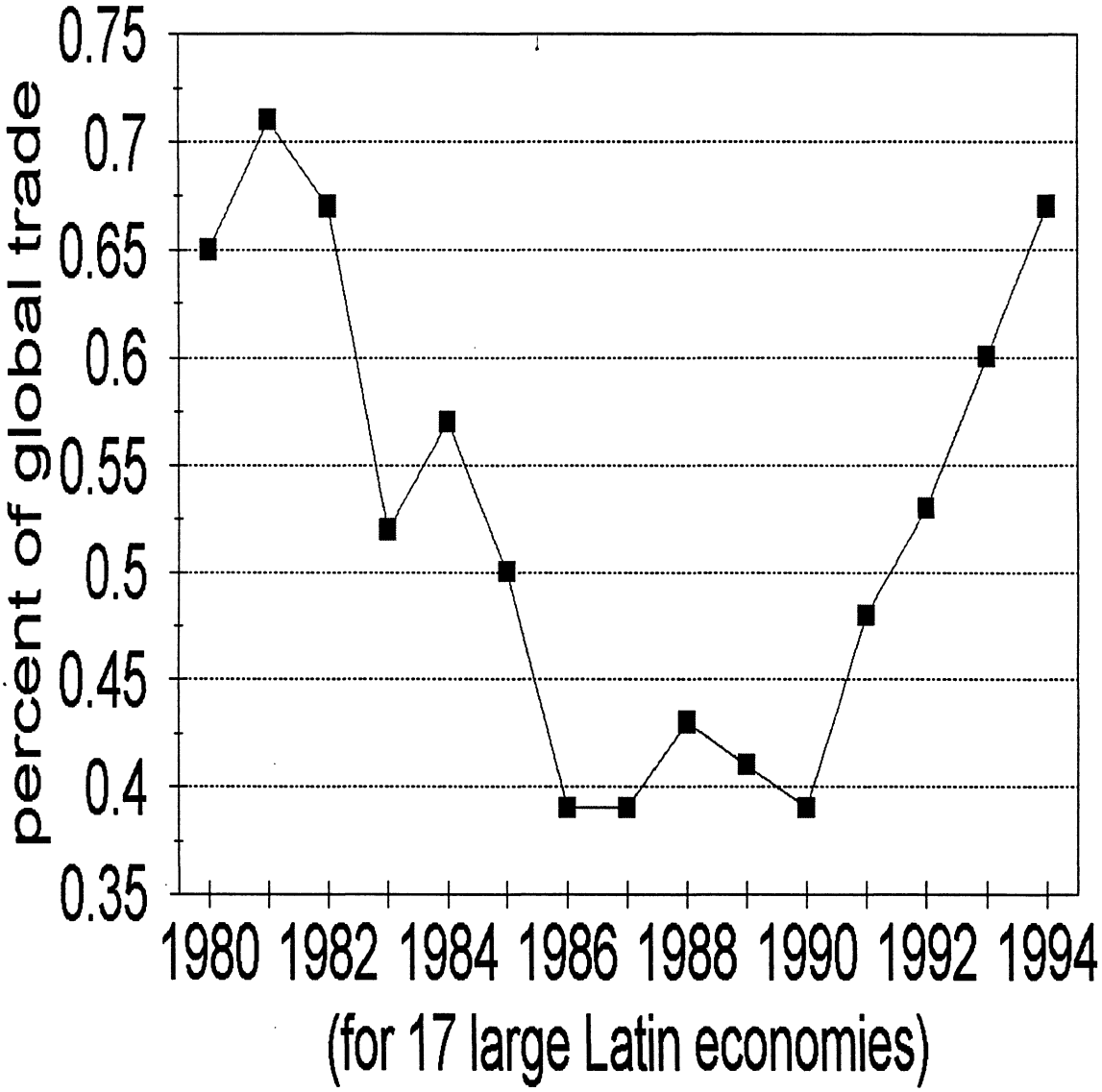
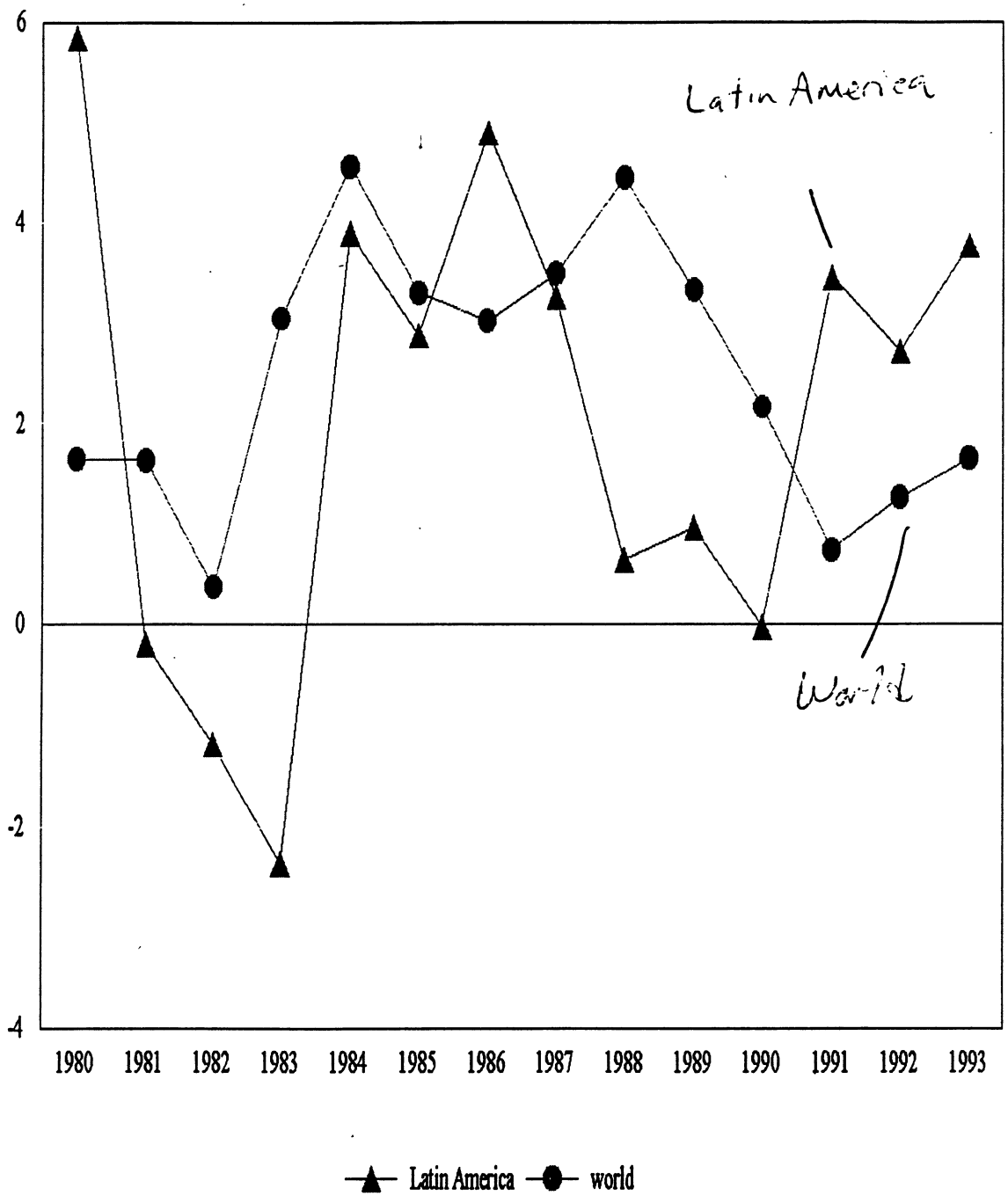


Figure 2

Real Annual GDP Growth



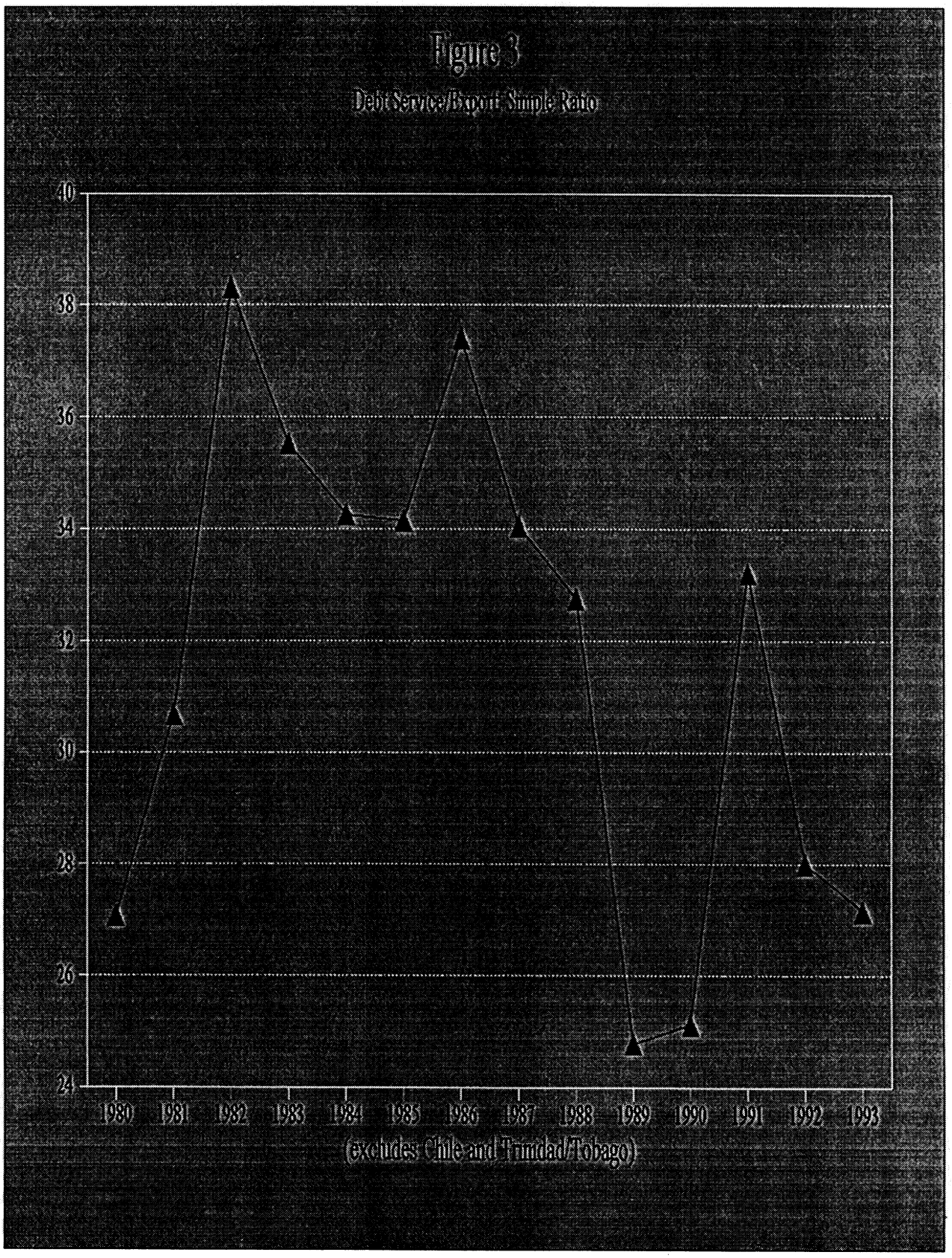


Figure 3
Debt Service/Export: Simple Ratio
40
38
36
34
32
30
28
26
24
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
(excludes Chile and Trinidad/Tobago)

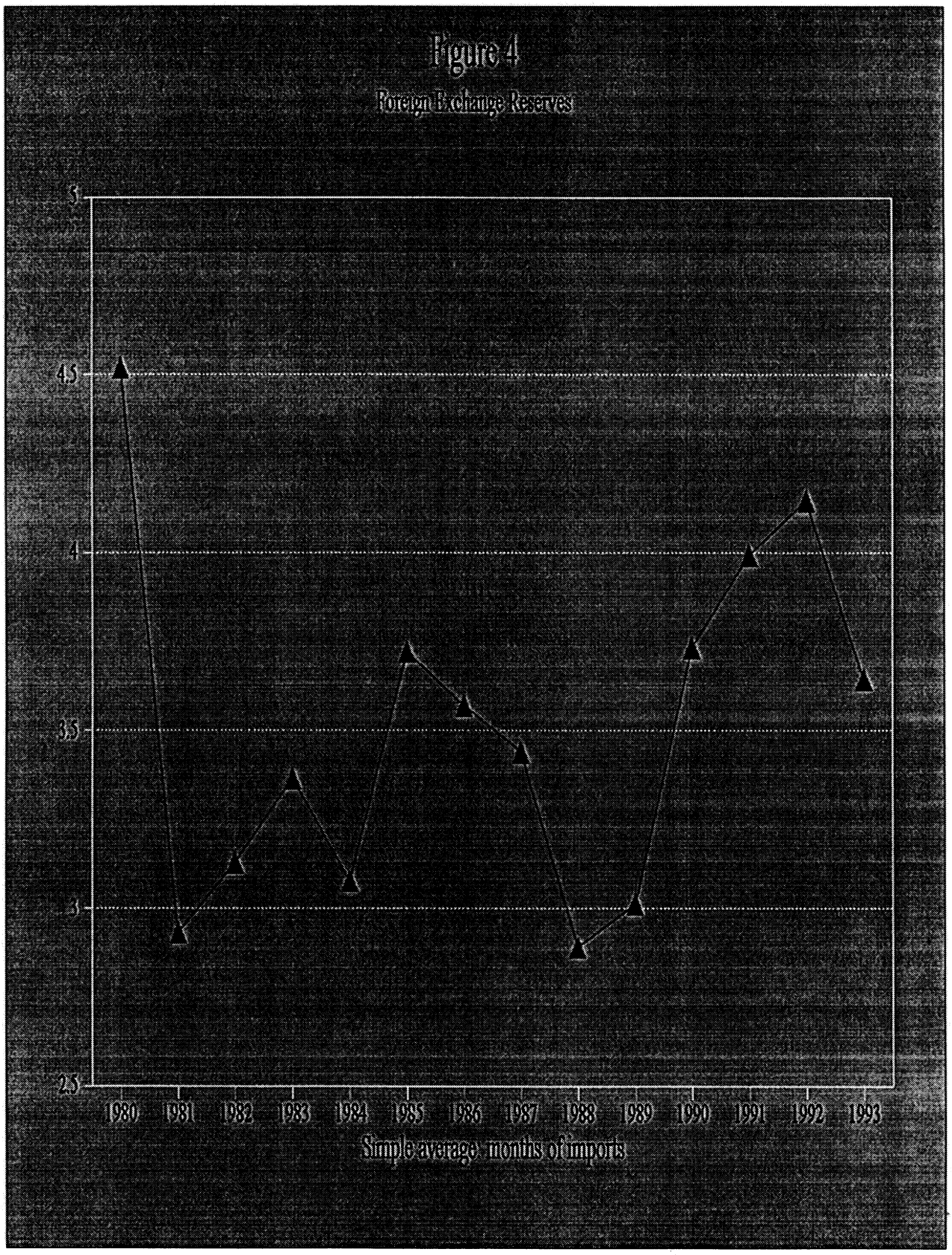


Figure 4
Foreign Exchange Reserves
5
4.5
4
3.5
3
2.5
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
Simple average months of imports

Appendix Table A1 Tropical Agriculture Cluster - Principal Exports

SITC	1962	Brazil	Colombia	Costa Rica	Ecuador	El Salvador	Guatemala	Honduras	Mean
7	Coffee, tea, etc.	0.5763	0.7245	0.5804	0.3407	0.5621	0.6037	0.1497	0.5053
5	Fruit, vegetables	0.0174	0.0234	0.2309	0.5802	0.0032	0.0732	0.4936	0.2031
26	Textile fibers	0.1170	0.0345	0.0014	0.0000	0.2387	0.1355	0.0277	0.0793
24	Wood	0.0341	0.0049	0.0025	0.0113	0.0000	0.0098	0.0936	0.0223
28	Ores	0.0830	0.0000	0.0000	0.0000	0.0002	0.0000	0.0654	0.0212
33	Oil	0.0000	0.1484	0.0000	0.0000	0.0000	0.0000	0.0000	0.0212
6	Sugar	0.0328	0.0162	0.0335	0.0000	0.0239	0.0349	0.0004	0.0203
1	Meat	0.0146	0.0000	0.0301	0.0000	0.0003	0.0345	0.0340	0.0162
3	Fish	0.0034	0.0000	0.0000	0.0302	0.0418	0.0090	0.0025	0.0124
93	Spec'l transactions	0.0017	0.0065	0.0618	0.0000	0.0000	0.0000	0.0000	0.01
0	Live animals	0.0001	0.0000	0.0157	0.0000	0.0066	0.0014	0.0422	0.0094
4	Cereals	0.0040	0.0014	0.0015	0.0000	0.0036	0.0006	0.0404	0.0073
65	Textile yarn	0.0017	0.0100	0.0000	0.0000	0.0255	0.0079	0.0000	0.0065
55	Perfume, cleaning	0.0029	0.0001	0.0006	0.0000	0.0075	0.0322	0.0000	0.0062
12	Tobacco	0.0199	0.0125	0.0001	0.0000	0.0001	0.0001	0.0087	0.0059
SITC	1993;*1992	Brazil	Colombia	Costa Rica*	Ecuador	El Salvador*	Guatemala*	Honduras*	Mean
5	Fruit, vegetables	0.0319	0.0646	0.3384	0.1389	0.0123	0.1297	0.4755	0.1702
7	Coffee, tea, etc.	0.0438	0.1652	0.1129	0.0450	0.2501	0.2127	0.1934	0.1461
33	Oil	0.0165	0.1776	0.0052	0.2951	0.0033	0.0192	0.0000	0.0738
3	Fish	0.0050	0.0216	0.0570	0.1402	0.0398	0.0160	0.0592	0.0484
83	Travel goods	0.0004	0.0110	0.0050	0.2930	0.0062	0.0023	0.0000	0.0454
6	Sugar	0.0226	0.0246	0.0173	0.0027	0.0970	0.1344	0.0097	0.044
65	Textile yarn	0.0239	0.0273	0.0132	0.0050	0.1105	0.0316	0.0121	0.0319
84	Apparel	0.0107	0.0716	0.0364	0.0038	0.0463	0.0183	0.0223	0.0299
67	Iron and steel	0.1085	0.0151	0.0073	0.0011	0.0092	0.0231	0.0022	0.0238
89	Misc. manufactures	0.0142	0.0364	0.0193	0.0023	0.0236	0.0206	0.0198	0.0194
64	Paper,paperboard	0.0231	0.0102	0.0148	0.0021	0.0732	0.0103	0.0021	0.0194
29	Animal/veg. mater.	0.0024	0.0527	0.0415	0.0093	0.0066	0.0178	0.0037	0.0191
71	Power gen. equip.	0.0837	0.0084	0.0069	0.0021	0.0177	0.0123	0.0020	0.019
54	Pharmaceuticals	0.0029	0.0048	0.0207	0.0019	0.0513	0.0475	0.0017	0.0187
1	Meat	0.0344	0.0007	0.0234	0.0000	0.0000	0.0133	0.0519	0.0177

Appendix Table A3 Temperate Agriculture Cluster - Principal Export

SITC	1962	Argentina	Mexico	Nicaragua	Mean
26	Textile fibers	0.1472	0.2255	0.38	0.2509
7	Coffee, tea, etc.	0.0031	0.0922	0.2343	0.1099
4	Cereals	0.2898	0.0125	0.0129	0.105
1	Meat	0.1882	0.0301	0.0737	0.0973
68	Non-ferrous metals	0.0027	0.1078	0.0483	0.0529
6	Sugar	0.0059	0.0649	0.0543	0.0417
3	Fish	0.0002	0.0718	0.0192	0.0304
22	Oilseeds	0.0007	0.004	0.0808	0.0285
42	Vegetable fats, oils	0.0833	0	0.0014	0.0282
8	Animal feed	0.0767	0.0052	0.0008	0.0276
5	Fruit, vegetables	0.0319	0.0342	0.016	0.0273
21	Hides, skins, fur	0.0765	0	0	0.0255
0	Live animals	0.0230	0.04	0.012	0.025
27	Crude fertilizers, etc.	0.0014	0.0651	0	0.0222
33	Oil	0.0076	0.0415	0	0.0164

		Argentina 1993	Mexico 1993	Nicaragua 1992	Mean
72	Spec.ind.machinery	0.0120	0.2579	0	0.09
1	Meat	0.0571	0.0007	0.1879	0.0819
33	Oil	0.0896	0.1377	0.0097	0.079
7	Coffee, tea, etc.	0.0051	0.0067	0.2147	0.0755
73	Metalworking mach.	0.0547	0.1401	0.0005	0.0651
5	Fruit, vegetables	0.0453	0.0359	0.0774	0.0529
3	Fish	0.0539	0.0079	0.0847	0.0488
6	Sugar	0.0071	0.0018	0.1363	0.0484
71	Power gen. equip.	0.0436	0.0955	0.0011	0.0467
26	Textile fibers	0.0135	0.0044	0.1184	0.0454
8	Animal feed	0.1107	0.0001	0.0146	0.0418
4	Cereals	0.1172	0.0015	0	0.0396
22	Oilseeds	0.0525	0.0005	0.0349	0.0293
42	Vegetable fats, oils	0.0799	0.0006	0	0.0268

Appendix Table A2 Mining Cluster - Principal Exports

SITC	1962	Bolivia	Chile	Peru	Mean
28	Ores	0.9131	0.1562	0.1594	0.4095
68	Non-ferrous metals	0	0.6663	0.2611	0.3091
26	Textile fibers	0	0.0112	0.2179	0.0764
8	Animal feed	0	0.0161	0.2102	0.0754
7	Coffee, tea, etc.	0.0476	0	0.0501	0.0326
27	Crude fertilizers, etc.	0	0.052	0.0054	0.0191
62	Rubber products	0.0388	0	0	0.0129
5	Fruit, vegetables	0	0.0313	0.0044	0.0119
41	Animal fats, oils	0	0.004	0.0265	0.0101
33	Oil	0	0	0.0269	0.009
3	Fish	0	0.004	0.0176	0.0072
51	Organic chemicals	0	0.0136	0.0015	0.0051
29	Animal/veg. mater.	0	0.0026	0.0089	0.0039
67	Iron and steel	0	0.0071	0	0.0024
4	Cereals	0	0.0066	0	0.0022

SITC	1993	Bolivia	Chile	Peru	Mean
28	Ores	0.3209	0.1196	0.1548	0.1984
68	Non-ferrous metals	0.1954	0.2939	0.029	0.1727
8	Animal feed	0	0.0416	0.1946	0.0787
5	Fruit, vegetables	0.032	0.112	0.0393	0.0611
89	Misc. manufactures	0.1246	0.0162	0.0245	0.0551
72	Spec. ind.machinery	0.0021	0.0023	0.1553	0.0532
24	Wood	0.0841	0.0515	0.0028	0.0462
3	Fish	0	0.0794	0.0399	0.0398
33	Oil	0.0206	0.0017	0.0662	0.0295
84	Apparel	0.0218	0.0082	0.0522	0.0274
81	Household fixtures	0	0.0011	0.0661	0.0224
4	Cereals	0.0495	0.0064	0.0019	0.0193
65	Textile yarn	0.0052	0.0067	0.0404	0.0174
25	Pulp, waste paper	0	0.0504	0	0.0168
7	Coffee, tea, etc.	0.0086	0.0031	0.0239	0.0118

Appendix Table A4 Oil Cluster-Principal Exports

SITC		Trinidad & Tobago 1962	Venezuela 1962	Mean 1962
33	Oil	0.8618	0.9250	0.8934
6	Sugar	0.0621	0.0000	0.0311
67	Iron and steel	0.0000	0.0484	0.0242
7	Coffee, tea, etc.	0.0162	0.0110	0.0136
56	Manuf. fertilizers	0.0139	0.0000	0.0069
5	Fruit, vegetables	0.0120	0.0002	0.0061
66	Non-met.mineral mfrs	0.0055	0.0031	0.0043
27	Crude fertilizers, etc.	0.0055	0.0000	0.0027
11	Beverages	0.0051	0.0000	0.0025
34	Natural gas	0.0006	0.0026	0.0016
84	Apparel	0.0030	0.0000	0.0015
72	Spec.ind.machinery	0.0000	0.0029	0.0015
89	Misc.manufactures	0.0028	0.0001	0.0014
3	Fish	0.0003	0.0020	0.0011
73	Metalworking mach.	0.0000	0.0019	0.0009

SITC		Trinidad & Tobago 1993	Venezuela 1993	Mean 1993
33	Oil	0.3281	0.7852	0.5567
82	Furniture & parts	0.3289	0.0003	0.1646
67	Iron and steel	0.0509	0.0390	0.045
51	Organic chemicals	0.0676	0.0175	0.0425
85	Footwear	0.0675	0.0008	0.0341
68	Non-ferrous metals	0.0001	0.0378	0.0189
73	Metalworking mach.	0.0068	0.0218	0.0143
56	Manuf. fertilizers	0.0211	0.0026	0.0118
66	Non-met.mineral mfrs	0.0095	0.0098	0.0096
34	Natural gas	0.0131	0.0000	0.0065
11	Beverages	0.0113	0.0016	0.0065
83	Travel goods	0.0129	0.0000	0.0064
6	Sugar	0.0109	0.0009	0.0059
69	Misc.metal mfrs.	0.0030	0.0084	0.0057
64	Paper, paperboard	0.0072	0.0038	0.0055

Appendix Table A5 Jamaica and Panama

SITC		Jamaica 1962	Jamaica 1991
28	Ores	0.4926	0.1093
51	Organic chemicals	0.0000	0.5240
6	Sugar	0.2519	0.0836
5	Fruit, vegetables	0.1093	0.0628
84	Apparel	0.0339	0.0825
7	Coffee, tea, etc.	0.0354	0.0210
11	Beverages	0.0233	0.0256
55	Perfume, cleaning	0.0074	0.0120
69	Misc.metal mfrs.	0.0116	0.0027
12	Tobacco	0.0065	0.0053
33	Oil	0.0000	0.0104
9	Misc.food products	0.0016	0.0074
62	Rubber products	0.0000	0.0071
85	Footwear	0.0041	0.0024
89	Misc.manufactures	0.0065	0.0000

SITC		Panama 1962	Panama 1993
5	Fruit, vegetables	0.4094	0.4398
33	Oil	0.4809	0.0199
3	Fish	0.0000	0.1704
7	Coffee, tea	0.0659	0.0262
84	Apparel	0.0000	0.0473
6	Sugar	0.0000	0.0438
89	Misc.manufactures	0.0000	0.0344
1	Meat	0.0000	0.0327
9	Misc.food products	0.0000	0.0235
54	Pharmaceuticals	0.0000	0.0197
61	Leather goods	0.0008	0.0157
2	Dairy products	0.0000	0.0161
8	Animal feed	0.0055	0.0095
11	Beverages	0.0000	0.0124
64	Paper, paperboard	0.0000	0.0106