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The impact of *exchange-rate and* trade policy on export *performance in the 1980s*

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The region's changeover from a shortage of external funds to a relatively plentiful supply of such resources at a time when an effort is being made to liberalize its trade and financial sectors raises a number of questions regarding the effect of this phenomenon on the growth of Latin American exports. In an effort to answer these questions, the author examines a number of different attempts to arrive at a quantitative evaluation of the relationship between exchange and trade policies and the region's export performance in the 1980s. The main conclusions drawn from this analysis are that, in the aggregate, exports are not very sensitive to long-term variations in exchange rates, since only rarely are their elasticities greater than unity. When broken down by branch of activity, however, the effects of exchange policy are not homogeneous, with some branches exhibiting very high elasticities in both the long and short terms; this suggests that the greater the level of diversification and installed capacity, the greater the impact of variations in the real exchange rate will be. The studies examined here also lead to the conclusion that volatile real exchange rates and unstable trade policies discourage investment in the export sector, while it is found that the tariff reforms instituted by the countries have had a positive influence on the development of their exports but cease to be a decisive factor in that development once their implementation is completed.

I

Introduction

The question of how exchange rates affect the growth of Latin America's exports has taken on added importance due to the changes seen in the region's net flows of foreign capital during the 1990s. These changes have helped put an end to the severe constraints that affected the region's economies in the 1980s and, as a result, most of the countries have witnessed a rise in their real exchange rate; this revaluation has not always, however, been accompanied by a countervailing trade policy.

In view of the changed circumstances confronting the countries of the region as they strive to increase their exports, the following questions need to be asked:

i) What kind of an impact would a sustained drop in the real exchange rate be likely to have on export growth in the short and long terms?

ii) What types of policies might offset the disincentives generated by a revaluation?

iii) In what ways have overall trade liberalization and tariff rollbacks affected external supply?

iv) How do economic instability, in general, and exchange-rate volatility, in particular, influence the behaviour of economic agents?

In order to find answers to these questions, econometric studies having a similar focus and dealing with a number of different countries in the region were examined. The findings of these studies should be viewed in the light of the historical period in which they were conducted, since not enough information has yet been compiled to allow an evaluation of the impacts of recent structural reforms that might alter the continued validity of their results.

II

The impact of exchange policy on the growth of exportable supply

Exchange policy is one of the main instruments influencing the expansion of exportable supply. Devaluations boost exporters' net returns in local currency and therefore stimulate export activity. It has been established, however, that sporadic devaluations do not serve to produce this effect. In order for the export sector to move forward in its development, it needs lasting incentives, particularly because this calls for a shift in investment funds from one sector to another.

Heavy inflows of external capital—a phenomenon seen at the end of the 1970s and again in recent years—have led to a revaluation of many countries' currencies, and although this may have helped them to stabilize their inflation rates, in some cases it has also discouraged the allocation of resources to the production of exportables. In many cases, however, recent trade policy reforms have helped to mitigate the effect of revaluations on the export sector, either

through tariff rollbacks for the imported inputs needed to produce exportable goods or through direct subsidies for this sector.

Table 1 illustrates trends in the volume of selected countries' industrial or non-traditional exports¹ (which showed the fastest growth in the 1980s), exchange rates and some trade-policy indicators. During the second half of that decade, the volume of exports climbed steadily in Argentina, Brazil, Chile, Colombia and Mexico, while real exchange rates fell and the sector's subsidies were reduced. A clear trend to-

¹ The countries selected were those for which deflators for exports of industrial or non-traditional products were available. Such deflators have been developed by statistical agencies, in some cases, and by commerce departments or in Central Bank studies, in others. When such deflators are available, it becomes possible to construct quantum and unit-value indexes which can then be used to prepare econometric estimates.

TABLE 1

**Latin America (five countries):
Volume of exports, real exchange rate and trade policy**
(Indexes: 1985 = 100)^a

	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993
	Argentina									
Industrial exports	84.8	100.0	82.1	82.3	111.5	139.2	184.4	157.2	162.2	193.6
Real exchange rate	62.0	100.0	105.8	129.3	137.0	151.1	105.6	88.2	81.5	77.1
Drawbacks	116.0	100.0	104.0	110.0	106.0	103.0	105.0	111.0	115.0	...
	Brazil									
Industrial exports	40.9	100.0	87.3	91.6	114.1	111.9	101.0	107.2	130.1	141.8
Real exchange rate	94.5	100.0	107.2	104.6	95.5	72.3	66.7	78.4	85.8	76.8
Subsidies	91.6	100.0	109.3	111.9	108.9	98.0	88.2	92.6
	Chile									
Exports other than copper	66.7	100.0	113.3	112.2	125.5	144.4	142.6	146.0	180.2	180.7
Real exchange rate	71.0	100.0	124.2	135.3	143.3	135.5	140.5	139.3	133.9	133.9
Tariff index	39.1	100.0	77.9	77.5	58.5	58.5	58.5	50.7
	Colombia									
Non-traditional exports	99.3	100.0	126.0	142.0	176.7	214.2	265.6	336.7	347.9	387.1
Real exchange rate	87.7	100.0	129.2	143.0	145.3	149.1	167.9	168.4	150.7	141.7
Subsidies	57.2	100.0	69.7	59.1	53.4	56.1	48.1	40.2
Tariff index	73.3	100.0	94.0	97.7	95.6	93.5	68.0	64.4
	Mexico									
Industrial exports	51.1	100.0	123.9	146.7	174.0	179.9	193.6	209.3	240.5	281.3
Real exchange rate	80.0	100.0	136.9	142.0	115.5	108.4	105.0	95.9	88.3	82.3

Source: ECLAC, on the basis of official figures.

^a The export indexes shown are indexes of volume. The real exchange rate was calculated by ECLAC; the procedure used for this purpose involved inflating the nominal exchange rate by the external price index for the country's main trading partners and deflating it by the consumer price index. Indexes of tariffs and subsidies were computed on the basis of nominal averages.

wards a revaluation of the currency is to be observed in Argentina from 1989 on, in Brazil between 1987 and 1990, in Chile since 1990 and in Mexico starting in 1988. In all of these countries, however, the revaluation followed substantial devaluations in the preceding years which were associated with the external debt crisis and not only had short-term implications but also influenced long-term export trends. In the case of Brazil, the real exchange rate had been rising since the mid-1970s, and exchange policy had therefore been having a favourable impact on the export sector for quite a long period of time.

In order to determine how variations in the exchange rate and modifications in quasi-exchange instruments affect short- and long-term export trends, we need to ascertain exporters' response level and speed of adjustment to changes in the relevant policies. This information is provided by econometric studies which, in the case of some countries of the

region, have been in existence for several decades. The general model, which is not always very explicit as regards the estimation of export supply and demand functions, is as follows:

a) *Demand for exports*

$$X^d = A(t) + Y^* \alpha_1 + \left(\frac{P_x}{P^*}\right)^{-\alpha_2} + Y_p^{-\alpha_3}$$

The external demand for a country's export products (X^d) depends on the relevant external purchasers' degree of openness ($A(t)$): a variable that seeks to represent such structural effects as the growing internationalization of national economies and the rising degree of international specialization. External demand is determined by the purchasing countries' income level (Y^*) and the comparison made by external consumers between the asking price (P_x , in

foreign currency) and the going price on their own local market (P^*). Overseas production capacity (Y_p^*) is yet another factor. When this capacity increases, the demand for imported goods (i.e., exports from the country in question) will shrink in the purchasing countries. This variable is meant to pick up the effect of import-substitution policies abroad. In empirical studies, it is usually assumed that this variable does not influence the volume of export demand.

b) *Supply of exports*

$$X^o = B(t) + Y_p \beta_1 + \left(\frac{E.P_x}{P}\right) \beta_2 + \left(\frac{Y_p}{Y}\right) \beta_3$$

Supply is determined by the national economy's degree of openness ($B(t)$), its production capacity (Y_p), the rate of utilization of that production capacity (Y_p/Y), and the export market's level of profitability as compared to that of the domestic market, as measured by the ratio between the export price, in local currency ($E.P_x$), and the producer price (P).

In this review of empirical studies, we will concentrate on the results for coefficients β_2 and α_2 , i.e., the price elasticities of supply and demand, which are related, in the one case, to exporters' profit ratios and, in the other, to the exports' competitiveness in the international marketplace.

In dynamic models that allow for disequilibria in the export market stemming from relative rigidities in prices and/or quantities, price- and quantity-adjustment mechanisms are added to the above-defined structure in order to fashion partial-fit and error-correction models that enable us to differentiate between short- and long-term elasticities.

An analysis of these studies shows up a number of limitations: i) there is no common methodology for measuring the relevant real exchange rate for the export sector, i.e., the rate that determines how profitable exports are;² ii) there is no standard profit index for use in measuring the consequences of

² A number of different exchange rates have been used in these studies: the nominal exchange rate for the dollar, deflated by a domestic price index; the average of the exchange rates for the currencies of the export-purchasing countries, which may then be inflated either by an index of external prices or by the unit value of exports; and, finally, some studies have used real effective exchange rates, adjusted on the basis of an index of subsidies and other export incentives.

liberalization, tariff rollbacks or promotion instruments; and iii) the econometric methods or models that have been applied are not the same,³ so that the results are not entirely comparable and may in some cases be considered weak. Nevertheless, an examination of these models does provide some idea of how these variables affect export growth.

Table 2 shows the results of recent studies (conducted in the 1980s) regarding the short- and long-term price elasticities of aggregate exports (elasticities for the real exchange rate, as measured in terms of the definitions set forth in footnote 3, calculated on the basis of estimates of the supply function for the non-traditional exports of selected countries).

One of the first things to be noted here is the difference between the short- and long-term implications of exchange policy.⁴ The elasticity of supply in relation to a change in the exchange rate in the short run is substantially less than unity in all the countries. This indicates that supply is somewhat inelastic, or fairly unresponsive to short-term devaluations or revaluations. The response is much stronger, however, in the long term; indeed, over the long run, the elasticity of supply is close to or slightly higher than unity. This indicates that, over the period of time required by economic agents to take investment decisions, profitability is an important variable, with a 1% variation in the real exchange rate generating an equal or slightly greater change in the supply of export products. If, in addition to the elasticities found to exist for exports, the impact of exchange policy on imports is taken into account, then it may be seen that the overall effect on the trade balance is even greater.

The observed trend in export performance as it relates to exchange policy within the region differs from the trends seen in a number of South-East Asian economies, such as those of South Korea and Hong

³ The model used for purposes of estimation in Latin American countries (assuming that the relevant country is small in size) is a partial fit for a supply equation, while ordinary least squares procedures are used as the method of estimation. This assumption is discarded in the case of Brazil, however: supply and demand equations are estimated using a two- or three-stage least squares model and, lately, estimated error correction models have been applied using the full-information maximum likelihood method.

⁴ A short-term response is defined as a response that manifests itself during the same period (quarter or year) in which the policy was altered. A long-term elasticity is one in which the effects of the change in the variable have reached completion.

TABLE 2

**Latin America (seven countries):
Real exchange-rate elasticities of aggregate export supply**

	Short-term elasticity	Long-term elasticity	Estimation period
Argentina	0.39 ^a	...	1970-1992 ^b
Brazil	0.38	0.91	1970-1986 ^c
Bolivia	0.39	0.81	1980-1990 ^b
Chile ^d	0.32	1.26	1963-1990 ^b
Colombia ^e	0.51	0.93	1967-1991 ^b
Costa Rica ^f	0.30	0.54	1970-1990 ^c
Mexico ^g	0.12	^h	1982-1987 ^c

Source: For Argentina, Navajas (1993); for Brazil, Zini (1988); for Bolivia, Ferrufino (1993); for Colombia, Villar Gómez (1992); for Costa Rica, Gaba and Araya (1993); for Chile, Moguillansky and Titelman (1993); for Mexico, Peñaloza Webb (1988).

^a The effect has a one-period lag.

^b Annual.

^c Quarterly.

^d Total exports other than copper.

^e Total exports other than coffee, petroleum, ferronickel and gold.

^f Non-traditional exports.

^g Exports other than oil.

^h No estimate available.

Kong, where the growth of exportable supply between the late 1960s and mid-1980s was coupled with stable, competitive real exchange rates as compared to those of Latin America (Balassa and Williamson, 1987). The studies conducted on these economies have found very high short-term elasticities for the aggregate supply of exports, with Balassa's estimates (1991) for South Korea ranging from 1.9 to 2.2 for the period 1965-1987 and Riedel's estimates (1986) for Hong Kong showing an elasticity of 5 in relation to the real exchange rate for the period 1972-1984.

The first conclusion that may be drawn from the data presented thus far is that an exchange policy's impact is greater over the long term and that, since the level of response is not very high (in most cases the elasticity is less than unity), additional instruments will be needed in order to foster a rapid rate of growth. Furthermore, when we find that the exchange-rate elasticity of exports is not very high, what we are actually detecting are the shortcomings in terms of finance, technology, human resources and infrastructure which make it difficult for exporters to take advantage of improvements in relative prices. Hence, the focus of a system-wide effort to achieve competitiveness should be precisely that of gradually raising those elasticities.

The long-term elasticity of exports in relation to the real exchange rate appears to be similar in the

various countries (with some exceptions), regardless of the composition of the export basket. Nonetheless, an examination of the relevant sectoral studies reveals just how important it is to distinguish the different impacts of changes in profitability, depending on the type of activity.

In fact, comparison of the data in tables 2 and 3 shows that, in all the countries studied, short- and long-term elasticities in the manufacturing sector are higher than those of aggregate exports; the speed of adjustment also differs from one type of product to the next and is manifested more swiftly in the case of manufactures. In addition, an analysis of the results for the different branches of industry shows that some branches are highly responsive to exchange policy (elasticities far above unity) even in the short run, which indicates that these export activities may be seriously harmed by a drop in the real exchange rate. This is the case, for example, in the food, textile and chemical industries in Colombia and in the textile, metal products, electrical machinery and automotive industries in Mexico.⁵

⁵ The study conducted by Cohen (1989) in Mexico at the industrial branch level, disaggregated to four digits, found significantly positive price elasticities for 23 of the 28 sectors analysed. These results are in line with those obtained for the aggregate manufacturing sector by Mendoza (1993), but contrast with the unresponsiveness of non-oil exports estimated by Peñaloza Webb (1988) for Mexico's aggregate non-oil exports.

TABLE 3

Latin America (five countries): Real exchange-rate elasticities and average lags for exports, by sector

	Short-term elasticity	Long-term elasticity	Average lag	Period
Brazil				
Industrial products	0.58	1.39	1.72 ^a	1970-1986 ^a
Manufactures	0.47 ^b	1.16	2.10 ^a	1980-1991 ^a
Semi-manufactures	0.81	-	-	1980-1991 ^a
Colombia				
Agricultural products	0.86	3.7	2.00 ^c	1970-1992 ^c
Manufactures	0.80	1.1	2.00 ^c	1970-1992 ^c
Foodstuffs	1.17	-	^d	
Textiles	2.20	-	^d	
Chemicals	2.40	^d	^d	
Chile				
Fresh fruit	0.18 ^b	1.80	10 ^c	1963-1990 ^c
Other farm products	0.33 ^c	0.58	1.78 ^c	
Manufactures	0.65	1.93	0.52 ^c	
Mexico				
Manufactures ^f				
Textiles	1.64	^d	^d	1982-1988 ^a
Petrochemicals	0.48	^d	^d	
Metal products	1.53	^d	^d	
Electrical machinery	1.54	^d	^d	
Motor vehicles	2.54	^d	^d	
Peru				
Manufactures	3.68	^d	^d	1963-1983 ^c

Source: For Brazil, Moguillansky (1994) and Zini (1988); for Colombia, Alonso (1993); for Chile, Moguillansky and Titelman (1993); for Mexico, Cohen (1989); for Peru, Paredes (1992).

^a Quarterly.

^b The effect has a one-period lag.

^c Annual.

^d No estimate available.

^e The effect has a three-period lag.

^f Selected branches of industry were used in order to illustrate the range of variation among the various branches' elasticities.

Chile's exports of fresh fruit and farm produce exhibit a lagged response to short-run changes in the exchange rate, and both the impact of such changes and the speed of adjustment are well below those observed in the manufacturing sector. This result is to be expected, given the characteristics of investment in the fruit industry and the number of years it takes for fruit plantations to enter into production. This means that if, in the midst of a crisis situation, governmental authorities use exchange policy in an attempt to stimulate this sector, the results will not become evident in the short term; in the manufacturing sector, on the other hand, the response to an exchange-policy stimulus will be more marked.

The results of the study on Brazilian industry indicate that the effect of changes in the exchange rate is lagged in the case of manufactures but is immediate in the case of semi-manufactures. These sectors' long-term elasticities also differ, since manufactures exhibit an elasticity greater than unity whereas no relationship was found to exist in the long term between the activity of exporters of semi-manufactures and the real exchange rate. The characteristics of these natural resource-based intermediate goods and the point in time when the large-scale investments undertaken in the mid-1970s have come on stream are factors in this result. In this case, external sales have been more heavily influenced by the

need to cover the costs associated with such investments in the context of a domestic recession than by the price ratio between the domestic and external markets.

The above analysis points to the conclusion that exports' responsiveness to variations in the real exchange rate differs by sector or type of product and that the repercussions of such changes may also vary. In addition, the relevant estimates indicate that the degree of elasticity rises as the value added during the production process increases. It may also be concluded that the exports of more highly developed, more industrially diversified countries are such as to

permit stronger, more immediate responses to changes in exchange policy.

Finally, since the measurement of the real exchange rate applying to exports is corrected on the basis of their unit values (which implicitly include a weighted average of external prices), policies involving adjustments in the exchange rate should use a basket composed of the currencies of the Latin American and Caribbean countries' main trading partners as a frame of reference. This is an important point, since the countries of the region have often looked only at variations in the United States dollar when designing their exchange policies.

III

Exchange policy, competitiveness and trade policy

An improvement in a country's competitive position will lower the cost of its export products relative to the cost of the same products on the international market. A country's competitive position will depend upon how its wage levels, rates and charges, and other domestic costs compare with external ones, on the exchange rate and, in particular, on the productivity of local industry (which is, in turn, a function of innovation, organizational improvements and technological development). The question, then, is which of all these variables has played the greatest role in determining the competitiveness of the export sector.

Research aimed at answering this question has been undertaken in at least Brazil and Mexico. In the case of Brazil, Bonelli (1992) has found that the competitiveness of the country's industrial exports increased significantly during the first half of the 1980s thanks to rising productivity and variations in exchange rates and wages. During the second half of that decade, however, a deterioration in the exchange rate/wage ratio clearly played a role in the fact that the competitiveness of exports of manufactures grew much less than it had during the first half, thus reflecting the importance of this ratio.

Casar's study (Casar, 1993) of Mexican industry leads to the conclusion that, in most of the branches of industry which saw an improvement in their competitive position in 1980-1989, the decisive factor

was increased labour productivity. In the more backward sectors, on the other hand, competitiveness was associated more closely with low wages and the level of the real exchange rate.

Few attempts have been made in the region to gauge the extent to which competitiveness (i.e., the ratio between the relative export price of a given product and the price it brings on the international market) influences the development of the export sector. Econometric estimates of the demand functions of Brazil's industrial exports (which have historically been the most highly developed ones in the region) reveal a high short-term elasticity—far greater than the profit ratio's effect on the supply of exportables—for both manufactures and semi-manufactures. Hence, if a revaluation of the currency becomes inevitable, then the only ways to maintain the export sector's competitive position—in the absence of fiscal or financial incentives—are to boost productivity or accept a reduction in profit margins. This is apparently what occurred in Brazil during the second half of the 1980s when the country's fiscal crisis made it impossible to continue to finance the same level of incentives as before.

In general, trade reforms have led to substantial cost reductions, especially in cases where the export sector has not been given tax exemptions for imported inputs. In addition, the liberalization of trade

FIGURE 1
Argentina: Real exchange rate and trade policy,
1980-1991

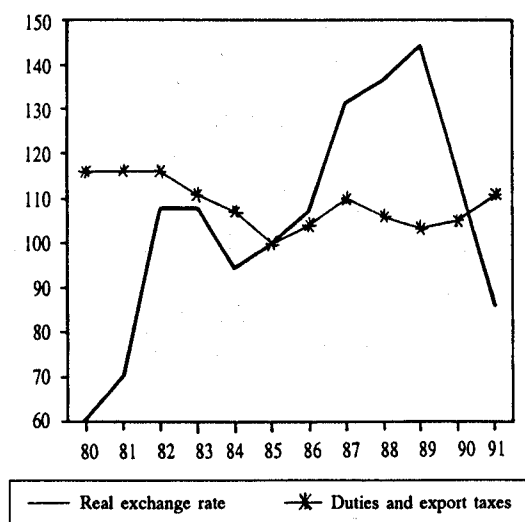
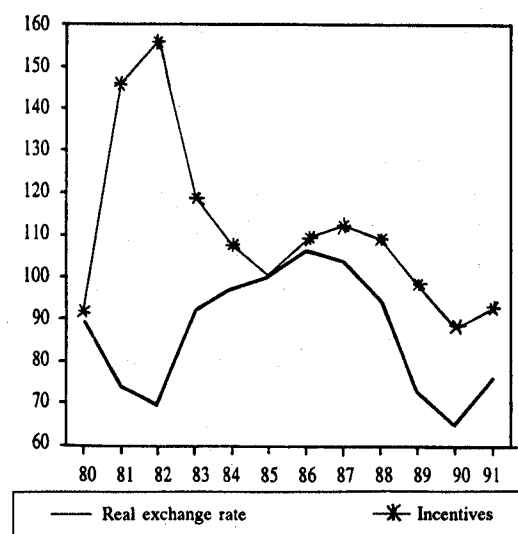


FIGURE 2
Brazil: Real exchange rate and incentives,
1980-1991



has permitted the entry of a wider variety of higher quality inputs, and this, in turn, has often raised the level of profitability and helped to stimulate the supply of exportables. In other cases, liberalization or tariff exemptions have partly offset declines in profit levels attributable to the increases in a currency's real parity that have been brought about by stabilization policies.

With regard to this last phenomenon, figures 1 through 4 illustrate trends in the real exchange rate and in an index of tariffs on imported inputs and incentive arrangements for four countries.⁶ In Argentina (see figure 1), the duties and taxes levied on exports of manufactures remained constant, but the real exchange rate began to plummet in 1989, and the two policies did not counterbalance each other's effects. From 1985 onward in Brazil (see figure 2), export subsidies and benefits moved in the same direction as exchange policy did, and the export sector therefore did not have the benefit of any compensatory incentives in the course of the country's currency revaluation. Producers did benefit, however, from

the trade reforms that began to be phased in as from 1987, which included a shortening of the list of prohibited imports, streamlining of administrative formalities and tariff rollbacks (average import duties were cut from 51% in 1987 to 14% by the end of 1993).

In Colombia (see figure 3), steep cuts in subsidies for non-traditional exports were offset by a rising real exchange rate and a gradual reduction of tariff rates. In Chile (see figure 4), the trend in exchange policy from 1985 on was rather similar and was accompanied by a gradual decrease in the average tariff rate from the higher levels that had been set in 1982 and the following years in response to the external debt crisis.

A number of econometric studies focusing on Brazil, Chile, Colombia, Costa Rica and Mexico have assessed the impact of these instruments. In the cases of Brazil and Costa Rica, attempts have been made to evaluate the differing impacts of incentives and of variations in the exchange rate, but the results have not been satisfactory; in both cases, it proved to be more relevant to look at the combined impact of the real effective exchange rate as corrected to take existing incentives into account (Zini, 1988; Hoffmaister, 1992).

The estimates prepared by Lora (1985) and Alonso (1993) regarding Colombia's non-traditional exports suggest that the effect of direct stimuli is proportionally less than the impact of the real exchange

⁶ Just as in the case of measurements of the real exchange rate, the indexes for tariffs and incentives are not comparable for all countries. In the case of tariffs, nominal averages have been used. In the case of incentives, the index includes subsidies, drawbacks, tax exemptions, etc. For Brazil and Colombia, export incentives represent total potential participation, i.e., what would happen if all exporters could take advantage of all incentives.

FIGURE 3
Colombia: Real exchange rate and trade policy, 1980-1991

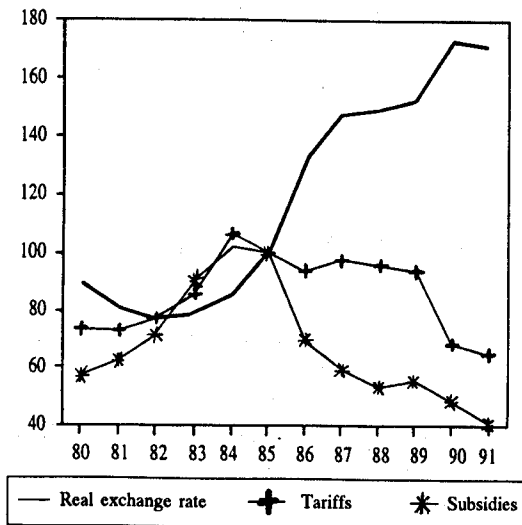
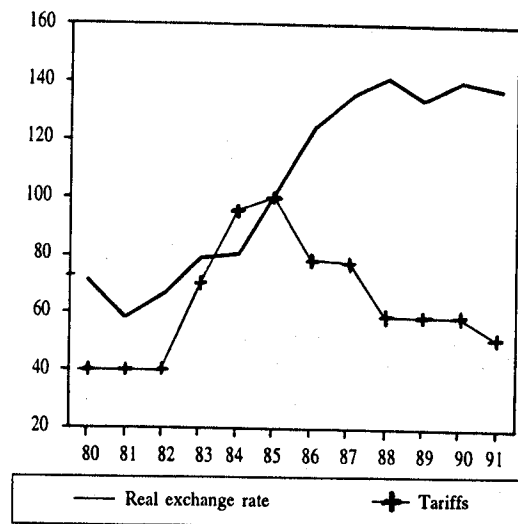


FIGURE 4
Chile: Real exchange rate and tariffs, 1980-1991



rate or of the external prices of exported goods. Lora contends that this may be due to the uncertainty generated by the variability of such incentives, which causes exporters to mistrust this kind of policy. This hypothesis could explain why entrepreneurs respond less strongly to subsidies and other direct benefits for export activity than they do to exchange policy, even though a devaluation –while it does boost foreign exchange earnings– also pushes up the cost of the imported inputs used in the production of export goods.

The studies conducted by Villar Gómez (1992) in Colombia and by Moguillansky and Titelman (1993) in Chile have demonstrated that the impact of the import barriers faced by producers of exportables (measured on the basis of an index of average nominal tariffs) is significantly negative. They also found that the reduction of tariff rates had a positive impact on non-traditional exports in one case and on manufactured exports in the other. This result was obtained despite the existence of drawbacks, which suggests that the effect detected in these studies is not confined to cost reductions for imported inputs but instead also includes, on the one hand, producers' access to a wider range of higher-quality, less expensive inputs (leading to improvements in the quality and price of exported products) and, on the other, the possibility of achieving better integration of production for the domestic and external markets, thereby reducing firms' administrative costs.

In the case of Colombia, this finding is of interest because it indicates that the trade liberalization process pursued in recent years has, in and of itself, had a positive impact which has made a reduction in export subsidies possible.

Cohen (1989) has analysed Mexico's overhaul of its trade regime since 1985. In almost all the branches of industry that were examined, this author detected a statistically significant structural change and was able to link these changes to the trade liberalization process by constructing an index capable of measuring the degree of liberalization applying to imported inputs in each branch. The estimates pointed to a significant inverse relationship, and the reduction of tariffs on imported inputs was found to have made a major contribution to the expansion of exports in the vast majority of these branches.

The above findings attest to the positive impact of tariff reforms on industrial and non-traditional exports in a number of countries, notwithstanding the prior existence of instruments (e.g., drawbacks) benefiting producers of exportable goods. Incentives were also found to have a substantial effect, of lesser or equal significance to that of exchange-rate variations.

Reducing the tariffs applying to the imported components of exports would appear to be compatible with a decrease in subsidies in countries having an established production capacity. It should be borne in mind, however, that this finding cannot be extrapolated to include infant industries or

non-traditional exports in those same countries, as incentives may be needed in order to trigger the changeover from potentially exportable products to actual exports; nor can this finding be extrapolated to include countries whose industrial production capac-

ity is as yet relatively underdeveloped. In fact, the countries displaying the greatest sensitivity to exchange- and trade-policy stimuli are those that have already moved beyond the stages of import substitution and of local-industry protection and stimulation.

IV

Exchange uncertainty and export growth

Uncertainty concerning exchange policy and its stability influences export-oriented production activities. If entrepreneurs are unsure about the future real exchange rate or its possible range of variation (which, in turn, determines their profit expectations), they are unlikely to invest in the export sector. Exchange-rate instability also often goes hand in hand with short-lived trade policies lacking in credibility, and these types of circumstances will nullify the incentives for economic agents which the authorities are seeking to generate.

Since exchange policy is not applied in isolation from other economic policies focusing on such areas as monetary and fiscal matters, it is often subject to a certain degree of instability. For example, the implementation of a devaluation in a situation marked by a serious fiscal imbalance that forces the Government to undertake unplanned currency issues will soon trigger a rise in inflation which will counteract the authorities' efforts to raise or maintain the level of the real exchange rate. The uncertainty which this will create regarding exchange-rate trends will influence the country's export performance.

One way of arriving at an empirical measurement of the impact of exchange-rate instability is to use an indicator of real exchange-rate variance⁷ (see table 4).

The elasticities computed in a number of different studies are highly negative in the short term. This is because increasing instability leads to higher costs which cannot be passed along in the form of higher prices for exportable items, thus discouraging sales on external markets.

As noted earlier, long-term instability hurts investment and reduces exportable supply. The strong impact detected in the case of Peru (an estimated -4.7) is in keeping with measurements of the degree of instability existing in that country based on the coefficient of real exchange-rate variability in 1960-1985.⁸ In contrast, this variable does not appear to have had any significant effect on exports in Colombia and Chile because of the lower degree of exchange instability existing in these countries. In the case of Chile, the lower short-term elasticity found to exist in Paredes' study (1989) for the period 1963-1983 tallies with the exchange rate's greater degree of stability throughout the 1960s; the study by Caballero and Corbo (1989), on the other hand, covers a period that includes some years of marked instability.

These findings, in conjunction with those discussed in the preceding section, support the conclusion that exchange-policy stability needs to be ensured in order to sustain the long-term growth of the export sector.

⁷ Since the mid-1970s, empirical studies have pointed to the existence of a significantly negative relationship between real exchange-rate volatility and exports. In this connection, see Díaz-Alejandro (1976) regarding Colombia and Coes (1979) concerning Brazil. Noteworthy analyses focusing on the 1980s include those of Paredes (1989), Caballero and Corbo (1989) and Alonso (1993).

⁸ In this regard, see Paredes (1989) and Alonso (1993). The average annual standard deviation was divided by the mean, which was calculated from monthly data.

TABLE 4

Latin America (six countries): Elasticity of exports in relation to instability of the real exchange rate

	Short-term elasticity	Long-term elasticity	Period
Chile	-1.9	b	1963-1983
Peru ^a	-4.3	b	
Colombia	b	b	1970-1985
Chile	-5.4	b	
Peru	-1.1	-4.7	
Colombia			1970-1992
Agricultural sector	-0.3	-0.6	
Industrial sector	-0.2	-0.2	

Source: For Colombia, Alonso (1993); for Chile, Caballero and Corbo (1989); for Peru, Paredes (1989).

^a The Paredes study actually found high elasticities (-1.5 in the short run and -3.6 in the long term) for Brazil as well, but these results were distorted by the period of analysis involved. The reader may, for example, compare these data with those presented by Nogués (1990), who found that, of the eight Latin American countries covered by his study for the period 1978-1987, Brazil was the country with the least variation in its real exchange rate. Nogués agrees with the argument advanced here, i.e., that stabilizing the real exchange rate is more important than providing export incentives.

^b No estimate available.

V

Other determinants of export performance

In addition to exchange policy, tariff reforms and direct benefits that influence the export sector's level of profitability, other factors have also played a role in the expansion of sales on the external market. Two of these factors are domestic demand pressures on available supply and changes in external demand (including the role played by regional integration efforts).

Some econometric studies have attempted to determine just how strong an influence domestic demand pressures have on the channeling of products to the external sector. The indicator they have used for cyclical domestic demand pressures is the rate of utilization of production capacity, which measures the differential between actual and potential output.

Of the studies done on this subject, only those focusing on Brazil have substantiated the hypothesis that fluctuations in demand strongly influence exportable supply. Brazil has traditionally displayed a significantly negative correlation, involving very high elasticities, between the rate of utilization of

production capacity and industrial exports (Zini, 1988; Moguillansky, 1994). These results indicate that entrepreneurs have turned to the external market more as a means of defending themselves against domestic recessions than as part of a deliberate effort to develop export activity as such. This has been corroborated by surveys of the industrial export sector (Baumann, 1993). The estimates of the long-term elasticities in respect of the rate of utilization of production capacity were actually higher than those calculated for potential output; this suggests that, in an expanding economy, exports of manufactures will be limited by the need to meet domestic demand unless investments are undertaken to boost production capacity.

The strength of external demand's impact on exports differs depending on the type of product concerned. The income elasticity of commodity exports has traditionally been low when measured in relation to the level of activity in industrialized countries; the income elasticities of industrial exports, on the other hand, depend upon the type of product being exported.

Estimates of manufactured export functions in the region have been based on the "small-country assumption",⁹ which posits that exporters can sell as much of their output on the external market as they wish. Consequently, export prices would not be affected by the volume of exports because they are determined on the international market.

It has been found, however, that this assumption is not valid for some countries. For example, in the case of Brazil's exports of manufactures, the best fit was obtained from estimates based on simultaneous export supply and demand models. Demand equations yield significantly high income elasticities,¹⁰ indicating that exports of manufactures are affected by trends in the external market.

The estimates prepared by Villar Gómez (1992) for Colombia indicate that in the short run this elasticity is high in relation to an index of the real gross domestic products of the countries buying Colombian exports. This author also suggests that the underestimation of non-traditional exports generated by the econometric model for 1991 may be partially accounted for by the swiftly-paced trade integration process entered into by Colombia and Venezuela,

which caused Colombia's exports to its neighbour to skyrocket by 152% in 1991 and helped maintain that upswing in 1992. A similar effect has been observed in trade flows between Argentina and Brazil, Bolivia and Ecuador, and Chile and Peru.

These trends bring out another factor –also associated with regional integration processes– that has had a decisive influence on recent export performance. The available data on a number of countries in the region demonstrate that a certain level of complementarity does in fact exist between a strong performance in the area of intraregional exports and exports to countries outside the region. A significantly positive correlation exists between the coefficient for intraregional industrial exports and the proportion of domestic demand that is met by imports from other regions; this attests to the fact that a readily available supply of high-quality, competitively-priced inputs plays a pivotal role in determining the level of productivity attained in the production of non-traditional exportables. Furthermore, the empirical data show that exporting to markets within the same region can provide learning opportunities for exporters before they move into extraregional markets.

VI

Conclusions

Despite the fact that some of the countries analysed in this article underwent thorough-going structural reforms during the late 1980s and early 1990s that affected their export sectors in ways which the studies reviewed here have not been able to evaluate, the data presented in the course of this essay provide a basis for the formulation of a number of general observations. First, an examination of how a change in the real exchange rate affects aggregate exports shows that, except in a few countries, the long-term elasticity is less than unity: i.e., the influence exerted by exchange policy is not very great. However, the coefficient of elasticity is substantially greater than

unity at the sectoral level, indicating that the aggregate figure is influenced by the more inelastic products, which tend to skew the results. This leads us to conclude that other incentives should be brought into play in order to achieve rapid development of the export sector. The progressive elimination of anti-export biases and of shortcomings in terms of infrastructure, technology, finance, human resources and external promotion ought to bring about a gradual increase in the responsiveness of exports to the exchange rate. Such an effect is to be observed even in the short-term exchange-rate elasticity of exports in many Asian countries.

Second, both the real exchange rate and other incentives need to be stable. Uncertainty regarding exchange policy discourages the allocation of investment resources to the export sector, while the instability of incentives renders them unreliable, and economic agents therefore fail to respond to those instruments.

⁹ In other words, it is assumed that the countries enjoy infinitely elastic demand and that the only constraints affecting them are those relating to supply.

¹⁰ The GDP of the countries purchasing the exports, or an index of those countries' imports, were used as indicators of external demand.

Third, when we carry the analysis to a more detailed level by breaking down the export sector by type of product, we see that the effects of exchange policy are not homogeneous. We discover that the greater the industry's degree of diversification and level of production capacity, the more responsive to exchange policy it will be. Furthermore, it can be established that the exports of more highly developed, industrially diversified countries respond more strongly and immediately to exchange policy.

In every case, the manufacturing sector's elasticity is higher than that of aggregate exports, both in the short and long terms; its speed of response is also greater. This is especially true in countries where the diversification of industrial output and the development of production capacity have traditionally been more advanced. The short-term response of agricultural activities to exchange policy is very weak; thus, in the event of a temporary crisis, efforts to stimulate this sector will not be effective if exchange policy is the sole instrument used for that purpose.

An evaluation of the impact of exchange policy on individual branches of industry reveals very high elasticities in both the short and long terms in certain cases, which means that some export activities could be seriously hurt by a drop in the real exchange rate.

Fourth, the tariff reforms undertaken in the countries covered by this study have had a positive effect on the development of the export sector, but once they have been completed—i.e., when no further modifications are to be made—they cease to act as a determinant of that development process.

Fifth, the impact of domestic demand is quite strong in branches of industry that are not specifically oriented towards exports. In order to maintain the supply of exportables in these cases, fresh investment funds will have to be obtained or the allocation of such funds to export activities will need to be encouraged.

Finally, external demand has a very substantial effect on the performance of commodity exports, but it may act as a limiting factor in the case of some countries' industrial exports.

(Original: Spanish)

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