

*Latin American external debt growth:
A current account explanatory model, 1973-1984*

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Abstract

This article represents an attempt to go beyond the "stylized facts" approach in the search for an explanation of the Latin American current account debt crisis. Using regression analysis it examines the 1973-1984 period of debt accumulation within the context of a current account model. The model implicitly assumes that external and internal factors related to the current account ratio can effectively be separated.

By using a pooled cross-section time series approach for a sample of eleven Latin American countries, the study concluded that both external and internal factors contributed to current account deterioration and internal debt accumulation between 1973-1984. Poorly conceived and implemented domestic macroeconomic policies and external factors such as the terms of trade, economic growth in the industrialized countries, and the real external interest rate, phenomena over which domestic policy makers had no control were responsible for the Latin American external debt accumulations.

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I. Introduction

The scope and the dimensions of the Third World debt crisis are well known. Nowhere has the growth of the external debt and the possibility of default become more acute than in Latin America. Taking the region as a whole, the gross external debt rose from a low and manageable \$26 billion in 1973 to over \$360 billion in 1984. During the same period, the debt coefficient --the ratio between annual debt service in the form of interest payments alone and exports of goods and services-- increased from 13% to 36%.¹ Clearly, such a transfer of financial resources represents a serious impediment to future economic growth.

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1. These figures are taken from the Economic Commission for Latin America as published in the Revista de la CEPAL and in its Statistical Year-book, various years.

There has arisen much polemic regarding the “causes” of the debt dilemma, with opinions running the gamut from wasteful inefficiency on the part of the debtor countries to neo-imperialist strategies designed to further dependence. It is the purpose of this article to throw some light on this sterile ideological debate. By taking the current account deficit of the balance of payments as a proxy for debt accumulation and relating these deficits to both internal and external factors over the period 1973-1984, an attempt will be made to more objectively gauge those elements associated with the rapid growth of Latin American external debt.

Pooled data for 11 Latin American countries² are used in a linear regression current account model. In addition to analyzing the entire 1973-1984 span, additional equations cover the subperiods 1973-1979 and 1980-1984. The external factors taken into consideration are represented by the terms of trade, real interest rates in world financial markets, and economic growth rates in industrialized (OECD) countries; the internal variables considered are the public budget deficits and the real effective exchange rate.

During the 1970s most countries of Latin America adopted expansionary economic policies with the support of abundant international financing generated by the need to recycle the so-called petrodollars. These policies were accompanied by the relaxation of controls on foreign trade and exchange, the freeing of financial markets, and generally ineffective attempts to greatly reduce budget deficits and the size of the public sector. The oil price shocks of the 1970s had ambivalent effects. On the one hand the current accounts deficits of

2. Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Perú, Uruguay, and Venezuela.

the oil-importers were exacerbated, whereas the oil exporters embarked on expansionary programs in excess of their oligopolistic petroleum revenues. In either case the motto appears to have been “growth with debt”. Public expenditure growth created inflationary pressures which were combated with overvalued currencies, but the continued entrance of foreign loans and resources delayed the inevitable devaluation and/or devaluation risk. This, in turn, led both the public and private sectors to recur increasingly to external loans, often available at lower real interest rates than domestic funds. In fact, during the 1973-1979 interval real interest rates actually became negative.

At the beginning of the 1980s the situation changed drastically. Real international interest rates became highly positive, the flow of external funds essentially dried up, and the world economy slowed down and/or lapsed into recession. The terms of trade became more unfavorable, the capacity to import shrank, and export markets weakened substantially. Recession or slowed growth simply increased the debt burden. The net transfer of resources to Latin America, which had been positive from 1973 to 1981, became decidedly negative thereafter.³

II. The external debt/current account model

The estimation model used in this paper takes as the dependent variable the ratio between the current account (balance of payments) balance and merchandise exports.⁴ As such, it is evident that the current account balance is being employed as a proxy for external debt, the justification lying in the fact that debt accumulation occurred due to repeated

3. This net transfer of resources is defined as net capital inflows less net payments of profits and interest.

4. This model was first used to analyze the current account balances of 32 non-oil developing countries (Khan and Knight: 1970).

current account deficits. Since external credits were often used to finance these deficits, for analytical purposes the current account deficits can be considered as good indicators of Latin America's external debt.

Justification for this debt-current account link can be taken from the accounting identities inherent in the balance of payments accounts. A rise in the gross external debt corresponds to the current account deficit plus private capital outflows and official reserve increases minus direct and long-term portfolio capital inflows. Thus, it is evident that the foreign debt increases are not due dollar-for-dollar to current account deficits. Rather, they result from those current account deficits that are not financed by long-term capital inflows, private capital flight, and the accumulation of official reserves. As Dornbusch (1985a) has pointed out in the case of Argentina the increased debt corresponds largely to the financing of capital flight. On the other hand, the Brazilian and Chilean cases largely reflect debt rises due to current account deficits. Thus, although on a case by case basis the rise in external debt is not synonymous with current account deficits, in the aggregate there is a definite positive correlation. As a corollary, the failure to adjust the real exchange rate played a key role in debt accumulation in both Argentina and Chile, whereas the public budget deficit was the principal factor in Brazil. Both of these variables, the real exchange rate and the budget deficit, are incorporated in the subsequent estimation model.

The current account model used hereafter takes the following form:

$$CA/X = f(TOT, YIC, RIR, RER, FD/Y, T)^5$$

where: CA = current account balance (excluding official transactions),
X = value of merchandise exports,
TOT = terms of trade,
YIC = real GDP changes in OECD countries,
RIR = real external interest rate,
RER = an index of the real effective exchange rate,
FD = government fiscal deficits,
Y = nominal GDP,
T = linear time trend.

The terms of trade, expressed here as the ratio between an index of export prices and import prices, clearly have a direct bearing on the current account; a decline in export prices and/or a rise in import prices leads to a declining terms of trade and a worsening of the current account situation. Declining export prices of basic goods, which constitute the principal exports of Latin American countries, can be linked with the economic cycle in OECD nations, as the demand decline adjustment usually is manifested via price drops. For

5. The data were derived from the International Monetary Fund, *International Financial Statistics* (various issues) and from the Economic Commission for Latin America, *Statistical Yearbook* (various issues). As in Khan and Knight, the value of merchandise exports (X) is used to scale the current account balance for the sake of inter-country comparability. The variables CA; and X are expressed in current U.S. dollars; TOT is the ratio of the unit value of exports to the unit value of imports, both expressed in U.S. dollars; YIC expresses the average rate of change in the real GDP of member countries of the Organization for Economic Cooperation and Development (OECD) as measured by an index whose base is 1980; RIR is the three-month LIBOR rate applied to Eurodollar deposits adjusted by changes in an export price index for each country; RER is an index of the real effective exchange rate of imports expressed in terms of an index of the nominal exchange rate between the currency of a given country and neighboring countries as adjusted by an index of relative inflation weighted by the average share of other countries in total imports (this is an ECLA methodology); FD is government revenue less expenditures as measured in local currency.

non-petroleum exporters in Latin America, the terms of trade generally moved unfavorably after 1977; for petroleum exporters the decline occurred after 1981 (although for the entire region the terms of trade did improve in 1984) (Massad: 1986, p.19).

Economic growth rates in OECD countries impact upon the current account directly via their influence on the volume of exports and indirectly via their effects on the terms of trade as established by export prices⁶. OECD economic growth rates in the 1974-1979 period were well above those in the later 1980-1984 interval, although 1984 did witness a reactivation of the industrialized economies.

After having been negative during the latter part of the 1970s, the real interest rates charged on external loans turned decidedly positive at the beginning of the 1980s. These real interest rate rises are doubly harmful. In addition to raising the cost of new (and rollover) lending, they also increase the servicing of outstanding debt contracted at variable rates. Of course, as debt problems grew the risk premium incorporated into the rates also rose, thereby exacerbating the debt problem itself--a vicious circle. Over the years 1982-1984 Latin American debt service (interest and amortization, but overwhelmingly interest) averaged 36% of the value of goods and services exports.

The fight against inflation in many Latin American countries during the 1970s used an (overvalued) exchange rate as one of the principal policy instruments. The maintenance of such a (disequilibrium) rate led to the decrease of reserves and the increase in external debt (and capital flight when it became obvious that such a disequilibrium situation could not be maintained over the long-run). There occurred a substitution of domestically-produced

6. This relationship is analyzed in Dornbusch (1985b).

goods for imported ones, while at the same time export activities were harmed. The consequences for the current account are apparent.

The lack of fiscal discipline in the public sector leads to increased “borrowings” from the central bank and an excess of liquidity that affects aggregate demand and translates into inflation, a loss of foreign reserves, and/or devaluation. In light of the hesitancy to fully devalue and in the context of high levels of international liquidity (until 1981), the loss of reserves is reflected in an increase in external indebtedness and in the current account deficit.

Thus, the subsequently presented current account model incorporates three variables which are here labeled external (TOT, YIC, and RIR) and two which are internal (RER and FD/Y). In other words, the determination of the values of the external variables is exogenous to Latin America, whereas the countries of the region do control the internal variables. Such a choice of variables is, of course, intentional, for it will enable us to pursue the question of the external versus the internal “causes” of the Latin American debt crisis.

Based upon the foregoing discussion, it would be expected that a deterioration in the terms of trade, a decrease in the rate of economic growth in the OECD countries, and a rise in the fiscal deficit would generate a worsening of the current account deficit. With respect to the two remaining variables, on an *a priori* basis an appreciation of the real effective exchange rate and a rise in the external real interest rate would be anticipated to have a negative impact upon the current account deficit. Put differently, one would anticipate positive signs on the four first-mentioned variables and a negative sign on the latter one.⁷ The

7. Care must be taken in the interpretation of these signs given that the dependent variable is defined in terms of the current account deficit. Thus, an improvement in the current account would result in a reduction in the deficit, whereas a deterioration implies an increase. As far as the RER variable is concerned, in the manner it is defined here (as an index) an appreciation of RER means a decrease in the index value, leading to

time trend variable (T) is assumed to capture the effect on the current account of omitted factors, and was included in all equations.

Table 1
Determinants of Current Account Deficits:
Latin America, 1973-1984

Explanatory Variables	Partial Regression Coefficients		
	1973-1984	1973-1979	1980-1984
Terms of Trade	0.1508**	0.3207***	—
GDP Growth, OECD	5.3028**	—	2.8301**
Real Interest Rate	-5.0159**	—	-5.9789**
Real Exchange Rate	0.7563***	0.4558**	0.8576***
Fiscal Deficit	1.0269*	3.5169***	—
Time Trade	-0.1393***	—	—
--	0.8006	0.8015	0.8499
Standard Error	0.2407	0.2278	0.2447
D-W	1.8161	1.8978	1.9676

*** Statistically significant at 1% level.
** Statistically significant at 5% level.
* Statistically significant at 10% level.

III. The empirical estimates

Table 1 presents the results of the three equations that were estimated using pooled time-series and cross-section data for the 11 country sample. For each equation only those variables that emerged as statistically significant at the 10% level and above are included.⁸

a drop in the ratio-CA/X. Thus, a positive sign is expected.

8. All equations had to be corrected for autocorrelation with the use of the statistical program PROC AUTOREG from a SAS package. The absence of the heteroscedasticity problem was verified via the GoldfeldQuandt test. Multicollinearity although present (as is normal in this type of analysis), was limited within reasonable bounds as substantiated by various statistical tests. Dummy variables for each country in the sample were added to all equations to take into account cross-country differences in the current account

As can be observed, in each equation at least four-fifths of the variation in the dependent variable is “explained” by the independent terms. Moreover, all signs on the independent variables emerged as anticipated.

Turning first to the equation covering the entire 1973-1984 period, it is readily noted that all the variables, both external and internal, emerged as statistically significant determinants of current account deficits. In terms of the magnitude of the regression coefficient the two variables that had the most significant impact upon the Latin American current account deficit were the real growth rates in OECD nations (YIC) and the external real interest rate (RIR). The signs fronting these coefficients imply that an economic growth slowdown in OECD countries and rises in real (international) interest rates do produce increases in Latin American current account deficits. The magnitude of the coefficients suggests that a one percentage point drop in the economic growth rate of the OECD countries and/or a one percentage point rise in the external real interest rate would lead on the average to a current account deficit deterioration (as a proportion of exports) of five percent.

Following the same line of reasoning with respect to the remaining variables in the 1973-1984 equation, a one percentage point increase in the ratio of the fiscal deficit to GDP would produce a current account deficit deterioration (again in relation to exports) of more or less the same magnitude. A one percent appreciation of the real effective exchange rate would lead, in general terms, to a decline of three-quarters of a percentage point in the current account ratio. Finally, the reference one percentage point deterioration in the terms

deficit/merchandise export ratio. Slope dummies were not used under the assumption that the parameters were the same in all countries.

of trade would generate an approximate decline of one-sixth of a percentage point in the current account/export ratio.⁹

A better way of gauging the relative importance of these independent variables on the current account deficit is to compute the standardized regression coefficients (or Beta coefficients), since they are independent of the units of measurement employed in the analysis.¹⁰ What emerges from such an exercise presents a different picture. Over the 1973-1984 period the economic growth rate in industrialized nations and the time trend emerge as the most significant explanatory variables; the terms of trade and the real exchange rate occupy intermediate relative positions, while the real interest rate and the fiscal deficit turn out to be the least important elements.

These empirical results, then, square well with a “stylized facts” interpretation of the current account deficit *cum* debt accumulation crisis in Latin America. While on the one hand the tendency in Latin America and its supporting spokesmen (e.g., the Economic Commission for Latin America-ECLA) has been to focus on the external factors, many of those outside the region (e.g., the debt holders, the International Monetary Fund--IMF) have concentrated on the internal elements of macroeconomic mismanagement. Our analysis demonstrates that both points of view are correct--and mistaken. Latin American current account deficits are clearly of both domestic and external origin.

9. That the time trend variable carries a negative sign and is statistically significant at the one percent level means that these five elements considered in the equation are not the only ones influencing the current account deficits. The negative sign by itself implies that these unidentified other factors have also had an additional and negative impact on current account balances.

10. The standardized regression coefficients measure the change in the dependent variable for a unit change in each one of the independent variables; these changes are defined in terms of standard deviation units.

Conceptually, the 1973-1984 time span can be taken as two distinct subperiods, with the dividing line somewhere at the beginning of the 1980s. Whereas the period prior to 1980 were years of debt accumulation, those following witnessed the debt crisis. The 1973-1979 period was generally characterized by reasonably high rates of economic growth accompanied by abundant external financing, while precisely the opposite occurred thereafter. It is for this reason that two additional estimating equations are included in table 1, each one originally incorporating the five explanatory variables already utilized. The separation into two subperiods (1973-1979 and 1980-1984) of the data therefore represents an effort to better analyze the overall interval in terms of the internal-external dichotomy.

The equation covering the 1973-1979 period points out the predominance of internal factors in generating the current account deficits. As noted, both the fiscal deficit and real exchange rate variables in addition to the terms of trade account for over four-fifths of the dependent variable variation. That these two domestic policy variables emerge during the “growth with debt” interval also squares with a “stylized facts” interpretation. Use of the standardized regression coefficients reveals that the most important explanatory variable is the terms of trade, with the real effective exchange rate and the fiscal deficit emerging as of equal but lesser relative importance.

The petroleum price rises of 1973-1974 and 1979 led the petroleum-importers to pursue Keynesian-type economic stimulation policies. Some what curiously, the fiscal policies of those Latin American petroleum-exporters (Ecuador, Mexico, Venezuela) also fit the general pattern, with the added incentive that the price of crude was projected to rise throughout the remainder of the 20th century. The policy justification (the fight against

inflation) for real exchange rate overvaluation has previously been touched upon. That the external variables of OECD growth rates and real interest rates do not emerge in this period is not surprising. OECD real GDP growth rates were quite adequate in this subperiod, and real interest rates were either low or negative. That the time trend variable is statistically insignificant is consistent with the reduced influence of variables such as protectionist currents and a strong dollar.

The explanatory equation covering the years 1980-1984 is substantially different from the one for 1973-1979, with only the real effective exchange rate variable repeating. As may be observed from the third equation found in table 1, the “debt crisis” period is characterized by the predominance of the distinctly external variables relevant to OECD growth rates and the international real interest rate(s).¹¹ These findings are hardly surprising in light of what is known in retrospect about the 1980-1984 span. Recessionary conditions prevailed in most of the industrialized world, and real (international) interest rates skyrocketed. This latter phenomena raised the carrying costs on variable rate debt and also led to domestic interest rate increases in order to stem capital flight. Naturally, both phenomenon aided in generating recessions in Latin America, with real GDP per capita falling in 1981 through 1983. That the terms of trade variable did not emerge in this period may be somewhat surprising in light of its post-1980 deterioration. This can be explained in terms of what happened to the merchandise trade component of the current account; severe import restrictions and increased

11. For this period the Beta coefficients reveal that by far the most important factor was the economic growth rate in OECD countries.

export volume produced a compensatory effect, with the balance on the trade account being highly positive in 1983 and 1984.

One of the limitations of an analysis of this type is its aggregative nature. In other words, what is true for the present aggregate of 11 Latin American nations is not necessarily valid for each individual case. Moreover, the rapidity with which each nation reacts to changing relative prices and other internal-external phenomena is also a determinant of current account deficits and the ensuing debt accumulation.

Certainly one type of disaggregation that might be pursued (in addition to the time period one already discussed) has to do with the distinction between Latin American exporters and non-exporters of petroleum. *A priori*, it might be expected the economic situation and economic policy responses would differ as between these two groups. Three of the eleven countries (Ecuador, Mexico, Venezuela) included in this sample generated a significant portion of their GDP, growth, and exports from crude oil exports during the period under study, although Mexican oil exports did come on stream only in the latter part of the 1970s. One of the important causes of current account deficits in the non-exporters was linked to petroleum import needs at higher prices, whereas in a *ceteris paribus* context price and volume increases in crude exports should have contributed to an improvement of the current account balances.

Consequently, regressions were run on the two different groups: petroleum exporters and non-exporters. As previously, all relevant equations were well determined and explained over four-fifths of the variance in the current account ratios. All variables emerged with the expected signs. For the entire 1973-1984 period both the real GDP growth rate in OECD

countries and the external real exchange rate appeared as statistically significant (as did the time trend variable). The only difference was that for non-exporter the real interest rate showed up as an explanatory variable, whereas the terms of trade emerged as significant for the three petroleum exporters.

It would at first glance appear surprising that the terms of trade was an important determining variable with respect to the current account imbalance of the petroleum exporters. After all, their terms of trade did take upward leaps in 1973-1974 and 1979-1980. However, especially after 1980 they had become locked into expansionary domestic programs based on (in retrospect) faulty crude oil price and terms of trade improvement projections. When such projections did not actually materialize, the subsequent deterioration in the terms of trade contributed significantly to the ensuing current account deficits. The foregoing is substantiated in the period breakdown of the regressions run for the petroleum exporters. In both subperiods (1973-1979 and 1980-1984) the terms of trade emerges as a statistically significant variable (as does the real effective exchange rate). In contrast, during the 1973-1979 period for the non-petroleum exporters the terms of trade and the fiscal deficit are revealed as the most Important explanatory variables of current account deficits; the rate of economic growth in the OECD nations and the real effective exchange rate emerged for the latter 1980-1984 interval.

IV. Conclusions

This article represents an attempt to go beyond the level of “stylized facts” in the search for an explanation of the Latin American current account *cum* debt crisis. By examining in a more rigorous empirical fashion the 1973-1984 period of debt accumulation within the context of a current account model, it is demonstrated that measurable economic factors both exogenous and endogenous to domestic policy control played equally significant roles in the debt problem.

A caveat is in order. It has been implicitly assumed that the external and internal elements related to the current account ratio can effectively be disentangled. This is not a reality, as there admittedly exist interrelationships between both domestic and external factors. Thus, the external-internal dichotomy is somewhat artificial. However, having recognized this, it does remain analytically useful to maintain such a distinction if only in view of some of the more extreme positions which have been adopted in recent years regarding debt “culpability”. As is evident from the foregoing analysis, Latin American current account deficits and debt accumulation are the result of a series of factors--both external and internal. To point a finger solely at domestic economic policy mismanagement or at a mix of external factors totally outside domestic control are equally incorrect exercises. Moreover, the results of our analysis imply that there is no such thing as a single cause of the debt crisis. Rather, there are multiple causes.

By using a pooled cross-section time-series approach for a sample of 11 Latin American countries, it has been demonstrated that both external and internal factors contributed to current account deterioration and external debt accumulation between 1973 and 1984. The external factors taken into account were the terms of trade economic growth

in the industrialized world, and the real external interest rate; the internal factors considered were linked to the real effective exchange rate and the fiscal deficit. In the principal equation covering the entire 1973-1984 period all emerged as statistically significant. In the period breakdowns (1973-1979 and 1980-1984) and in the petroleum versus non-petroleum exporter distinction there emerged varying combinations of independent variables.¹²

Thus, we conclude that Latin American external debt accumulation is just as much the result of poorly conceived and implemented domestic macroeconomic policies as it is the consequence of external phenomena over which domestic policy-makers had no control. Clearly, dollar appreciation (after 1980), rising real external interest rates, lower real commodity prices, and economic growth in other nations fall beyond the pale of domestic policy. Just as clearly, however, exchange rate overvaluation, excessive budget deficits, and subsequent capital flight fall at the doorstep of the domestic policy (mis)-managers. As a corollary, it is well known that private citizens of such countries as Argentina, Mexico, and Venezuela have vast amounts of asset holdings abroad. If this capital flight had been prevented the gross external debts of many Latin American countries would today be substantially less. Mobilization of these privately held foreign assets would obviously reduce the debt overhang. This, of course, is far more easily said than done. These foreign assets remain privately owned, but the external debt represents an obligation of governments

12. Our results contrast with some studies and compare well with others. For example, Cline (1984) concluded that essentially all the external debt accumulation associated with non-petroleum LDCs (Latin American and others) between 1974 and 1982 was due to external elements (petroleum price rises, high real interest rates in the years 1981 and 1982, and terms of trade deterioration in 1981-1982); see Cline: 1984. Dell (1980, pp. 833-842), in a "stylized facts" presentation, laid the blame at the foot of terms of trade deterioration. On the other hand, Khan and Knight (1983); Dornbusch (1985a&b) and Dornbusch & Fisher (1985) adopt the more balanced view supported by our study. Refer to the Dornbusch studies cited in page 4 and in footnote 6 and to Dornbusch (1985c) and to Dornbusch & Fischer (1985).

which, under present “rules”, must pursue restrictive macroeconomic policies to be able to meet debt payments.

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