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TRADE AND THE IMPORT CONTROL SYSTEM IN COLOMBIA:

SOME QUANTIFIABLE FEATURES*

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Trade and the Import Control System in Colombia: Some Quantifiable Features*

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Industrialization and trade are tightly linked in developing countries, and Colombia is no exception. Most stages in the growth of the factory sector involve replacement of actual or potential imports by domestic production. In early phases, while this process focusses on final consumer goods, the new local production depends heavily on imported inputs and capital goods. Often delayed by policy, the stage of manufacturing exports may arrive, as it now has in Colombia, and then it is the ability to switch from the local market to the vast world market which permits expansion at a much faster rate than the growth of domestic demand. Manufacturing growth is, in the whole sequence, related to changes in trade patterns.

Manufacturing output tends to rely more on produced capital goods than does agriculture, and most economists would probably accept the proposition that as the K/L ratio rises in a country the share of factory manufacturing in output will rise,[1] this more or less regardless of the presence or absense of various possible types of trade barriers. For several reasons, economists want to understand both the process of growth and changing trade patterns, given any set of trade barriers or stimuli, and the effect of changes in the set of trade barriers or stimuli. In the latter field, the degree of validity of the infant industry argument for protection has long been a key question. Earlier chapters have presented some evidence consistent with its

validity in Colombia: Chapter 2 pointed to the growing up of the textile industry from an often decried white elephant in its first decade or so to a highly competitive industry, one of the prides of Colombian manufacturing. Chapters 4 and 5 measured for learning by doing in two separate industries and found it to be significant. This evidence by no means permits us to reach an overall evaluation of Colombian protectionist policies. Even less solid evidence is available on the impact of export promotion policies on the efficiency of the aided industries.[2] Such analyses are complicated by the fact that import substituting and exporting activities are frequently carried out by the same firms.

The importance of learning by doing is, then, of key importance in the prediction of output effects of trade barriers, or stimuli in the case of new exports. When one turns to the income distribution impact of trade, a long established body of literature is available to suggest hypotheses. Assuming that trade is based on relative factor abundance, protection of relatively capital intensive domestic industries (manufacturing which has to be protected in a labour abundant country presumably fits this category) is predicted to raise the share of capital and to worsen the personal distribution of income; exports of manufactures which are competitive will presumably be labour intensive so the activity will raise the labour share and improve income distribution. But these simple Heckscher-Ohlin predictions are obviously open to question and qualification.[3] A most obvious qualification is raised by the fact (see Chapter 6) that factor proportions seem to be as much or more related to firm or plant size as to industry or sector, capital intensity being an increasing function of size. Chapter 6 raises many doubts about the often assumed positive relation between size and efficiency.

Before a persuasive interpretation of the impact of trade in manufacturing products or the quality of trade policy can be evolved, it is clear that certain detailed types of information are necessary. What types of firms import and export? How does the existing trade control system discriminate, if at all, among these types?

This essay will seek some light on these questions by analyzing 1970 registered imports according to size of importers. It will be seen that familiarity with about 500 major private importers allows import control authorities to be reasonably sure about the destination of half of registered imports. It is not far fetched to suppose that those 500 major importers make up the core of the Colombian socioeconomic system, and that they and INCOMEX[4] authorities know each other fairly well. With half of imports going to 500 companies, and about 20 percent going to the public sector, only 30 percent has to be distributed in retail fashion.

The chapter will also attempt a quantification of some aspects of INCOMEX behavior in accepting or rejecting import requests, as revealed in its handling of a sample of such requests during 1971. The data will also show that a good share of major industrial exporters is to be found among major importers.

Major Colombian Importers in 1970

From a sample of import license requests made in the second semester of 1971, two types of information were obtained: a census-like coverage of all imports, exports, etc., for each company (not plant) in 1970, and data on the specific import request for the second semester of 1971 (amount, rejection or acceptance, reasons for rejections, etc.). The former type of information will be discussed first.

Following INCOMEX categories, major private importers can be subdivided into an industrial and a commercial group. Industrial importers use imports in their production process; commercial importers resell the foreign goods to local buyers. While "Resolution 15" forms give no information on the ownership of the company making the import request, a somewhat rough-and-ready separation was also made according to presumed nationality.[5] In general, it was presumed that a company was Colombian-owned unless there was firm evidence to the contrary. Only companies for which foreign ownership was 50 percent or more were placed under the category of foreign-owned; all others were regarded as national. There were, however, relatively few joint-ventures in the sample. Note that the definition of foreign-owned companies used here is considerably weaker than that used in the Andean code on foreign investment. Lack of reliable and up-to-date data was the major reason for choosing our weaker definition.

Table 1 presents a summary of major industrial[6] importers, classified according to their registered imports during 1970, and whether the companies were national or foreign owned. Data on the number of employees, minor exports, and income and sales taxes paid by these companies are also presented. Three subdivisions according to size are made: companies which imported more than one million dollars in 1970; those importing between half a million and one million; and those whose imports ranged between $100,000 and half a million.

Table 1 shows a striking degree of concentration, which helps explain the relatively smooth operation of the Colombian import control system. Thus, just 80 industrial companies captured in the sample accounted for 30 percent

of all 1970 registered imports; these same companies accounted for 21.2 percent of all income and sales taxes paid during 1970 in Colombia, and employed 19.2 percent of all those engaged in manufacturing in the same year.[7] Since, given the way the data were obtained, some large importers may have been missed, the estimates presented in Table 1, and those which follow, for import concentration, as well as for degree of foreign control, are minimum ones; further, there could be cases of several companies being under the control of a single conglomerate or family group.

Note that, even neglecting data problems, it would not be easy to interpret the information presented in Table 1. Neither comparable cross-seciton nor time-series data are available for Chenery-like tests of "normality." Even if they were, further analysis involving variables such as industrial structure would be required before establishing whether the degree of concentration shown is more or less than could be expected if import controls did not exist.

Table 2 presents parallel data for the commercial category, while Table 3 combines information from the previous two tables. There were in 1970 at least 100 companies importing more than one million dollars (with an average of $3.1 million each), accounting for 34 percent of all registered imports. Fifty-five foreign-owned companies in this group by themselves represented 20 percent of all Colombian registered imports in 1970.

The degree of concentration falls off rapidly once companies with imports of less than one million dollars are considered. Thus, the 88 companies, foreign and national, industrial and commercial, which were found to import between half and one million dollars, accounted for only 6 percent

of all imports in 1970, while the 312 companies importing between $100,000 and half a million dollars represented an additional 9 percent of the import bill. In round numbers, one can say that 500 companies handled at least half of Colombian imports. The same companies accounted for 37 percent of all income and sales tax payments, and 32 percent of those employed in "modern" commerce and manufacturing.

Given the economic importance of those firms importing more than one million dollars, their names and presumed major activity is given in Annex A. This annex and other data (not shown) indicate the heavy concentration of import-intensive foreign investors in chemicals, pharmaceuticals and metal-mechanic industries, which are typically associated with fairly recent import substitution. National companies are more spread out among different activities.

At least 80 industrial companies importing more than one million dollars a year in 1970/71 hired an average of 923 employees. An additional 63 companies, importing between half and one million dollars, had each an average of 496 employees. Finally, 177 industrial companies in the third category, had an average of 310 employees each. A comparision of these figures with data reported by the Colombian Ministry of Labor and Social Security suggests that the sample succeeded in registering at least the largest Colombian firms, on the assumption that most of the largest firms according to employment are also the largest importers.[8]

Table 1 reveals major industrial exporters among the major importers. It has been estimated[9] that registered Colombian manufactured exports (excluding items such as sugar) reached $76.7 million during 1970; the 80 largest importers would thus account for 49 percent of those exports. The

largest 314 industrial importers (excluding several sugar mills) would account for 77 percent of manufactured exports.

A ranking of major importers by level of exports permits a more accurate measure of industrial export concentration. The largest 14 national industrial exporters in the sample (excluding sugar mills) had registered industrial exports of $26.89 million in 1970, while the 10 largest foreign-owned exporting industrial companies had $20.41 million of exports of 1970. Thus, 24 industrial companies accounted for 62 percent of all (non-sugar) industrial exports. Foreign-owned companies, by themselves, represented at least 27 percent of all Colombian industrial exports in 1970.

Some important characteristics of major industrial importers/exporters are highlighted in Table 4. Average wages decline with company size as measured by annual imports, but foreign-owned companies show higher wages for each size category than national firms. Foreign companies, however, also have higher imports per employee, for each size category, than do national companies, with imports per employee declining with size for both groups. The 49 foreign-owned industrial companies importing more than one million dollars each show an astounding level of $6,557 worth of imports per employee, and although their exports per employee are higher than those of national firms in the same import size category, their "trade deficit" remains far superior to that of any other category. As a rule, large foreign-owned companies are more concentrated in Bogotá than large national firms. These characteristics will be reexamined for all companies in the sample in a later section of this paper.

Among the most striking facts about the 24 mjaor exporters, 10 foreign-owned and 14 national, are: (a) the persistence of a "trade deficit," and (b) the large average size of these companies. (See the last two rows of Table 4.) Neither fact fits well with an image of firms producing labor-intensive manufactured exports; rather, it is hinted that many of the same companies which in the past benefitted, and which still do, from import-intensive import-substitution, now benefit from the newer export-promotion policies. It is nevertheless encouraging that these companies are less concentrated in Bogotá than other groups shown in the same table.

Income and sales taxes paid per employee, like wages and imports per employee, appear to decline with company size; in contrast with the cases of wages and imports, the national companies show higher tax payments per employee in the two smallest size categories. In spite of their large average size, the 24 large exporters show relatively small cash tax payments, a fact which may be explained by Colombian export subsidy schemes.

In summary, a picture of substantial concentration emerges from this review of major 1970 private importers. It is not possible to say from the reviewed data whether such concentration is higher or lower than in other countries, nor whether or not it is encouraged or discouraged by the import control system. (More on this below.) But the data help explain why the management of import controls is not as impossible a task as it appears at first sight when one is told that a handful of authorities decide on about 150,000 import applications per year. Some 500 private companies act as major actors not only in the import field, but also as major exporters

and tax collectors for the government. Note that only income and sales tax data have been discussed; those 500 companies must also pay a very large share of all import duties.[10]

Revealed INCOMEX Criteria for Accepting or Rejecting Import License Requests

The analysis of characteristics of license requests approved or rejected (partly or totally) by INCOMEX during the second semester of 1971 can shed some light on the question of biases created by the import control system, as compared with a regime without quantitative restrictions. Table 5 presents a tabulation of the reasons given by INCOMEX for rejecting import requests in the sample; more than one reason is frequently given. The potential importer is handed a mimeographed sheet in which the listed reasons for rejection are presented, with those applying to his request bearing a check mark.

A good share of rejections are only partial, particularly under the industry category. More serious rejections appear to be based on protectionist grounds, as reflected in reasons #1, 2, and, very likely, in 8 and 9. For the commercial category these four reasons add up to 46 percent of the reasons for rejection, while for industry the corresponding figure is 40 percent. The commercial requests also seem to be particularly scrutinized for "excessive" imports (reason #11) and tax evasion (reason #13). Industrial requests are watched for overinvoicing (reason #4); in this area INCOMEX claims to have saved the country several million dollars by keeping foreign-owned companies, especially those in the pharmaceutical field, from remitting excessive profits to their headquarters abroad via overinvoicing. Such claims appear to be substantially correct.[11]

The average characteristics of approved, rejected and partially rejected import requests in the industrial and commercial categories are laid out in Table 6. Note first that our sample picked up a higher average of rejected requests than seems to have been typical during the second semester of 1971. While at that time it was said that only about 10 percent of all requests were being turned down, 25 percent of the industrial requests, and 43 percent of commercial requests appear as totally rejected. The companies appearing in the sample are on average larger than those in the whole industrial and commercial sector; while this fact in itself is not surprising, it is also probably true that the sample is biased in the direction of over-representing larger importing firms and larger import requests.

The large standard deviations shown in Table 6 warn of the difficulty in generalizing with confidence about the characteristics of accepted, rejected and partially rejected requests. Note also that the listed characteristics omit, due to lack of data, very important features of the import requests: whether or not, for example, the requested import was or was not competitive with some local production, and also whether the requested imports originated in countries having preferential trade agreements with Colombia.

In spite of these limitations, an attempt has been made to establish what characteristics of the import requests, and of the company making them, made INCOMEX more likely to accept such petitions. As some important independent variables are left out of the analysis, we cannot expect to obtain good fits. A less ambitious goal will be to isolate characteristics which significantly influence INCOMEX in the decision to accept or reject each application, ceteris paribus. The analysis may be interpreted as measuring

an INCOMEX supply function for import licenses, while neglecting the demand function for such licenses, or assuming, as a not unreasonable first approximation, that the demand for licenses is perfectly elastic at the going transaction costs involved in applications.

The dependent variable, to be statistically explained, is somewhat unusual. If all applications are divided simply into those accepted or rejected, that variable will only take values of zero for rejections, or one for approvals. Under these dichotomous circumstances, multivariate probit analysis is known to be a superior technique to the usual least square multiple regressions.[12] In our sample, applications partly rejected present an intermediate case, which can be handled in different ways. In what follows, the probit analysis will be applied in three ways: leaving out partial rejections, treating them as total rejections, and also treating them as total approvals. The dependent variable for partially rejected requests can also be expressed as the fraction of the value of the license granted by INCOMEX; in that case, there will be intermediate observations between zero and one. Ordinary least squares will be used to analyze this fashion of expressing the dependent variable.

Table 7 and 8 present the best results obtained, best being determined by the number of coefficients which had interesting values relative to their standard errors. Several other independent variables, not shown, were unsuccessfully tried. On the whole, it will be seen that the different techniques used to analyse the data yield similar qualitative results.

Import requests under the non-reimbursable category, i.e., those which do not involve an <u>immediate</u> claim on foreign exchange resources, clearly

have a much better chance of being approved than those under the reimbursable category, both under the industrial and commercial classifications. Smaller import requests also have a clearly better chance of being approved, for both the industrial and commercial classifications, than larger requests. When partial rejections are counted as approvals on the supposition that either the company will be happy to obtain a share of its perhaps inflated request, or that it can always present a new request later on, the significance of the coefficient for the absolute size of the import request declines but remains high. As seen in Table 6, the average value of license applications which were partially rejected were higher than those for complete approvals and rejections. A breakdown of requests into ten groups according to the size of requests shows the negative relation between complete approval and size of request to be quite smooth, with the percentage of total approvals declining steadily from 77 percent for the smallest to 36 percent for the largest in the case of reimbursable industrial requests. In the commercial category the decline in the acceptance rate is even steeper. On the whole, these facts indicate that INCOMEX authorities, besides their protectionist guidelines, still operated during the second semester of 1971 with an eye (somewhat myopic) to rationing foreign exchange.

Do large firms have a better chance of obtaining desired licenses than smaller firms? Size was measured in two ways: number of employees and value of 1970 import registrations. Both measures gave substantially the same results; those using 1970 imports are shown in Table 7, for industrial requests, while those using employment levels are used in Table 8, for commercial requests. The hypothesis being tested is that chances for approval

increase steadily with size, even when other company and license characteristics are also taken into account. For the industrial category, the hypothesis receives only modest support; when partial rejections are treated as approvals, which for large companies may be quite suitable, that support is strongest. In the commercial category, the significance of the size variable is uniformly superior to that for industrials, and indicates a clear and smooth link between size and chances of approval, even after other variables are taken into account. We return to this issue below.

Company size is of course highly correlated with variables such as taxes paid and exports. Therefore, some other independent variables were defined relative to the size variable. Taxes paid, relative to either imports or employees, significantly increased chances for approval in the case of industrial license requests; somewhat surprisingly, the evidence for such a hypothesis is much weaker in the commercial group. Also surprisingly, a significant negative link appears for industrial requests between minor exports, relative to imports, and chances of approval. This result is inconsistent with the usual INCOMEX claims that industrial exporters are favored in the granting of import licenses. However, as shown in Table 12, a closer look at the data casts doubts on the robustness of this revealed negative link, at least for companies located in Bogotá or Medellín. It remains possible that some INCOMEX officials felt that large exporters (relative to their 1970 imports) were already obtaining enough fresh imports via the "Plan Vallejo," which are exempted from prior licenses. Most participants in the "Plan Vallejo" are large firms.

Finally, a look at the correlation coefficients among the independent variables shown in Table 7 and 8 fails to show widespread collinearity problems. Indicating the independent variables in Table 7 as X_1, X_2, ..., X_9, following the order in which they are shown in that table, their correlation coefficients are as follows:

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
X_2	-0.01	--	--	--	--	--	--	--
X_3	0.08	-0.78	--	--	--	--	--	--
X_4	-0.20	0.16	-0.16	--	--	--	--	--
X_5	0.07	-0.24	0.36	-0.09	--	--	--	--
X_6	0.07	-0.51	0.50	-0.12	0.24	--	--	--
X_7	0.10	0.33	-0.37	0.05	-0.06	-0.13	--	--
X_8	-0.01	-0.02	0.01	0.00	0.00	0.03	-0.02	--
X_9	0.05	-0.03	-0.02	0.09	0.03	-0.14	0.02	0.02

Similar results are obtained for the independent variables of Table 8. There <u>are</u> interesting relationships among the size, export, wage and tax variables discussed for major importers in the first section of this paper and to be further explored below, but they do not appear to seriously mar the results of Tables 7 and 8.

Industrial Company Size and Chances of Approval: A Closer Look

The hypotheses dealing with the links between chances of approval and size, geographical location, and generation of minor exports will be further examined in this section for industrial companies. It will be shown that

the largest industrial companies, particularly those in Bogotá and Medellín, do in fact have a better chance than smaller firms for obtaining import licenses.

The data, as shown in the last columns of Tables 9 and 10, indicate that the percentage of requests falling under the non-reimbursable category is noticably higher for the largest companies. These tables, and those which follow, consider only license applications which had been totally rejected or approved. The link between size and share of non-reimbursables in total request is not a smoothly increasing one; indeed, as one moves from the smallest to the largest firms it seems to dip before rising most clearly for the largest firms. It was seen earlier, and Tables 9 and 10 confirm, that requests under the non-reimbursable category have a much higher chance of being accepted than those under the reimbursable classification. In other words, this fact suggests that unadjusted for the non-reimbursable/reimbursable variable, the largest companies and exporters have a better chance of obtaining approvals, thanks to their better access to non-reimbursable licenses, associated with links to foreign credits or investments.[13]

Tables 9 and 10 also show that when only reimbursable license applications are considered, the percentage approved shows no clear trend as one moves up the size scale, until the largest size categories are reached. Firms with more than 466 employees, and/or more than two million US$ imports in 1970 show reimbursable approval rates clearly above average.[14]

The geographical pattern of approvals and rejections is explored in Tables 11 and 12, in relation to employment and minor exports. Sharp

differences in approval percentages between Bogotá or Medellín, and the rest of Colombia, emerge clearly only for the three largest employment categories, and the two largest categories of minor exporters. Firms from Bogotá or Medellín with at least 50 thousand US$ in minor exports in 1970 have the largest percentage of approvals in Table 12, while the largest employers in Bogotá and Medellín have the most successful performance of those shown in Table 11.

In the total number of import requests from Bogotá and Medellín under the industrial category, one finds a higher share of requests in the non-reimbursable group than the corresponding share for the rest of the country (12.2 percent vs. 8.5 percent). The same is true for the commercial category (10.4 percent vs. 5.4 percent). But even if one looks just at the reimbursable requests, the percentage of approvals is higher for Bogotá and Medellín for both industrial and commercial categories.

Of the total requests from foreign-owned industrial companies, 68.4 percent came from those located in Bogotá and Medellín, while the corresponding percentage for national firms was 76.2. The share of non-reimbursable requests in total requests from foreign-owned industrial companies was almost identical to the corresponding share in the requests of national firms. Regardless of how requests are sliced, the percentage of approvals for requests from foreign-owned industrial companies come out very close to those from national firms, although usually slightly lower.

The result that very large industrial firms located in Bogotá or Medellín have a higher approval rate than all others comes out most clearly in Table 13, and from its underlying data. When partial rejections are

omitted from the sample, the combined approval rate for firms which imported less than two million US$ in 1970 or were located outside Bogotá and Medellín was 68.4 percent, in contrast with the 83.7 percent corresponding to the big firms in Medellín or Bogotá. The null hypothesis, i.e., that there is no relation between chances of approval and being a big firm in Bogotá or Medellín, must be rejected at the one percent level of significance. If partial rejections are counted as approvals, the contrast is between an approval rate of 86.7 percent for big firms in Bogotá and Medellín, versus 73.5 percent for all others. The null hypothesis can again be rejected at the one percent level of significance. Finally, if partial rejections are registered as plain rejections, the relevant figures are 68.1 percent for the large firms in Bogotá and Medellín versus 57.2 percent for the rest. Now the null hypothesis can be rejected "only" at the five percent level of significance.[15]

It should be recalled that perhaps the most serious shortcoming of the sample data is lack of information on the characteristics of requested imports, particularly on whether or not they are competitive with local production. It is conceivable, for example, that the higher share of approvals for large companies could be explained by their higher requests for imports not competitive with Colombian production, such as machinery and equipment (often brought in under the non-reimbursable category) and inputs originating in heavy industries. But while available data do not allow a test of this hypothesis, I doubt that it could explain fully previous results.

The Import-Export-Taxes-Wages Nexus

The first part of this paper explored some characteristics of the major Colombian importers. This seciton will further examine possible interrelationships among company size, imports, minor exports, and wages and taxes paid, now for all firms appearing in the sample.

One way of carrying out that analysis is to define, say, company "import functions," which try to explain 1970 imports per employee, depending on size, ownership, etc. Similar attempts can be made to explain company minor exports and taxes paid per employee, and company wages. One problem with these relations is that the direction of causation is not always as clear as suggested by a model specifying dependent and independent variables. The results shown in Tables 14 and 15 should therefore be interpreted with caution; their usefulness lies primarily in presenting in a systematic fashion the import-export-taxes-wages nexus found in the sample data.[16]

Industrial companies with high imports per employee clearly tend to pay relatively high taxes per employee, high wages, and, more surprisingly, also have relatively high minor exports per employee. Once this nexus is allowed for, the size variable as measured in number of employees in fact suggests a negative link with per employee imports and exports, although such negative connection may be partly spurious. Even after the indicated nexus is taken into account, larger industrial companies appear to pay higher taxes per employee, although not higher wages. For commercial companies the results, shown in Table 15, are clearest regarding the per employee import-taxes link, which is particularly strong.

A traditional criticism of a system which represses imports by quotas rather than duties is that it involves public revenue losses. Tables 14 and 15 suggest that such a loss is only partial. Either because companies eager to obtain import licenses pay higher than average income and sales taxes, or because INCOMEX channels licenses toward especially efficient companies, or both, the third column of Table 14 shows that a 10 percent increase in imports per employee appears to lead to a 3.6 percent increase in sales and income tax revenues of the government. In the commercial group, the apparent feedback elasticity is nearly twice as great.

As argued by some INCOMEX officials, one can view these results as forthcoming from a policy of channelling the still scarce imports, ceteris paribus, toward companies which yield the government high tax returns. It is also argued that such companies "deserve" import permits, as they have shown themselves more efficient (profitable) than the rest, as revealed by their high taxes and wages per employee. The chain of causation, of course, is unclear, and is likely to run both ways, in a manner difficult to untangle either statistically or a priori.

Companies with high imports per employee also pay higher than average wages. Our data have no information regarding industrial allocation nor the skill composition of company labor force; conceivably, high imports per employee may be correlated with the use of skilled labor commanding higher wages. But while such reasoning is plausible for industrial companies, it has much less force for commercial companies. Yet, both Tables 14 and 15 show a strong link between wages and imports. On the whole, the last columns of these two tables seem to support the hypothesis that wages are

related to the profitability of each company, with access to imports being a key element in profitability.

The dummies for ownership and location emerge as significant in several regressions. Foreign-owned industrial companies have higher imports per employee than national ones, and pay higher wages. The commercial ones also clearly pay more taxes per employee. The observed results, as in earlier cases, could arise from sector and skills variables not included in the regression. Foreign-owned pharmaceutical companies, for example, are likely to have high per employee imports, and a skilled labor force, not because they are foreign-owned, but because they are in pharmaceuticals.

Industrial companies located in Bogotá or Medellín, not surprisingly, appear to pay better wages, and have both higher than average imports and tax payments per employee. For commercial companies, only the tendency to pay higher wages in Bogotá or Medellín remains.

The "minor export functions" yielded the poorest results, suggesting the importance of industrial classification and other variables in explaining export performance. Nevertheless, foreign-owned industrial companies and those outside Bogotá or Medellín are shown to have higher than average minor exports per employee. More surprisingly at first sight are coefficients for wages and per employee imports: companies with high per employee exports tend to import more and pay higher wages. Once these variables are taken into account, the size variable adopts a negative sign. But the data shown in the two bottom lines of Table 4, regarding the concentration of large minor exporters, cannot be gainsaid.

Combined with the information shown in Table 4, and those presented elsewhere,[17] Colombian industrial minor exports in 1970 and 1971 do not emerge as obviously intensive in unskilled labor and national raw materials. Whether this is due to a failure of the Hecksher-Ohlin hypothesis in explaining the Colombian trade pattern, or the result of distortions induced by domestic policy (such as the Plan Vallejo and LAFTA trade) is a matter deserving further research.

Conclusions

There is substantial concentration in the distribution of Colombian imports, a concentration which makes the control system easier to manage. The control system, in turn, appears to buttress such concentration, as it gives the largest companies, particularly those located in Bogotá or Medellín, a better chance of obtaining licenses. This conclusion is strengthened by the fact that it was obtained even though it could not take into account the "discouraged firm" effect. In other words, data on actual import requests were generated by a group of firms which had some hope of receiving a license; this group of companies has an average size which is larger than that for all industrial firms. Discouraged firms which do not bother to apply are in all likelihood small ones, for which transaction costs in license application loom relatively large. These smaller firms often end up buying imported items from large commercial houses.

Nevertheless, the bias toward import concentration arising solely from preferential treatment of the largest firms in Bogotá or Medellín, ceteris paribus, does not appear quantitatively very strong. Access to

foreign credits and investments, allowing imports without the immediate use of foreign exchange, seems a more powerful force in biasing the operation of import controls in favor of the largest (and best connected) companies. One may speculate that much of this concentrating influence would survive a possible elimination of import controls.

This essay has also called attention to the fact that minor industrial exports were in 1970 even more concentrated than imports. Given the tendency of large import-intensive companies paying high wages, whatever their industrial activity, to use more capital-intensive methods than other firms, some skepticism regarding the magnitude and direction of employment and income-distributional effects of minor export expansion is warranted, at least for the medium-run. This, of course, does not mean that the encouragement of minor exports is a mistaken policy, nor that, on balance, it may generate somewhat more modern-sector employment than a comparable amount of import-substitution. It does suggest, however, that for a given overall growth rate, the employment difference may only be marginally superior, so long as the 1970 industrial and export structure is maintained. Hopefully, such structure could still reflect the early stages of industrial export-promotion, which may change as new exporters, less committed to earlier import-substituting ventures, enter the field.

Footnotes

*This essay presents results which will be more fully developed in a forthcoming study on the Colombian foreign trade and payments system, sponsored by the National Bureau of Economic Research. The essay owes much to José Francisco Escandón, and the INCOMEX authorities who allowed him to gather information on a sample of import requests. Very valuable help was also provided by Lillian Barros, Stephen Kadish, Christina Lanfer and Van Whiting. Helpful comments received during seminars at MIT and Columbia University, and from Albert Berry, are gratefully acknowledged.

[1]That this sort of natural neoclassical growth process was going on in Colombian industry was supported by Chu's study of supply response on changing relative prices over 1930-1945 (Chapter 3).

[2]But evidence is available to the effect that exports respond to such price stimuli as the exchange rate, export subsidies, etc. See Albert Berry, Politica Económica Exterior de Colombia, FEDESARROLLO, 1972; Carlos F. Díaz-Alejandro, "Minor Colombian Merchandise Exports," Yale Economic Growth Center Discussion Paper No. 149, July, 1972.

[3]They do not allow for economies of scale, for trade based on market discrimination and decreasing costs, for the complexities of n- good factor models, the product cycle, and so on.

[4]INCOMEX officials kindly allowed the examination of about 2,500 license requests under the commercial and industrial categories. The sample includes cases of several requests from the same company. The requests had been

either accepted or rejected, totally or partially, by the "Junta de Importaciones" of INCOMEX. A smaller sample (199) was also taken of requests under the official category. In choosing the sample of requests, no refined sampling method was followed; one basically tried to get information on those requests which were around at the time and were made available for examination. As during the second semester of 1971 relatively few applications were being rejected, a special effort was made to obtain data on rejected requests. There was also a bias in favor of obtaining requests from as many different companies as possible. There does not appear to exist any particular seasonal pattern to license requests, except a decline in numbers in December and January, so the exclusive use of second semester information should not introduce any particular bias.

[5]In establishing company ownership, heavy reliance was placed on knowledgeable Colombians, and on the following: (a) United States Department of Commerce, Bureau of International Commerce, American Firms, Subsidiaries and Affiliates-Colombia (May 1970), Washington, D.C., (b) The Fortune Directory; The 300 largest industrials outside the U.S., in Fortune, August 1972, pp. 152-61; and (c) American Encyclopedia of International Information, Volume 2, Directory of American Firms Operating in Foreign Countries, 7th Edition, by Juvenal L. Angel, 1969.

[6]In several cases, a given company in the sample had import requests listed by INCOMEX under both the industrial and commercial categories. In all such cases, for the purposes of the tables shown in this chapter, the company was placed only under the industrial category. The same procedure was followed in the few cases for which a company was listed under both the

industrial and the official categories (e.g., Acerias Paz del Rio).

[7]Total income and sales taxes paid in cash during 1970 amounted to 7,220 million pesos, as reported in the Revista del Banco de la República. These data, as those shown in the tables, exclude tax payments made with tax certificates issued in connection with export subsidies. Total national tax revenues were 12,591 million pesos in the same year. The number of workers and employees engaged in manufacturing and registered with the Colombian Social Security Institute was 384.6 thousand in December 1970. See Gabriel Turbay M., "Una Política Industrial Para Estimular Las Exportaciones y Fomentar el Empleo," Mimeographed, FEDESARROLLO, May 1972, Table 9. The equivalent amount for the commercial sector was 203.0 thousand. For both commerce and manufacturing, the employment figures are limited mostly to their "modern" segments, leaving out the "informal sector."

[8]See Gabriel Turbay M., op. cit., Table 9. This source reports the following number of firms in mining and manufacturing, for December 1970:

Size category	Number of firms
More than 500 employees	84
More than 250 and less than 501 employees	143
More than 100 and less than 251 employees	487

Direct comparison of INCOMEX data with those from the Industrial Census is not possible, as the latter reports on plants, not companies.

[9]See FEDESARROLLO, Coyuntura Económica, Volume II, No. 2, July 1972, Table X.2, p. 87.

[10]Major importers under the official category have of course a different nature than those listed under industry and commerce. In our sample of official requests, the following characteristics were isolated:

	Number of Institutions	1970 Registered Imports (million US$)
Registered 1970 imports of more than one million dollars	19	$ 130.83
Registered 1970 imports of between half and one million dollars	10	7.17
Registered 1970 imports of between $100,000 and half a million dollars	16	4.11
Total major official importers	45	$ 142.11

The largest official importers include institutions such as municipal and national public utilities (electricity, telephones, etc.), public agencies marketing basic foodstuffs (IDEMA) or rural inputs (Caja Agraria), the Ministries of Public Works and Defense, etc.

Combining the largest industrial, commercial, and official importers one can see that during 1970, 119 institutions accounted for $441 million in registered imports, or 48 percent of the total import bill.

[11]See Constantino Vaitsos, "Transfer of Resources and Preservation of Monopoly Rents," Harvard Development Advisory Service, Report No. 168, 1970.

[12]See James Tobin, "The Application of Multivariate Probit Analysis to Economic Survey Data," Cowles Foundation Discussion Paper No. 1, December 1, 1955. The condition that the dependent variable must always have a value within the interval zero-one cannot be maintained if its expected value is assumed to be a linear combination of the independent variables, as in multiple regressions. "Moreover, the multiple regression model assumes,

inappropriately for this case, that the distribution of the dependent variable around its expected value is independent of the level of that expected value." (Tobin, p. 2). See also Paul L. Joskow, "A Behavioral Theory of Public Utility Regulation," Unpublished Ph.D. Dissertation, Yale University, 1972, for another application of probit analysis.

[13]The average value of import requests under the industrial non-reimbursable category, however, was only US$ 8,200, compared to US$ 12,174 for those in the reimbursable category. In the commercial group the corresponding figures were US$ 2,285 and US$ 5,276, respectively.

[14]When partial rejections are counted as approvals, the percentage of reimbursable licenses approved according to size, as measured by 1970 imports (in thousand US$), are as follows:

Less than 50	70.4%
50-200	71.4
200-500	71.2
500-2,000	70.6
More than 2,000	81.3

[15]The statistics used in the chi-square test (with one degree of freedom) are as follows:

Partial rejections omitted:	8.642
Partial rejections as acceptances:	8.811
Partial rejections as rejections:	4.617

[16]Note also that Tables 14 and 15, while relying only on the census-like information of our sample, has as many observations as Tables 7 and 8. In other words, duplications were not weeded out, and data for a given company may appear several times. This is partly to avoid the laborious

effort involved in the weeding-out process. It was also noted that in several occasions what appeared to be the same company had different information in different import requests; this could be due to changes in company definitions, in time coverage, or simply to errors of observation. No obvious criteria for choosing one set of information over another could be devised. As in earlier regressions, when a given company happened to have, say, zero minor exports or imports, those zeroes were transformed into ones, so the logarithms would make sense. Finally, one may note the simple correlation coefficients among the variables appearing in the more interesting Table 14. Denoting by X_1, X_2, ..., X_7 the variables in the order they are presented in Table 14 (under the column labelled "Independent Variables," we have the following results:

	X_1	X_2	X_3	X_4	X_5	X_6
X_2	-0.25	----	----	----	----	----
X_3	-0.07	0.09	----	----	----	----
X_4	0.07	-0.39	0.02	----	----	----
X_5	0.07	-0.21	0.04	0.21	----	----
X_6	0.03	-0.47	0.02	0.37	0.32	----
X_7	-0.22	-0.11	-0.14	0.12	0.12	0.15

[17]Albert Berry has noted that data on Colombian industrial two digit sectors for 1971 show a positive correlation between share of output exported and horsepower per worker. As of 1971, the major two digit sectors in terms of gross value of exports were textiles, food products, chemicals, non-metallic minerals, paper products and leather products. In my "Some

Table 1

Major Importers in Colombia, 1970; Industrial

Number of Companies	Classification	Registered Imports, 1970 (Million US$)	Number of Employees (Thousand)	Minor Exports, 1970 (Million US$)	Income and Sales taxes paid in 1970 (Million Pesos)
49	Foreign-owned; industrial; imports of more than one million dollars	$ 167.22	25.50	$ 20.02	563.02
31	National; industrial; imports of more than one million dollars	107.49	48.34	18.98	966.38
80	Industrial; imports of more than one million dollars	$ 274.71	73.84	$ 39.00	1,529.40
27	Foreign-owned; industrial; imports of between half and one million dollars	19.76	12.25	3.58	127.92
36	National; industrial; imports of between half and one million dollars	23.59	19.02 [2/]	7.23 [1/]	221.99
63	Industrial; imports of between half and one million dollars	$ 43.35	31.27	$ 10.81	349.91

Characteristics of Recent Export Expansion in Latin America," Yale Economic Growth Center Discussion Paper No. 183, July 1973, evidence is presented showing a significant positive link between the share of a given sector's exports going to LAFTA, and the capital-labor ratio of that sector. Exports to LAFTA also seem to be more import-intensive than those going to the rest of the world.

Table 1-cont'd

Major Importers in Colombia, 1970; Industrial

Number of Companies	Classification	Registered Imports, 1970 (Million US$)	Number of Employees (Thousand)	Minor Exports, 1970 (Million US$)	Income and Sales taxes paid in 1970 (Million Pesos)
58	Foreign owned; industrial; imports of between $100,000 and half million dollars	15.43	12.73	$ 3.19	127.58
119	National; industrial; imports of between $100,000 and half million dollars	27.99	42.11	45.90 1/	456.08
177	Industrial; imports of between $100,000 and half million dollars	$ 43.42	54.84	$ 49.09	583.86
320	Grand Total	$ 361.48	159.95	$ 98.90	2,463.17
134	-- Foreign owned	202.41	50.48	26.79	818.72
186	-- National	159.07	109.47	72.11	1,644.45

Sources and method: See text of the chapter for explanation.

1/ Includes sugar exports. A total of six sugar companies included in this table exported $ 40.0 Million.

2/ Refers to only 35 companies.

Table 2

Major Importers in Colombia, 1970; Commercial

Number of Companies	Classification	Registered Imports, 1970 (Million US$)	Number of Employees (Thousand)	Minor Exports 1970 (Million US$)	Income and Sales taxe paid in 1970 (Million Pesos)
6	Foreign owned; commercial; imports of more than one million dollars	$ 14.06	0.88	$ 0,67	55.78
14	National; commercial; imports of more than one million dollars	25.38	9.52[2/]	1.05	16.43
20	Commercial; imports of more than one million dollars	$ 39.44	10.40	$ 1.72	72.21
5	Foreign owned; commercial; imports of between half and one million dollars	4.07	0.83	0	22.69
20	National; commercial; imports of between half and one million dollars	13.33	2.02	0.78	25.81
25	Commercial; imports of between half and one million dollars	$ 17.40	2.85	$ 0.78	48.50
13	Foreign owned; commercial; imports of between $100,000 and half million dollars	3.30	2.01	0.15	15.64
122	National; commercial; imports of between $100,000 and half million dollars	25.53	13.04	17.17[1/]	56.50
135	Commercial; imports of between $100,000 and half million dollars	$ 28.83	15.05	$ 17.32	72.14

Table 2-cont'd

Major Importers in Colombia, 1970; Commercial

Number of Companies	Classification	Registered Imports 1970 (Million US$)	Number of Employees (Thousand)	Minor Exports, 1970 (Million US$)	Income and Sales taxes paid in 1970 (Million Pesos)
180	Grand Total	$ 85.67	28.30	$ 19.82	192.85
24	-- Foreign owned	21.43	3.72	0.82	94.11
156	-- National	64.24	24.58	19.00	98.74

Sources and method: See text of the chapter for explanation.

1/ Includes exports of association of banana growers.

2/ Refers to only 13 companies

Table 3

Major Importers in Colombia, 1970; By Size and Nationality

Number of Companies	Classification	Registered imports, 1970 (Million US$)	Share in total registered imports	Share in total income and sales taxes (1970)
100	Imports of more than one million dollars; national and foreign, industrial and commercial	$ 314.15	34.1%	22.2%
88	Imports of between half and one million dollars; national and foreign, industrial and commercial	60.75	6.6	5.5
312	Imports of between $100,000 and half million dollars; national and foreign, industrial and commercial	72.25	7.8	9.1
500	Total of above	$ 447.15	48.6%	36.8%
(158)	-- Foreign owned	(223.84)	(24.3)	(12.6)
(342)	-- National	(223.31)	(24.3)	(24.2)
	Addendum:			
	Official registered imports under the reimbursable category	$ 145.20	15.8%	----

Table 4

Some characteristics of major industrial importers, 1970

Classification	Wages per employee (Pesos)	Imports per employee (US dollars)	Percentage of companies in Bogotá	Percentage of companies in Medellín	Percentage of companies in Cali	Employees per company	Exports per employee (US dollars)	Income and Sales Taxes paid per employee (Pesos)
Foreign owned; imports of more than one million dollars	3,731	6,557	65.3	4.1	18.4	520	785	22,077
National; imports of more than one million dollars	2,040	2,224	54.8	25.8	16.1	1,559	393	19,991
Foreign owned; imports of between half and one million dollars	2,810	1,613	70.4	25.9	3.7	454	292	10,442
National; imports of between half and one million dollars	1,729	1,206	44.4	25.0	16.7	544	370	11,345
Foreign owned; imports of between $100,000 and half million dollars	2,151	1,212	58.6	5.2	27.6	220	251	10,038
National; imports of between $100,000 and half million dollars	1,537	665	50.4	19.3	9.2	354	1,090	10,830
Foreign owned; large industrial exporters (10 companies)	2,867	3,232	40.0	10.0	40.0	944	2,161	10,562
National; large industrial exporters (14 companies, excluding sugar mills)	2,063	1,528	35.7	21.4	14.3	1,801	1,066	9,002

Sources and method: See text of the chapter for explanation.

Table 5

Reasons Given by INCOMEX for Rejecting Applications for Import Licenses, and Tabulation of Sample of Rejected Licenses (totally or in part) during the Second Semester of 1971

(Percentages of All Reasons given for Rejection in Each Category)

		Commerce	Industry	Official
1.	Commodity is produced within Colombia	24.5	15.9	13.3
2.	Requested item can be replaced by similar Colombian goods	5.5	3.2	3.6
3.	Quantity requested is excessive	0.6	0.3	1.2
4.	Foreign price is excessive	0.6	4.8	2.4
5.	Quantity and/or value requested is excessive relative to past record	0.9	2.1	0
6.	Import or approval category temporarily restricted	2.5	0.8	4.8
7.	Inadequate information given to justify need for requested import, modification or addition	1.3	1.4	4.8
8.	Inadequate product description (lack of catalogues, etc.)	6.1	9.0	3.6
9.	Lack of exact and detailed product specification in the request, as per existing regulations	10.2	11.5	12.0
10.	Adequate stocks of products are found domestically	0.6	0.1	0
11.	Requests for identical or similar products have been approved recently to petitioner	13.4	4.6	1.2
12.	There is shortage of foreign exchange	0.1	0	0
13.	Requested imports out of proportion with taxes paid	5.7	0.8	0
14.	Tax information missing	0.2	0.4	0
15.	Data on imports provided by petitioner do not agree with those of INCOMEX	0.5	0	1.2
16.	Excessive expenditures	0.2	0.1	1.2

Table 5-cont'd

	Commerce	Industry	Official
17. Data on sale prices, destined for price control agency, are lacking	0	0	0
18. Other special reasons	9.4	11.3	44.6
19. Percentage of request granted:	17.6	33.5	6.0
20%	(0.4)	(0.3)	(0)
25%	(0.1)	(0.6)	(0)
30%	(2.4)	(0.7)	(0)
40%	(3.2)	(3.7)	(1.2)
50%	(5.1)	(16.2)	(4.8)
60%	(3.4)	(6.1)	(0)
70%	(0.2)	(0.3)	(0)
Unspecified	(2.8)	(5.6)	(0)
Total	100%	100%	100%

Addendum:

a) Requests for which more than one reason was given for rejection (totally or partly)	81	75	14
b) Total of reasons given for rejecting requests (totally or partly), including partial approvals	849	710	83

Sources and Method: See text.

Table 6

Average Characteristics of Approved, Rejected & Partially Rejected Import Requests; Sample taken during the Second Semester of 1971

(Standard Deviation in Parentheses)

	Industrial			Commercial		
	Approved	Partially Rejected	Rejected	Approved	Partially Rejected	Rejected
Number of company employees	518 (1,181)	407 (870)	331 (570)	194 (701)	126 (377)	194 (691)
Import registrations in 1970 (thousand US$)	1,257 (3,350)	1,154 (2,640)	778 (2,066)	779 (3,293)	617 (2,603)	660 (2,557)
Unused 1970 import registrations (thousand US$)	9 (28)	16 (50)	10 (37)	8 (44)	5 (16)	7 (25)
Value of requested 1971 sample license (thousand US$)	9.0 (27.5)	20.9 (28.9)	12.0 (24.7)	1.9 (9.6)	9.3 (16.0)	5.9 (12.9)
Income taxes paid in 1970 (thousand Pesos)	3,520 (9,618)	2,915 (8,746)	2,387 (7,889)	1,010 (3,774)	1,068 (4,411)	1,155 (4,760)
Sales taxes paid in 1970 (thousand US$)	4,516 (31,312)	4,067 (33,380)	2,445 (26,343)	961 (4,592)	694 (3,648)	795 (3,583)
Minor exports in 1970 (thousand US$)	358 (2,040)	127 (436)	210 (1,065)	20 (94)	28 (129)	53 (695)
Average monthly wages (Pesos)	2,595 (3,586)	2,605 (1,707)	2,305 (1,849)	2,436 (1,687)	2,650 (3,080)	2,451 (2,118)
Percentage of licenses in non-reimbursable group	18.2 (38.6)	-0-	2.5 (15.5)	17.8 (38.3)	0.4 (6.6)	6.2 (28.6)
Number of requests in sample	747	212	325	466	232	517
Number of requests from foreign-owned companies	266	95	110	75	43	91
Number of requests from Bogotá or Medellín	559	167	216	373	177	384

Table 7

Industrial Category: Regressions Explaining Approval (1) or Rejection (0) of Import Requests in Sample

(Ratio of coefficients to their standard errors in parentheses)

	Least Square Regressions	Probit Analysis: Partial Rejections Omitted	Probit Analysis: Partial Rejections as (1)	Probit Analysis: Partial Rejections as (0)
Constant	0.383	-0.533 (1.09)	-0.564 (1.36)	-0.095 (0.22)
Non-reimbursable (1) or reimbursable (0) category	0.248 (6.60)	1.108 (5.91)	0.934 (5.15)	1.408 (7.33)
Log of value of all import registrations in 1970	0.011 (1.36)	0.043 (1.43)	0.048 (1.68)	0.029 (1.05)
Log of employees per 1970 imports	0.012 (1.02)	0.042 (0.98)	0.043 (1.09)	0.022 (0.59)
Log of value of requested imports	-0.042 (6.53)	-0.134 (5.12)	-0.047 (1.94)	-0.229 (9.58)
Log of 1970 income and sales taxes paid per 1970 imports	0.013 (2.79)	0.048 (2.71)	0.031 (1.93)	0.050 (3.20)
Log of 1970 minor exports per 1970 imports	-0.012 (2.34)	-0.047 (2.47)	-0.035 (1.96)	-0.043 (2.55)
Log of average wage	0.032 (2.01)	0.110 (1.82)	0.100 (1.97)	0.077 (1.45)
Percentage of 1970 import registrations unused	-0.000 (0.33)	-0.001 (1.25)	0.000 (0.21)	-0.001 (1.26)
Bogotá or Medellín (1) or elsewhere (0)	0.062 (2.34)	0.222 (2.35)	0.246 (2.79)	0.142 (1.64)
R^2	0.102	---	---	---
F-statistic	16.13	---	---	---
(-2.0). log of likelihood ratio	---	115.17	72.87	228.37
Observations	1,284	1,072	1,284	1,284

Table 8

Commercial Category: Regressions Explaining Approval (1) or Rejection (0) of Import Requests in Sample

(Ratio of coefficients to their standard errors in parentheses)

	Least Square Regressions	Probit Analysis: Partial Rejections Omitted	Probit Analysis: Partial Rejections as (1)	Probit Analysis: Partial Rejections as (0)
Constant	0.739	1.134 (2.73)	0.676 (1.92)	1.023 (2.58)
Non-reimbursable (1) or reimbursable (0) category	0.115 (2.98)	0.421 (3.14)	0.220 (1.74)	0.535 (4.02)
Log of number of employees	0.026 (2.60)	0.093 (2.32)	0.056 (1.72)	0.098 (2.65)
Log of value of 1970 import registrations per employee	-0.002 (0.27)	0.001 (0.04)	-0.016 (0.57)	0.006 (0.19)
Log of value of requested imports	-0.116 (15.55)	-0.490 (14.22)	-0.208 (7.96)	-0.539 (16.90)
Log of 1970 income and sales taxes paid per employee	0.010 (1.43)	0.023 (0.87)	0.034 (1.50)	0.015 (0.60)
Log of 1970 minor exports per employee	0.016 (1.91)	0.042 (1.23)	0.054 (1.93)	0.037 (1.16)
Log of average wage	-0.007 (0.51)	-0.048 (0.86)	-0.014 (0.28)	-0.043 (0.79)
Percentage of 1970 import registrations unused	-0.000 (0.05)	-0.000 (0.29)	-0.000 (0.18)	-0.000 (0.04)
Bogotá or Medellín (1) or elsewhere (0)	0.063 (2.20)	0.205 (1.86)	0.183 (2.01)	0.210 (2.03)
R^2	0.197	---	---	---
F-statistic	32.90	---	---	---
(-2.0). log of likelihood ratio	---	281.74	84.98	417.87
Observations	1,215	983	1,215	1,215

Table 9

Industrial: Approvals and Complete Rejections According to Employment Size and Reimbursable or Non-Reimbursable Categories

Number of Employees of Firm Making the Request	Reimbursable		Non-Reimbursable		Grand Total		Non-Reimbursables as Percentage of Total
	Total Requests	Percentage Approved	Total Requests	Percentage Approved	Total Requests	Percentage Approved	
Less than 55	196	63.8%	24	91.7%	220	66.8%	10.9%
55-122	183	68.3	20	90.0	203	70.4	9.9
123-245	193	64.8	31	96.8	224	69.2	13.8
246-466	174	59.8	25	92.0	199	63.8	12.6
More than 466	182	72.5	44	97.7	226	77.4	19.5
Total	928	65.8%	144	94.4%	1,072	69.7%	13.4%

Sources and methods: See text of the chapter.

Table 10

Industrial: Approvals and Complete Rejections According to Levels of Registered Imports in 1970, and Reimbursable or Non-reimbursable Categories

Imports in 1970 (Thousand US$)	Reimbursable		Non-Reimbursable		Grand Total		Non-Reimbursable as Percentage of Total
	Total Requests	Percentage Approved	Total Requests	Percentage Approved	Total Requests	Percentage Approved	
Less than 50	217	65.4%	40	87.5%	257	68.9%	15.6%
50-200	204	65.7	22	95.5	226	68.6	9.7
200-500	189	65.6	24	100.0	213	69.5	11.3
500-2,000	206	61.2	32	100.0	238	66.4	13.4
More than 2,000	112	75.9	26	92.3	138	79.0	18.8
Total	928	65.8%	144	94.4%	1,072	69.7%	13.4%

Sources and method: See text of chapter.

Table 11

Industry: Approvals and Complete Rejections According to Employment Size and Geographical Locati

Number of Employees of Firm Making the Request	Bogotá or Medellín		Elsewhere		Total	
	Total Requests	Percentage Approved	Total Requests	Percentage Approved	Total Requests	Percentag Approved
Less than 50	161	66.5%	41	65.9%	202	66.3%
50-99	112	75.0	39	66.7	151	72.8
100-199	140	67.1	53	69.8	193	67.9
200-299	112	70.5	52	57.7	164	66.5
300-499	97	73.2	48	52.1	145	66.2
More than 500	153	81.0	64	67.2	217	77.0
Total	775	72.1%	297	63.3%	1,072	69.7%

Sources and method: See text.

Table 12

Industry: Approvals and Complete Rejections According to Registered Minor Exports in 1970 and Geographical Location

Minor Exports in 1970 (thousand US$)	Bogotá or Medellín		Elsewhere		Total	
	Total Requests	Percentage Approved	Total Requests	Percentage Approved	Total Requests	Percentage Approved
Zero	486	72.6%	139	67.6%	625	71.5%
1-49	152	63.2	63	71.4	215	65.6
50-399	87	80.5	54	50.0	141	68.8
400 or more	50	80.0	41	53.7	91	68.1
Total	775	72.1%	297	63.3%	1,072	69.7%

Sources and method: See text.

Table 13

Industrial: Percentage of Approvals According to Two Key Characteristics

	Partial Rejections Omitted		Partial Rejections as Approvals	
	More than Two Millions US$ 1970 Imports	Less than Two Millions US$ 1970 Imports	More than Two Millions US$ 1970 Imports	Less than Two Millions 1970 Import
Bogotá or Medellín	83.7%	75.5%	86.7%	75.8%
Elsewhere	69.6%	62.2%	75.4%	66.7%

Sources and method: See text of the chapter.

Table 14

Industrial: Multiple Regressions "Explaining" Imports, Exports, Wages and Taxes per Employee

(Ratio of Coefficients to their standard errors in parentheses)

Independent Variables	DEPENDENT VARIABLES: Log. of 1970 Registered Imports per Employee	Log. of 1970 Registered Minor Exports per Employee	Log. of 1970 Income and Sales Taxes per Employee	Log. of Average Wage
Constant	-1.689	-1.609	-1.248	7.826
Log. of number of employees	-0.092 (3.03)	-0.457 (9.91)	0.112 (2.40)	0.003 (0.19)
Foreign owned (0) or national (1)	-1.339 (14.10)	-0.450 (2.81)	-0.156 (0.99)	-0.455 (9.33)
Bogotá or Medellín (1) or elsewhere (0)	0.167 (1.81)	-0.874 (6.07)	0.304 (2.14)	0.083 (1.82)
Log. of average wage	0.397 (7.14)	0.183 (2.05)	0.243 (2.80)	---- ----
Log. of income and sales taxes per employee	0.151 (8.52)	0.089 (3.10)	---- ----	0.025 (2.80)
Log. of 1970 registered imports per employee	----	0.101 (2.30)	0.356 (8.52)	0.097 (7.14)
Log. of 1970 registered minor exports per employee	0.041 (2.30)	---- ----	0.084 (3.10)	0.018 (2.05)
R^2	0.318	0.122	0.126	0.211
F-statistic	99.28	29.64	30.75	56.96
Observations	1,284	1,284	1,284	1,284

Table 15

Commercial: Multiple Regressions "Explaining" Imports, Wages and Taxes per Employee

(Ratio of coefficients to their standard errors in parentheses)

Independent Variables	DEPENDENT VARIABLES: Log. of 1970 Registered Imports per Employee	Log. of 1970 Income and Sales Taxes per Employee	Log of Average Wage
Constant	-0.352	1.820	7.435
Log. of number of employees	-0.114 (3.04)	-0.078 (1.90)	0.077 (3.56)
Foreign owned (0) or national (1)	-0.568 (4.33)	-0.580 (4.03)	-0.422 (5.60)
Bogotá or Medellín (1) or elsewhere (0)	-0.246 (2.54)	-0.111 (1.04)	0.253 (4.53)
Log. of average wage	0.229 (4.63)	0.010 (0.17)	---- ----
Log. of income and sales taxes per employee	0.551 (26.30)	---- ----	0.003 (0.17)
Log. of 1970 registered imports per employee	---- ----	0.661 (26.30)	0.076 (4.63)
Log. of 1970 registered minor exports per employee	0.063 (2.19)	0.037 (1.16)	0.017 (1.00)
R^2	0.459	0.438	0.136
F-statistic	170.94	156.59	31.79
Observations	1,215	1,215	1,215

Annex A

Companies importing during 1970 more than One Million Dollars

Name	Presumed major activity
I. Foreign-owned; Industrial	
1. Abonos Colombianos, S.A. (I.P.C.)	Fertilizers
2. Aluminio Alcan De Colombia, S.A.	Aluminum products
3. Armco Colombiana, S.A.	Construction materials and welding equipment
4. BASF Química Colombiana, S.A.	Chemicals
5. Bayer de Colombia S.A.	Pharmaceuticals
6. Bristol Farmacéutica S.A.	Pharmaceuticals
7. Cartón de Colombia, S.A. (Container Corporation of America)	Paper products
8. Cela Colombiana LTDA.	Printing
9. Celanese Colombiana, S.A.	Textiles (Synthetic fibers)
10. Ciba Colombiana, S.A.	Pharmaceuticals
11. Colgate Palmoliva, S.A.	Soap, toothpaste, chemicals
12. Cyanamid De Colombia, S.A.	Chemicals
13. Dow Química De Colombia, S.A.	Chemicals
14. Du Pont de Colombia, S.A.	Chemicals
15. Eli Lilly Interamericana, Inc.	Pharmaceuticals
16. Enka De Colombia, S.A.	Tires
17. E.R. Squibb and Sons, S.A.	Pharmaceuticals
18. Eternit Colombiana, S.A. (Johns Mansville Corporation)	Construction materials
19. Fabrica Chrysler Colombiana De Automotores, S.A.	Automobiles

Annex A-cont'd

20.	Fábrica De Hilazas Vanylon, S.A.	Textiles (Synthetic fibers)
21.	General Electric De Colombia, S.A.	Electrical equipment
22.	Goodyear De Colombia, S.A.	Tires
23.	Hilanderías Medellín, S.A. (Branch River Wool Combing Co.)	Textiles
24.	Hilos Cadena	Textiles
25.	Hoechst Colombiana, S.A.	Chemicals and Drugs
26.	I.B.M. De Colombia, S.A.	Office Machines
27.	Icollantas S.A. (B.F. Goodrich)	Tires
28.	Industrias Phillips De Colombia, S.A.	Electrical equipment
29.	International Petroleum Colombia Ltda. (I.P.C.)	Petroleum refining
30.	Laboratorios Life, S.A.	Pharmaceuticals
31.	Laboratorios Undra, S.A.	Pharmaceuticals
32.	Monómeros Colombo-Venezolanos, S.A.*	Petrochemicals
33.	Monsanto Colombiana, Inc.	Chemicals
34.	Olivetti Colombiana, S.A.	Office machines
35.	Organizacion Farmaceutica Americana (Foremost McKesson)	Pharmaceuticals
36.	Petroquímica Colombiana, S.A. (Diamond Shamrock Co.)	Petro chemicals
37.	Polímeros Colombianos, S.A.	Synthetic fibers, chemicals
38.	Productos Quaker, S.A.	Foodstuffs
39.	Productora De Papeles, S.A. (Grace)	Paper products
40.	Química Schering Colombiana, S.A.	Chemicals
41.	Rhinco Productos Químicos, S.A.	Chemicals

Annex A-cont'd

42.	Sandoz Colombiana Ltda.	Pharmaceuticals
43.	Siemens Colombiana, S.A.	Telephone material and electronics
44.	SOFASA (Renault-IFI)	Automobile engines
45.	Texas Petroleum Co.	Petroleum products
46.	The Sidney Ross Co. of Colombia	Pharmaceuticals
47.	Uniroyal Croydon, S.A.	Tires
48.	Aluminio De Colombia, Ltda. (Reynolds Metals)	Aluminum products
49.	Productos Roche, S.A.	Chemicals and drugs

* This is a joint Colombo-Venezuelan venture, with public sector participation. Thus, its nature is quite different from the rest of the companies in this list.

N.B. Companies placed by INCOMEX under both the Industrial and Commercial categories are here listed only under "Industrial".

II. Foreign-owned; Commercial

1.	Distribuidora Nissan, Ltda.	---
2.	Distribuidora Toyota, Ltda.	---
3.	Kodak Colombiana, Ltda.	---
4.	Productos Quimicos Esso, Inc.	---
5.	Shell Colombiana, S.A.	---
6.	Union Carbide Colombiana, S.A.	---

Annex A-cont'd

III. National; Industrial

1.	Acerías Paz Del Rio, S.A.	Steel
2.	Bavaria, S.A.	Beer
3.	Britilana Benrey Ltda.	?
4.	Cano Isaza y Cia.	?
5.	Cales y Cementos De Toloviejo, S.A.	Construction materials
6.	Carvajal y Cia.	Printing
7.	Casa Editorial El Tiempo	Publishing
8.	Cementos del Caribe, S.A.	Cement
9.	Cia. Colombiana De Alcalis	Chemicals
10.	Cia. Colombiana De Tabaco	Cigarettes
11.	Cia. Colombiana De Tejidos (Coltejer)	Textiles
12.	Cia. Pintuco	Paints
13.	Consorcio Metalúrgico Nacional, S.A.	Metals
14.	Corporacion de Acero (Corpacero)	Steel products
15.	David y Eduardo Puyana	Liquor and cigaretts
16.	Detergentes Limitada	Detergents
17.	Empresa Siderúrgica, S.A.	Steel products
18.	Fábrica De Hilados y Tejidos Del Hato	Textiles
19.	Fábrica Nacional De Chocolates, S.A.	Food products
20.	Gaseosas Posada Tobon, S.A.	Beverages
21.	IFI-Concesion de Salinas	Mining of salt
22.	Leonidas Lara e hijos	Agricultural machinery and autos
23.	Lloreda, Jabones y Glicerina Ltda.	Soaps, detergents
24.	Planta Colombiana De Soda	Chemicals
25.	Productos Fitosanitarios De Colombia, S.A.	?
26.	Rosemberg Hermanos e Hijos	Toiletries and soap

Annex A-cont'd

27.	Siderurgica Del Pacifico, S.A.	Steel products
28.	Vitabono, S.A.	Fertilizers
29.	Empresa Colombiana de Cables, S.A.	Steel cables
30.	Tejidos Leticia Ltda.	Textiles
31.	Facomec, S.A.	Electrical equipment

IV. National; Commercial

1.	Almacenes Angel, S.A.	---
2.	Avianca	---
3.	Central Colombiana Auto-Agricola Ltda.	---
4.	Corpal	---
5.	Distribuidora Quimica Holanda-Colombia, S.A.	---
6.	Distribuidora Saja Ltda.	---
7.	Drogueria Gutierrez	---
8.	Ingenieros Civiles Asociados	---
9.	Jorge Manuel Gomez (Jomago)	---
10.	Nepomuceno Cartagena e Hijos	---
11.	Pfaff De Colombia, S.A.	---
12.	Praco Ltda.	---
13.	Almacen El Motorista	---
14.	Distribuidora Pantecnica, S.A.	---