

EFFECTS OF THE SUBREGIONAL PROGRAM OF LIBERATION ON COLOMBIA'S FOREIGN TRADE

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INTRODUCTION

The purpose of this essay is to present a summary of the principal results and conclusions of the author's study "The Program of Liberation in the Andean Pact and its Effects on Colombia's Foreign Trade : An Empirical Analysis ". The intention here is neither that of delving into a detailed discussion of the methodology utilized, nor that of making an exhaustive analysis of the empirical evidence, nor that of evaluating such other aspects as the " relevancy " and " viability " of the orthodox theory of economic integration for the specific study of the trade liberation program in the Andean Pact or the theoretical and practical implications that can be drawn from that program during the first years of the functioning of the Cartagena Agreement . Some of these concerns will be treated in depth in a later work .

The decision to publish this partial version stems from the fact that, in addition to the undeniable contribution that studies of this nature can come to represent in the course of a process of integration, it seems opportune that, after nine years of having had the program or trade liberation in effect in the Andean Pact, the most important results of the first serious

study regarding the effects of intrasubregional tariff reductions on the structure and behavior of the international trade of a member nation (in this case, Colombia) should be made known as soon as possible .

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Needless to say, both this present essay and the research on which it is based remain the responsibility of the author.

I. THE STRUCTURE OF COLOMBIAN TRADE WITH THE ANDEAN GROUP, 1966-1976.

A. Importance of the Andean Market

As can be seen in table N°1, the Andean Group was becoming increasingly more important as a market for Colombian exports (other than coffee) from the middle of the 1960's to the early 1970's, the group's participation in this regard more than doubling between 1965 and 1970 (from 10% to 25%, respectively). Nevertheless, and contrary to what was expected at the beginning, during the first four years of the liberation program the group's participation was a decreasing one, the percentage of total Colombian exports being destined for the Andean Market dropping, by 1974, to 18%. That trend then reversed, and, by 1976, the Andean Group's importance as a market for Colombian exports again equalled that attained during 1970-71.

However, important differences exist in the observable behavior of each one of the member countries in their respective roles as markets for Colombian exports. While Bolivia and Ecuador maintained approximately the same (despite certain oscillations) participation during the 1969-1976 period (2% and 24%, respectively), Chile and Peru were losing, almost without interruption , their importance as Colombian markets as of 1970 (from 23% in 1970 to 5.5% in 1976 and from 43% to 10% , respectively). Venezuela, on the other hand, progressively acquired increasing importance as a market for Colombian exports and, accordingly, became the

" dominant " market for such goods (from 7% in 1970 to 63% in 1976.)

In the face of these circumstances it is possible to assert that Colombian exports to the Andean Group had, in their entirety, an average growth that was less than or, at best, similar to that of Colombian exports to third countries during the first six years in which Andean tariff reductions were in effect. This behavior is evidently a contrastive one to that observed in the latter half of the 1960's when Colombian exports to the Andean Group demonstrated, on the average, a greater dynamism than Colombian exports to third countries. However, as noted in the preceding paragraph, the behavior of individual member nations as export destinations did vary significantly. Additionally, one can note a strong tendency for Colombia's subregional exports to be concentrated in its two " border " markets (Venezuela and Ecuador, which, in combination, represented 65% and 80% of total Colombian exports in 1975 and 1976, respectively) which constitute, to a certain extent, " natural " markets and both of whose respective economies (and especially, Venezuela's) have enjoyed, thanks to the boom in petroleum, a considerable increase in their capacity to import during the period under consideration.

These results would suggest, at this general and preliminary level of analysis, some conclusions regarding the relative " effectiveness " or, better, " ineffectiveness " of the trade liberation mechanism in the Andean Pact as a means to promote the growth and diversification of intrasub-regional trade in the short, and even the medium term, at least as far as Colombian exports are concerned. However, such generalizations at this level of analysis can lead to substantial errors, especially if one fails to take into account certain elements that are " exogenous " to the liberation process but that may have been systematically influencing the situation (such

would be the case of the political and economic problems occurring during the period of analysis in Chile and Peru - the very same two markets demonstrating a clearly negative dynamism with regard to Colombian exports). As a manner of illustration, the following example is offered : Suppose that Colombian exports to the Andean Group were highly concentrated among just a few products at that point in time when tariff reductions were initiated (an assumption that is not very far from what in fact took place, as will be seen further on under heading C) but that, due to conditions prevailing at that time, there was a drastic reduction in those exports over a period of several years. In addition to the preceding, one might make the further assumption that once the tariff reductions on intrasubregional trade had been put into effect and a certain time lapse had occurred, " new " exports were to arise that would allow the Andean Group to reestablish its participation as a market for Colombian exports at a level similar to that which had been attained just prior to the " decline ."

Given this hypothetical and perhaps extreme situation (which up to the moment could very well represent an alternative understanding of the Colombian situation), the conclusion would probably be the opposite, or at least different, from that offered above. In this case, the liberation program would have been " effective " as a generalized mechanism for promoting the growth and diversification of Colombia's exports to the subregion. In the sections that follow an attempt will be made to shed some light on this crucial question - this constituting the central objective of the

study under consideration.

With respect to Colombia's imports coming from the Andean Group, it can be noted that, as a market of supply, the group was progressively acquiring an increased participation in the totality of Colombian imports during the 1966-1976 period. In effect, its participation grew from 3% in 1966 to that of 7.41% in 1976.

In contrast to the case of exports, no substantial changes can be noted in the relative importance of the various member nations in their roles as markets of supply during the period of analysis, nor is such an "elevated" degree of market concentration by one or more countries evident. The participation of each country was maintained at a more or less stable level and, in spite of the fact that the three most important markets of supply (Chile, Ecuador, and Venezuela) represented, on the average, some 83% of total imports, none of the three demonstrated any clear dominance in this regard. Nevertheless, the importance of the "border" markets is again apparent (though not to such a definitive degree as in the case of exports), these border markets constituting a level of participation that ranged between 50% and 60%. Up to this point it is possible to conclude, without fear of equivocation, that, in their entirety, Colombian imports coming from the Andean Group showed, on the average, a greater rate of growth than imports originating in third countries both before and after the Andean liberation program was put into effect. It is also clear that, in principle, one cannot note such significant differences in the behavior of

individual markets, here, as in the case of exports. Again, the drawing of any conclusions that would go beyond those already indicated here would be a risky proposition.

B. Sectoral Distribution

On the basis of a (CUODE) classification according to economic origin or destination ^{1/}, it can be found that during the 1970-1976 period approximately 75% of Colombia's imports from and exports to the subregion involved goods with some degree of processing, though these were not necessarily industrial goods in the strict sense. Among these, intermediate goods represented 33% and 50% , respectively ; while consumer goods constituted 24% and 22% and capital goods 15% and 14%, respectively. These figures would suggest, in principle, that this trade is not only diversified sectorally, but also that it is not specialized in primary and traditional industrial (i.e., consumer, in the case of these countries) goods. However , a careful examination of the structure of trade at the tariff item level reveals results

^{1/} The most aggregated CUODE classification contains the following economic sectors :
1. Agriculture/ livestock ; 2. Mining ; 3. Industry (3-1 consumer goods ; 3-2 intermediate goods ; 3-3 capital goods).

that are not as gratifying as those initially suggested, especially with respect to Colombian imports from the Andean Group.

First considering the case of imports, it is important to note that in spite of the fact that intermediate goods constitute 50% of the total, there are five products (aluminum, copper wire, non-alloyed zinc, non-alloyed tin, and non-alloyed copper) whose combined average participation in total imports is 25% and that would more appropriately correspond to the mining sector than to the sector of intermediate industrial goods. There are also at least three other important goods (i.e., three similar types of wood pulp) that represent approximately 6% of imports that entail a relatively " simple " industrial processing. In addition, an analysis of consumer goods shows that some items classified here (e.g., shelled cocoa and bulk fish oils), which represent an " elevated percentage of total imports (approximately 14%), are directly derived from the agriculture/livestock sector and entail processings that do not generate a significant amount of industrial value added (e.g., per produced weight).

Making the minimal requisite corrections it would be possible to assert that, in an economic and technical sense, the sectoral participation of Colombian imports coming from the Andean Group would be more objectively represented by the following average distribution : Agriculture/livestock, 28% ; mining, 30% ; industrial consumer goods, 18% ; intermediate goods, 21%; and capital goods,

3% . Obviously, this distribution would imply that the sectoral distribution (primary vs. industrial) and the importance (in terms of participation among total imports) of goods corresponding to the " traditional " industrial and primary (agriculture/livestock and mining) sectors are greater than the aggregated information would suggest and that such imports entail a lesser degree of industrial processing as well ^{1/}. It is clear, of course, that the magnitude of these corrections would vary significantly between country of origin. Thus, for example, in the case of Bolivia metallic tin constituted, on the average, 95% of its exports to Colombia during the period of analysis ; for Chile, wood pulp chemicals and copper wire represented 20% and 21% of exports to Colombia, respectively ; for Ecuador, 17% of exports to Colombia were represented by shelled cocoa ; for Peru, non-alloyed zinc, copper wire, and bulk fish oils constituted 18%, 15% and 14% , respectively, of exports to Colombia ; and, for Venezuela, aluminum represented 40% of exports to Colombia.

With respect to Colombian exports there would be no greater corrections than that three items (frozen meats, bulk cane, and whitened rice), with a combined participation in total exports of 12%, are assigned to the consumer goods industrial

^{1/} It should be mentioned that prepared and conserved fish represent a high proportion of consumer goods imports and that basic chemicals constitute a high percentage of imports of intermediate goods.

sector while requiring, thanks to their eminently agricultural/livestock character, but a rather "modest" level of industrial processing for strict consideration as industrial goods. Nevertheless, a more detailed analysis of the export structure reveals that, at least in comparison to imports, exports are relatively dispersed at the sectoral level and correspond, to a high degree, to "traditional" industries (the food, beverage, and tobacco industry constituting 7% of total exports; basic chemicals, 13% ; cotton textiles and manufactures, 8% ; common metals, 8% ; stone and glass manufactures, 4%) and to the primary sector (37%). In spite of the fact that the primary sector / industrial sector distribution does not vary according to country of destination (that distribution being approximately one of 25% / 75%) except for the case of Bolivia (1% / 99%), its intersectoral industrial structure does. In effect, the industrial sectors of intermediate and capital goods constitute 35% of total Colombian exports to Chile, 45% of those destined for Peru and Venezuela, and 80% of those exported to Bolivia and Ecuador.

The preceding results are not all that surprising, corroborating, as they do, that there is a relative correspondence between intrasubregional trade and the member nations' respective structures of production and specialization. In this regard it can be clearly appreciated how, in the case of Colombian imports from the Andean Group, the partner nations tend to concentrate on those products in which they possess an undebatable production advantage (e.g., due to the availability of

natural resources relative to mineral and certain agricultural/livestock products). Nevertheless, the behavior of Colombian exports to the subregion suggests, at first glance, a certain differentiation according to the country of destination's determined level of relative development, namely : a greater participation of comparatively less " traditional " industrial goods in the Colombian exports destined for the relatively less-developed partner nations (i.e., Bolivia and Ecuador). In principle, the latter conclusion would correspond to that postulated by Linder. The analysis in this regard will be presented in depth in Section II.

Finally, it is indispensable to point out that if the 1966-1976 period is broken into two subperiods, namely, prior to the initiation of the Andean liberation program, i.e., from 1966-1970 , and afterwards, i.e., from 1971-1976, no significant variations between the two subperiods in the intersectoral structure of Colombia's trade with the Andean Group are to be found ^{1/}. In a certain measure, this would imply that the Andean liberation program has not had, during its first six years of application, a " determining " effect on the sectoral composition of Colombia's subregional trade. However, on the basis of such evidence, it cannot be concluded,

^{1/} Perhaps the only things that would stand out during the post-Andean liberation program period vis-à-vis the pre-liberation program period would be the primary sector's increased participation (by 10 percentage points) in the totality of Colombian imports from the Andean Group and the decreased participation of the mining sector (by 6%) with regard to exports.

at this level of analysis, that the liberation program has been " ineffective " (neither in the short nor, and more importantly, in the long term) in the case of Colombia, and therefore, that it has neither contributed to the diversification, at the item level, of the country's trade (e.g., promoting the appearance of new products even if corresponding to the " traditionally " traded sectors) nor spurred the trade of " new " goods and / or those goods whose participation in exports was a relatively " modest " one. The example presented under preceding heading A clearly illustrates the situation, making it unnecessary to repeat the argument again here.

C. Concentration at the Product Level

In order to attain a more complete vision of the structure of Colombia's trade with the Andean Group it is, in addition, necessary to study its concentration at the item level, since a relative diversification by economic sector does not necessarily imply a correlative lack of concentration by product. As will be seen further on, this seems to be precisely the situation for the case in point.

Colombia's subregional trade clearly demonstrates a certain concentration at the lower end of the accumulated distribution (i.e., some few items represent an " elevated " participation in the total). It is thus that for the case of the Andean Group in its entirety, 15%, 25%, 25% and 40%^{of} the totality of Colombian exports

and imports are represented by 1,3,6 and 9 and by 1,2,4, and 7 tariff items, respectively. As for distribution at the upper end, this tends to be manifestly unconcentrated, especially in the case of total exports, and takes on the following form : 70%, 80%, and 90% of exports and imports are covered by 64, 123, and 276 and by 17, 27 and 56 items, respectively. That is, in the final deciles of the distribution (in particular, beginning with an accumulated participation of 60%) there is a observable tendency for the progressive duplication of the number of items per decile. While these tendencies are experienced by both Colombia's exports and imports, it is evident from the preceding figures that beginning with the fifth decile, the concentration of exports is less than that of imports (see table N°2). There are, however, important differences between member countries. In spite of the fact that the form (trajectory) of the accumulated distribution is similar (with an exception being made for the case of imports coming from Bolivia due to the fact that one sole item constitutes 95% of the total), this form sometimes suffers a significant horizontal displacement, according to the country concerned (see charts N°1 and N°2), this being due to differences in concentration (not only in average degree) between countries . The descending ranking of the concentration of Colombia's exports to the various member nations is, by country of destination : Chile ; Bolivia and Peru ; Ecuador ; and finally, Venezuela. The descending ranking corresponding to imports is, by country of origin : Bolivia, Ecuador, Venezuela and Peru ; and finally, Chile.

The preceding suggests the following initial conclusions : 1) Colombia's exports to its " border " markets tend to be less concentrated along the entire length of accumulated distribution than its exports destined for other partner nations, but with no definitive relation between concentration and differences in the level of relative development of the country of destination apparent. 2) Colombia's imports coming from relatively less- developed partner nations tend to be more concentrated than those coming from other member countries. The latter conclusion would corroborate, at least in part, the observation made under preceding heading B that the pattern of trade rigorously corresponds to the Andean nations' respective schema of production specialization and that this is particularly so in the case of the less-developed members. Furthermore, the fact that the trajectory of the accumulated distribution of Colombian trade with the Andean Group in its entirety is to the right (i.e., is displaced in the southeasterly direction) of the trajectories corresponding to the individual member nations implies that, in spite of its relative concentration (especially at the lower end), trade is characterized by a not unappreciable degree of differentiation in the goods traded with the partner countries of origin or destination 1/.

1/ For example : Assume three countries A, B, and C form an integrated area. If country A exports only good X to partner country B and exports only good Y (in an amount equal in \$ value to good X) to partner country C (i.e., the individual degrees of concentration are equal to 1), the degree of concentration of country A's exports to the integrated area in its entirety (B and C) would logically be less than that corresponding to each partner country taken separately (the participation of each good, X & Y, reaching 50% and not 100% as at the level of each individual country).

As can be deduced from the above, this is evidently the case for Colombian trade with the Andean Group. For the case of exports, this characteristic is the logical consequence of the crucial importance (in terms of participation in total exports) that the " border " markets have come to acquire, these markets being precisely those to which Colombia exports with a greater relative degree of diversification (conclusion 1, above).

Up until now no judgment has been made regarding the level of concentration of Colombia's trade with the Andean Group. For this it is indispensable to adopt some pattern of " reference , " and it would be all the better were this pattern the " neutral -objective " one . However, in practice, such a pattern does not, in the strict sense, exist. One alternative would be to adopt a normative value judgment regarding what ought to be the " ideal " level of concentration. Now then, given that the intention here is solely that of studying the relative (as opposed to what would be the " ideal ") behavior of Colombia's subregional trade, the pattern that is most " viable " for that purpose has been selected . That pattern is the pattern of concentration observed by Colombia's exports to third countries . The principal advantage of this pattern is that it makes possible the development of a simple positive analysis.

In the case of Colombian exports to the Andean Group during the 1971-1976 period it is found that up to the fourth decile its distribution of accumulated participation is

practically equal to that which corresponds to total Colombian exports (excluding coffee from the latter, nor only for its being Colombia's principal export product (e.g., in 1974 it represented 44% of total exports), but also for the reason that it is basically exported to non-Andean destinations), then starting at that point the distribution of the former tends to be displaced to the right of that of the latter, although this displacement is by no means a drastic one (e.g., in the seventh decile there are 64 product in the case of the former and 52 in that of the latter). Now then, if, in addition to coffee, several other primary products that figure significantly among Colombian exports to third countries but not among Colombian exports to the Andean Group (in particular, tobacco and flowers) are also excluded, it is possible to observe that Colombian subregional exports are not only more concentrated at the lower end (specifically, up to the sixth decile) but also that their diversification relative to total exports is a lesser one in the last two deciles. Consequently, it is not clear that Colombian exports to the Andean Group are "significantly" less concentrated than Colombia's total exports. Although there is some relative diversification that occurs in the final two deciles of accumulated distribution, this does not occur in a "drastic" form ^{1/}.

^{1/} This observation is valid not only for the Andean Group in its entirety, but also holds at the level of the individual member country (of destination), in accordance with that concluded above.

Despite the relevance of the preceding analysis it is necessary that that analysis be complemented by the consideration of several other points, if one wants to understand the "dynamic" behavior of Colombia's subregional trade and to study the effects that the liberation program could be exercising in regard to it. In this regard, it is important to carry out, among other things, an analysis of the "concentration-diversification" tendency of that trade. Again, it is necessary to make a comparison in terms of what has been experienced in regard to Colombia's subregional vis-à-vis total trade.

In the first place, a "significant" increase can be observed in the number of tariff items traded by Colombia with the subregion between 1970 and 1974 ^{1/}. Thus, for example, insofar as the number of items exported by Colombia to the Andean Group, there was an average increase that oscillated within a range between 133% (for exports to Chile) and 340% (for those destined for Peru); the corresponding growth in the number of items imported from the Andean Group was between 47% (in the case of Chile) and 158% and 300% (in the cases of Venezuela and Bolivia, respectively) ^{2/}.

^{1/} The year 1974 was chosen for the reason that this was the last year for which statistics (at the tariff universe item level) had been published by DANE at the time that this investigation was conducted.

^{2/} The case of Bolivia is an extreme one due to the "notable" concentration of its exports to Colombia. Remember that one product alone accounted for 95% of these exports during the period under consideration.

In the second place, a greater growth can be noted in the number of items exported by Colombia to the Andean area than in the number of items imported from the subregion. This difference varies among the member nations, ranging from a ratio of 1.20 (for the cases of Colombian trade with Bolivia and with Venezuela) to a ratio of 4.00 (in the case of Chile).

Thirdly, in spite of this growth, it can be noted that, at the member nation level, the sectoral composition (primary vs. industrial sector) of the items traded did not vary during the period of analysis ^{1/}. The same occurs with regard to Colombia's total exports.

In the fourth place, it is necessary to point out that the growth in the number of items exported by Colombia to the Andean Group (both as a group and at the individual country level) was " significantly " greater than that of Colombia's total exports (on the average, 220% and 48%, respectively) . In conclusion, it is possible to assert that for the 1970-1976 period the average concentration (at the tariff item level) of Colombia's exports to the Andean Group is " significantly " equal to that of total Colombian exports (excluding at least coffee from the latter) at the lower end of the accumulated distribution (specifically, up to the sixth decile) and less than, although not drastically less than , that of total Colombia exports

^{1/} This result is perfectly consistent with that found under preceding heading B in the sense that no " significant " variations appear in the intersectoral structure (in terms of \$ value) of Colombia's trade with the Andean Group during the 1966-1976 period.

(excluding coffee) in the final two deciles of that distribution. However , it can be noted that the number of items exported by Colombia to the Andean area grows appreciably more rapidly (almost 4.5 times as fast) than the total number of items exported by Colombia. This suggests that in the short term there is a tendency for Colombia's exports to the Andean Group to be comparatively diversified at the upper end of the accumulated distribution 1/ and that, in a certain manner, the Andean liberation program could be promoting a certain diversification (insofar as number of items) among Colombia's subregional exports, but without attaining, at least up until 1976, a similar impact as far as the average degree of concentration is concerned. Needless to say, that if such a tendency does continue in the future and the more that that tendency is accentuated, the degree to which exports to the Andean Group are concentrated should decline in the long term.

In spite of the preceding, there are some other characteristics of Colombia's trade with the Andean Group, that, in principle, would leave one to think that the liberation program has not been as " effective " as the mere tendency for the number of export items to grow would suggest. In effect, the fact that Colombia's exports to its " border " markets (which are, precisely, its " dominant " markets) clearly appear to be more diversified than those destined for the other partner countries and the fact that Colombia imports coming from the relatively less-developed

member nations appear to be significantly more concentrated in a few goods (derived from natural resources) than those coming from the other partner countries would imply that : 1) the diversification (in number of items) in the upper end of the distribution is also likely to be due (without knowing at this time to what extent) to other factors that are exogenous to the program of liberation ; and that 2) although the program may have had some " effectiveness" this would be differentiated between member nations (and especially, between the relatively less-developed nations and the remaining partners). A more definitive response to these questions will be sought in the sections that follow.

D. Distribution by Andean Liberation Program Lists

Another interesting aspect of the structure of Colombian trade with the Andean Group is related to its distribution by the liberation program lists, especially when a study of the effects of this program in the presence of diverse modalities of tariff reduction are involved (as is the case for the Andean Pact) ^{1/}. As can be inferred

^{1/} The Andean liberation program can be classified into the following modalities (referring, particularly, to the Colombian case and to the period of analysis) : 1. Products sans tariff reduction corresponding to the programming reserve list . 2. Products with a total tariff reduction effective February 28, 1971 due to their not being produced in the sub-region . 3. Products with a total tariff reduction effective April, 1970 due to their inclusion in the common list of LAFTA . 4. Products subject to a linear and automatic tariff reduction beginning December 31, 1970. 5. Metal-working sectoral program : 5-1. Products not liberated for their not having been designated for the country of reference (in this case, Colombia). 5-2. Products completely liberated as of September 20, 1972, due to their having been assigned to the country in question. 5-3. Products with annual and automatic liberation beginning December 31 of the year in which their production in the given country has been verified. 6. Petrochemical sectoral program : 6-1. Products corresponding to Agreement 6 of LAFTA completely liberated for import to Colombia as of December 31, 1973. 6-2. Products not liberated for the country in question (Colombia) for its not having been favored with such a designation. 6-3. Products completely liberated for the country in question as of September, 1975. 6-4. Products with an annual and automatic tariff reduction. A detailed description of the lists at the country (of origin or destination) level is included in the version for publication.

from table No. 3, during the 1970-1976 period Colombian exports to the Andean area in its entirety made less use of the subregional tariff reduction than did imports coming from the Andean Group. While 48% (in US\$ value) of Colombia's exports corresponded to program lists with some degree of tariff reduction, these lists involved 78% of imports. However , the pattern observed varied by member nation . At one extreme is the case of the relatively less-developed member nations (Bolivia and Ecuador) for which more than 90% (91% and 96% respectively) of the value of Colombian exports did not enjoy any tariff reduction while, on the contrary, more than 90% of the exports of these countries to Colombia did. In the rest of the " chain " such definitive behavior is not to be found. In effect, the lists with some tariff reduction involve 50% of the value of Colombian exports destined for Chile and Venezuela^{and} 78% of those destined for Peru, while 87% 16% and 59% of Colombia's imports coming from each of those countries , respectively, correspond to those lists. However, the proportional participation of the list of no tariff reduction to the remaining ones between Colombian exports and imports to and from the Andean Group varied in the following manner : Bolivia and

Ecuador, Chile (the participation of the lists of no tariff reduction in Colombian exports is twelve times greater than that corresponding to imports) ; Peru (0.46) ; and Venezuela (0.16). This means that the relatively less-developed partner countries have, for all practical purposes, received but not granted tariff advantages with respect to the trade that they conducted with Colombia during the period of analysis ^{1/}, that Chile has made greater use of tariff advantages than has Colombia in their reciprocal trade, but that the opposite has occurred with respect to Colombia's trade with the rest of the partner countries (and especially with Venezuela).

Note that what has been referred to here as the enjoyment of tariff advantages does not necessarily entail a direct connotation in terms of the " effectiveness " of the tariff reduction mechanism, nor in terms of the fiscal cost incurred by the countries in this regard. The latter would require, as a prior step, the calculation of the monetary value of the tariff concessions granted and received by each country. These aspects are discussed in Sections III and IV .

^{1/} In this regard mention should be made of the advantages (e.g., exemption list, delayed date of effectivity) conceded to Bolivia and Ecuador in the liberation program as an explanation, albeit a partial one, of the experience observed.

It should be noted that Colombia's subregional trade is highly concentrated in the lists of no tariff reduction and of automatic tariff reduction 1/. More than 96% (except for Chile, 81%) and 75% (except for Ecuador, 58%) of Colombia's export and import trade with the Andean Group corresponds to these lists. This means that : 1) In terms of total trade, the participation of the goods subject to the sectoral programs approved as of 1976 (metalworking and petrochemicals) has been ostensibly low (less than 3%) during the period. This result was to be expected as a result of the state of the productive structure of these sectors existent in the subregion, the intention being that this structure would be modeled and modified (in the cases where production existed) through the adoption of a determined scheme of " rationalization " (with a reach that was, in practice, less than " desirable " in technical terms) that would permit a certain intrasectoral complementation between the member nations and therefore, the creation and consolidation of an intrasubregional trade flow of those goods. This result was also due to the passage of but a short time period since approval of the programs

1/ This concentration corresponds to the concentration of those lists as far as the number of tariff items is concerned. In effect, 34% and 49% of all tariff universe items correspond to the lists of no tariff reduction and of automatic tariff reduction, respectively. In addition, it should be noted that among the remaining ones, some of these involve goods that are not produced and, obviously, not traded in the subregion.

in question and to the slower rhythm, than that which was initially foreseen, of advancing the installation of new plants and taking advantage of the program designation 1/. The presence of factors " exogenous " to this programming and the fact that the effects of such factors necessarily begin to manifest themselves vigorously in the medium term (due, for example, to the time requisite for the installation and operationalization of new plants), thereby coinciding with the period of analysis, prevents the experience observed during this period from serving as a " quasi -definitive " basis of judgment of the " effectiveness " of the sectoral programming mechanism in terms of the stimulation and diversification of subregional trade (and particularly, of the programmed goods). 2) Not surprisingly, there exists a certain direct relation between the concentration of trade at the level of the lists and its concentration at the product level.

Some general conclusions can be suggested from the behavior outlined . In the first place, the fact that the relatively less-developed member nations have been " net " beneficiaries (not only in relative but also in absolute terms) of the tariff reductions on their trade with Colombia during the 1970-1976 period does not necessarily imply

1/ In this regard the Junta has pointed out that " if a comparison is made between intrasub-regional trade and what the Andean countries import from third countries with respect to all of the products included in the tariff items that correspond to the Metalworking Program it can be shown that while Andean trade in this regard has developed some, its actual growth barely represents 2% of total imports. In other words, the Andean Group continues to be largely supplied by imports from third countries (these representing 98% of the total and with imports from Argentina, Brazil, and Mexico accounting for 7% of these), a fact which constitutes one more indication that the program is still an incipient one ... ". (JUNAC, ibid., pp. 10-1).

that those reductions have, per-se, correlatively benefited their exports to Colombia, at least as far as diversification is concerned. The high concentration and the permanence of their principal products in export participation impede the making of any immediate and definitive generalizations in this regard at this level of analysis.

In the second place, the fact that Venezuela has not only been the member nation allowing Colombia trade the greatest relative use of tariff reductions but has also been the most "dynamic" market in the Andean area (on the average over the period of analysis) for Colombian exports to the point of converting itself into Colombia's "dominant" export market (with a participation of 60%) would suggest, in principle, that the tariff reduction mechanism was, in relative terms, of, at least, notable "effectiveness" for the case of Colombia exports to Venezuela during the period under consideration. However, Venezuela being a "natural border market" and the appreciable increase in the import capacity experienced by the Venezuela economy (especially during the latter half of the period of analysis) are important factors - perhaps even more important than the tariff reduction itself - in the evolution of Colombian export trade with that country. At any rate, this case stands out, up to this point, as the one in which the tariff reduction could have attained its greatest "effectiveness." In Sections II and III an effort will be made to shed further light on this particular question. Thirdly, the concentration of Colombia's subregional trade at the list level reaffirms,

once again, the relation existing between the structure of production and the structure of trade in the area and corroborates how certain goods with an important participation in that trade, goods that are derived from natural resources and in which the member nations have specialized with an undebatable advantage, have been the objects of tariff reduction 1. However, this is not as evident in the case of Colombia's subregional exports for the fact that, among other reasons, these receive a relatively greater industrial processing than do the country's respective imports (as was noted under-heading B) 2.

Prior to concluding this section, it is suitable to make brief mention of the participation of the national lists (a modality of the liberation program foreseen in LAFTA 3) in Colombia's trade with the Andean Group in order to begin an

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- 1/ This is clear for the case of Colombian imports from the subregion : Bolivia, tin ; Chile, copper and its derivatives, apples, bulk fish oils ; Ecuador, cocoa, fish and its preparatives ; Peru, zinc, fish oils ; Venezuela , crude petroleum oils.
 - 2/ According to the Junta, " With respect to the non-traditional goods sector, Colombia's exports have been, all told, three times greater, than its imports. More over, these exports represent the entire gamut of Colombian industry ... " (JUNAC, op.cit., p.141).
 - 3/ As its name suggests, the National Lists are lists of goods that are specific to each country and in which certain advantages are established for imports coming from determined partner nations.

inquiry into the possible effects that these may have come to exercise prior to the adoption of the Andean liberation program. As is shown in Table No.4, 43% and 72% of the value of Colombia's export and import trade with the Andean Group in its entirety during the 1966-1970 period involved goods corresponding to the National Lists. This same situation was characteristic throughout the subsequent 1971-1974 period. Although that pattern varied between certain countries (cases that stand out in particular are those of Colombian trade with Bolivia and Colombia exports to Venezuela, for both of which that participation was clearly less than average), the fact that its behavior did not, on the average, suffer appreciable variations from the time of the reconciliation of at least part of the National Lists and all the more so in the face of the failure to fulfill the commitments entailed would confirm, in principle, what various authors have already asserted to the effect that the lists were prepared in a manner that permitted the member nations to seek the consolidation of partner markets for some of their already exported goods via the adoption of reciprocal concessions.

Finally, it is possible to assert that in both periods there was a tendency for the benefits of the " potential " advantages to be derived from the National Lists to fall more to Colombia's imports coming from the Andean Group than to the country's exports to the same. However, it is necessary to reserve comment with regard to the advantages actually conceded within the framework of LAFTA and to their possible

effects on intra-zonal trade since, as the treaty's executive secretariat indicates, time has witnessed the almost generalized unfulfillment of the commitments agreed to in the National Lists ^{1/}. At any rate, the participation of the National Lists in regional trade is so important that they need be taken into account when evaluating the effects of the Andean liberation program (see Section III).

II GEOGRAPHICAL TRAJECTORY OF THE GOODS TRADED BY COLOMBIA WITH THE ANDEAN GROUP

In order to begin to explain the effects of the Andean liberation program on Colombia's foreign trade it is suitable to study the geographical trajectory observed by the goods

^{1/} One of the reason for this unfulfillment resides in the operational difficulties entailed in applying the concessions. In effect, the concessions were expressed in terms of ad-valorem tariffs, specific tariffs, and para-tariff restrictions. Given the eminently unstable nature of the ad-valorem effects of the latter mechanisms - and instability making the determination of the ad-valorem value of the concessions over time extremely difficult and the system of claims against unfulfillment almost inoperative - it is likely that the governments would have felt motivated to leave the agreements unfulfilled and accordingly, avoid finding themselves, at one time or another, in an unfavorable position (granting more and/or receiving less) in relation to what had been agreed upon.

that Colombia traded with the Andean Group during the 1966-1976 period. In addition to being interesting in its own right, the fact that the literature on the economic integration of developing countries frequently suggests that one of the principal advantages of an intrazonal market is that of serving as an export "platform" market (in particular, for "new" exports) for the partner nations ^{1/} makes this study an especially important one. Once this aspect is analyzed, one can proceed with greater assurance to studying the comparative dynamic observed by Colombian subregional trade during the periods before and after the Andean liberation program was put into operation.

Before preceding any further, a few brief methodological annotations are requisite. For the purpose of analyzing the geographical trajectory of the goods traded by Colombia with the Andean Group the world was grouped into different areas, namely: the Andean Group (in its entirety and at the individual member nation level), Central America and the Caribbean, the rest of LAFTA, and the "rest of the world" (particularly, with regard to Colombia's foreign trade, the United States, Canada, Western Europe, and Japan). The intention of this classification was one of seeking that each area grouping utilized in the study was relatively homogenous insofar as level of relative

^{1/} It is a "platform" market via "training" or "apprenticeship" (insofar as gaining knowledge of external markets, international standards of quality, trade and transportation channels, and the legal requisites for the import and export of goods) and via the increase in efficiency and competitiveness that the broadened market can provide (thanks, for example, to increases in production scale).

development, geographical distance, and tariff treatment were concerned, as a basis for arriving at more viable conclusions ^{1/}. Additionally, given that in order to assure a better understanding of the phenomena observed it was necessary to attain the greatest possible homogeneity for the basic unit of analysis, it was determined to work at the most disaggregated level that official statistics would permit - i.e., at the Nabandina tariff item level. Now then, due to the magnitude of the information required (annual information at the item level for Colombian trade with each one of the areas of study throughout the 1966-1976 period), it was necessary to select a sample of the items that Colombia traded with the Andean Group over that period. In order to avoid any doubts concerning the representativity of the sample in terms of member countries (of origen or destination), of the type of goods (according to productive sector), of liberation program lists, and of " new " goods (especially in the face of the high concentration of Colombian subregional trade at the item level), stratified samples (one for exports, the other for imports) were taken that would simultaneously fulfill the following conditions : the items chosen had to represent more than 90% of the value of Colombia's total export (or import, according to the sample) trade with each member country and with the Andean Group in its entirety, and more than 60% of the

^{1/} While the area " rest of the world " could have been disaggregated, this was unnecessary for the purposes of the present analysis and, moreover, would have entailed a more than considerable increase in the information to be processed.

value of Colombia's total exports (or imports) for each one of the lists and for each one of the groups of goods 1/ destined for (or coming from) each member country during the period. With this " quasi-universal " sample 2/ it was possible to practically avoid the introduction of apriori judgments into the analysis while, at the same time, facilitating the differentiation of the pattern observed according to each one of its basic characteristic elements 3/.

With respect to goods exported by Colombia to the Andean Group, it can be noted that, on the average, there is a tendency to export first to the partner country (countries), then , with a delay of approximately eight months, to the rest of the world and Central America, and finally, with a delay of more than two years, to the rest of LAFTA, noting

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- 1/ Eight groups of goods were chosen, namely : 1. Primary goods (agriculture/livestock and mining). 2. Food, beverages, and tobacco. 3. Textiles, clothing, and leather goods. 4. Wood products, paper and paper products, and printed matter. 5. Chemical products and substances. 6. Non-metallic mineral products. 7. Basic metals, machinery and equipment. 8. Goods of other industries.
 - 2/ 413 Nabandina items were selected in the export sample and 117 items in the sample of imports. As can be observed, the samples selected have all the characteristics requisite for being " populations " in themselves'.
 - 3/ In addition, it was borne in mind that " biases " could not be introduced into the comparison via the concept of sporadic trade not reflective of the " true " geographical trajectory between areas. Accordingly, the analysis was carried out with different minimum top ends on value traded and in " continuity " (year by year) for the trade in question. Nevertheless, the results were not significantly sensitive to the restrictions imposed, a fact which offers sufficient support for the conclusions derived from the present analysis.

that 65% of the goods selected had not yet been exported to that latter area as of 1976. The average subregional pattern is : Ecuador (but with a delay of seven months with respect to the Andean Group in its entirety) ; Venezuela, five months later ; Peru, nine months after Ecuador ; and finally Chile and Bolivia, with at least a two year delay.

Now then, in spite of the fact that, in principle, one would think that Colombia would tend to export first to the Andean Group, it is found that for the area of " the rest of the world, " the average delay (with respect to the Andean Market in its entirety) is equal to that which corresponds to the first member nation (i.e., Ecuador) ^{1/} The implication would be, at this level of analysis , that , on the average, the Andean Group has not necessarily been a " platform " market for Colombia exports. It can be observed as well that not only is there a tendency for Colombia's subregional exports to be destined first

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- ^{1/} It is necessary to point out that, in general, the first member nation in the trajectory has to demonstrate some delay in relation to the Andean Group in its entirety. Were it to be otherwise, would be to imply that this member nation was the market to which each and every one of the items that Colombia exports to the Andean Group was first directed which constitutes a highly unlikely situation in the case referred to here, Ecuador , as the first market destination for the average of Colombian subregional exports. shows a delay of approximately seven months with respect to the Andean Group in its entirety.
- ^{2/} The delays, in relation to the Andean Group in its entirety, for the " rest of the world" and for Ecuador are eight and seven months, respectively.

for its closest partner nations, especially its " border " markets, but also that, as of 1976, 53% of the items had yet to be exported to its remaining partners (Bolivia and Chile).

However, in order to arrive at a better understanding of the behavior observed, it is indispensable that the analysis be disaggregated at the level of the liberation program lists and by groups of goods. If one examines the two most important lists with regard to Colombian exports (that of no tariff reduction and that of automatic tariff reduction which, in combination, account for more than 93% of Colombia's total subregional exports during the 1970-1976 period), it can be found that both the intrasubregional and extrasubregional pattern practically did not vary among themselves, nor logically, in relation to the total average described above, but for the fact that for the list of automatic tariff reduction the delay for the " rest of the world " with respect to the Andean Group (in its entirety) disappears.

With respect to groups of goods it should be noted that : 1) The primary goods that Colombia exports are first traded first with Venezuela, then with Ecuador (with an average delay of 1.5 years with respect to Venezuela) and, finally, with Chile and Peru (with a more than 2.5 year delay), but there is no observable delay between the export of primary goods to the Andean Group and to the " rest of the world ." Colombian exports of industrial consumer goods to the Andean area are directed first to Peru 1/, later,

1/ However, Peru demonstrated a delay of approximately four months with respect to the Andean Group in its entirety.

with a delay of two years, to Venezuela, and, finally, with more than a 2.5 year delay, to Ecuador and Chile. The extrasubregional pattern, as opposed to the intrasubregional one, is differentiated by the type of consumer industry. While the Andean Group is the first area of export for alimentary goods (followed by the " rest of the world " with a seven month delay and by Central America and the rest of LAFTA with a more than 2.5 year delay), Colombia exports of textiles and clothing are directed to the Andean Group a year after (on the average) having reached the markets of Central America and " the rest of the world, " these latter two areas comprising the fundamental markets for Colombian exports of goods of this type. 3) Colombia's first subregional market for exports of intermediate goods is Ecuador, followed by Venezuela and Peru (with a delay of approximately one year), Chile (two years), and Bolivia (more than six years, with only 30% of the items under consideration being imported by Bolivia during the period in question). Although the behavior observed by the member nations did not vary according to the type of intermediate industry , the extrasubregional pattern did. Central America and the " rest of the world " are the first market destinations for Colombian exports of wood and paper intermediate goods (with these goods being received in these markets four months prior to their arrival in the first member country, Ecuador), but are second to the Andean Group (with delays of five and nine months, respectively) with regard to Colombian exports of chemical goods and non-metallic minerals ^{1/}. Colombian subregional exports of metalworking goods are directed first to Ecua-

^{1/} For Ecuador, the first member nation to which Colombian subregional exports of this type of goods were directed, there was a delay of two months with respect to the Andean Group in its entirety.

dor, then to Venezuela (with a delay of six months), then Peru (a delay of 1.5 years), and, finally, to Chile and Bolivia (with more than a 2.5~years delay) . While these goods were directed to Central America and the " rest of the world " with delays of, in relation to the Andean Group, 1.4 and 1.0 years, respectively 1/, the delay for the rest of LAFTA was greater than three years and 62% of the items under consideration were never exported to that area at all during the period of analysis.

On the basis of the preceding it is possible to arrive at some general conclusions. In the first place, it is clear that both at the average and sectoral (except for, to a certain measure, the industrial consumer goods sector) levels, the "border " countries were the first subregional markets for Colombian exports to the Andean Group during the period in question. In relation to these Ecuadorian and Venezuelan markets, the average delay for Chile and Bolivia was significantly (at the 99% level of confidence) greater than one year .

In the second place, although the Andean Group in its entirety was, on the average, the first regional market for Colombia exports, the pattern varied notably according to type of good. In fact, this behavior was characteristic of only four of the seven sectors considered 2/; in the remaining three sectors the " rest of the world " preceded the

1/ But with delays of approximately nine and five months, respectively, with respect to the first member nation (in this case, Ecuador) in the export trajectory.

2/ The four industrial sectors : foodstuffs, chemicals, non-metallic minerals, and the metalworking sector.

Andean Group in the regional trajectory for Colombia's exports.

Furthermore, in spite of the average behavior, it can be noted that : 1) Even in those sectors in which the " rest of the world " was preceded by the Andean Group in its entirety, the delay corresponding to the former was never significantly greater than one year ; the average delay being one of about eight months . 2) With respect to the first member country of destination (in this case, Ecuador), the delay for the " rest of the world " was never significantly greater than zero. Consequently, given the sectoral behavior described and the order of the magnitude of the delay for the " rest of the world , " it is not possible to assert, with statistical reliability, that the Andean Group has been, up until 1976, a " platform " market for Colombian exports.

In this regard it is suitable to also make mention of the fact that the above conclusion is all the more " definitive " if it is taken into consideration that the analysis carried out refers exclusively to goods exported by Colombia to the Andean Group. It is clear that there are other goods that have been exported to the " rest of the world " but that have not been directed to the Andean Group which would mean that in these cases there would be a delay for the Andean Group (as a market destination) with respect to the " rest of the world " that would tend to attenuate, if not cancel out, the average delay for the rest of the world with respect to the Andean Group observed here 1/.

1/ While the total number of Nabandina items exported by Colombia in 1974 was 1,692, the number of items directed to each partner country in the Andean Group was as follows : Bolivia, 147 ; Chile 112 ; Ecuador 507 ; Peru 359 ; and Venezuela 402.

Nevertheless, for the purposes of this study, the conclusion outlined is a sufficient one ^{1/}. If one were to desire some sort of final statement with respect to this subject, it would be that during the period of analysis the "border" markets (Ecuador and Venezuela, in particular) had a certain, albeit approximative, character of being "platform" markets for Colombia's intrasubregional exports but not for the country's extrasubregional exports. This conclusion is not a surprising one given the fact that these countries constitute the most important subregional markets for Colombian exports to the Andean Group (e.g., representing more than 80% of total exports during 1975-76) and are the markets to which those exports are directed with the greatest degree of relative diversification (see Section IC).

In the third place, despite the fact that it is not apparent that the Andean Group has been, at least up until 1976 (and in light of all the adjustments (insofar as to minimum top ends) realized regarding the volume and relative "continuity" (i.e., non-sporadic nature) of trade), a "platform" market for Colombian extrasubregional markets, this does not mean to in any manner imply that the sectoral distribution of Colombia's subregional exports is significantly equal to that corresponding to Colombian exports to the rest of the world. In fact, although the sectoral (2 digit C.U.D.E)

^{1/} The non-existence of significant delays between the Andean Group and the rest of the world not only avoids the introduction of harmful biases into the analysis of the regional temporal dynamic of Colombia's subregional exports but also is intimately linked to the insensitivity (in terms of statistical significance) of this analysis with respect to the geographical "control" areas (see Section III C).

structures of those exports have not varied appreciably during the period under consideration (see Section I B), it is clear that, in spite of the trajectory observed, the participation of Colombian subregional exports did vary between sectors. Accordingly, while exports of consumer goods to the Andean market represented only 10% of total Colombian consumer goods exports, Colombian subregional exports of intermediate goods and metalworking goods represented 40% and 50% of Colombia's total exports of such goods, respectively.

Now then, not only because of the geographical trajectory found, but also due to the fact Colombia's exports to the Andean Group of " non-traditional " goods have not been " predominant " among total Colombian exports of such goods, it is not possible to substantiate certain theoretical theses concerning the importance of the integrated market as a " platform " for Colombian exports ^{1/} nor others related to the geographical pattern according to the relative level of development of the countries of destination and the degree of " complexity " of the goods exported (among others, the well-know Linder thesis).

In the fourth place, the fact that the trajectory did not vary between lists and that the

^{1/} This conclusion is all the more appropriate for the case of LAFTA (or better, the rest of LAFTA), in as much as this is the market of greatest " delay " for Colombian exports.

" border " nations appear to have been a type of " platform " market for subregional (not extrasubregional, as noted above) exports poses some new questions regarding the " real " effectiveness of the liberation program with regard to Colombian exports during its first six years of operation.

With respect to the goods that Colombia imported from the Andean Group during the period of analysis, there was an observable tendency to import first from the " rest of the world, " then, with a greater than two year delay, from the Andean Group, then from the rest of LAFTA, and finally, from Central America (with the peculiarity that more than 70% of the items considered were never at any time imported from this latter area). The pattern at the level of member nation is, on the average, the following : Chile and Peru ; Ecuador and Venezuela with delays, in relation to Chile and Peru, of 1.5 and 12.0 years, respectively ; and, finally, Bolivia (with only 9% of the selected items coming from this country at one point or another during the period). The preceding would imply, at this level of analysis, that there exists a tendency for Colombian imports from the Andean Group to " displace " imports previously coming from the " rest of the world " and that this " displacement " occurs first through those member nations of the Andean Group that are the least near geographically and that cannot be considered as the relatively least developed (i.e., Peru and Chile).

The behavior at the level of each one of the two principal liberation program lists (that of no tariff reduction and that of automatic tariff reduction, with a combined

participation of 72% of Colombia's total subregional exports during the period) did not vary, in general terms, in relation to the total average, except for the delay corresponding to the " border " countries with respect to the " first " partner markets (Chile and Peru), that delay being one of 2.5 years in the case of the first list and one of 1.5 years in the case of the second. Insofar as groups of goods are concerned, mention should be made that : 1) Colombia's primary goods imports from the Andean area come first from Peru, then from Chile (with a 2.2. year delay with respect to Peru) and, subsequently, from Ecuador and Venezuela (with a delay of more than 2.5 years). 2) The pattern with respect to Colombian imports of industrial consumer goods does not depend on the type of industry in question ; these imports come first from Peru, then from Ecuador (with a delay of two and six years for foodstuffs and textiles, respectively), then from Venezuela, and finally, from Chile and Bolivia. 3) The first sub-regional sources for Colombian industrial imports of intermediate goods are Chile and Ecuador, followed by Venezuela (with but a minimal delay), by Peru (with a delay of over two years) and, finally, by Bolivia (with 85% of the items considered never having been imported from this country). 4) Colombia's subregional imports of metalworking goods come first from Chile, Peru, and Venezuela, and later, with a more than two year delay , from Ecuador). 5) The regional (not intraregional) pattern of the goods imported by Colombia did not vary by type of good.

On the basis of the preceding it is possible to make the following assertions : First of

all, at the list level there were no " significant " variations observable in both the intrasubregional and extrasubregional patterns of the goods that Colombia imported from the Andean Group during the period in question, but there were some significant variations between intrasubregional patterns at the level of groups of goods. Despite these differences, there exists a tendency for imports from the subregion to come first from one of the partner nations that is geographically less near to Colombia and that is not relatively less -developed (i.e., Peru and/or Chile), and then, with an average delay of approximately two years with respect to the first, from one of the " border " countries.

In the second place, not only are Bolivia and Central America the most " delayed " markets, but they are, as well, the country and area from which the lowest percentages of the selected import items originate. This result is closely tied to the low participation of these markets in total Colombian imports (e.g., from Bolivia 0.00% and 0.11% of total imports in the years 1970 and 1976, respectively ; from Central America 0.4% and 1.4%) 1/.

Thirdly, the fact that in the case of imports one can find a greater percentage of non-traded goods during the period suggests that Colombia's subregional imports entail a

1/ In addition, it should be remembered that one good alone represented 95% of Colombia's total imports from Bolivia during the 1970-1976 period.

greater concentration and specificity by country of origin than is entailed in the country's exports by country of destination. In this regard it was shown in section IC how the exports of the member nations (in particular, the relatively less-developed ones) to Colombia were relatively specialized in those primary goods (derived from natural resources) in which they possessed evident production advantages.

In the fourth place, it is clear that Colombian imports from the Andean Group have been displacing imports coming from the " rest of the world. " In principle, this would suggest a tendency towards a gross (but not necessarily net) diversion of Colombian trade as a result of its partnership in Andean Pact integration. Some additional observations with respect to this theme will be found in Section IV.

In conclusion, although it is not apparent that the Andean Group has been, up until 1976, a " platform " market for Colombian exports, subregional imports have been displacing goods that were previously imported from the " rest of the world . "

Furthermore, while the " border " markets have tended to be " platform " markets for Colombian subregional (not extrasubregional) exports, the partner nations that are the least geographically near to Colombia and that are not the relatively least-developed have been the first to " displace " third countries as sources for the goods Colombia imports. Finally, the behavior observed by Colombian trade during the period of analysis does not, in general, substantiate certain theoretical theses that have been put forth in the literature with regard to the geographical patterns of the foreign trade

of the less-developed countries. Though not included here for reasons of space, a detailed discussion of the content and "real" applicability of this general type of thesis will be offered in a later work.

III. THE INTEMPORAL COMPARATIVE DYNAMIC OF COLOMBIAN TRADE WITH THE ANDEAN GROUP.

A. Some Methodological Considerations.

Before presenting an analysis with regard to the dynamic effects of the Andean liberation program, it is appropriate that some allusion, albeit abbreviated, be made to several basic methodological aspects of the question. One of the most crucial problems that confronts the sciences (and especially, the so-called social sciences), both at the epistemological and theoretical levels as well as at the empirical level, is the problem related with the "isolation" of a specific phenomenon as an object of study. The intimate relation between the different elements that make up the social environment of any given phenomenon and the "irreproducibility" that is inherently characteristic of social phenomena make the so-called "separation" between the social sciences and the necessity of "isolating" phenomena into relatively autonomous compartments both rather dubious propositions; propositions that force one to resort to theoretical and analytical simplifications in attempts to describe social behavior. This is, however, an essentially epistemological problem and the purpose here is not one of delving into the issue of what constitutes, or should constitute, the nature of the "scientific method" appropriate to the study of social phenomena. Now then, given the acceptance of a "pure" demarcation of what is economics and, therefore, of what constitutes the object of study in economic science, what remains to be defined is what is an "individual and autonomous" economic phenomenon and

what are the " objective " analytical simplifications that are to be adopted in the analysis of such a phenomenon once, despite its non-reproducible and incontrollable character, it is " isolated."

In the case at hand, the central object of study is that of analyzing the effects of the Andean liberation program on Colombia's foreign trade. To a large extent, the identification of such effects as the object of study defines from the very beginning the theoretical and conceptual schema upon which the analysis is to be based. Given the nature of the object in question, it is clear that the study will be framed within the general schema of modern economic theory and, in particular, within the schema of the orthodox theory of economic integration. Although a schema of this type has notable deficiencies and limitations, for reasons of space, these will not be elaborated here ^{1/}. Nevertheless, via the methodology developed in this study, it is sought to avoid, as much as possible, the adoption of certain simplifying, apriori, but unnecessary assumptions that can be derived, at least implicitly, from the general schema in question.

If the object of study is to be considered as an individual object of interest (with all the implications that this entails), it is necessary to define what analytical

^{1/} The interested reader can consult, among others, Garay, L.J., " Una Síntesis Analítica de la Teoría Ortodoxa de la Integración", Desarrollo y Sociedad, N° 2, Bogotá, July, 1979, pp. 259-292.

simplifications directly correspond to the assumption of the phenomenon- to- be- studied's relative autonomy, and to do so with the understanding that, in constructing an " artificial " autonomy for the object of study, these simplifications can neither obfuscate nor alter the reality in which that object exists. In this regard it should be mentioned that there were at least four general phenomena acting upon Colombian foreign trade during the period under consideration. In addition to the Andean liberation program, these four phenomena consisted of the tariff reduction for the intrazonal trade of certain goods agreed to within the framework of LAFTA ; the adoption of Decreto 444, whose basic objectives included the stimulation and promotion of Colombia's non-traditional exports; and the notable expansion of world trade during the early 1970's. Other particular phenomena which may have been crucial to the evolution of Colombian trade could be cited as well - for example, the aforementioned increase in the import capacity of the Venezuelan economy beginning around 1973-74 . In light of all of the above, it would not be valid to make the apriori assumption that the subregional liberation program was the only phenomenon systematically affecting the behavior of Colombian foreign trade during the period of analysis. Quite to the contrary, it is indispensable that some investigation be made as to the relative importance of each one of the phenomena present, their spacial character, and the scope of their respective effects.

As is only logical, the adoption of simplistic assumptions regarding the effects produced by each phenomena can introduce " serious " distortions into the analysis. Taking spacial character, for example, it should be mentioned that although, in principle,

one would think that, for its more regional and localized character, the Andean liberation program would tend to have a comparatively more direct subregional effect on Colombian trade, the empirical evidence (as was shown in Section II) is such as to put an apriori assumption of that nature into doubt, at least insofar as Colombia's subregional exports during the period observed are concerned ^{1/}. Likewise, in spite of the " apparent " generalized effect on Colombian exports of both the export promotion policy (which has been designed without the explicit objective of discriminating between geographical areas of destination) and the expansion of world trade in its entirety, it is not evident that the respective effects of those factors have not been , in practice, regionally localized. For example, if the policy of subsidies is preferentially stimulating the goods that Colombia exports (presently or potentially) almost exclusively to Central America, that is not the deliberate intention of that policy (though that is what in fact has occurred), and if the expansion of world trade has been the product of the broadening of the developed nation markets, the effects of these two apparently generalized phenomena would be regionally localized as far as Colombian exports are concerned. The preceding obviously suggest the necessity of studying the comparative regional behavior of Colombian trade in order to explain which possible effects would be susceptible to being designated as being specific to each one of the phenomena acting upon that trade.

^{1/}Remember that the Andean Group has not been, at least up until 1976, a " platform " market for Colombia's extrasubregional exports.

Therefore, bearing the preceding argument in mind and seeking that the regionalization established for the analysis at hand be as homogeneous as possible (insofar as level of relative development, geographical locality, treatment of trade, spacial concentration of Colombian trade according to productive sectors, and the general evolution of the participating economies in each region) it was decided to group the world into the following areas : the Andean Group (taken both in its entirety and at the individual member nation level), the rest of LAFTA, Central America, and the " rest of the world " (in particular, the developed capitalist countries) ^{1/}. In this manner, the comparative regional analysis proposed makes use of at least four " control " areas so as to avoid, as much as possible, the concealment of the possible effects exercised by the different general phenomena .

Once having adopted these analytical simplifications, it is still necessary to define how the effects of the subregional liberation phenomenon will be studied, since the phenomenon itself is an irreproducible one. The only practical manner is to analyze the subject of study under alternative conditions - that is, in the presence and the absence of the phenomenon itself. In this case, given that the behavior of Colombian foreign trade is the subject of study and that the object of the study is the determination of the effects of the Andean liberation program, it is necessary to analyze the behavior of Colombian trade both before and after the program of liberation entered into effect. However, a intertemporal comparison would assume that all other factors remained constant during the

^{1/} The basis for not further disaggregating the area " the rest of the world " having already been explained in Section II, it is unnecessary to repeat the argument again here.

period of study which would not be a valid assumption for the case at hand (Decreto 444 was adopted before the Andean liberation program entered into effect and the expansion of world trade occurred in the period following). In the presence of multiple phenomena it is indispensable that the intertemporal comparison be complemented, simultaneously, by an inter-phenomenological comparison - that is, the comparison must be, at the same time both regional (between spatially different phenomena) and intertemporal (with respect to each phenomenon being studied). Accordingly, the present analysis must be both regionally and intertemporally comparative with respect to Colombian foreign trade. This is, precisely, the type of analysis employed in this investigation.

Nevertheless, if the number of affecting phenomena is less than the number of periods under consideration and if such phenomena are characterized by a certain level of diachrony, it is not, in general, possible to identify the effects that derive from each one of those phenomena. Only under special conditions is it possible to isolate - and more by exclusion than by inclusion - the effects that correspond to one or to several of the phenomena ; but not the effects that correspond to all of them. As will be seen under ensuing headings of this section, in spite of the fact that the present case corresponds to the general situation just outlined, the statistical results of the interregional intertemporal comparison are such as to permit one to arrive at conclusions, by exclusion, regarding the effects of the Andean liberation phenomenon on Colombia's subregional trade (as , in the strict sense, the subject of study) during the period under consideration.

The basic conceptual schema for the empirical analysis defined, one additional aspect of the analysis must be covered : the operationalization of the schema. For this it is necessary to go back once again to the object of study and to investigate what are the relations of object -subject behavior postulated for the theory that has been adopted as the frame of reference for this analysis. In a general and simplistic manner it is possible to assert that the orthodox theory of economic integration postulates that the liberation of intrazonal trade ought to tend, *ceteris paribus*, to stimulate, strengthen, and diversify the flow of trade between the member nations of the integrated area. It is of course clear that, according to this theory, not only does the reach of these effects depend upon various factors (among others : the degree of complementation between the participating economics, how much of the members' international trade is represented by trade between member nations, the magnitude of the zone of economic integration, and the level of national tariffs with respect to third countries), but also that such effects do not, per-se, necessarily imply increases in the welfare of all of the member nations 1/. Without entering into a discussion of the " viability " of the general postulates of the orthodox theory (especially with regard to the case of less-developed countries) nor attempting to qualify the level of unanimity that may exist with regard to those postulates, it is enough to point out that, even leaving the theoretical arguments aside,

1/ Remember that regional integration is a " sub-optimal " policy for orthodox theory ; the optimal policy, in the orthodox view, is perfectly free world trade - i.e., a complete integration between all of the countries of the world system.

these at least were the effects explicitly sought, via liberation, by the planners of the Cartagena Agreement.

On this basis, the theoretical subject of study would be, en rigor, Colombia's subregional trade. This implies that the analysis to be conducted be a regional intertemporal one of Colombian trade with the Andean Group. Now then, having defined the object and the subject of study, the general phenomena whose actions may be determining ones, and the analytical simplifications adopted for the investigation, what remains to be decided is how the object will be quantified and what will be the period of observation selected.

Usually the dynamics of trade over a given period have been measured in terms of the average annual growth rate of the value (e.g., in U.S.\$) traded. However , a measurement in terms of monetary value will not necessarily be representative of the " real " dynamic (in physical quantities) of trade, particularly in the presence of " significant " variations in the international prices of the goods traded - which is often the case for certain primary products (products that represent a high percentage of the foreign trade of the majority of the Andean countries). Accordingly, in order to obtain a " true " picture of the trade dynamic, i.e., the " real ," rather than the monetary, effects derived from a program of liberation, it is crucial that the usual measure be complemented by a measurement in terms of the physical quantity traded. In this regard, it is requisite that the basic unit of analysis be as homogenous as possible. The most disaggregated level at which official customs' statistics are tabuled (in the case

of Colombia, those published by DANE) is at the tariff item level, which is a level sufficiently close to the theoretical " ideal. " .

Another reason for the suitability if not the necessity , of working at the most disaggregated level possible is one related to the measurement of the strengthening and diversification of trade, in effect, in order to study the tendency towards diversification it is necessary to know the " real " intertemporal dynamism of the individual goods traded. This is all the more important, the greater the average degree of concentration during the period considered, since the average dynamism of trade tends to conceal its tendency towards diversification /concentration (at the good level) . A rate of average dynamism can very well correspond to a tendency towards concentration or towards diversification, depending on whether it concerns, respectively, a dynamism that is lesser or greater than the average of the goods with a high participation in trade at the beginning of the period under study. The example posed under heading 1A is clearly illustrative of this situation.

Despite the advantages of working at the tariff item level, some important difficulties of a statistical character exist for the interpretation of individual growth rates in the presence of a not unappreciable instability in trade at the item level, an instability which is characteristic of at least some less-developed countries (not only due to the instability of international prices for certain primary product exports but also for the " surplus " character of some of their " non-traditional " exports). For this reason, it is necessary

to carry out a statistical study with regard to the empirical results concerning individual dynamism as a minimal measure towards guaranteeing the reliability of the analysis.

Bearing these considerations in mind and with the purpose of assuring the statistical significance of the individual rates (at the item level) of average growth (during the period of observation), it was decided to conduct a statistical (t-student) analysis of those rates and of their variation with respect to alternative measurements. In addition to measurement in real and monetary terms, the following measures were employed :

1) Rate of annual growth without prefixed top end and with top ends of $\pm 600\%$, $\pm 300\%$, and $\pm 100\%$ ^{1/} ; and 2) rate of average growth within a period as the arithmetic average and as the weighted average of the corresponding annual rates ^{2/}.

Now then, given the magnitude of the information required and of the calculations to be carried out, it was necessary to select a sample of goods for the regional intertemporal analysis proposed. The selection of this sample fulfilled the conditions delineated in Section II, reason for which it is not necessary to repeat those conditions again here. It is suitable to point out, however, that due to the statistical theory behind the sample and to the number and level of participation of the goods selected, the sample obtained can be considered, in practice, as one in the same as the " population" constituted by Colombian subregional Trade (i.e., the subject of

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- ^{1/} The importance of the top ends resides especially in the (exogenous) definition of the magnitude of growth for the year in which trade begins (or is interrupted), i.e., when it passes from zero to having a value (or from having a value to zero).
- ^{2/} The algebraic representation of the measurements utilized is concluded in Appendix A.

study in the strict sense) during the period of analysis.

Mention has yet to be made of the selection of the period of analysis. To the large extent, pragmatic reasons determined the period selected. While the intention was one of, on one hand, covering the greatest duration of the Andean liberation program possible and, on the other, selecting a " comparable " period (comparable in number of years and in terms of the general behavior of Colombian trade) preceding the date upon which that program came into effect, the fact that 1976 was the most recent year for which item level statistics on Colombian foreign trade had been officially processed (although not published) when this investigation was initiated, determined this year as being the final year for the period of analysis. The selection of 1966 as the initial year, satisfied, for its part, the requisite of " comparable " periods. The definition of this period as the period of analysis implies, by necessity, that the present analysis refers exclusively to the short term effects of the Andean liberation phenomenon.

With respect to the selection of the period preceding and following the liberation program's coming into effect it is necessary to mention that the cut-off year had to be fixed in accordance with the year in which each one of the program's modalities entered into operation. Likewise, given that Venezuela joined the Cartagena Agreement in 1973, that year necessarily serves as the cut-off year for the analysis of Colombian trade with that country. Accordingly, the investigation took into account the following periods for the respective lists of the liberation program.

<u>List</u>	<u>Country (of origin or destination)</u>	<u>Prior period</u>	<u>Subsequent period</u>
Products without tariff reductions (but liberated) :			
	Bolivia and Ecuador	1966-70	1971-76
	Chile and Peru	1966-70	1971-76
	Venezuela	-73	1974-76
Products not produced, with complete tariff reduction :			
	Bolivia and Ecuador	1966-70	1971-76
	Chile and Peru	1966-70	1971-76
	Venezuela	-73	1974-76
Common List products with complete tariff reduction :			
	Chile and Peru	1966-70	1971-76
	Venezuela	-73	1974-76
Products subject to automatic tariff reduction :			
	Bolivia and Ecuador <u>1/</u>	1966-70	1971-76
	Chile and Peru	1966-70	1971-76
	Venezuela	-73	1974-76

1/ In this case the periods are valid only with respect to Colombian imports coming from Bolivia and Ecuador. For Colombian exports to these countries of goods corresponding to this list there are no prior and subsequent periods since, according to Article 100, Literal F of the Cartagena Agreement, the tariff reduction for these exports would begin starting December 31, 1966- at the end point of this study. It should be remembered that Bolivia and Ecuador received preferential treatment in the program of liberation.

<u>List</u>	<u>Country (of origin or destination)</u>	<u>Prior period</u>	<u>Subsequent period</u>
Metalworking products without tariff reduction <u>1/</u> :			
	Bolivia and Ecuador	1966-72	1973-76
	Chile and Peru	1966-72	1973-76
Metalworking products with complete tariff reduction :			
	Bolivia and Ecuador	1966-72	1973-76
	Chile and Peru	1966-72	1973-76
Metalworking products with automatic tariff reduction :			
	Bolivia and Ecuador	1966-72	1973-76
	Chile and Peru	1966-72	1973-76

A more detailed explanation of the definition of the lists of the liberation program is included in a later work.

Prior to concluding this discussion of methodological considerations, some brief allusion should be made to the source of the information utilized in the study. The annual statistics on Colombian foreign trade processed by DANE was the sole resource relied upon for the reason that, besides being the most consistent statistics during the period of analysis 2/, they refer to trade that was actually carried out (according to customs' registries). The quality of these statistics is broadly recognized.

1/ As of 1976 Venezuela had not been included in the Sectoral Program for the Metalworking Industry.

2/ Although at least three different tariff classifications were utilized during the period, making it necessary to manually code each item traded prior to 1973 according to the Nabandina classification (1973 being the year in which Nabandina was commonly adopted by the Andean nations).

In order to conclude this methodological discussion it is worthwhile to say that in order to comprehensively study " the short terms effects (in terms of dynamism, strengthening, and diversification) of the Andean liberation program on Colombian subregional trade " it is necessary to carry out a regional intertemporal analysis of Colombian foreign trade using (at least) the tariff item level as the basic unit of that analysis. It is in its aspect of regionality and in its basic level of disaggregation¹ in which reside the innovative nature and essential advantage of this study with respect to the most well-known studies realized up to the present with regard to other areas of integration - particularly, the European Common Market ^{1/}.

Needless to say that in order to design an analytical schema that is adequate to the objectives set forth, a full understanding of the object and subject of study and of the problems entailed in the isolation of the phenomena whose action may be determinant are both requisite. Such an understanding is only possible once one has reviewed the diverse levels of analysis, from the most general (e.g., methodological and theoretical levels) to the most specific (e.g., the operational level).

^{1/} The interested reader can consult, among others : Balassa, B., " Trade Creation and Trade Diversion in the European Common Market : An Appraisal of the Evidence, " In Glejser, H. (ed.), Quantitative Studies of International Economic Relations, North Holland Publishing Company, 1976, pp. 91-133.

The present discussion has covered the basic characteristics of the methodology utilized in this investigation ; where pertinent, other methodological details will be alluded to in the presentation of the findings of the study. The operationalization of the methodology is included in the Appendix.

B. Descriptive Analysis

Having defined the object, the subject, and the phenomena specific to the study and having developed the general methodology to be followed in the investigation, it is possible to proceed with the empirical analysis. Now then, due to the character of the liberation mechanism, a study of its effects can not solely focus on the average observable behavior of the trade to which the mechanism is applied, but must address specific characteristics that define the behavior " of the population " as well. Accordingly, the coverage of the study must be from the most general and descriptive qualitative level to the most specific and conclusive quantitative level. In other words, the study must encompass both the description of the " average " behavior as well as the statistical inference of the " population " behavior. For this reason the empirical analysis has been subdivided into three successive levels, namely : descriptive, statistical, and correlational. The present heading deals solely with the descriptive analysis, the other two levels being covered under subsequent headings. The reader who is not interested in descriptive details can pass over this part and move directly on to headings C and D (particularly the latter).

The first fundamental question that arises with regard to this investigation of the short term effects of the Andean liberation program on Colombia's subregional trade is : are there observable variations in the behavior of Colombian trade with the Andean Group in the periods prior to and after the Andean liberation program came into effect? And if there are, what were they in terms of relative stimulation and diversification? In order to respond to the first question it is necessary to quantify the intertemporal behavior that that trade observed (in particular, with regard to dynamism and concentration).

The simplest and most indicative manner of doing this consists in measuring the differences in dynamism experienced by each one of the items traded by Colombia with the Andean Group during the two periods of interest and tabulating the percentage of items (in numbers) and of value (e.g., in US\$) traded for which this difference is positive (or negative, as is the case). If the difference (i.e., the figure for the later period minus the figure for the earlier period) is positive, this would imply that the item in question experienced an average annual growth during the latter period greater than that which characterized the former period and that, in principle, the dynamism of Colombian trade with respect to this item would be satisfying the behavior theoretically foreseen or, at least, desired by the planners of the Cartagena Agreement via the adoption of the liberation program. The implication would be just the opposite if, *ceteris paribus*, the difference (i.e., the figure for the later period minus the figure for the earlier period) was negative.

With respect to behavior in terms of diversification, it could be asserted that the lesser (greater) the percentage of items traded that satisfy the condition of a positive difference

and the relatively greater (lesser) their participation in total trade, the greater (lesser), *ceteris paribus*, is the tendency towards the average concentration of the trade observed, at least insofar as the inferior (superior) end of the accumulated distribution is concerned. A more definitive conclusion would depend on the concentration (by goods) of that trade at the beginning of the period and on the evolution of the items that were most important, in terms of participation, at that time. On the basis of these calculations it is possible to describe the " average " behavior with regard to the aspects relevant to this investigation .

The difference in the dynamism between the two periods has been termed here intertemporal dynamism. The algebraic expression of this terms is included in the Appendix B.

Looking solely at the variations in intertemporal behavior (without yet examining interregional differences) of Colombia's subregional exports during the reference period it is found that while there were differences between countries of destination, at least 35% (except) for Ecuador with 45%) of the items traded had a positive intertemporal dynamism, these items representing a maximum of 36% of the total value of Colombian exports during the period. Nevertheless, in order to achieve a better idea of the behavior and, in particular, of the " possible " effects of the liberation program, it is necessary that the analysis be disaggregated at the list level. Observing the behavior between lists (particularly between the lists with no tariff reduction and the rest of the lists) it can be noted that, on the average, while the percentage of items with a positive intertemporal dynamism exported by Colombia to the not relatively less-developed member

nations was greater (up to 25% ¹greater in the case of Venezuela) in the lists with some tariff reduction, the participation in value of the items that satisfy the condition of a positive intertemporal dynamis is similar between lists. For the case of Colombian exports to the relatively less- developed members, the percentage of items with a positive intertemporal dynamism was clearly lesser (by up to 60%) for the lists with a tariff reduction (see Table N°5).

On the basis of the preceding it would be possible to assert, albeit in a preliminary manner, that : 1) While , in principle, one cannot note the liberation program having a " definitive effect " on Colombia's subregional exports insofar as stimulation in terms of percentage of items is concerned, there is some evidence suggestive that liberation has had a possible effect on export items destined for the not relatively less-developed members (especially Venezuela ; which would tend to corroborate what was already suggested in Section ID). 2) In spite of the fact that exports to Ecuador would be the exports that, at the average level, " best " satisfy the behavior postulated, the fact that their intertemporal dynamism is greater for the list of no tariff reduction than for those with a reduction (up to 150% insofar as percentage of items is concerned) clearly puts in doubt the importance of the effect that one might initially assign to that tariff reduction. 3) If, at this point, one were to suggest some tendency towards the diversification of Colombia's subregional exports during the period, this diversification would basically be in the superior end of the distribution of accumulated participation ¹/₂. This tends

¹/₂ It should be remembered that 64 items (the equivalent of 15% of the items selected) represented 60% of Colombia's total exports to the Andean Group during the 1970-76 period (see Table N°2).

to reinforce what was suggested in Section IC .

With respect to Colombia's imports coming from the Andean Group (see Table N°) just 16% of the items achieved a positive intertemporal dynamism. But while the behavior in terms of percentage of items did not vary between member nations (except for the case of Bolivia with only 5%), that corresponding to percentage of value did. In effect, the percentage of the value of the items that fulfilled the condition of positive intertemporal dynamism was, by country of origin : Bolivia, 98% ; Peru, 61% ; Ecuador 31%; Chile, 27%; and Venezuela, 20%. In the case of imports behavioral differences between lists were again evident, in a much as, with the exception of the Chilean case, the percentage of items with a positive intertemporal dynamism was greater for the list of no tariff reduction than for those lists with some reduction (from 8% in the case of Peru to 60% in the case of Venezuela).

On the basis of the above, it is possible to make several observations. In the first place, it does not appear that, as of 1976, the program of liberation has had a definitive effect in terms of the average dynamization and average diversification of Colombia's trade with the Andean Group. In the second place, if there has been some "significant" effect this would be, in principle, greater for the case of exports (particularly those destined for the not relatively less-developed member nations) than for the case of Colombia's imports from the subregion. Thirdly, there is some evidence of a tendency towards the diversification of Colombia's trade with the Andean Group , but this tendency

is essentially at the upper end of the accumulated distribution 1/. In the fourth place, Colombian subregional exports had, on the average, a greater intertemporal dynamism (insofar as the percentage of items that fulfilled that condition) and a greater relative diversification (in the final deciles of the distribution) than did the country's imports from the subregion. This latter characteristic is particularly notable for the case of Colombian trade with the relatively less-developed member nations 2/.

Now then, in the immediately preceding discussion it was assumed that the sole phenomenon acting upon Colombian subregional trade during the period under consideration was the Andean liberation program, or better, that the program was the only phenomenon that ought to have been systematically affecting the behavior of Colombian trade with the Andean Group during the periods prior to and after that program came into effect. However, the presence of additional phenomena that could have been " significantly " effecting the intertemporal behavior observed - as could have occurred in this case in the manner referred to under the preceding heading - would invalidate the type of aprioristic (of ceteris paribus character) assumption adopted and, therefore, would put in doubt the " veracity " and basis

1/ Colombian imports coming from Bolivia would constitute the one possible exception.

2/ The ratio of the percentage of export items to the percentage of import items that fulfilled this condition is, by member country : Chile, 1.17 (the percentage of export items that experienced a positive intertemporal dynamism was 17% greater than the percentage of import items that did so) ; Venezuela, 1.80 ; Peru, 2.16 ; Ecuador, 2.80 ; and Bolivia, 4.41.

of the conclusions emanating from the analysis, due to its, among other things, oversimplifying nature. Accordingly, in order to achieve a desirable level of rigor in the analysis it is requisite that the preceding analysis be complemented by one addressing the interregional behavior (Andean Group ^{vs.} the other geographical areas, i.e., the so-called " control " areas) of Colombian trade during the respective periods of analysis. In other words, it is necessary to effectuate an analysis of the regional intertemporal dynamism of the goods traded by Colombia with the Andean Group. The measure of the regional intertemporal dynamism is a mere extension, i.e., a regional one, of the measure of intertemporal dynamism (the algebraic expression of which is included in Appendix B). Prior to continuing, it should be noted that at this descriptive level it is only possible to make reference to the combined effect of the acting phenomena, without differentiating between possible individual effects . That differentiation corresponds to the correlational analysis (see subsequent heading D) .

With respect to the relative intertemporal behavior (at the tariff item level) of Colombia's exports to the Andean Group vis- à-vis the country's exports to the " rest of the world " (in this case , the geographical " control " area of reference), it can be appreciated that less than 45% of the items exported by Colombia to the Andean area had a positive regional intertemporal dynamism. This behavior, according to members country of destination, varied between program lists. Accordingly, while Colombian exports to the relatively less-developed partner nations experienced a lesser regional intertemporal dynamism (in terms of percentage of items) under the list of tariff reduction than under

the list of no tariff reduction (up to 45% for exports destined for Ecuador), the opposite occurred (up to 25%) for exports directed to Venezuela. No differences were observed between lists for the cases of exports to Chile and to Peru.

Consequently, it can be pointed out that : 1) The " net " effect (in dynamization) of the phenomena acting, in their entirety, on Colombian exports to the Andean Group during the period of reference is relatively greater when simultaneous account is taken of the regional intertemporal differences than when consideration is given to intertemporal differences alone. 2) The behavior between lists suggests that, except for the case of Venezuela, the possible effect of the liberation program does not appear to have been as important as would be inferred from the analysis aggregated at the level of the member country of destination. At any rate, the Andean liberation has probably had a greater effect - with respect to the average for the case of Colombian exports to Venezuela, these exports being precisely those that experienced a greater interregional growth in the period following the liberation programs taking effect (see Section IA). This would confirm, at this level of analysis, that which was asserted in Section I, i.e., that the tariff reduction mechanism could have attained a " notable effectiveness " if not the greatest relative effectiveness - in the case of Colombia's exports to Venezuela. 3) Colombia's subregional exports have demonstrated during the period of reference a certain tendency towards diversification (at least at the upper end of the accumulated distribution) in relation to the country's exports to the " rest of the world ". This observation is corroborated by what was shown in Section IC.

For its part, 31% (except) for the case of Venezuela with 44%) of the items that Colombia imports from the Andean Group demonstrated a positive intertemporal dynamism (with respect to the " rest of the world. ") The participation in value of the goods that fulfilled that condition was, by country of origin, as follows : Chile, 10% ; Ecuador , 30 % ; Venezuela, 46 % ; Bolivia , 47% ; and Peru 55%. The behavior between lists was such that, with the exception of Colombian imports coming from Bolivia, the percentage of items with a positive regional intertemporal dynamism was less under the list with tariff reduction than under the list with no tariff reduction (from 16% for the case of Venezuela to 50% in the case of Chile). The preceding results would suggest that the " net " effect of the phenomena present on the dynamism of Colombia's subregional imports would be even less than that corresponding to Colombia's exports to the Andean Group and that, having a tendency towards import diversification (at least at the upper end), this tendency would be the most important in the cases of Ecuador and Venezuela as markets of origin that are, after Bolivia, the member nations with the greatest degree of concentration in their exports to Colombia at the beginning of the period of reference and that constitute Colombia's " border " markets.

On the basis of the preceding descriptive analysis of the behavior observed by Colombia's trade with the Andean Group during the period of analysis it is possible to arrive at some general conclusions of a preliminary character. In the first place, the " average " behavior described turned out to be relatively independent (in qualitative terms) of the type of

comparative analysis utilized (particularly, intertemporal and regional intertemporal) and of the geographic " control " areas used as a reference for the regional comparison. This would imply, at this level of analysis, that the " net " effect of the acting phenomena has not been significantly differentiated by regions. If this were the case, it would be possible to " isolate " the effects that are specific to at least some of the phenomena that are going to be studied in this investigation (this point will be developed with greater clarity in Section III C).

In the second place, whatever the actual magnitude of the " net " effect of the participating phenomena, taken in their entirety, and of the program of liberation, taken by itself, this would appear to have been greater for the case of Colombia's exports to the Andean Group than for Colombia's subregional imports. This is due not only to the percentage of items that fulfill the conditions postulated, but also to the " average " behavior at the level of the different lists of the liberation program. However, in order to give a more " definitive " judgment it is necessary to estimate the distribution of the magnitude of that effect by the lists of the liberation program. This becomes all the more relevant the less equally distributed the trade between the lists (which is precisely the case at hand, as was shown in Section IC).

Thirdly, if the Andean liberation program had some " significant " effect up until 1976, this effect would be the most " notable " for the case of Colombian exports to Venezuela, these exports showing a greater average interregional growth during the period subsequent

to the Andean liberation program's coming into effect and being the most equally distributed (in relative terms, of course) between the principal program lists (see Table N°3). This would corroborate what was suggested throughout Section I. However, the characteristics specific to the evolution of the Venezuelan economy during the period could make the effect of the Andean liberation program a possibly lesser one (if there was one) than what would be initially suggested.

Fourthly, there is a certain observable tendency during the period towards the diversification, at least at the upper end of the distribution, of Colombia's trade with the Andean Group vis-a-vis Colombian trade with the " rest of the world." However, the " intensity " of this tendency varies between member nations and according to the comparative analysis made.

In the fifth place, the " average " behavior is found to be " qualitatively " independent of the concept of dynamism (" real " and monetary) and of the various measures of annual (without top end and with top ends of $\pm 600\%$, $\pm 300\%$, $\pm 200\%$, and $\pm 100\%$) and periodic (arithmetic and weighted averages) growth utilized in the analysis. It was for this reason that reference was made in the presentation to the different types of measurement.

Finally, it is important to point out the similarity between the general behavior observed in the intertemporal analysis and in the regional intertemporal analysis. This offers a certain " solidity " to the descriptive conclusions derived from them.

C. Statistical Analysis

Up to this point allusion has been made to the possible influence of the participating phenomena on the behavior of Colombia's subregional trade. The next step is to determine if that influence is a " significant " one and what is its " magnitude." In order to explain the " magnitude " of the " net " effect of the participating phenomena in their entirety it is necessary to statistically analyze the average value of the regional intertemporal dynamism of Colombia's trade with the Andean Group during the period of analysis 1/.

First considering the case of exports (see Table No 7), it is found that the average regional intertemporal dynamism (with respect to the " rest of the world ") was significantly negative, at least at the 10% level of reliability, for exports destined for Chile, Ecuador, and Peru, and positive (at the 0.5% level of reliability) for exports to Venezuela. The behavior between lists, at the level of country of destination, is such that for all of the lists considered exports to Venezuela had a positive average dynamism (at the 2.5% level of reliability), those directed to Chile had a negative average dynamism (at the 10% level of reliability) and the average dynamism for exports to Peru was not significantly different from zero ; Colombian exports to Ecuador experienced a negative dynamism (at

1/ This consists of a statistical analysis of the averages based on the t-student distribution .

least at the 10% level of reliability) for the list of no tariff reduction and a dynamism significantly equal to zero for the list with tariff deduction ; the case was just the opposite for Colombia's exports to Bolivia.

Several conclusions can be extracted from the preceding : 1) The "net" effect of the phenomena present on the regional intertemporal dynamism (" rest of the world ") of Colombia's exports to the Andean Group has been significantly positive for the case of exports destined for Venezuela, but negative for those directed to the rest of the member nations (with the exception to exports to Bolivia where the dynamism is null) . Once again it is reaffirmed that Colombian exports to Venezuela are those that have enjoyed the greater positive " net " effect during the period. 2) The little variability (at the country level) of the dynamism observed by Colombian exports according to lists suggests the " effect " of the liberation program has still been insufficient to " counteract " the effects of the other phenomena acting in a different " direction " ^{1/}. In other words, even in the case in which its own effect has been positive, it appears that other phenomena, different from the liberation program, are systematically affecting, and with a greater intensity, the regional intertemporal dynamism of Colombia's subregional exports.

^{1/} For example, if another affecting phenomenon, different from that of Andean liberation, was the expansion of the developed market during the period subsequent to the liberation program's taking effect, it is possible that the " net " effect was the preferential promotion of Colombian exports to the developed countries, independent of the particular list to which they corresponded.

With respect to Colombia's subregional imports (see Table No 8) it can be appreciated that their average regional intertemporal dynamism ("rest of the world ") during the period has been significantly negative (at least at the 2.5% level of reliability) for all of the member countries of origen (except) for Venezuela which did not differ from zero) both at the general level and at the level of the different lists considered. This again, suggests that the Andean liberation program has been ⁱⁿ sufficient to generate a significant dynamic on Colombia's subregional trade vis - a - vis Colombian trade with third countries. Needless to say that these general characteristics agree with those deduced from the simple descriptive analysis.

Now then, in spite of the fact that the average behavior described does not suffer significant alterations (at least in terms of the t - student test) with respect to the concept of dynamism, nor with respect to the measures of annual and average growth, nor with respect geographical " control " areas used as references, in order to arrive at more definitive conclusions it is necessary that the regional intertemporal analysis be complemented by intertemporal analyses and regional analyses conducted separately. On the basis of these it will be possible to explain the possible statistical magnitude of the individual effects of one or some, but not necessarily all, of the participating phenomena.

The regional, but not the intertemporal, behavior of Colombian trade with the Andean Group during the period following the liberation program's taking effect is significantly

equal (with regard to the statistical t - student tests) to the regional intertemporal behavior recently described. This would corroborate, to a certain measure, the conclusions posed up to this point. In addition to the utility of this regional analysis insofar as the definition of some individual effects is concerned, it is of crucial importance to beginning to study the statistical " sensitivity " of the behavior observed with respect to the period defined as preceding the Andean liberation program. The fact such behavior does not appear " sensitive " to the preceding period selected gives an even greater reliability to the results found here. As will be remembered from heading A, the selection of that period, as opposed to the rest of the methodology utilized, was determined, above all, by reasons of a pragmatic character, which, in a given moment, could have introduced undue " biases ", whose magnitude and direction would have been apriorally unforeseen, into the conclusions.

For its part, the intertemporal analysis shows that while Colombian exports to all of the member nations (with the exception of Venezuela) and Colombia's imports from Bolivia experienced a significantly positive intertemporal dynamism (at least at the 10% level of reliability), exports to Venezuela and Colombian imports from all of the member nations (except Bolivia) did not observe statistical differences in dynamism between the periods prior to and after the liberation program went into effect. In addition, at the country level no significant differences (in t - student terms) can be found between the liberation program lists. The relevancy of this finding is noted in demonstrating how, in the case where there has most clearly been a positive " net " regional intertemporal effect (i.e.,

the case of Colombia's exports to Venezuela and, therefore, the case in which one would expect, from the beginning, the Andean liberation program to show a greater relative effect), the fact is that its intertemporal dynamism appears to be significantly equal to zero 1/, which would imply that the corresponding " real " effect of that program has been less than what the analysis has suggested up to this point.

The statistical t - student analysis regarding the intertemporal, regional, and regional intertemporal dynamisms observed by Colombia's trade with the Andean Group during the 1966-76 period poses, among other interrogatives, a crucial question which is related with the significance of the specific effect of the Andean liberation program which is, precisely, the object of study in this investigation. In the face of this situation it is imperative to carry out an analysis that is more rigorous than the t - student analysis with regard to the behavior between program lists. The analysis of variance is the most adequate to this purpose in as much as it permits the verification of the presence of significant statistical differences in the behavior observed by different different strata of the population (in this case, between the lists) 2/.

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- 1/ The fact that Colombian exports to Venezuela may have observed an intertemporal dynamism significantly equal to zero does not contradict the fact that its regional intertemporal and regional dynamisms may have been positive. What this could mean is that such exports had a positive average dynamism throughout the entire period of reference, but without significant differences between subperiods. This is, precisely, the situation observed .
- 2/ For this analysis all of the lists adopted with regard to the Colombian case as of 1976 are taken into consideration. A description of these was offered in Section 1D.

This analysis shows that the regional intertemporal dynamism of Colombia's trade with each member of the Andean Pact has not varied significantly (at least at the 5% level of reliability) between program lists during the period of reference 1/. This suggests again, and all the more definitively, that if the liberation program has had, up until 1976, some effect on the behavior of Colombian subregional trade, this effect has not been sufficient to make a significant difference (in statistical terms) in the dynamism observed by the goods subject to liberation (in the broad sense) and all other goods.

In order to be certain that the behavior covered to this point is not differentiated by type of goods (according to their technical - economic production characteristics), as would be suggested by some theoretical theses and as would be expected from the beginning due to the structures of production (disarticulated and externally dependent) and trade of the member nations, it was decided to conduct an analysis of variance by groups of goods 2/. No significant differences were found (at least at the 5% level of reliability) in behavior (dynamism) between types of goods, on the basis of which it is possible to conclude that the dynamism observed is not related, statistically, with

1/ There were only differences at the 5% level of reliability in the regional dynamism of Colombia's exports to Peru and in the intertemporal dynamism of Colombian imports from Ecuador.

2/ The eight groups of goods selected in Section II were utilized.

the technical - economic characteristics of the goods traded by Colombia with the Andean Group during the period of analysis.

Finally, it is possible to arrive, at this level of analysis, at the following general conclusions. In the first place, the " net " effect of the participating phenomena on the regional intertemporal dynamism of Colombia's trade with the Andean Group was significantly negative (except for exports to Venezuela which came to be positive and for imports coming from Bolivia which was significantly equal to zero). This implies that the liberation program did not, as of 1976, manage to generate a positive intertemporal dynamism for Colombian subregional trade in relation to Colombia's trade with third (i.e., non-Andean) countries. The only exception to this is the case of exports destined for Venezuela, but in this case the effect of the liberation program itself has to be less than what was initially suggested, in as much as its respective dynamism (intertemporal and not regional) did not vary significantly between the periods prior to and following the liberation program's coming into effect, even and in spite of Venezuela's being a " border " market, its economy having experienced an " appreciable " increase in import capacity during the second period 1/ , and its having been the partner market (of destination) with the greater average dynamism throughout the entire 1970-76 period.

In the second place, the effect in terms of intertemporal dynamism (and even regional intertemporal dynamism) of the liberation program could have been still less, although not necessarily with statistical significance, for Colombian subregional imports than for

1/ The average annual rate of growth of Venezuela's total imports was 36.68% during the latter period while only 9.79% during the period prior to liberation.

Colombia's subregional exports during the period. In effect, while the Colombian imports coming from the Andean Group (excluding Bolivia) had, once the program was in operation, as intertemporal dynamism inferior to that observed during the preceding period, the opposite occurred with regard to Colombia's subregional exports (with the exception of those destined for Venezuela). This finding is closely linked with the relative level of concentration of Colombia's subregional imports and with their pattern of specialization (with the preferential tendency being for goods derived from natural resources - goods for which the partner nations have possessed undeniable production advantages since prior to the signing of the Cartagena Agreement) 1/.

In the third place, the non-differentiated behavior between lists of Colombia's trade with the Andean Group reaffirms, once again, the first conclusion arrived at above. At this point it is necessary to call attention to the fact that in order to understand the effect specific to the program of liberation it is requisite to differentiate the individual effects of its two basic mechanisms. While the elimination of restrictions of all types can produce important effects, even greater than those produced by automatic tariff reduction itself, and effects that are all the more important the greater their equivalent effect in terms of protection (as would not be surprising to find in a not unappreciable number of cases in the subregion), the behavior observed between lists suggests the absence of significant

1/ See headings IB and IC.

effects as a result of that elimination (i.e., as a result of the liberalization, in the strict sense, of intrasubregional trade. The following level of analysis, i.e., the correlational level, will seek to offer greater clarity with regard to this theme.

Fourthly, the fact that significant differences were not found in the regional intertemporal behavior between the diverse geographical areas of control, would imply that the participating phenomena, in their entirety, did not have specific, differentiated " regional " effects (in statistically significant terms). If this were the case, it would be possible to identify, albeit by exclusion, the individual effects of an entirety of phenomena supposedly related with the dynamism of Colombian subregional trade. As will be seen under the following heading, this is what occurs with the phenomena explicitly^{studied} in this investigation.

In the fifth place, the fact that the concordance of the conclusions derived from the statistical analysis with those obtained from the descriptive analysis is a marked one, once again reinforces those some conclusions. This is a particularly useful finding since, as was mentioned under heading A, important difficulties of a statistical character can exist for the interpretation of individual rates of growth (at the item level) in the presence of a not unappreciable instability in the trade of such goods. While statistical checks regarding the significance of the individual rates calculated and regarding the sensitivity of these rates to alternative measures were conducted in order to assure the reliability of the analysis 1/, it was, at any rate, crucial that the findings were

1/ Statistical significance was checked at the level of each item through a t - student test of the average rates of growth for the periods prior to and following the liberation program's taking effect. It should be noted that the greater the instability of trade at the item level, the greater the dispersion in the annual rates of growth and the lesser, ceteris paribus, the statistical significance of the corresponding average rate of growth.

consistent throughout the entirety of the investigation.

In the sixth place, it is of interest to have demonstrated that the behavior did not vary significantly between types of goods and that, consequently, the differences in the technical -economic characteristics of the goods traded have not been so determinant so as to have a differential effect on the regional intertemporal dynamism of Colombia's trade with the Andean Group.

Finally, the fact that the behavior observed was not statistically dependent on the concept of dynamism, nor on the alternative measures, nor on the areas of "Control" utilized, offers a "desirable" basis of support for the conclusions that have emanated from this analysis.

D. Correlational Analysis

Having completed the basic descriptive and statistical levels of the analysis, what still remains to be investigated is in what manner and to what extent the "net" effect found corresponds to the participating phenomena. For this it is requisite to possess some type of hypothesis regarding the entirety of the "relevant" phenomena that ought to have been, at least in principle, systematically affecting the subject of study during the period of analysis. Under heading A it was mentioned that during the 1966-76 period there were, in addition to the Andean liberation program, several other general phenomena that were important. These included : the tariff reduction on the intrazonal trade of certain goods under LAFTA, the adoption of Decreto 444 of 1967 in Colombia, the expansion of

world trade in the early 1970's and the economic fluctuations that characterized several, of the member nations (especially the increase in Venezuela's capacity to import and the balance of payments deficits of Peru and, to a lesser degree, of Chile towards the end of the period under consideration). Accordingly, if it is believed that these are the " principle" participating phenomena, it is necessary to proceed to investigate to what measure each one of them is related to the " net " effect observed. However, the preceding assumes that all of the phenomena to be studied are clearly " isolatable " and identifiable. If they are not, only under certain very special conditions would it be possible to " isolate," more by exclusion than by inclusion , the effects specific to each one of them.

The analysis regarding the possible effects of the different phenomena was conducted in two successive stages. The first stage consists of a multiple correlational analysis carried out at the level of each member nation and the second consists of a multiple correlational analysis of all of the members considered simultaneously (but not in aggregated form). Once again, the tariff item level is the basic unit of analysis.

Prior to continuing any further, a clarification is requisite. Up to this point the analysis has yet to explicitly address the fact that the Andean liberation program is shaped around two basic conceptual mechanisms that are operationally different from one another. These two mechanisms are : the tariff reduction proper and the para-tariff liberation, i.e., the elimination of restrictions of all types on intrasubregional trade. This being the case, if it is desired to understand the individual effects specific to the program, it is requisite

that those effects be differentiated according to the mechanism to which they correspond. Such a differentiation is all the more urgent the greater the importance assigned to para-tariff restrictions in the foreign trade policies of the countries considered, that importance being considerable in the cases of some of the Andean countries (e.g., Peru and Colombia). Under such circumstances the individual effects can come to be significantly different from another which would lead to, among other things, conclusions regarding economic policy that would be of particular interest 1/. Now then, given that restrictions of all types were to be eliminated by no later than December 31, 1970 (except for the products reserved for industrial programming and the products imported by Bolivia and Ecuador, for which the elimination was to be effected at the moment in which the corresponding tariff reduction was initiated 2/), and due to the elevated concentration of Colombia's subregional trade in the automatic tariff reduction and reserve lists, it happens that the study of the behavior between lists would be one that would observe, in general, the two effects taken in their entirety and not separately. Accordingly, the necessity of such a differentiation is all the more evident in the case at hand.

The present level of analysis seeks to respond to this very necessity. In order to do so, a type of correlational analysis is developed that permits the differentiation of the statistical relation existing between the regional intertemporal dynamism and the margins of preference granted for the concept of each one of the mechanisms of the Andean liberation program.

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- 1/ For example : In the cases in which a " quasi-prohibitive " restriction is applied to imports coming from third countries ,but is eliminated for those coming from partner nations, this would be equivalent to, at least theoretically, an "infinite" tariff reduction. Its effect would probably be greater than the tariff reduction of several percentage points.
- 2/ Article 46 of the Cartagena Agreement.

1. At the individual country level.

At this stage the intention is one of studying up to what point two of the selected phenomena, the Andean liberation program and the LAFTA tariff reduction, are statistically related with the " net " effect observed on Colombia's subregional trade during the period of reference .

For this purpose a system of multiple correlation was utilized that relates, at the item level, the regional intertemporal dynamism of trade with the corresponding margin of tariff preference for the concept of the Andean Tariff reduction and with some " proxies " (via " dummy " variables) of the margins of para-tariff preference implied in the subregional liberation and in the National Lists of LAFTA conceded to that trade by the partner country of reference ^{1/}. The operationalization of the system is described in Appendix C.

However, before continuing any further several qualifications should be stated. 1) Given the " unstable " character of the level of the tariff applied by the member nations on imports coming from third countries it is necessary to take into consideration the tariff effective at

^{1/} The margin of preference is defined as the tariff concession (in ad-valorem tariff percentage points) granted by a member nation of the integrated area to imports coming from a partner nation over unity plus the corresponding ad-valorem tariff (in percentage points) on imports coming from third countries. Its operationalization appears in Appendix D.

The tariff concession is the difference between the tariff (in percentage points) effective in a member nation on imports coming from third countries and the corresponding effective tariff on imports coming from a partner nation of the integrated area.

diverse points during the period analyzed. Accordingly, it was decided to subdivide the period following the Andean tariff reduction taking effect into three subperiods, namely : 1970-72, 1973-74, and 1975-76 and to calculate, for each subperiod, the annual margins of tariff preference, at the item and member nation level, on the basis of the respective tariff applied to imports coming from third countries during the years 1972 (February), 1974 (January), and 1975 (October), respectively, and that effective, year by year, for imports coming from partner nations. This procedure was all the more requisite due to the important modifications introduced into the import policies of some of the member nations during the period of analysis (especially in Chile after 1974).

2) A " dummy " variable was utilized for the margin of para-tariff preference conceded for to the the concept of the Andean liberalization due/difficulties entailed in the calculation of the ad-valorem tariff equivalent for this type of restrictions. In spite of the fact that a defined methodology exists for realizing this calculation, this requires the knowledge of the national and international prices at the level of the homogenous good which is, in itself, a difficult task to carry out in practice and a task all the more difficult when as many as 413 export items and 119 import items are involved, as is the case in the investigation at hand ^{1/}. Such a calculation would constitute a separate investigation in and of itself.

^{1/} The reader interested in empirical studies regarding the degree of protection granted by quantitative restrictions can consult, among others, Barberi, F., and Garay, L.J., " La Industria Colombiana de Pulpa, Papel y Cartón frente a la liberalización del Comercio Exterior , " FEDESARROLLO, Bogotá, November, 1977, (mimeo).

At any rate, the approximation utilized appears to be sufficient for the purposes assigned to it in the correlational analysis. As with the tariff, the import regime was studied under each one of the selected subperiods.

- 3) The concessions included within the LAFTA framework were represented via a " dummy " variable for basically two reasons. First of all, because the concessions were not necessarily expressed in ad-valorem tariff terms, which leads to the type of problems that have already been mentioned and, secondly, because, in contrast to what has occurred up until this point in the Andean Pact ^{1/}, the concessions agreed upon within LAFTA have suffered an almost generalized lack of fulfillment, which makes the measurement and analysis of the margins " theoretically " conceded not only irrelevant, but " distorting " as well. However, it was decided to include this variable due to the important degree to which the goods included in the National Lists participate in Colombia's subregional trade (See Section ID).
- 4) The present analysis has to be understood as being more one of multiple correlation than one of regression, proper. The purpose of this analysis is to investigate the degree of statistical relation between variables rather than to infer cause and effect relations between them. For the latter, it is necessary to develop a strict regression model whose specification is not exempt from the serious theoretical problems related with an inadequate specification of the " true " behavior of the foreign trade of a country (especially a less-developed one) from

^{1/} For the fulfillment of the Andean liberation program see, among others, Garay, L.J., and Pizano, D., Grupo Andino : Objetivos, Estrategia, Mecanismos y Avances, Edit. Pluma, Bogotá, May, 1979, chapter 5.

the difficulties involved in the interpretation of the estimators entailed. The intention here is not one of putting forth a correlation model to be utilized as a regression model for the behavior of Colombia's trade with the Andean Group.

5) Finally, the model of correlation was initially a linear one ; later, in order to corroborate the results obtained, a quadratic one was employed for the variable of the margin of tariff preference, with a linear one being used for the remaining variables. A logarithmic model was not utilized for the reason that the " dependent " variable, i.e., regional intertemporal dynamism, can be and, in fact, frequently is, negative.

Taking the case of exports (see table N° 9) it is found that : 1) the Andean liberation and LAFTA tariff reduction phenomena are, taken together, correlated at no more than 3% (coefficient of multiple correlation, r^2) with the " net " effect on regional intertemporal dynamism of Colombian exports to the Andean Group (as a whole and at the member nation level). This implies that there are probably other phenomena systematically acting upon, with statistically greater significance, the behavior observed. 2) Obviously, and as a consequence of the preceding, statistical differences were not observed between the member countries of destination y.

1/ The only individual estimate significantly different from zero is that of the National List variable for Colombian exports to Ecuador. However, given the coefficient of multiple correlation in this case (0.026), it is not statistically appropriate to arrive at definitive conclusions regarding how this variable relates to the behavior studied.

3) The behavior at the level of groups of goods was significantly equal (at the 5% level of reliability) to the corresponding average behavior, as was to be expected from the first findings. 4) The preceding conclusions did not vary statistically with the concepts of dynamism, nor with the geographic areas of " control," nor with the alternative measures utilized.

The average findings with regard to subregional imports are equivalent to those for exports, for which it is not necessary to repeat them again here (see Table N^o 10). However, an interesting behavior is notable at the level of goods. The only type of goods imported by Colombia from the Andean Group for which the phenomena studied achieved a not unappreciable multiple correlation (from a coefficient of 35% for Bolivia to one of 51% for Venezuela) is that of primary goods. In spite of this, the individual estimations are not significantly different from zero, with the exception of those corresponding to para-tariff restrictions for the cases of imports coming from Peru and Venezuela (which are greater than zero at the 5% level of reliability).

Thus, it is evident that the " net " effect observed on the regional intertemporal dynamism of Colombia's trade with the Andean Group during the period of reference is not significantly related (In statistical terms) with the Andean liberation program and with the concessions agreed to within the framework of LAFTA. Moreover, there is no evidence of a significant individual relation on the part of either one of these phenomena. If there has been some statistical relation, this would be with the dynamism of Colombian imports of primary goods

coming from Peru and Venezuela, but on the part of the Andean liberation mechanism (i.e., the elimination of restrictions of all types) . However, even in this case it is not possible to arrive at definitive conclusions regarding the possible " effectiveness " of the Andean liberation mechanism for the reason that, among other things, it could be deduced that, in general, these are precisely the type of goods in which these member countries of origin have to possess a minimal relative international production advantage (e.g., due to the availability of natural resources) and whose international trade is particularly determined by " quasi-structural " insufficiencies in the domestic production of the importing countries ^{1/}. Consequently it is possible to assert that the Andean liberation program has been insufficient, at least as of 1976, to promote a significant regional intertemporal dynamism for Colombia's subregional trade which would contradict certain general theoretical postulates and, in certain measure, the objectives sought by the planners of the Cartagena Agreement via the adoption of the program of liberation in the Andean Pact .

As can be noted, these findings corroborate certain preliminary, but fundamental, conclusions posed in the preceding levels of analysis. These include the conclusions related with the relative general " ineffectiveness " (in terms of the type of dynamism generated) of the

^{1/} This is particularly relevant in the case of Colombian imports coming from Venezuela in as much as the principal primary product concerned (crude petroleum oils from bituminous minerals) was included in the list of automatic tariff reduction (and, therefore, subject to the elimination of restrictions of all types once the liberation program came into effect, that being, in this case, in 1974). It was precisely in that year that Colombia begin to import that good due to the scarcity of its own internal production. Accordingly, it would not be surprising that, in this case, the scarcity factor was being captured by the liberalization variable.

Andean liberation program with respect to Colombia's trade with the Andean Group during the first six years of that program's operation ; the doubt expressed regarding the assumed relation between the liberation program and the regional intertemporal dynamism experienced by Colombia's exports to Venezuela (the case that arose in Section IA and under the preceding headings of this section as the most likely candidate to have been " favored " by that program); and the statistical independence of the behavior observed with respect to the technical-economic characteristics of the goods traded.

2. At the level of the member nations taken simultaneously.

Having investigated the individual effects of two of the phenomena considered here, it remains to analyze the effects corresponding to the remaining phenomena. Via the correlational analysis at the level of all of the member nations examined simultaneously (but , again, not in aggregated form) the investigation proceeds to study the effects of the expansion of world trade in the early 1970's and of the economic fluctuations occurring in the member nations. Taking the Andean nations simultaneously makes it possible to study the " net " effect of the relative fluctuations of their economies with respect to the external geographic areas of " control." It is precisely in this point that the advantage of this type of correlational analysis is noted.

Given that the most interesting aspect in this analysis is the relation existing between such phenomena and the regional intertemporal dynamism of Colombian trade with the Andean Group, it would be possible to think that the most relevant economic fluctuations are those

related with the foreign trade of the countries being considered. There are, in addition, other substantive reasons that make the choice of variables of this type requisite. For example, the fact that a country experiences a substantial increase in its capacity to import does not necessarily imply, per-se, a correlative increase in the level of imports realized by that country. This will be dependent upon the import policy that is adopted - the more restrictive that policy, the lesser the relative increase in imports. Thus, ceteris paribus, the changes occurring at the level of the total imports effected by the economies that experienced fluctuations, are those that have to have, in the final level of analysis, a determining influence on what the other countries export to them. It is for this fact that, for the present study, it is suitable to make specific reference to the fluctuations in the level of imports of the countries under consideration. In this manner, the two phenomena presently being analyzed have to be quantified in the same terms, i.e., in terms of the magnitude of the changes resulting in the level of total imports effected. The simplest manner of quantifying such changes is through the rate of growth of total imports. Now then, because it is sought to study how these changes relate with the regional intertemporal dynamism of Colombia's trade with the Andean Group, it is evident that these changes have to be measured at a regional intertemporal level as well. This means that the measure of the two phenomena in question has to express the regional difference (member country of destination vs. geographic area of " control ") in the rate of intertemporal growth (period subsequent to liberation's taking effect minus the prior period) of the total value of the imports realized by the countries (areas) being considered ^{1/}. As can be observed, the two phenomena being

^{1/} Its operationalization is described in Appendix C.

analyzed can be operationally expressed through one sole variable that not only represents them adequately, but is also the variable that permits their expression in the same relational plane utilized throughout the system. In order to make the terminology employed up to this point uniform, this variable is referred to as the regional intertemporal dynamism of the total value of the imports realized by the member country of destination being considered ^{1/}.

The " model " utilized at this stage of the analysis is a system of multiple correlation that relates, at the item level, the regional intertemporal dynamism of trade with the variables used in the preceding stage and with an additional variable, that corresponding to the regional intertemporal dynamism of the total value of the imports realized by the member country of destination being considered (see Appendix C 2). Posing the " model " in this manner, it is evident that the estimation of each and all of the parameters corresponding to the three phenomena now analyzed is only possible for the case of Colombia's subregional exports. In the case of imports it is impossible to statistically estimate the individual parameter corresponding to the variable of the regional intertemporal dynamism of the total value of the imports realized by Colombia (the member country of destination being considered in this case) because, given a geographic area of " control , " this variable is independent of the member country of origin and, therefore, constant (between member countries of origin) and perfectly multicolinear with the independent variable. It should be remembered that in the case of Colombian exports to the Andean Group, that variable varied according to the member country of destination (now Colombia is the member country of origin) and, therefore, it does not remain constant when all of the countries of

^{1/} This value refers not only to imports coming from the Andean area but to imports coming from third countries as well.

destination are taken simultaneously.

On the basis of the empirical correlational analysis it is found that : 1) The phenomena, in their entirety, are correlated, on the average, at no more than 1.6% 1/ with the regional intertemporal dynamism of Colombia's trade (or better, exports) with the Andean Group 2/ : This implies that there are other yet-to-be-considered phenomena that have systematically acted upon the behavior studied and that have done so with a greater influence. 2) In spite of the fact that the introduction of the new variable does not increase the coefficient of multiple correlation to significant levels (in statistical terms), the average estimator of the respective parameter is statistically greater than zero at the 1% level of reliability. This finding would imply , as had been foreseen in the beginning, a positive average relation between the regional intertemporal dynamism of Colombia's exports to the Andean Group and that corresponding to the value of total imports of its member countries of destination. However, no definitive conclusion can be extracted from this, since the coefficient of multiple correlation (both at the level of groups of goods and at the average level) was not significant and the individual estimator in question was significant for only one of the eight groups of goods analyzed.

1/ This coefficient does not surpass 4.5% in the analysis at the level of groups of goods.

2/ It would not be surprising that this conclusion was applicable to the case of imports due to, among other reasons, the statistical independence of the analysis with respect to the areas of " control . "

3) The preceding conclusions did not vary with the concept of dynamism, nor with the areas of " control, " nor with the alternative measures utilized.

Three phenomena having been analyzed, one remains for consideration : the export promotion policy adopted by Colombia in 1967. While the design of this policy is not an explicitly regional one, it is necessary to demonstrate that it has not brought with it regionally localized effects (see preceding heading A) . A preliminary conclusion derived from the regional and the intertemporal analyses and from the correlation analysis conducted would be that this policy has not had such effects. This is due to the fact that the behavior observed up to this point by Colombia's subregional exports has not varied significantly according to the geographic " control " areas. However, given the lack of statistical significance of the multiple correlation coefficient in this analysis, this type of inference can be subject to serious errors. For this reason it is suitable to make additional checks.

As the policy is not, at least in principle, discriminatory between areas of destination (i.e., it is not regional), it has to be studied statistically through an intertemporal model for each one of the different areas of destination taken separately. For this a correlational system was utilized that related, at the item level, the intertemporal dynamism of Colombian exports with the variable of the intertemporal policy of export promotion. Once estimations were made for the system, the individual behaviors were statistically compared through a " cross- sectional " analysis. In this manner the practical regional effect of this policy were investigated. Towards this end the policy was quantified in terms

of the direct (CAT) subsidy, and in terms of the subsidies implicit in the Vallejo Plan and in Proexpo credits 1/, in as much as these constitute the three principle export promotion mechanisms 2/. Now then, given that the value of such subsidies varies from year to year, this would imply the necessity of calculating those subsidies at the level of the 413 export items selected for each one of the eight years (1968-76) during which this policy was observed - a task whose magnitude made requisite the

- 1/ The implicit subsidy of the Proexpo credit granted for the exportation of one dollar of good " j " (SCP j) is :

$$SCP j = \frac{CP j \left[1 - \left(\frac{1-i}{1-r} \right)^P \right]}{X j}$$

where CP j = Value (US\$) of the Proexpo credit granted to exports of good " j "

i = Annual Proexpo credit rate.

r = Annual market rate.

P = Payment period (in annual terms) of the Proexpo credit,

X j = Value (US \$) of the exports of good " j ."

For its part, the implicit subsidy of the Vallejo Plan is the tariff sum (US \$) not paid to the State for the concepts of the importation of the intermediate goods utilized in the exportation of one dollar of a final good.

- 2/ Given that the nominal rate of exchange was the same for all goods (i.e., a general non-discriminatory rate) and, as a consequence, that the real rate of exchange should have been the same as well, but at the level of each country of destination being considered (despite the differences in real rates between countries), this rate can not be considered as an " independent " variable in the system utilized here.

the adoption of an approximative calculation. As the basic data for the quantification, at the item level, of the respective subsidies, utilization was made of the CAT effective in the years 1968, 1970, 1972, 1974, and 1976, the Colombian tariff applied in 1970, 1972, 1974 and 1975, and for reasons of available information, the value of the credits conceded by Proexpo in 1976 (the only year for which the official information was consolidated and verified for consistency at the tariff item level) . There is no doubt that this approximation is sufficient for the " modest " purposes of this analysis : the statistical study of the regional effects of the export promotion policy on the behavior of the goods exported by Colombia to the Andean Group. It would be another thing if the objective were one of analyzing the net effects of that policy on Colombian exports since this would require the specification of a more " complex " model than that proposed here and, obviously, a more exhaustive quantification of that policy.

On the basis of the cross-sectional analysis it can be inferred that there are no significant differences (at least at the 5% level of reliability) in the behavior observed between the different member nations and the geographic " control " areas . In other words, it is not detectable that the Colombian policy of export promotion has had, at least as of 1976, regionally localized effects (again, this does not deal with net effects) . Accordingly, it is possible to assert, by exclusion rather than by inclusion, that this policy has not been significantly related with the regional intertemporal dynamism of Colombian exports to the Andean Group during the period of analysis.

Finally, prior to concluding this discussion, it is suitable to make allusion to one additional phenomenon that, up to the moment, has not been treated in detail but that has arisen as an interesting aspect with regard to the distribution and geographical trajectory of Colombia's trade with the Andean Group. This additional phenomenon is the proximity or, better, the "contiguity" of certain member nations. In effect, it was shown in Section IA how Colombia's subregional exports not only had tended to be concentrated in the two "border" countries (i.e., Venezuela and Ecuador which in combination, represented 80% of total exports in 1975) but that, in addition, one of these two markets (Venezuela) had experienced such an average dynamism that it had become the "dominant" market for Colombian exports. Meanwhile, in Section II it was concluded that up through 1976 the "border" markets had served, in a certain measure, as "platform" markets for the subregional (but not the extrasubregional) exports of Colombia. Towards the end of statistically studying the possible relation existing between geographical "contiguity" and the dynamism of Colombia trade with the Andean Group, it was decided to later include into the final correlational system a discrete "independent" variable that would be expressive of the geographic characterization of the markets (of destination or origin, according to the case at hand) ^{1/}. While the intention with such a variable is not one of measuring the influence of transportation costs on the trade being considered, the variable is appropriate for differentiating the geographical characteristics of the markets.

^{1/} The variable was defined as follows : Ecuador and Venezuela, 1 ; Peru, 2 ; Chile, 3 ; and Bolivia, 4. Special emphasis was given to the differentiation for Bolivia due to its land - locked condition and what this means in terms of its effective "proximity" with respect to Colombia.

On estimating this final system of multiple correlation it is found that the estimator of the parameter corresponding to the " contiguity " variable is not significantly different from zero (either at the average level or at the level of groups of goods (both for Colombia's subregional exports and imports). This implies that the " border " character has not been significantly related with the regional intertemporal dynamism of Colombian trade with the Andean Group during the period of analysis. Furthermore, this finding is consistent with those obtained in this final stage of the analysis and, in particular, with the absence of significant differences in the behavior between member countries of destination (origen).

On the basis of all of the analysis conducted one undisputable conclusion stands out : Neither the Andean liberation program nor any of the other phenomena studied (namely : the concessions agreed to within the framework of LAFTA, the macroeconomic fluctuations that have characterized the economies of the countries with which Colombia trades, the export promotion policy adopted by Colombia in 1967, and the geographic " contiguity " characteristic of the partner markets) have demonstrated, at least as of 1976, a significant relation - neither individual nor in their entirety - to the regional intertemporal ^{there} dynamism of Colombian trade with the Andean Group. This necessarily implies that ^{are} other phenomena different from those studied here, perhaps not only general phenomena but ones specific to the micro level (e.g., the temporal conditions of international markets and of domestic supply ; changes in productivity and in its consequent variations in terms of international competitiveness ; both productions dominant " transnational- national " character

and its structure of concentration) that have, at the final level of analysis, a particular, determining influence on the behavior of Colombia's subregional trade. It is essential to emphasize that this conclusion does not in any manner mean to imply, per-se, that the phenomena studied have not exercised a significant role with regard to the general behavior of Colombia's foreign trade. The true reach of this conclusion is restricted to indicating, solely and exclusively, that even if such phenomena have exercised such a crucial role, this has not been " localized " with an intensity sufficient to significantly affect the regional intertemporal behavior of Colombia's trade with the Andean Group during the period under consideration. If it were desired to analyze the role of those phenomena with regard to the general behavior of Colombia's foreign trade it would be essential to approach such an analysis via a different and more complex analytical schema than that developed here. Finally, it is not necessary to further emphasize the reliability of the analysis at hand and the strict consistency of the results found at its various stages.

IV. A NOTE REGARDING THE SO-CALLED " WELFARE EFFECTS " OF THE ANDEAN LIBERATION PROGRAM ENTAILED FOR COLOMBIA.

While it is not the purpose of this investigation to study the " welfare effects " (to use the terminology of orthodox theory) derived from the Andean liberation program during its first six years of operation, it is suitable to make at least brief mention in this regard, in as much as it is well known that this has been, precisely, the object of study of the large

majority of the analyses realized up to the present regarding the different geographical areas that have followed a process of economic integration. The interest in this section consists in illustrating how an exclusive analysis of "welfare effects" (specifically an analysis of the creation and diversion of trade at the aggregated level) does not necessarily capture the "true" effects that could be assigned to a process of integration but can, on the contrary, lead to erroneous conclusions.

A fundamental and, perhaps, the most important reason why so much emphasis has been placed on the study of trade creation/diversion effects resides in the fact that the pioneering theoretical contribution of Viner defined, to the large extent, much of the later conceptualization and evolution of the orthodox theory of economic integration (particularly, that of customs unions). This contribution concentrated on the analysis of trade creation/diversion effects to which a direct connotation of welfare gain/loss was assigned, respectively. Despite the undoubtable significance of this contribution, it has been demonstrated, even within the framework of orthodox theory, that such effects entail certain consequences, in terms of welfare, that generally can not be determined apriori. Some of the situations in which this conclusion has been arrived at are the result of relaxing Viner's assumptions regarding the non-substitutability of consumption ^{1/} and regarding constant production costs ^{2/}. It has also been recently demonstrated how

^{1/} This case was first studied by Gehrels, F. "Customs Unions from a Single Viewpoint," *RES*, 24 (1), 1956.

^{2/} This situation was treated by Melvin, J., "Comments on the Theory of Customs Unions," *Manchester School Eco. Soc. Stud.*, June, 1969, pp. 161-8; and by Bhagwati, J., "Trade Diverting Customs Unions and Welfare Improvement: A Clarification," M.I.T. Working paper, 1970.

the basic concepts of Viner are only applicable within the specific context of his model (i.e., 2 goods, 3 countries) and how once the level of aggregation of the goods considered in his analysis is altered, the " conventional " propositions regarding welfare effects lose their validity 1/ . For this and additional reasons, it only remains to be said that some general traditional principles regarding the consequences of integration in the particular case of less-developed countries can be rightly considered as " irrelevant " 2/ .

Without entering any deeper into the theoretical argument (that not being the purpose of this essay) it is sufficient to point out the limitations and the absolutely restrictive character of the general conclusions regarding welfare effects that can emanate from a mere and exclusively conventional analysis of trade creation /diversion in an integrated area (particularly when less-developed countries are concerned, as is the case of the Andean Group).

1/ Collier, P. , " The Welfare Effects of Customs Unions : Anatomy, " *EJ*, 89 , March, 1979, pp. 84-99 ; and Collier, P. , " The Welfare Effects of Customs Unions : Results from a New Model, " mimeo (awaiting publication).

2/ Garay, L.J., *ibid.*, pp. 279-82

This qualification having been made, it is fitting to ask : being that no significant relation was found between the Andean liberation program and the regional intertemporal behavior of Colombian trade with the Andean Group, is it possible to expect that that program entailed trade creation/diversion effects for Colombia. Is the preceding response corroborated by a mere empirical analysis of trade creation/diversion in Colombia ? if not, is there some inconsistency between the results found?

Obviously, if there is not a significant relation between the Andean liberation program and the regional intertemporal behavior of Colombia's trade with the Andean Group, ceteris paribus, there do not have to exist significant effects, specific to that program, in terms of trade creation/diversion for Colombia. However, this does not necessarily imply that, in practice, creation /diversion effects can not be observed, particularly " gross " creation/diversion effects, as they are usually measured 1/. While such effects can be significant ones, ^{be} they can/produced by participating phenomena other than the Andean liberation program itself. This is especially likely when integration schemes with an intensity less than that of a customs union are involved for, among other reasons, the non-uniformity, among member nations, of the margins of preference conceded (as is the case of the Andean Group up to the present, since a common external tariff has yet to be adopted). Now then, if this were the case, there would be a contradiction between the analysis of the " effects" of the liberation program on the regional

1/ Balassa, B., ibid., pp. 91-108.

intertemporal behavior of Colombia's trade with the Andean Group and the analysis of trade creation /diversion for Colombia. However, the contradiction is more apparent than real. The results of the two analyses can be perfectly consistent since they do not refer to the same phenomena being studied. While the first concentrated on the effects specific to the program, the second makes reference to the combined effect of all of the diverse participating phenomena (one of which is the program of liberation). Rather, what this would imply is that one cannot derive, on the basis of a mere empirical analysis of " gross " trade creation/diversion, definitive conclusions regarding welfare consequences or regarding the effects specific to the program.

In order to arrive at conclusions regarding the trade creation/diversion effects specific to the Andean liberation program - conclusions that satisfy a minimum of rigor (although, in practice, it is impossible to arrive at conclusions with a level of rigor that would leave nothing to be desired for the reason that , among other things, even the theory has yet to arrive at this type of conclusions for simplificatory but appropriate schema) - it is first requisite to " isolate " the general effects corresponding to each one of the participating phenomena and later, once these are " isolated , " to apply a methodology appropriate to the quantification of the specific " individual " effects in question (in this case, the creation/diversion effects specific to the program). It is clear that such a methodology has to be rigorously consistent with that utilized in " isolating " the effects, since those should constitute an inseparable correlative unit to the phenomena being analyzed. It is precisely in the omission of the first stage of the analysis and, therefore, in the

" disintegration " of the diverse analytical stages, in which the crucial defect of the " conventional " empirical measures regarding the creation/diversion effects specific to tariff reduction is rooted. Accepting the suitability of the methodology developed here for the first stage of the analysis, it is clear that the methodology to be applied for the measurement of creation/diversion effects should begin with the categories, levels (intertemporal , regional) type (statistical, correlational), and basic unit of analysis as those utilized here. In a later work a detailed discussion will be offered regarding the methodology to be employed for such purposes, with a presentation of the results that are applicable to the Colombian case included.

In this investigation the " conventional " measure of trade creation/diversion was calculated through the comparison of ex-post income demand elasticities for intrasubregional and extrasubregional imports for the periods prior to and following the Andean liberation program's entering into effect 1/.

1/ The ex-post income demand elasticity for imports is defined as the rates of the average annual rate of growth of imports to the average annual rate of growth of gross domestic product (both at constant prices).

An increase in the income demand elasticity for intrasubregional imports in the period following the liberation programs taking effect is indicative of the " gross " creation of trade. An increase in the income demand elasticity for total imports is indicative of the " specific " creation of trade.

Finally, in contrast to the preceding case, a drop in the income demand elasticity for extrasubregional imports is indicative of a " gross " diversion of trade.

On the basis of this analysis it is observed that of the twenty-one sections in which the Nabandina tariff is classified, there are three in which " specific " trade creation occurred (chemical products, artificial plastic materials, and clothing) and three in which " gross " trade diversion occurred (wood products, precious metals and their manufactures, and optical instruments). This result appears to be indicative that given that there ought not to be significant effects specific to the Andean liberation program, the other participating phenomena (and not just those considered in the preceding section - remember that there exist other non-identified but determining phenomena as well) have not, in their entirety, exercised an influence such as to produce " gross " creation / diversion effects of a more generalized manner (at the level of groups of goods) and/or that the structure of Colombian imports coming from the Andean Group not only has not varied significantly but that, and all the more importantly, continues to be concentrated in certain specific goods in which the member countries possess an undeniable production advantage (such as was shown in Section I A,B, and C).

Moving on, it should be mentioned that the statistical checks realized with the alternative methodology to be presented in a subsequent work demonstrate that the creation/diversion effects specific to the liberation program are not significantly different from zero. This is the logical result that was to be expected from the preceding argumentation. At any rate, the preceding findings already suggest the absence of significant trade creation/diversion effects for Colombian during the period examined.

Additionally, it is of interest to make reference to one of the static costs derived from a partial equilibrium analysis that is incurred by a member nation of an integrated area when it adopts a program of tariff reduction. These static costs are the fiscal costs resulting from tariff reductions on the imports coming from partner countries ^{1/}. If the value (e.g., US\$) of the average tariff concessions per dollar of imports conceded by Colombia to the Andean Group countries (as markets of origin) is compared with the value (US \$) of the average tariff concessions per dollar of exports granted by Colombia's partner countries (as markets of destination), it is found that Colombia " received " 68 cents for every dollar " conceded " during the 1971-76 period. This means that Colombia appears to have incurred a " net " static fiscal loss as a result of the tariff reduction in the Andean Pact during the period under consideration . The situation varied according to the member nation considered : Ecuador (for every dollar " conceded , " Colombia received 1.1 cents ; 0.011) ; Bolivia , 0.026 ; Chile , 0.035 ; Peru, 4.20 ; and Venezuela , 6.50 . The explanation of this behavior resides in the following : Ecuador and Bolivia , in addition to having had, on the average, a deficit trade balance with Colombia, enjoyed a preferential treatment for their being relatively less-developed member nations (that

^{1/} The first formal treatment of these costs was developed in Meade, J.E., " The Theory of Customs Unions, " in Robson, P., (ed.), International Economic Integration, Penguin Books, 1972.

consisted in that, according to the original text of the Agreement, they would initiate the automatic tariff reduction December 31, 1976) at the end of the period of analysis, instead of December 31, 1970, the initiation date for the other partner nations) which converted them into " net beneficiaries " of the tariff reduction on their trade with Colombia (See Section IC) . Chile had a positive trade balance with Colombia and while 87% of its exports to Colombia enjoyed some tariff reduction, only 46% of its imports coming from Colombia did so. For Peru and Venezuela, in spite of having experienced a deficit trade balance with Colombia (with import to export ratios with Colombia of approximately 2:1 and 4: 1, respectively), the greater average level of their national tariffs (69% and 49%, respectively) with respect to the average Colombian tariff (30%) 1/ and the fact that in their trade with Colombia they were not " net beneficiaries " of tariff reduction (see Table No 3), converted them into the only partner nations that suffered a " net " fiscal cost as a result of the tariff reduction on their trade with Colombia during the 1971-76 period.

Without having wanted to imply at any moment that the only effect, nor the most important effects, of a program of liberation are the " gross " creation/ diversion of trade and the static fiscal costs entailed - in as much as there are a large variety of effects involved in a program of liberation : direct and indirect ; primary (e.g., on the volume of imports), secondary (e.g., on relative prices), and tertiary (e.g., on the adjustment of the balance of payments) ; short, medium, and long term ; static and dynamic, with consequent repercussions for a large quantity of systemic variables

(e.g., production, consumption, employment, resource localization, investment, accumulation, income and its distribution) – nor that such effects can be properly inferred from a partial equilibrium analysis, mention was made of those effects solely for the reason that they are the effects that are " best " fitted to the limited and specific objectives of this section .

Prior to concluding the discussion in this section it should be noted that in order to study all of the effects derived from economic integration, the elaboration of an analytical schema that permits the adequate representation of the object of study (i.e., integration) is requisite . Such a schema presupposes a prior and strict conceptualization of the essential characteristics of the relations that predominate in the system referred to . At this point it is worthwhile to point out that in the present work mention has not been made of some of the particular characteristics of the Andean economics that may have had a certain incidence on the behavior observed nor of the consequences that would emanate from this . To mention only one, no investigation has been made here as to whether, in spite of the fact that the Andean liberation program has not had significant repercussions on the regional intertemporal dynamism of Colombian trade with the Andean Group, the program might have generated, in some measure, a redistribution of income within and between the member nations . As a manner of illustration one might consider the following situation: The absence of a common external tariff in the Andean Pact (i.e., the existence of different national tariffs with respect to third countries) and the adoption of intraregional trade liberation create some differential tariff (and para -tariff, when this is the case)

margins that can be enjoyed by determined firms localized within the area. Accordingly, a firm situated in a member nation and that has a relative monopolistic " power " in the Andean market can " fix " (within certain limits, of course) a policy of prices differentiated between the partner nations such that it can " captivate " those markets and, at the sometime, " capture " the exact margin of preference that each one offers $\frac{1}{n}$. This being the case, the consumers in the partner nations would not obtain any benefit whatsoever (the internal price would not change with the liberation of intraregional trade), the State in such countries would incur the fiscal costs resulting from tariff reduction, and the firm in question would increase its profits. There would be a redistribution of income from the State in the partner

$\frac{1}{n}$ The " fixed " price of exports to partner country " j " (P_j) is :

$$P_j = \frac{(P_{int} + C_{T, int}) (1 + ATP_j)}{1 + APS_j} + CT_{sj}$$

Where : P_{int} = International price f.o.b.

APS_j = Country " j's " tariff (in percentage points) on imports coming from partner countries ,

ATP_j = Country " j's " tariff (in percentage points) on imports coming from third countries.

CT_{sj} = Cost of transportation per unit of good between country " j " and the partner country referred to.

CT_{int} = Cost of transportation per unit of good between country " j " and the third country referred to.

countries to the firm localized in a member country. It would not be surprising for this situation to occur with regard to the trade of certain specific goods (especially of non-traditional industries) produced under monopolistic or oligopolistic conditions, with relatively " advanced " technologies and, probably, with some foreign connection. While the situation described should not have been significant in " global " terms, since this would have correlatively entailed a positive effect of the Andean liberation program on Colombia's regional intertemporal trade with the Andean Group, the monetary value of such transfers could be an important one for certain firms. Preliminary information regarding Colombian imports of certain petrochemical goods and synthetic fibers coming from a partner nation suggest the presence of this type of situation.

It is precisely characteristics of this nature that have to be introduced into subsequent analyses regarding other aspects of Andean integration that are not treated here for their not corresponding to the basic purpose of this investigation. In addition, due to their importance and complexity, these would constitute objects of study in and of themselves, meriting of separate and specific studies. Once again, the purely illustrative character of this section should be emphasized.

V. CONCLUSIONS

During its first six years of operation the Andean liberation program has been insufficient to significantly affect (in statistical terms) the regional intertemporal behavior of Colombian trade with the Andean Group. This conclusion is intimately linked with,

among others, the following characteristics exemplified by that trade during the 1966-1976 period.

- 1) Just 35% (16%) of the items exported (imported) by Colombia to (from) the Andean Group experienced an increase in average dynamism after the Andean liberation program came into effect. In addition, the average intertemporal dynamism of Colombia's trade with the Andean Group was significantly less than that corresponding to Colombian trade with the rest of the world 1/.
- 2) No significant variations were observed in the sectoral (2 digit CUODE) structure of that trade.
- 3) A greater concentration (at the tariff item level) was experienced at the lower end of the distribution of accumulated participation of Colombian exports destined for the Andean Group than for Colombia's total exports (excluding coffee - not only for its being Colombia's principal export product but also because it is basically exported to non-Andean geographical areas), but with a certain tendency towards comparative diversification at the upper end of that distribution (in particular, beginning with the seventh decile). This tendency towards relative diversification in the final deciles also occurs in the case of Colombian imports coming from the Andean Group, but with a lesser intensity than in the case of exports.

1/ Colombian exports to Venezuela constitute an exceptional case in as much as they achieved a significantly positive regional intertemporal dynamism.

4) Despite the fact that this comparative diversification was the result of the greater growth in the number of tariff items traded by Colombia with the Andean Group ~~vis-~~ ^a -vis the growth in the total number of tariff items traded by Colombia (especially with respect to the case of exports) ^{1/}, it can be noted that the sectoral composition according to number of items, did not vary during the period either for Colombia's subregional trade or for the country's total trade . This explains, in part, not only the " invariability " of the structure of Colombian trade with the Andean Group (characteristic # 2 , above), but also the relative permanency of the average participation, at the sectoral (2 digit CUODE) level, of Colombia's trade with the Andean Group in Colombia's total trade. Likewise, such diversification was insufficient to contribute to the arisal of the Andean Group as a " platform " market for Colombian exports (see characteristic # 7 , following).

5) While Colombia's exports to its " border " ~~partner~~ nations were the most diversified (in average degree and throughout the entirety of the distribution of accumulated participation) of Colombian subregional exports, its corresponding imports coming from the relatively less-developed member nations were the most concentrated of Colombia's imports from the Andean Group. This was characteristic in spite of the fact that the

^{1/} In spite of this relative diversification, the total number of Nabandina items exported by Colombia is still clearly greater than the number of items destined for the Andean Group (see Section II).

relatively less-developed member nations have been " net beneficiaries " (in the sense employed here) of subregional liberation in their trade with Colombia.

6) There is a tendency for the partner nations to specialize, in their exports to Colombia, in those goods for which those nations possess - and have possessed since prior to the Andean Pact - an evident international production advantage (e.g., goods derived from natural resources) . It is precisely for such goods that demand depends, in general, more on the conditions of domestic supply in the member nations than on the tariff reduction on their intrasubregional trade. This tendency is all the more accentuated the lesser the degree of relative development of the partner countries as markets of origin (characteristic closely related with # 5, above) .

7) In spite of the liberation of intrasubregional trade, the Andean Group, as a market of destination, has not played the role of " platform " market for Colombian exports. Now then, the " border " partner nations have tended towards this role, but for Colombia's subregional (not extrasubregional) exports and, in turn, have become the " dominant " markets for Colombian exports to the Andean Group.

8) The behavior according to the intertemporal, regional, and regional intertemporal dynamism of Colombian trade with the Andean Pact did not vary significantly between liberation program lists, nor between types of goods, nor between geographical " control " areas. In addition, that behavior did not demonstrate a significant statistical relation with the margins of preference (tariff and para-tariff) granted or received by Colombia

as a result of the intrasubregional trade liberation program.

9) The case with the greater regional intertemporal dynamism (i.e., the use of Colombian exports to Venezuela) and in which a " notable " effectiveness on the part of the Andean liberation program would be expected (since, among other reasons, more than 56% of the value exported by Colombia to that country corresponded to liberation lists entailing some degree of tariff reduction), suffered a decrease in intertemporal (but not regional) dynamism after the program had been adopted by Venezuela. This occurred in spite of the Venezuelan economy's having experienced an " appreciable " increase in its capacity to import during that later period.

Now then, neither the Andean liberation program nor the other phenomena studied here (namely : the concessions agreed to within the framework of LAFTA, the macroeconomic fluctuations that occurred in the countries with which Colombia trades, the export promotion policy adopted by Colombia in 1967, and the geographic contiguity of the partner markets) have demonstrated, at least as of 1976, a significant relation, neither individually nor collectively, with the regional intertemporal dynamism of Colombia's trade with the Andean Group. This implies that there are other phenomena different from those considered, perhaps not only general phenomena but ones specific to the micro-individual level as well (e.g., the temporal conditions of international markets, the level of domestic supply, changes in productivity and their consequent variations in terms of international competitiveness, the dominant character and the degree of concentration of

production), with a specific, determining in the final level of analysis, influence upon the behavior observed by Colombian trade with the Andean area. It is essential to emphasize that this conclusion does not in any manner imply, per-se, that the phenomena studied have not exercised an important role with regard to the general behavior of Colombia's foreign trade. Its implication is restricted to one of pointing out, solely and exclusively, that even if such phenomena have exercised such a crucial role, this has not been " localized " with an intensity sufficient to significantly affect the regional intertemporal behavior of Colombia's trade with the Andean Pact during the period of analysis.

Despite the preceding, the average dynamism observed by the total value of Colombian exports other than coffee during the period suggests the presence of some general factors that ought to have been favorably affecting that dynamism. One of these factors could be , as various authors have argued, the export promotion policy adopted by the country beginning in the mid- 1960's. Another factor could be the state of the Colombian productive structure that was achieved via, among other factors, the macroeconomic policies and their respective growth schemes (e.g., inward-looking) followed during the latter decades.

If one wanted to know the specific role played by each one of those factors with respect to the general behavior of Colombia's foreign trade, it would be essential to utilize a different and more complex schema than that developed here. Needless to say that the comparative (international) study of the structure of Colombian production (e.g., costs, prices,

national-transnational character, concentration, technological nature) would be indispensable to such an analysis - at least this is what has been demonstrated within this investigation.

The absence of a significant relation between the Andean liberation program and the regional intertemporal dynamism of Colombian trade with the Andean Group could be due, in some measure, to certain obstacles faced by the program. Among such obstacles mention would have to be made of the following : 1) The tariff universe subject to reduction has been reduced by 30% as a result of the lists of exceptions adopted by the member nations. The relative importance of these exceptions is noted in the fact that, as the Board of the Cartagena Agreement has pointed out " they represent 20% of the gross industrial production of the member nations ... and they have been concentrated precisely in those industrial branches that each member protects with the highest tariff... 1/. 2) The lack of harmonization of complementary policies, in particular with relation to the common external tariff (and its related dispositions) and the norms regarding the origin of goods. 3) A series of nonfulfillments on the parts of some member nations during the first years that the program was in effect and of administrative problems regarding the application of the dispositions agreed to 2/. However, given the important advances achieved by the program (as has been recognized with some consensus 3/)

1/ JUNAC, Evaluación del Proceso de Integración 1969-1979, Lima, May, 1979, pp.83-4 .

2/ JUNAC, ibid., pp. 84-6

3/ For example , by December 31, 1978, 25% of the tariff universe traded was already free of tariff taxes.

and due to the fact that the behavior observed did not vary between lists or between types of goods, nor is related with margins of preference conceded in practice 1/, it should be pointed out that such obstacles were not sufficient to explain and justify the relative " ineffectiveness " (in the sense employed here) of the program of liberation during the period of reference 2/ . It is certain that the real achievements of the program as of 1976 were " modest " ones in terms of the objectives that were assigned to it.

Likewise, it should be mentioned that if the conditions that have prevailed up til the present continue, one cannot expect substantial changes in the regional intertemporal behavior of Colombia's trade with the Andean Group in the near future . Only to the measure that the obstacles confronted in the past are overcome, that the policies related with the liberation program are harmonized, and that an adequate level of productive specialization and harmonization is realized between the member nations, can one expect more promising achievements. Again, if it were desired to pose a more definitive judgment regarding medium-term perspective, a requisite first step would be an understanding of the determinant factors with regard to the behavior of Colombian

1/ In this respect it should be remembered that this investigation considered the tariffs and restrictions effectively utilized by the member nations, taking into account the different measures and dispositions (e.g., exemption lists) adopted in the program.

2/ This does not mean to imply that the elimination of such obstacles could not have some effect on the future dynamism of Colombia's subregional trade.

trade and the diverse conditioning factors to which the schema of specialization and Andean integration are subject ^{1/}.

The short term "ineffectiveness" of the liberation program with regard to Colombian subregional trade (in the sense in which " ineffectiveness " is employed here) does not imply that the Andean market is of little importance to Colombia (either in actual or potential medium and long range terms). Among other things, the fact that the Andean area has represented 25.0% and 7.5% of Colombia's total exports (excluding coffee) and imports, respectively, in 1976, that 42% of Colombian exports of intermediate and metalworking goods are destined for the subregional market, and that 40% of Colombia's imports of processed foodstuffs come from the Andean Group, is proof enough of its relative level of importance.

The principal conclusion emanating from this investigation entails consequences of a theoretical character and for economic policy that cannot be taken lightly. On the theoretical plane it is suitable to mention that the situation observed is not only consistent with the postulates of alternative theoretical schemas but that, in addition, it is not as surprising of a situation as one might at first think. The orthodox theory would foresee this situation occurring (especially in the short term) in the case of the Andean nations due to,

^{1/} With respect to this subject it should be remembered that what has been argued here has been in specific reference to the case of Colombian trade with the Andean Group. However, while it is not possible to rigorously derive from this study what are the specific effects of the liberation program with respect to the trade of the other member nations, the aggregated behavior of Andean trade during the period suggests the almost generalized nature of certain basic characteristics observed in the Colombian case.

among other factors, the " low " degree of complementation (inter and intraindustrial) of their economies (particularly, those of the greater relative development in the area). For its part, the " structuralist " theory (employed by ECLA) postulates that the mere liberation of intrazonal trade in less-developed countries like the Andean nations will not achieve, per-se, (and even less so in the short term) the transformation of the economic " structures " of the member nations of the integrated area and, therefore, of their patterns of production and trade.

It is clear that the postulates of the two theories entail connotations that are absolutely opposed. In effect, for the orthodox theory this finding corroborates once again the reason why economic integration is a " sub-optimal " policy (a policy that is of a lesser " order , " ceteris paribus, the less it is possible to take advantage of the comparative advantages within the integrated area) and the suitability of adopting a policy of " free " trade (with all that this implies). For the structuralist theory, the result corroborates the reason for the necessity of deliberate action on the part of the governments concerned not only in the sphere of intrazonal trade but also, and especially, in the sphere of production (e.g., industrial structure) in order to assure that the integration between less-developed countries makes possible the transformation of the economic structures prevailing in those countries. The first recommends integration with the world market through the " free " action of market forces ; the second, integration between developing countries based on an increase in the combined planning of the participating economies.

The intention here is not however, one of presenting any particular theory as the one that "best" represents the object of economic integration in less-developed areas - the fact is that both of the aforementioned theories suffer serious lackings (due to the presence of certain specific and determinant elements that they do not address ^{1/} that prevents them from achieving the level of "relevancy" and "legitimacy" desirable for the study of integration. Mention was made of the orthodox and structuralist theories solely as a means of illustrating that the conclusion posed in this study is not (or at least should not be) such a surprising one.

On the plane of economic policy this conclusion would lead one to once again emphasize the importance (relative, of course) of other mechanisms complementary to liberation in the promotion of intrasubregional trade. It has been deduced that one of these mechanisms, and perhaps the most relevant one, is that of industrial programming, with the understanding that the intention is one of achieving, through this mechanism, a certain intraindustrial specialization between the member nations. However, as the experience with the sectoral programs approved up til this point has demonstrated, there are a series of conditioning factors that range from the most general (e.g., the prevailing international division of labor) to the most specific (e.g., the private and state interests tied to the

^{1/} For example : the present character of the process of the concentration and centralization of capital at the world scale (differentiated by sectors); the diffusion of the transnational firm as an essential expression of capital exportation in the contemporary capitalist system ; the " raison d'être " of the integrationist project, the " objective " necessities to which it responds, and the diverse conditioning factors and the respective levels of determinant action to which it is subject.

member economies, ; the policies of the transnational capital dominant in some sectors oligopolized at the world scale, with respect to investment in and /or the transfer of technology to the different Andean nations as expressions of their fight to maintain, if not increase, their predomination at the world scale) that have acted in such a manner as to prevent the degree of specialization foreseen in such sectors at the beginning. Obviously, this in itself would impede the generation in the area of the trade flows " desired " and expected according to that theoretical perspective (especially with regard to the medium term). It is clear that the lesser the degree of specialization achieved between the member nations, the lesser, *ceteris paribus*, will be the possible effects of the liberation program on subregional trade, as was mentioned previously. In effect, the degree of " effectiveness " attained by the Andean liberation program and by the sectoral programming will depend, at the final level of analysis, on the confluence of the different conditioning factors to which these processes are subject.

In this respect it should be mentioned that the recent theses argued by certain authors that afford the member states with an absolute autonomy in the adoption of the " optimal " economic policies that supposedly would permit them to attain the objective proposed in the Cartagena Agreement and that grant a linear , uniform character both to transnational capital, insofar as to its position vis -à -vis the project of Andean integration (for some authors, a position of undeniable interest, for others, one of clear opposition) and to the consequent effects that ^{for that capital} integration entails (for some authors, these effects being clearly " beneficial ", for others, inescapably " prejudicial "), are not only

theoretically deficient but also lead to serious errors in the understanding of the process of subregional integration. Contrary to what such authors argue, it is clear that the member states possess but a relative autonomy with regard to the adoption of " optimal " economic policies, that the " effectiveness " of economic policies is subject to diverse conditioning factors (of determinant action and differentiated spacially), and that while transnational capital does constitute a unit, it is one that is contradictory, heterogeneous, and unequal between capitals various fractions and sectors. The complexity of the economic integration phenomenon is such that its adequate representation requires a much more elaborate analytical schema. A subsequent work will include a detailed discussion of these theoretical aspects.

The fact that the Andean liberation program has not, in itself, generated a significant regional dynamism intertemporal/for Colombia's trade with the Andean Group and that, among other things, Colombia has incurred " net " fiscal costs, albeit static ones, as a result of the tariff reduction on intrasubregional trade, clearly puts into doubt the belief that is almost universally held within Andean Pact circles (governmental, business, and even the Board of the Cartagena Agreement itself) that Colombia has been the beneficiary of that program during its first years of operation. This type of error is understandable when one solely analyzes the aggregated figures regarding trade between the partner nations, as has been demonstrated throughout the entirety of this study. It is precisely in this point that the essential quality of the methodology utilized here finds its root,

Finally, one cannot fail to ~~em~~phasize the fact that there are policy implications (in the board sense) that emanate from the conclusions of this investigation. This is all the more important to stress in as much as in the recent past the member governments have been progressively concentrating their attention more and more on aspects related with the international policy of the Andean Group than on a determined confrontation and not only at the formal policy level as occurred with the Cartagena Mandate - with the specific problems that have arisen in the process of Andean subregional integration.

APPENDIX

OPERATIONALIZATION OF THE METHODOLOGY UTILIZED

A. Rate of Growth

1. Annual :

$$(1) \gamma_{ito} = \left(\frac{C_{ito}}{C_{ito-1}} - 1 \right) \times 100$$

Where : C_{ito} = Value (or quantity, as is the case) traded of good " i " in year to.

C_{ito-1} = Value (quantity) traded of good " i " in year to - 1

γ_{ito} = Rate of growth (%) of the value (quantity) traded of good " i " during year to.

2. Average :

i. Arithmetic :

$$(2) \text{Sitd} = \frac{\sum_{td=1}^{tdn} \gamma_{itd}}{N}$$

Where : n = Number of years in period td ($l = 1, \dots, n$).

Sitd = Arithmetic average rate of growth of the value (quantity) traded of good " i " during period td .

ii. Weighted :

$$(3) \bar{\gamma}_{itd} = \frac{\sum_{td=1}^{tdn} \gamma_{itd} \left(\frac{C_{itl} + C_{itl-1}}{2} \right)}{\sum_{td=1}^{tdn} \left(\frac{C_{itl} + C_{itl-1}}{2} \right)}$$

Where : \bar{V}_{itd} = Weighted average rate of growth (%) of value (quantity)
traded of good " i " during period t_d .

B. Regional Intertemporal Dynamism

1. Intertemporal dynamism :

$$(4) \quad D_{ijt_d} = (\bar{V}_{ij})_{t_d} - (\bar{V}_{ij})_{t_a}$$

Where : \bar{V}_{ijt_d} = Average rate of growth (weighted or arithmetic, as is the case) of
exports (imports) of good " i " destined for (coming from)
country " j " during period t_d .

t_d, t_a = subsequent and prior period, respectively.

D_{ijt_d} = Intertemporal dynamism of exports (imports) of good " i " destined
for (coming from) country " j " during periods t_d, t_a .

2. Regional dynamism :

$$(5) \quad D_{ijk\bar{t}} = \bar{V}_{ij\bar{t}} - \bar{V}_{ik\bar{t}}$$

Where : $\bar{V}_{ijk\bar{t}}$ = Average rate of growth of exports (imports) of good " i " destined
for (coming from) country " k " during period \bar{t} .

$D_{ijk\bar{t}}$ = Regional dynamism of exports (imports) of good " i " destined for
(coming from) country " j " with respect to exports (imports) of
good " i " destined for (coming from) country " k " during period \bar{t} .

3. Regional intertemporal dynamism :

$$(6) \text{ Dijktda} = (\sqrt{i_j} - \sqrt{i_k}) t_d - (\sqrt{i_j} - \sqrt{i_k}) t_a$$

$$= \text{Dijktd} - \text{Dijka}$$

Where : Dijktda = Regional intertemporal dynamism of exports (imports) of good " i " destined for (coming from) country " j " with respect to exports (imports) of good " i " destined for (coming from) country " k " during periods t_d , t_a .

C. Correlational model

1. At the individual member nation level :

$$(7) \text{ Dijktda} = a_0 + a_1 \text{MP}_{ijtd} + a_2 \text{LP}_{ijtda} + a_3 \text{LN}_{ij} + \text{E}_{ij} \quad i = 1, \dots, n.$$

Where : MP_{ijtd} = Average margin of tariff preference granted by country " j " to imports of good " i " coming from the partner country of reference during (subsequent) period t_d .

LP_{ijtda} = " Dummy " variable proxi to the margin of para-tariff preference conceded by country " j " to imports of good " i " coming from the partner country of reference during period t_a .

LN_{ij} = " Dummy " variable proxi to the margin of preference entailed in the National List granted by country " j " to imports of good " i " coming from the partner country of reference during period t_d , t_a .

k = Geographical " control " area being considered

j = Member country of an integrated area.

2. At the level of the member nations taken simultaneously :

$$(8) \quad D_{ijkt}da = a_0 + a_1 MP_{ijtd} + a_2 LP_{ijtd} + a_3 LN_{ij} + a_4 DM_{ijkt}da + E_{ij}$$

Where : $DM_{ijkt}da$ = Regional intertemporal dynamism of the total value of imports realized by country " i " with respect to the total value of those corresponding to country " k " between periods t_d , t_a 1/.

D. Margin of preference

$$(9) \quad M_{ijkt} = \frac{ATP_{ijt} - APS_{ijkt}}{1 + ATP_{ijt}}$$

Where : ATP_{ijt} = Ad-valorem tariff (in percentage points) effective in member country " i " for imports of good " i " coming from third countries (countries that are not partner nations of the integrated area) in year t .

APS_{ijkt} = Ad- valorem tariff (in percentage points) effective in member country " i " for imports of good " i " coming from country " k " in year t .

MP_{ijkt} = Margin of tariff preference granted by member country " i " to imports of good " i " coming from partner country " k " in year t .

$$1/ \quad DM_{ijkt}da = (M_j - M_k)_{td} - (M_j - M_k)_{ta}$$

Where : M_{jtd} = Average rate of growth of the total value of the imports realized by country " i " during period t_d .

E. Value of Tariff Concession

$$(10) \text{ VCA}_{ijkt} = (\text{ATPi}_{jt} - \text{APS}_{ijkt}) \text{ Mi}_{jkt} \\ = \text{CA}_{ijkt} \cdot \text{Mi}_{jkt}$$

Where : Mi_{jkt} = Value (e.g., US\$) of imports of good " i " realized by member country " j " and coming from partner country " k " in year t.

CA_{ijkt} = Tariff concession (in percentage points) granted by member country " j " to imports of good " i " coming from partner country " k " in year t .

VCA_{ijkt} = Value (e.g., US\$) of the tariff concession granted by member country " j " to imports of good " i " coming from partner country " k " in year t .

ANNEX I

DEFINITION OF THE LISTS OF THE LIBERATION PROGRAM AT THE COUNTRY (OF ORIGIN OR DESTINATION) LEVEL 1/

A. Products not included in the List of the Approved Sectoral Programs 2/

1. Chile

a. Products without tariff reduction for Colombia .

i * (Chilean exceptions to the PL and to the CET, Articles 55 and 56 of the CA) 3/.

ii \$ (Colombian exceptions to PL and to the CET) .

iii R (Products reserved for industrial programming. Article 47 of the CA and Decision 25 of December 25, 1970) .

Minus : (Products excluded from List R) .

(-) Decision 57 (August 20, 1972) : Metalworking program .

(-) Decision 91 (August 29, 1975) : Petrochemical program .

1/ Given that the definition of the lists is conceptually symetrical between the case of exports and the case of imports, for reasons of space only a detailed description of the lists of the liberation programs for Colombian exports to the Andean Group, at the level of the country of destination , will be presented here.
This appendice was elaborated primarily by Alfredo Fuentes.

2/ Only the sectoral programs approved as of the initiation of this investigation (June, 1978) were considered . These were the Metalworking and Petrochemical Programs.

3/ PL = Program of liberation ; CET = Common External Tariff ; CA = Cartagena Agreement.

The 58 products of Resolution 11 of 1973, corresponding to non-programed metalworking products, should also have been excluded, the same going for the agricultural/livestock products excluded from the reserve by Resolution 17 of 1974. However, these products have yet to be effectively liberated. On the other hand, the products referred to in Decisions 57 and 91 were definitively excluded, since these will be analyzed independently.

iv NPR

(Products not produced that were reserved for production in Bolivia and Ecuador. Article 50 of the CA and Decisions 28, 62 and 108 of the CA).

v PMP

(Products of automatic liberation with temporal preference margins for being of special interest to Bolivia and Ecuador. Only those products whose IPR remained unmodified as of 1976 were included. Article 97 of the CA and Decisions 34, 65, and 112 of the CA) ^{1/}.

vi LCV

(Products of the Common List to which Colombia granted, within the framework of LAFTA " non-extensive advantages" in favor of Bolivia and Ecuador. Colombia liberated these products solely in favor of Bolivia or Ecuador. Article 98 of the CA).

^{1/} IPR = Initial points of tariff reduction

b. Products (not produced) with total tariff reduction.

N (Products not produced in the subregion ; remain totally liberated as of February 28, 1971. Article 50 of the CA).

Minus :

(Products excluded from list N) .

(-) NPR (Reserved products not produced) .

c. Products (of the Common List) with total tariff reduction.

L (Products of the Common List freed of tariff as of April, 1970. Article 49 of the CA).

Minus :

(Products excluded from list L).

(-) LCV (Products of the Common List with " non-extensive advantages in favor of Bolivia and Ecuador).

d. Products with automatic tariff reduction.

A (Products liberated as of December 31, 1970 in accordance with Article 52 of the CA and Decisions 27 and 51 of the CA).

Minus :

(Products excluded from list A).

(-) * (Chilean exceptions) .

(-) * (Colombian exceptions) .

-) PMP (Products with margins of preference for Bolivia and Ecuador whose IPR remained unmodified as of 1976).

2. Peru

a. Products without tariff reduction .

- i) * (Peruvian exceptions to the PL and to the CET).
- ii) \$ (Colombian exceptions to the PL and to the CET).
- iii) R (Products reserved for industrial programming) .

Minus :

- (-) Decision 57 ,
- (-) Decision 91 .
- iv) NPR (Products not produced reserved for Bolivia and Ecuador) .
- v) LCV (Products of the Common List to which Peru and Colombia granted, within the framework of LAFTA, " non-extensive advantages " in favor of Bolivia and Ecuador. The country that should have granted a concession within those Special Lists, only liberated the product in favor of the country benefited. Article 98 of the CA) .
- vi) PMP (Products of automatic liberation with margins of preference for Bolivia and Ecuador, whose IPR remained unmodified as of 1976) .

b. Products (not produced) with total tariff reduction .

- N (Products not produced in the subregion) .

Minus :

(-) NPR (Reserved products not produced) .

c. Products (of the Common list) with total tariff reduction .

L (Products of the Common List) .

Minus :

(-) LCV (Products of the Common List with " non-extensive advantages " granted by Peru and Colombia in favor of Bolivia and Ecuador)

d. Products with automatic tariff reduction .

A (Products liberated in accordance with Article 52 of the CA) .

Minus :

(-) * (Peruvian exceptions) .

(-) \$ (Colombian exceptions) .

(-) PMP (Products with margins of preference for Bolivia and Ecuador) .

3. Venezuela

a. Products without tariff reduction .

i * (Venezuelan exceptions to the PL and to the CET
Initial quota of exceptions plus the additional list solely
in relation to Colombia. Decision 70).

ii \$ (Colombian exceptions. Initial quota plus the additional list
only in relation to Venezuela. Decision 70).

iii) R

(Products reserved for programming) .

Minus :

(-)

Decision 91 .

(The products of Decision 57 are not excluded for Venezuela's not having taken part in that program) .

iv) NPR

(Products not produced reserved for Bolivia and Ecuador . Decision 78 for the case of Venezuela) .

v) LCV

(Products of the Common List with " non-extensive advantages " granted by Venezuela and Colombia) .

vi) PMP

(Products of automatic liberation with margins of preference for Bolivia and Ecuador whose IPR remained unmodified as of 1976 . Decision 78, Article 5) .

vii) GVI

(Products of automatic liberation whose tariff reduction was delayed for the beginning point for Venezuela (BPV) being inferior to the Common Internal Tariff (CIT) . Decision 78) .

b. N

(Products not produced in the subregion ; liberated by Venezuela in August, 1974 . Article 1, Decision 70) .

Minus :

(-) NPR

(Reserved products not produced) .

c. Products (of the Common List) with total tariff reduction .

L (Products of the Common List liberated by Venezuela in August, 1974. Decision 70 of 1973) .

Minus :

(-) LCV (Products of the Common List with " non-extensive advantages " granted by Colombia and Venezuela in favor of Bolivia and Ecuador) .

d. Products with automatic tariff reduction .

A (Products of Article 52 of the CA liberated by Venezuela as of December 31, 1974 beginning at its BPV (point exactly equivalent to that reached by Colombia, Chile, and Peru in May of 1974 during their respective tariff reduction processes. Decision 78 of 1974).

Minus :

(-) GVI (Products whose BPV tariff taxes (Annex, Decision 78) were inferior to the Common internal tariff (CIT) (reached at that moment by Colombia, Peru , and Chile) and whose annual automatic tariff reduction was delayed beyond December 31, 1974).

(-) % (Venezuela exceptions, initial and additional lists).

(-) \$ (Colombia exceptions, initial quota and additional list).

PMP (Products of automatic liberation with margins of preference for Bolivia and Ecuador whose IPR remained unmodified as of 1976) .

I. Bolivia and Ecuador

a. Products without tariff reduction.

- i * (Bolivian and Ecuadorian exceptions to the PL and to the CET, Article 102 of the CA) .
- ii \$ (Colombian exceptions) .
- iii R (Products reserved for programming)
Minus :
(-) Decision 57 .
(-) Decision 91 .
- iv NPR (Products not produced reserved in their favor),
- v L (Products of the Common List not liberated in accordance with the CA but in agreement with the Treaty of Montevideo. Article 100 of the CA) .
- vi A (Products of automatic liberation whose tariff reduction had been initiated beginning December 31, 1976 . Article 100 of the CA) .

b. Products (not produced) with total tariff reduction.

- N (Products not produced in the subregion ; tariff reduced beginning March, 1971 . Article 100 of the CA) .

Minus :

  NPR (Reserve products not produced).

B. Products included in the Approved Sectoral Programs.

1. Metalworking Program (Decision 57 of 1972).

a. Products not liberated.

X (Products that were not liberated for Colombia on the part of the other member nations for their not having been assigned to Colombia in either an exclusive or shared manner).

b. Products totally liberated (Products exclusively designated to Colombia or of shared designation with the distinct countries to which the exports are destined).

U (Designations exclusively for Colombia, liberated by the other partner countries on September 20, 1972. Also, products for which Colombia shares the designation with any other country distinct from that to which the Colombian exports are destined).

c. Products of automatic liberation, .

Z (Products for which Colombia shares the designation with those countries to which the exports are destined. Liberated automatically as of December 31 of the year in which the initiation of production in Colombia is verified).

2. Petrochemical program .

a. Products of Agreement 6 (Petrochemical Complementation Agreement in LAFTA).

6 (Products) totally liberated for Colombia December 31, 1973 after an annual reduction of 20% since 1969. Article 5, Agreement 6).

b. Assigned products .

i. Products not liberated .

XN (Products not liberated for Colombia for the country's not having been favored with the product designation. Article 13, Decision 91).

ii. Products with total tariff reduction .

XT (Products totally liberated September 29, 1975 for Colombia's having been exclusively assigned the product designation (Article 12, Decision 91). Also, products for which Colombia shares the designation with any other member country distinct from that to which the Colombian exports are destined).

iii. Products of shared designation .

XS (Products, whose designation is shared by Colombia and the member nation to which it exports that product, for which tariff taxes not superior to those indicated in Part I of Annex V of Decision 91 were adopted. These would be totally eliminated no later than December 31, 1980 by the more developed member nations and no later than December 31, 1985 on the part of Bolivia and Ecuador. Article 14, Decision 91).

c. Products not designated (Article 15, Decision 91).

i. Products with automatic tariff reduction .

XA (Products included in Group XS for which, in September, 1975, the tariff taxes indicated in Part II of Annex IV were adopted. Starting December 31, 1975 they would be eliminated in an annual, linear, and automatic manner with their elimination being completed by December 31, 1980).

ii. Products with total tariff reduction (Groups A, B, and C of Decision 91).

XD (Products of Groups A, B, and C whose tariff taxes were totally eliminated in September, 1975) .

TABLE No 1
PARTICIPATION OF COLOMBIA'S TRADE WITH THE ANDEAN GROUP
IN TOTAL COLOMBIAN TRADE
(%)

YEAR	EXPORTACION <u>1/</u>	IMPORTACION
1966	10.77	3.05
1967	9.30	3.62
1968	11.59	3.42
1969	16.53	4.36
1970	25.54	4.71
1971	25.42	5.63
1972	20.98	4.54
1973	15.15	4.90
1974	18.81	6.63
1975	23.93	5.90
1976	25.10	7.41

1/ Excluding coffee.

SOURCE : DANE, Anuario de Comercio Exterior (various numbers).

TABLE No 2

CONCENTRATION OF COLOMBIA'S TRADE WITH THE ANDEAN GROUP 1970-76

Number of Nabadina Tariff Items

Accumulated Participation (%)	Bolivia		Chile		Ecuador		Peru		Venezuela		Andean Group	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
5	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	1	1
15	-	-	-	-	1	-	-	-	1	-	1	1
20	1	-	-	1	2	-	1	1	1	-	2	2
25	1	-	-	1	2	-	1	1	2	-	3	2
30	1	-	-	2	3	-	1	1	3	-	4	3
35	2	-	1	2	5	1	1	2	5	-	6	4
40	3	-	1	3	7	1	2	2	7	1	9	5
45	4	-	1	3	11	1	2	2	9	1	14	7
50	5	-	2	4	15	1	3	3	12	1	20	8
60	7	-	4	6	29	2	8	4	20	2	35	12
70	14	-	7	9	56	3	17	5	38	3	64	17
80	29	-	14	15	106	5	38	8	67	5	123	27
90	71	-	35	24	238	10	107	20	159	16	276	56
95		1				19						104

TABLE No 3

DISTRIBUTION OF COLOMBIA'S TRADE WITH THE ANDEAN GROUP ACCORDING TO THE LISTS

OF THE PROGRAM OF LIBERATION DURING THE 1970-76 PERIOD

(%)

List <u>1/</u>	Bolivia		Chile		Ecuador		Peru		Venezuela <u>2/</u>		Andean Group	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
B	91.00	0.01	51.30	8.18	96.60	11.90	23.30	37.97	45.00	81.76	52.60	28.50
C	0.15	0.00	1.09	0.16	0.25	0.01	0.08	0.29	0.32	0.06	2.80	0.19
D	0.20	1.03	17.00	22.75	0.14	41.87	3.60	29.67	6.14	0.32	4.14	24.95
E	5.33	98.89	29.80	64.70	0.43	46.75	74.10	29.17	49.10	15.19	41.00	44.08
Others	3.32	0.07	0.85	4.21	2.58	0.00	0.00	2.90	0.00	2.67	0.00	3.28
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C, D, E	5.68	99.92	47.85	87.61	0.82	88.63	77.78	59.13	55.56	15.57	47.94	69.22

1/ B : Products with no tariff reduction during the period.

C : Products with total tariff reduction beginning February 28, 1971.

D : Products with total tariff reduction beginning April, 1970.

E : Products with annual and automatic tariff reduction beginning December 31, 1970.

2/ Given that Venezuela joined the Andean Pact in 1973, it only began to fulfill the obligations emanating from the program of liberation in 1974. Accordingly, in the case of Venezuela the 1974-76 period would be more representative than that of 1970-76. However, because the behavior observed did not vary between these two periods, the differentiation was not made in the Table.

TABLE No 4

PARTICIPATION (IN VALUE) OF TRADE AS PER THE NATIONAL LIST IN COLOMBIA'S TOTAL TRADE
WITH THE ANDEAN GROUP, 1966-74

(%)

Country	1966-70		1971-74		1966-74	
	Exportation	Importation	Exportation	Importation	Exportation	Importation
Bolivia	3.97	50.00	6.09	0.30	4.91	16.86
Chile	58.31	46.07	59.98	66.30	59.05	55.06
Ecuador	48.58	97.24	50.11	70.44	49.26	85.33
Peru	56.05	78.29	33.84	49.76	46.18	65.61
Venezuela	28.52	58.73	13.31	58.59	21.76	58.67
Andean Group	43.22	71.59	39.94	62.35	40.87	65.47

TABLE No 5
REGIONAL INTERTEMPORAL DYNAMISM OF COLOMBIAN
EXPORTS TO THE ANDEAN GROUP
(1966 - 1976)

List	Country of Destination	W ^{1/}	Country vs. Country				Country vs. rest of the world				Country vs. (T.C. - A.G.) ^{5/}			
			% Items 2/				% Items 4/				% Items 4/			
			Value	Quan.	Value ^{3/} (%)	Quan.	Value	Quan.	Value(%)	Quan.	Value	Quan.	Value(%)	Quan.
Total	Bolivia (413)	1	22.5	22.2	51.1	59.8	36.3	33.1	93.5	90.9	40.4	38.2	93.3	91.0
		2	26.1	24.2	54.4	59.5	35.3	32.2	94.1	91.7	37.2	34.1	93.1	92.0
	Chile (413)	1	17.9	18.8	9.9	8.4	33.1	31.2	80.7	16.4	36.8	35.1	80.8	30.7
		2	19.1	19.6	33.3	8.4	31.4	28.5	86.4	16.8	35.5	32.9	86.1	30.7
	Ecuador (413)	1	45.5	45.7	20.7	5.1	44.5	44.0	79.9	21.6	46.0	44.0	78.8	21.6
		2	46.4	49.1	19.1	5.5	46.0	45.7	79.8	21.7	39.7	41.4	78.4	21.7
	Peru (413)	1	35.1	35.3	24.1	2.3	41.1	37.2	80.1	12.3	41.6	40.6	78.8	13.1
		2	38.4	37.7	24.6	2.8	38.4	35.8	78.8	12.7	39.9	37.7	77.5	13.3
	Venezuela (413)	1	28.8	28.5	35.7	31.9	45.5	44.7	86.1	78.7	51.3	50.6	86.0	78.7
		2	28.5	27.6	30.8	32.0	45.0	45.7	84.6	78.6	52.3	52.3	84.1	78.5

^{1/} Weighting 1 : Weighted average rate of growth with topend of \pm 300% on the rates of annual growth.

Weighting 2 : Weighted average rate of growth with topend of \pm 100% on the rates of annual growth.

^{2/} Percentage of items exported to the country of reference that fulfilled the condition of positive intertemporal dynamism (in monetary terms or in terms of physical quantity, as is the case).

^{3/} Participation (%) of the items that fulfilled the condition of positive dynamism (intertemporal and intertemporal regional, as is the case) in the total value of Colombian exports to the country of reference.

^{4/} Percentage of items exported to the country of reference that fulfilled the condition of positive regional intertemporal dynamism in relation to geographical " control " area considered.

^{5/} This geographic " control " area is constituted by third countries that are not Andean Group members.

TABLE No 6
REGIONAL INTERTEMPORAL DYNAMISM OF COLOMBIAN IMPORTS
COMING FROM THE ANDEAN GROUP
(1966 - 1976)

List	Country of origen	W.	Country vs. Country				Country vs. rest of the world				Country vs. (T.C. - A.G.)			
			% Items				% Items				% Items			
			Value	Quan.	Value (%)	Quan.	Value	Quan.	Value (%)	Quan.	Value	Quan.	Value (%)	Quan.
Total	Bolivia (117)	1.	5.1	4.2	98.1	95.2	31.6	33.3	38.3	63.3	35.0	36.7	39.6	68.1
		2	5.9	5.9	99.0	97.8	30.7	31.6	57.7	66.1	32.4	32.4	54.9	60.0
	Chile (117)	1	15.3	15.3	27.1	27.8	29.0	30.7	10.5	17.6	33.3	32.4	13.9	27.4
		2	16.2	15.3	28.1	27.9	25.6	27.3	12.9	18.8	27.3	27.3	15.2	18.7
	Ecuador (117)	1	16.2	11.1	30.9	8.6	34.1	33.3	30.5	58.3	37.6	33.3	28.8	58.5
		2	16.2	13.6	28.8	7.8	32.4	30.7	46.1	55.6	35.0	33.3	41.8	57.7
	Peru (117)	1	16.2	15.3	60.7	76.8	35.0	36.7	54.9	63.0	36.7	35.8	56.8	66.4
		2	17.9	17.0	60.7	49.7	29.9	35.0	54.2	65.4	32.4	33.3	54.8	60.0
	Venezuela (117)	1	17.9	15.3	19.5	21.4	44.4	43.5	46.3	35.1	47.0	44.4	45.6	43.8
		2	13.6	13.6	54.3	16.9	41.8	43.5	46.3	45.2	44.4	47.8	45.5	52.5

NOTE : The footnote observations for Table No 5 hold for this table as well.

TABLE No 7

STATISTICAL (t - STUDENT) ANALYSIS OF THE REGIONAL INTERTEMPORAL DYNAMISM
OF COLOMBIAN EXPORTS TO THE ANDEAN GROUP

(1966 - 1976)

List	Country of Destination	BEFORE - AFTER												AFTER			
		COUNTRY V.S. COUNTRY						COUNTRY V.S. (T.C.- A.G.)						COUNTRY V.S. (T.C.-A.G.)			
		±	200	±	300	±	100	±	200	±	300	±	100	±	300	±	100
		t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.
Total	Bolivia 413	6.112	0.5%	4.241	0.5%	3.093	0.5%	-8.073	0.5%	-0.121	No	-0.000	No	-3.160	0.5%	-1.593	10%
	Chile 413	4.842	0.5%	2.014	5%	1.609	25%	-7.793	0.5%	-2.328	2.5%	-1.766	10%	-5.370	0.5%	-3.361	0.5%
	Ecuador 413	7.228	0.5%	1.600	25 %	0.368	No	-3.930	0.5%	-1.938	5%	-1.785	10%	-0.732	No	0.164	No
	Peru 413	7.740	0.5%	3.241	0.5%	2.316	2.5%	-4.970	0.5%	-1.478	25%	-0.831	No	-1.006	0.5%	-2.091	5%
	Venezuela 413	3.111	0.5%	-3.130	0.5%	-2.973	0.5%	3.011	0.5%	3.691	0.5%	3.672	0.5%	1.688	10%	2.565	1%

TABLE No 8

STATISTICAL (t- STUDENT) ANALYSIS OF THE REGIONAL INTERTEMPORAL DYNAMISM
OF COLOMBIAN IMPORTS COMING FROM THE ANDEAN GROUP

		BEFORE - AFTER										AFTER									
List	Country of Origen	COUNTRY V.S. COUNTRY								COUNTRY V.S. (T.C. - A.G.)								COUNTRY V.S. (T.C. - A.G.)			
		<u>+</u>	600	<u>+</u>	200	<u>+</u>	300	<u>+</u>	100	<u>+</u>	600	<u>+</u>	200	<u>+</u>	300	<u>+</u>	100	<u>+</u>	300	<u>+</u>	100
		t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.	t	Sign.
Total	Bolivia 117	1.735	10%	1.739	10%	2.060	5%	1.900	5%	-3.392	0.5%	-3.982	0.5%	-2.263	2.5%	-2.315	2.5%	-4.229	0.5%	-2.285	2.5
	Chile 117	0.309	No	1.284	25%	-0.431	No	-0.484	No	-3.462	0.5%	-3.747	0.5%	-3.340	0.5%	-3.361	0.5%	-2.497	2.5%	-1.238	25%
	Ecuador 117	1.350	25%	1.724	10%	-0.237	No	-0.754	No	-2.856	0.5%	-2.986	0.5%	-2.930	0.5%	-3.074	0.5%	-2.419	2.5%	-1.550	10%
	Peru 117	1.993	5.0%	2.040	5.0%	0.947	No	0.528	No	-2.126	5.0%	-3.246	0.5%	-2.182	5%	-2.055	5%	-3.201	0.5%	-1.934	5%
	Venezuela 117	0.109	No	0.215	No	-0.703	No	-0.657	No	1.876	10%	0.324	No	0.115	No	0.633	No	-0.610	No	0.318	No

TABLE No 9
MULTIPLE CORRELATION ANALYSIS OF THE INTERTEMPORAL DYNAMISM
OF COLOMBIAN EXPORTS TO THE ANDEAN GROUP
(1966 - 1976)

Group	Country of Origen	α_0	α_1 (MP)	α_2 (LP)	α_3 (LN)	α_4 (CRECMPT)	α_5 (Dist.)	r^2
Total	Bolivia (413)	-5.1473	340.1998 (3.323)	-2.2724 (0.011)	30.7798 (1.018)			0.0111
	Chile (413)	-16.5164	- 5.9830 (0.013)	--	--			0.0000
	Ecuador (413)	12.8410	-119.5848 (0.729)	-25.0600 (2.328)	-43.5381 (9.887)**			0.0264
	Peru (413)	0.5343	-5.1331 (0.012)	-12.6119 (0.741)	-17.2192 (0.683)			0.0034
	Venezuela (413)	40.0350	36.3731 (0.113)	-53.3564 (1.787)	-49.8479 (3.707)			0.0134
	Combined (2065)	7.1329	--	-22.3535 (7.256)**	-21.7573 (6.033)**	1.3474 (12.837)**	-5.4920 (3.359)	0.0157

1/ Between parentheses, the calculated F value.

* Significantly different from zero at the 5% level of confidence.

** Significantly different from zero at the 1% level of confidence.

TABLE No 10

MULTIPLE CORRELATION ANALYSIS OF THE REGIONAL INTERTEMPORAL DYNAMISM
OF COLOMBIAN IMPORTS COMING FROM THE ANDEAN GROUP
(1966 - 1976)

Group	Country of Origen	α_0	α_1 (MP)	α_2 (LP)	α_3 (LN)	α_4 (Dist .)	r^2
Total	Bolivia (117)	-32.9299	-23.2728 ^{1/} (0.081)	6.8504 (0.068)	18.5963 (0.497)		0.0048
	Chile (117)	-26.1487	-16.3921 (0.024)	-13.1028 (0.224)	-10.6995 (0.147)		0.0029
	Ecuador (117)	-6.4829	-67.7651 (0.701)	-28.8148 (0.865)	-7.9830 (0.103)		0.0163
	Peru (117)	-22.8422	-106.6715 (0.815)	--	8.9653 (0.099)		0.0074
	Venezuela (117)	- 2.2363	102.1257 (0.193)	15.4050 (0.232)	-25.4869 (0.586)		0.0120
	Combined (585)	-7.8527	-61.0972	-3.3197	-4.3668	-3.5940	0.0051

^{1/} Between parentheses, the calculated f value.

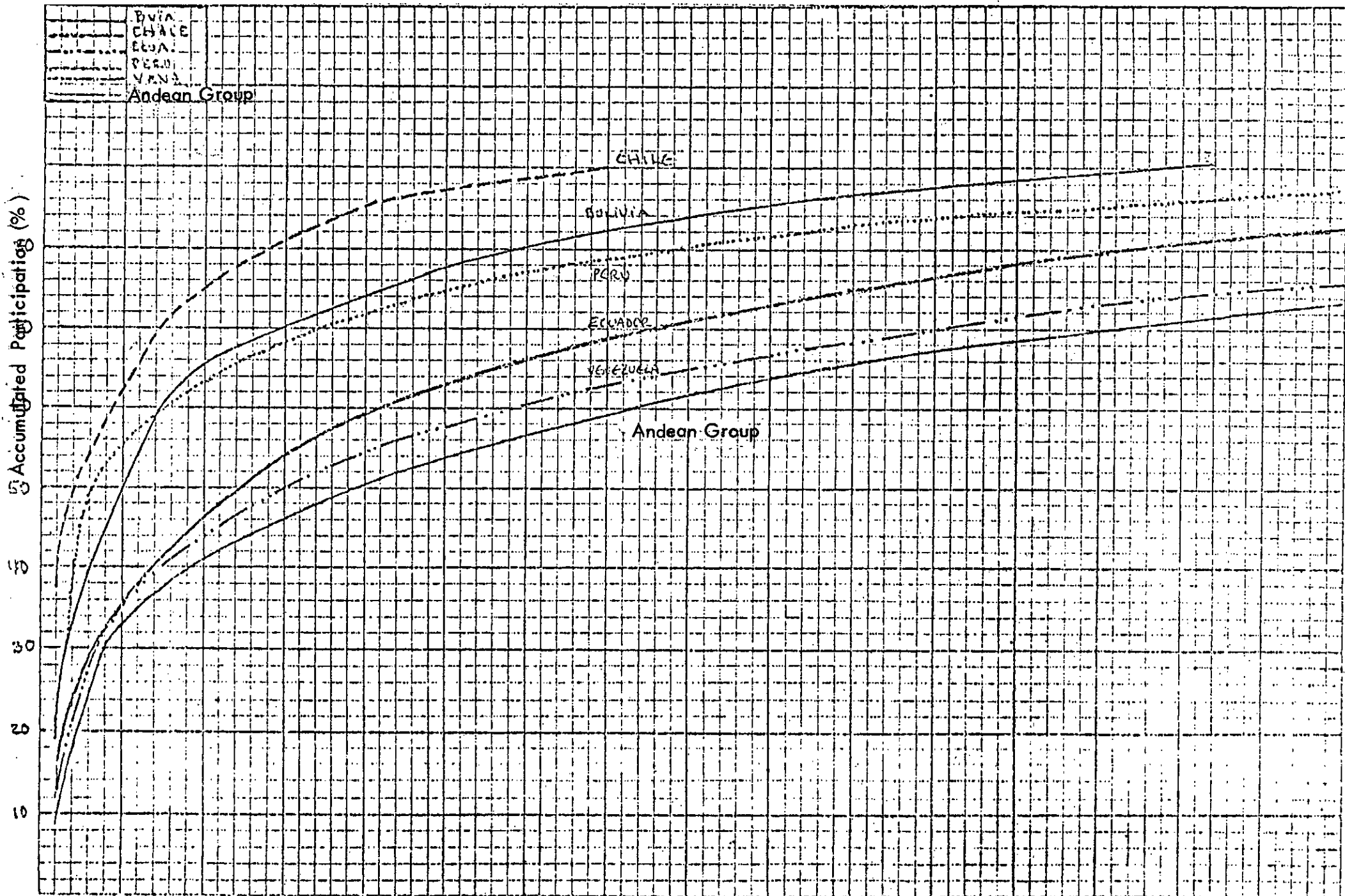
* Significantly different from zero at the 5% level of confidence.

** Significantly different from zero at the 1% level of confidence.

GRAPH No 1

ACCUMULATED PARTICIPATION OF COLOMBIA'S PRINCIPAL EXPORT PRODUCTS

DESTINED FOR THE ANDEAN GROUP DURING THE 1970-1976 PERIOD



GRAPH No 2

ACCUMULATED PARTICIPATION OF COLOMBIA'S PRINCIPAL IMPORT PRODUCTS
COMING FROM THE ANDEAN GROUP DURING THE 1970-1976 PERIOD

