

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Foreign Trade Regimes and Economic Development: Colombia

Volume Author/Editor: Carlos F. Diaz-Alejandro

Volume Publisher: NBER

Volume ISBN: 0-87014-509-6

Volume URL: <http://www.nber.org/books/diaz76-1>

Publication Date: 1976

Chapter Title: Chapter 6: Import Controls in 1970-71: Some Quantifiable Features

Chapter Author: Carlos F. Diaz-Alejandro

Chapter URL: <http://www.nber.org/chapters/c4044>

Chapter pages in book: (p. 153 - 183)

er
it
t.
it
n
ig
d
l.
d
or
to
se

Chapter 6

Import Controls in 1970-71: Some Quantifiable Features

A description of the procedures followed by Colombian authorities in granting or rejecting import requests produces an impression of overwhelming complexity, particularly to market-oriented economists. It seems hard to understand how a handful of authorities, aided by a small staff, can cope with the estimated 150,000 import requests per year, and even harder to see how such requests can be processed in a sensible and systematic manner.

In this chapter, an attempt will be made to throw some light on this question by analyzing 1970 registered imports according to size of importers. It will be seen that because the import control authorities are familiar with about 500 major private importers, they are able to be reasonably sure about the destination of half the total value of registered imports. It is not farfetched to suppose that those 500 major importers make up the core of the Colombian socioeconomic system, and that they and the INCOMEX authorities know each other fairly well. With half of the imports going to 500 companies, and about 20 per cent going to the public sector, only 30 per cent has to be distributed in retail fashion.

An attempt will also be made in this chapter to quantify some aspects of INCOMEX behavior in accepting or rejecting import requests, as revealed by its handling of a sample of such requests during 1971.

Basic data for the type of exercise tackled in this chapter are not easily available. The data submitted to INCOMEX with import requests are rich, and potentially constitute a running census of at least the major Colombian industrial and commercial enterprises. It is a pity that such an opportunity for an up-to-date and continuous flow of information is largely wasted. Resolution

15 forms are thrown out shortly after INCOMEX decides on the import request, and only summary information on import registrations and requests appears to be maintained. Putting all of the data contained in Resolution 15 forms into a properly programmed computer would provide INCOMEX with a systematic and accessible source of information regarding importers as well as of other valuable data for decision-making, and would give the country a clearer idea of its economic structure. Coordination of import controls with tax enforcement and price controls would also become a more practical possibility. Perhaps the analysis in this chapter will illustrate how rich the data available to INCOMEX are.

During the second half of 1971, INCOMEX officials kindly allowed me to examine about 2,500 license requests in the commercial and industrial categories. The sample included 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 in the official category. In choosing the requests, no refined sampling method was followed; basically I tried to get information on those requests that were around at the time, and were made available for examination. As relatively few applications were being rejected during the second half of 1971, I made a special effort 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 be any major seasonal pattern to license requests, except a decline in numbers in December and January; so the exclusive use of the half-year of information should not introduce any bias.

From the license requests two types of information were obtained: a censuslike coverage of imports, employment, and other characteristics for each company (*not* plant) in 1970, and data on the specific import request during the second half of 1971 (amount, rejection or acceptance, and reasons for rejections).

The former type of information will be discussed first. It should be added that the information obtained in my sample did not include all data made available in the import requests, because of obvious constraints on research facilities. For example, import and tax data in the forms were given for four years (1968 through 1971). Other information, such as local purchases of goods similar to the requested imports, was so spotty that a decision was made to ignore it.

MAJOR COLOMBIAN IMPORTERS IN 1970

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

lo
of
se
w
e
to
as
N
w
re
de
ad
re

N
o
Co

32
13
18

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.¹ 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 came to 50 per cent or more were treated as 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 my choice of the definition, which implies a higher share of national ownership.

Table 6-1 contains a summary of major industrial² importers, classified according to their ownership status (domestic or foreign) and the value of their registered imports during 1970. Data are also presented on the number of their

TABLE 6-1
Major Industrial Importers in Colombia, 1970

No. of Cos.	Industrial Cos. Classified by Ownership and Value of Imports	Registered Imports, 1970 (mill. U.S. dol.)	No. of Employees (thous.)	Minor Exports, 1970 (mill. U.S. dol.)	Income and Sales Taxes Paid in 1970 (mill. pesos)
Imports of more than \$1.0 mill.					
49	Foreign owned	167.22	25.50	20.02	563.02
31	Domestic	<u>107.49</u>	<u>48.34</u>	<u>18.98</u>	<u>966.38</u>
80	Total	<u>274.71</u>	<u>73.84</u>	<u>39.00</u>	<u>1,529.40</u>
Imports between \$0.5 mill. and \$1.0 mill.					
27	Foreign owned	19.76	12.25	3.58	127.92
36	Domestic	<u>23.59</u>	<u>19.02^a</u>	<u>7.23^b</u>	<u>221.99</u>
63	Total	<u>43.35</u>	<u>31.27</u>	<u>10.81</u>	<u>349.91</u>
Imports between \$0.1 mill. and \$0.5 mill.					
58	Foreign owned	15.43	12.73	3.19	127.58
119	Domestic	<u>27.99</u>	<u>42.11</u>	<u>45.90^b</u>	<u>456.08</u>
117	Total	<u>43.42</u>	<u>54.84</u>	<u>49.09</u>	<u>583.86</u>
320	Grand total	<u>361.48</u>	<u>159.95</u>	<u>98.90</u>	<u>2,463.17</u>
134	Foreign owned	202.41	50.48	26.79	818.72
186	Domestic	159.07	109.47	72.11	1,644.45

SOURCE: See text.

a. Refers to only 35 companies.

b. Includes sugar exports. A total of six sugar companies included in this table exported \$40.0 million.

TABLE 6-2

Major Commercial Importers in Colombia, 1970

No. of Cos.	Commercial Cos. Classified by Ownership and Value of Imports	Registered Imports, 1970 (mill. U.S. dol.)	No. of Employees (thous.)	Minor Exports, 1970 (mill. U.S. dol.)	Income and Sales Taxes Paid in 1970 (mill. pesos)
Imports of more than \$1.0 mill.					
6	Foreign owned	14.06	0.88	0.67	55.78
14	Domestic	<u>25.38</u>	<u>9.52^a</u>	<u>1.05</u>	<u>16.43</u>
20	Total	<u>39.44</u>	<u>10.40</u>	<u>1.72</u>	<u>72.21</u>
Imports between \$0.5 mill. and \$1.0 mill.:					
5	Foreign owned	4.07	0.83	0	22.69
20	Domestic	<u>13.33</u>	<u>2.02</u>	<u>0.78</u>	<u>25.81</u>
25	Total	<u>17.40</u>	<u>2.85</u>	<u>0.78</u>	<u>48.50</u>
Imports between \$0.1 mill. and \$0.5 mill.					
13	Foreign owned	3.30	2.01	0.15	15.64
122	Domestic	<u>25.53</u>	<u>13.04</u>	<u>17.1^b</u>	<u>56.50</u>
135	Total	<u>28.83</u>	<u>15.05</u>	<u>17.32</u>	<u>72.14</u>
180	Grand total	<u>85.67</u>	<u>28.30</u>	<u>19.82</u>	<u>192.85</u>
24	Foreign owned	21.43	3.72	0.82	94.11
156	National	64.24	24.58	19.00	98.74

SOURCE: See text.

a. Refers to only 13 companies.

b. Includes exports of association of banana growers.

employees, value of their minor exports, and amounts of income and sales taxes they paid. Three subdivisions according to size are made: companies that imported more than \$1 million in 1970; those importing between \$0.5 million and \$1 million; and those whose imports ranged between \$0.1 million and \$0.5 million.

Table 6-1 shows that there is 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 and assigned to the first group accounted for 30 per cent of all 1970 registered imports. In that year, those same companies accounted for 21.2 per cent of all income and sales taxes paid in Colombia, and employed 19.2 per cent of all those engaged in manufacturing.³ Given the way the data were obtained, some large importers may have been missed. Therefore, the estimates presented in

TABLE 6-3

Major Commercial and Industrial Importers in Colombia, by Value of Imports, 1970

No. of Cos.	Classification	Registered Imports, 1970 (mill. U.S. dol.)	Share in Total Registered Imports	Share in Total Income and Sales Taxes, 1970
100	Imports ^a of more than \$1 mill.	\$314.15	34.1%	22.2%
88	Imports ^a between \$0.5 mill. and \$1 mill.	60.75	6.6	5.5
312	Imports ^a \$0.1 mill. and \$0.5 mill.	72.25	7.8	9.1
500	Total	447.15	48.6	36.8
158	Foreign owned	223.84	24.3	12.6
342	National	223.31	24.3	24.2
Addendum: officially registered, reimbursable imports		145.20	15.8	—

SOURCE: Tables 6-1 and 6-2.

a. Covers both foreign-owned and domestic companies.

Table 6-1 and subsequently, for both import concentration and degree of foreign control, may be regarded as *minimum* ones. Further, there could be cases in which several companies are 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 6-1. Neither comparable cross-sectional 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 6-2 contains parallel data for the commercial category, and the data there and in Table 6-1 are summarized in Table 6-3. There were in 1970 at least 100 companies importing more than \$1 million worth of goods (with an average of \$3.1 million each), accounting for 34 per cent of all registered imports. Fifty-five foreign-owned companies in this group alone represented 20 per cent of all Colombian registered imports in 1970.

The degree of concentration falls off rapidly once companies with imports worth less than \$1 million are considered. Thus, the 88 companies, foreign and national, industrial and commercial, that were found to have imports worth between \$0.5 million and \$1 million accounted for only 7 per cent of all imports in 1970, while the 312 companies having imports worth between \$100,000 and

and
xes
970
sos)

8
3
1

9
1
0

4
0
4

5
1
4

ales
nies
\$0.5
lion

nich
troll
and
ered
of all
f all
ome
d in

\$500,000 represented an additional 8 per cent of the import bill. In round numbers, as noted earlier, 500 companies handled at least half of Colombian imports. The same companies accounted for 37 per cent of all income and sales tax payments, and 32 per cent of those employed in "modern" commerce and manufacturing.

Because of the economic importance of those firms importing more than \$1 million, their names and presumed major activity are given in an appendix to this chapter. This appendix 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. Colombian-owned companies are more spread out among different activities.

The 80 industrial companies importing more than \$1 million a year in 1970-71 hired an average of 923 employees. An additional 63 companies, importing between \$0.5 million and \$1 million, had each an average of 496 employees. Finally, the 177 industrial companies in the third category had an average of 310 employees each. A comparison 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, if it is assumed that most of the largest firms according to employment are also the largest importers.⁴

Table 6-1 reveals major industrial exporters among the major importers. It has been estimated⁵ that registered Colombian manufactured exports (excluding items such as sugar) reached \$76.7 million during 1970; the 80 largest importers would thus account for 50 per cent of these exports. The largest 314 industrial importers (excluding several sugar mills) would account for 77 per cent of manufactured exports.

A ranking of major importers by level of exports permits a more accurate measure of industrial export concentration. The 14 largest 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 in 1970. Thus, 24 industrial companies accounted for 62 per cent of all (nonsugar) industrial exports. Foreign-owned companies alone supplied at least 27 per cent of all Colombian industrial exports in 1970.

Some important characteristics of major industrial importers-exporters are highlighted in Table 6-4. Average wages decline with company size as measured by annual imports, but in each size category foreign-owned companies show higher wages than national firms. Foreign companies also have higher imports per employee in 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 \$1 million worth each show an astounding level of \$6,557 worth of imports per employee, and

TABLE 6-4
Some Characteristics of Major Industrial Importers, 1970

Classification	Wages per Employee (pesos)	Imports per Employee (U.S. dol.)	Per Cent of Companies in Bogotá	Per Cent of Companies in Medellín	Per Cent of Companies in Cali	Employees per Company	Exports per Employee (U.S. dol.)	Income and Sales Taxes Paid per Employee (pesos)
Imports of more than \$1.0 mill.								
Foreign owned	3,731	6,557	65.3	4.1	18.4	520	785	22,077
Domestic	2,040	2,224	54.8	25.8	16.1	1,559	393	19,991
Imports between \$0.5 mill. and \$1.0 mill.								
Foreign owned	2,810	1,613	70.4	25.9	3.7	454	292	10,442
Domestic	1,729	1,206	44.4	25.0	16.7	544	370	11,345
Imports between \$0.1 mill. and \$0.5 mill.								
Foreign owned	2,151	1,212	58.6	5.2	27.6	220	251	10,038
Domestic	1,537	665	50.4	19.3	9.2	354	1,090	10,830
Large industrial exporters								
Foreign owned (10 cos.)	2,867	3,232	40.0	10.0	40.0	944	2,161	10,562
Domestic (14 cos. excl. sugar mills)	2,063	1,528	35.7	21.4	14.3	1,801	1,066	9,002

SOURCE: See text.

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 those in any other category. As a rule, large foreign-owned companies are more concentrated in Bogotá than large national firms. In a later section of this paper, these characteristics will be re-examined for the total sample of companies.

Among the most striking facts about the 24 major 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 6-4). Neither fact fits well with an image of firms producing labor-intensive manufactured exports. Rather, the suggestion of both facts is that many of the same companies which in the past benefited, and which still benefit, 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 to 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 determine from the data whether such concentration is higher or lower than in other countries, nor whether it is encouraged or discouraged by the import control system (more on this below). But the data do 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 play a major role not only in the import field, but in exporting and as tax collectors for the government. Note that only income and sales tax data have been discussed; the same 500 companies must also pay a very large share of all import duties.⁶

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 half 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 6-5 presents a tabulation

TABLE 6-5

INCOMEX Reasons for Rejecting Applications for Import Licenses and Tabulation of Sample of Rejected Licenses During July-December 1971
(per cent of all reasons given for rejection in each category)

	Category of Applicant		
	Commercial	Industrial	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, per existing regulations	10.2	11.5	12.0
10. Adequate stocks of products are found domestically	0.6	0.1	0
11. Requests by applicant for identical or similar products have been recently approved	13.4	4.6	1.2
12. There is shortage of foreign exchange	0.1	0	0
13. Requested imports out of proportion to taxes paid	5.7	0.8	0
14. Tax information missing	0.2	0.4	0
15. Data on imports provided by applicant do not agree with those of INCOMEX	0.5	0	1.2
16. Excessive expenditures	0.2	0.1	1.2
17. Data on sale prices, intended for price control agency, are lacking	0	0	0
18. Other special reasons	9.4	11.3	44.6
19. Percent of request granted	17.6	33.5	6.0
20 per cent	(0.4)	(0.3)	(0)
25 per cent	(0.1)	(0.6)	(0)
30 per cent	(2.4)	(0.7)	(0)
40 per cent	(3.2)	(3.7)	(1.2)
50 per cent	(5.1)	(16.2)	(4.8)
60 per cent	(3.4)	(6.1)	(0)

TABLE 6-5 (concluded)

	Category of Applicant		
	Commercial	Industrial	Official
70 per cent Unspecified	(0.2) (2.8)	(0.3) (5.6)	(0) (0)
Total, lines 1-19	100.0	100.0	100.0
Addendum:			
Requests for which more than one reason was given for rejection (totally or partly)	81	75	14
Total of reasons given for rejecting requests (totally or partly), including partial approvals	849	710	83

SOURCE: See text. See also Table 6-6 for total number of requests and their average values.

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 on which are listed 18 possible reasons for rejection, with those applying to his request bearing a check mark.

Many rejections are only partial, particularly under the industry category, as indicated by item 19 in the table. More serious rejections appear to be based on protectionist grounds, as reflected in reasons 1, 2, and, very likely, 8 and 9. For the commercial category these four items account for 46 per cent of the reasons for rejection, while for industry the corresponding figure is 40 per cent. The commercial requests also seem to be closely scrutinized for "excessive" imports (reason 11) and tax evasion (reason 13). Industrial requests are scrutinized 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 by overinvoicing. Such claims appear to be substantially correct, as noted in Chapter 5. Closer analysis is handicapped because roughly one-tenth of the rejections in the industrial and commercial categories and almost half of those in the official category are justified by "other special reasons" (line 18).

The average characteristics of approved, rejected, and partially rejected import requests in the industrial and commercial categories are laid out in Table 6-6. Note first that our sample contains (by design) a higher average of rejected requests than seems to have been typical during the second half of

1971. While at that time it was said that only about 15 per cent of all requests were being turned down, 25 per cent of the industrial requests and 43 per cent of the commercial ones appear to have been totally rejected. The companies 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 overrepresentation of larger importing firms and larger import requests.

The large standard deviations shown in Table 6-6 warn of the difficulty of generalizing with confidence about the characteristics of accepted, rejected, and partially rejected requests. Note also that because of lack of data, some very important features of import requests are omitted; for example, the questions of whether the proposed import was competitive with some local product and whether it originated in countries having preferential trade agreements with Colombia.

In spite of these limitations, an attempt has been made to establish which characteristics of the import requests, and of the companies 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 that is to be statistically explained is somewhat unusual. If all applications are divided simply into those accepted or rejected, the variable will only take values of zero for rejections and 1 for approvals. Under these dichotomous circumstances, multivariate probit analysis is known to be a superior technique to the usual least squares multiple regressions.⁷ 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 a fraction of the value of the license granted by INCOMEX; in that case, there will be intermediate observations between zero and 1. Ordinary least squares will be used to analyze this form of the dependent variable.

The best results obtained are shown in tables 6-7 and 6-8, best being determined by the number of coefficients that had interesting values relative to their standard errors. Several other independent variables, not shown, were

In

Co

No

Lo

Lo

Lo

Lo

Lo

Lo

Pe

Bo

R²

F

un

us

inv

mu

cat

TABLE 6-7

Industrial Category: Regressions for Approval (1) or Rejection (0) of Import Requests in Sample
(ratio of coefficients to their standard errors in parentheses)

	Least Squares Regression	Probit Analysis		
		Partial Rejections Omitted	Partial Rejections as (1)	Partial Rejections as (0)
Constant	0.303	-0.900 (1.60)	-0.937 (1.95)	-0.246 (0.50)
Nonreimbursable (1) or reimbursable (0) category	0.247 (6.57)	1.101 (5.87)	0.927 (5.11)	1.404 (7.31)
Log of value of all import registrations in 1970	0.010 (1.17)	0.038 (1.24)	0.042 (1.42)	0.026 (0.91)
Log of no. of employees per 1970 imports	0.013 (1.13)	0.049 (1.09)	0.050 (1.23)	0.025 (0.62)
Log of value of requested imports	-0.042 (6.52)	-0.134 (5.12)	-0.046 (1.91)	-0.229 (9.58)
Log of 1970 income and sales taxes paid per 1970 imports	0.014 (2.81)	0.050 (2.83)	0.031 (1.90)	0.053 (3.34)
Log of 1970 minor exports per 1970 imports	-0.013 (2.56)	-0.054 (2.79)	-0.041 (2.30)	-0.045 (2.65)
Log of average wage	0.043 (2.43)	0.162 (2.28)	0.153 (2.55)	0.100 (1.59)
Per cent of 1970 import registrations unused	-0.000 (0.50)	-0.001 (1.52)	0.000 (0.14)	-0.001 (1.49)
Bogotá or Medellín (1) or elsewhere (0)	0.054 (2.06)	0.195 (2.06)	0.215 (2.44)	0.119 (1.37)
R^2	0.103	—	—	—
F statistic	16.32	—	—	—
$-2.0 \times \log$ of likelihood ratio	—	118.20	75.01	229.51
No. of observations	1,284	1,072	1,284	1,284

unsuccessfully tried. On the whole, it will be seen that the different techniques used to analyze the data yield similar qualitative results.

Import requests in the nonreimbursable category, i.e., those which do not involve an *immediate* claim on foreign-exchange resources, clearly have a much better chance of being approved than those under the reimbursable category, in both the industrial and commercial classifications. In both classi-

TABLE 6-8

Commercial Category: Regressions for Approval (1) or Rejection (0) of Import Requests in Sample
(ratio of coefficients to their standard errors in parentheses)

	Least Squares Regression	Probit Analysis		
		Partial Rejections Omitted	Partial Rejections as (1)	Partial Rejections as (0)
Constant	0.739	1.134 (2.73)	0.676 (1.92)	1.023 (2.58)
Nonreimbursable (1) or reimbursable (0) category	0.115 (2.98)	0.421 (3.14)	0.220 (1.74)	0.535 (4.02)
Log of no. 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)
Per cent 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	—	—	—
$-2.0 \times \log$ of likelihood ratio	—	281.74	84.98	417.87
No. of observations	1,215	983	1,215	1,215

fications, smaller import requests also clearly have a better chance of being approved than larger ones. When partial rejections are counted as approvals (third column of Table 6-7) on the supposition either that the company will be happy to have obtained 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 6-6, the average value of license applications that were partially rejected

wa
inc
the
and
del
lan
ste
be
19
sm
val
res
red
co
inc
tic
rec
tre
ass
un
be
ac
pa
rel
for
pl
po
sig
rel
th
gra
loc
at
so
im
un
pa
sh
Ind

was higher than that for complete approvals and rejections. For reimbursable industrial requests, a breakdown of the 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 per cent for the smallest to 36 per cent for the largest. 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 half 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 6-7 for industrial requests, while those using employment levels are shown in Table 6-8 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; support is strongest when partial rejections are treated as approvals, which for large companies may be a quite suitable assumption. 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. I 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. In the case of industrial license requests, chances for approval significantly increased as taxes relative to either imports or employees increased. 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 6-12, below, 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 Vallejo Plan, under which the companies were exempted from the prior license rules. Most participants in the Vallejo Plan are large firms.

Finally, the correlation coefficients among the independent variables shown in tables 6-7 and 6-8 fail to show widespread collinearity problems. Indicating the independent variables in Table 6-7 as X_1, X_2, \dots, X_9 , following

sts

==

al
ions
)

023
58)

535
02)

098
65)

006
19)

539
90)

015
60)

037
16)

043
79)

000
04)

210
03)

—

—

87
215

ing
vals
I be
can
for
n in
cted

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	-.01	—	—	—	—	—	—	—
X_3	.09	-.78	—	—	—	—	—	—
X_4	-.20	.16	-.16	—	—	—	—	—
X_5	.08	-.24	.37	-.08	—	—	—	—
X_6	.09	-.51	.50	-.12	.24	—	—	—
X_7	.10	.38	-.42	.06	-.07	-.13	—	—
X_8	-.01	-.02	.01	.00	.00	.02	-.02	—
X_9	.06	-.03	-.02	.09	.05	-.15	.01	.02

Similar results are obtained for the independent variables of Table 6-8. There *are* interesting relationships among the size, export, wage, and tax variables discussed for major importers in the first section of this chapter and to be further explored below for all companies in the sample, but they do not appear seriously to mar the results of tables 6-7 and 6-8.

INDUSTRIAL COMPANY SIZE AND INCIDENCE 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 of obtaining import licenses.

The data, as shown in the last columns of tables 6-9 and 6-10, indicate that the percentage of requests falling under the nonreimbursable category is noticeably higher for the largest companies. In these and the subsequent tables, only license applications that had been totally rejected or approved are considered. The link between size and share of nonreimbursables in the total request is *not* a smoothly increasing one. Indeed, as the size of the firm increases, the approval rate seems to dip before rising most clearly for the *largest* firms. It was seen earlier, and confirmed in tables 6-9 and 6-10, that requests under the nonreimbursable category have a much higher chance of being accepted than those under the reimbursable one. In other words, if no allowance is made for the relation of nonreimbursables to reimbursables, the largest companies and exporters have the best chance of all of obtaining approvals, thanks to their better access to nonreimbursable licenses, which is a consequence of their links to foreign sources of credit, including concessional ones (aid), and to foreign investors.⁸

nts

8

1

1

1

1

2

8.

tax

1 to

not

ize,

am-

gest

fact

that

is

ent

are

otal

firm

the

that

of

no

the

ing

h is

ces-

TABLE 6-9

Industrial Category: Approvals and Complete Rejections by Employment Size and Reimbursable or Nonreimbursable Category

Number of Employees in Firm Making Request	Reimbursable		Nonreimbursable		Total		Non-reimbursables as Per Cent of Total
	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved	
Less than 55	196	63.8%	23	91.3%	219	66.7%	10.5%
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	26	92.3	200	64.0	13.0
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

SOURCE: See text.

TABLE 6-11

**Industrial Category: Approvals and Complete Rejections by Employment Size
and Geographical Location**

Number of Employees in Firm Making Request	Bogotá or Medellín		Elsewhere		Total	
	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved
Less than 50	159	66.0%	42	66.7%	201	66.2%
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	96	72.9	50	54.0	146	66.4
More than 500	153	81.0	64	67.2	217	77.0
Total	772	72.0	300	63.7	1,072	69.7

SOURCE: See text.

Tables 6-9 and 6-10 also show that when only reimbursable license applications are considered, the percentage approved shows no clear association with size until the largest size categories are reached. Firms with more than 466 employees or more than U.S. \$2 million of imports in 1970 show reimbursable approval rates clearly above the average.⁹

The geographical pattern of approvals and rejections is explored in tables 6-11 and 6-12, 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. In Table 6-12, firms from Bogotá or Medellín with at least \$50,000 in minor exports in 1970 have the largest percentage of approvals, while in Table 6-11, the largest employers in Bogotá and Medellín have the most successful performance of those shown.

In the total number of import requests from Bogotá and Medellín under the industrial category, the share of requests in the nonreimbursable group is higher than the corresponding share for the rest of the country (12.2 per cent versus 8.5 per cent). The same is true for the commercial category (10.4 per cent versus 5.4 per cent). But even for reimbursable requests alone, 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 per cent came from those located in Bogotá and Medellín, while the corresponding percentage for national firms was 76.2. The share of nonreimbursable requests in total requests from foreign-owned industrial companies was almost identical to the corresponding share in requests of national firms. Regardless of how

TABLE 6-12

Industrial Category: Approvals and Complete Rejections by Registered Minor Exports in 1970 and Geographical Location

Minor Exports in 1970 (thous. U.S. dol.)	Bogotá or Medellín		Elsewhere		Total	
	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved	Total Requests	Per Cent Approved
None	483	72.9%	139	67.6%	622	71.7%
1-49	154	63.0	67	70.1	221	65.2
50-399	84	79.8	54	50.0	138	68.1
400 or more	51	78.4	40	57.5	91	69.2
Total	772	72.0	300	63.7	1,072	69.7

SOURCE: See text.

requests are sliced, the percentage of approvals for requests by foreign-owned industrial companies turns out to be nearly as high as that for national firms.

The finding that very large industrial firms located in Bogotá or Medellín have a higher approval rate than all others is most clearly seen in Table 6-13 and in its underlying data. When partial rejections are omitted from the sample, the combined approval rate for firms that imported less than \$2 million in 1970 or were located outside Bogotá and Medellín was 68.4 per cent; the corresponding rate for the big firms in Medellín or Bogotá was 83.7 per cent. The null hypothesis, i.e., that there is no relation between chance of approval and the circumstance of being a big firm located in Bogotá or Medellín, must be rejected at the 1 per cent level of significance. If partial rejections are counted as approvals, the approval rate is 86.8 per cent for big firms in Bogotá and Medellín versus 73.5 per cent for all others. The null hypothesis can again be rejected at the 1 per cent level of significance. Finally, if partial rejections are registered as total rejections, the approval rates are 67.5 per cent for the large firms in Bogotá and Medellín versus 57.3 per cent for the rest. Now the null hypothesis can be rejected "only" at the 5 per cent level of significance.¹⁰

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 compared to all others could be explained by their more frequent requests for imports not competitive with Colombian production, such as machinery and equipment (often brought in under the nonreimbursable category) and inputs originating in heavy industries. But while available data do not allow a test of this hypothesis, it is doubtful that it could fully explain the foregoing results.

TABLE 6-13

Industrial Category: Percentage of Approvals According to Two Key Characteristics

	Partial Rejections Omitted		Partial Rejections as Approvals	
	More Than U.S. \$2 Mill. 1970 Imports	Less Than U.S. \$2 Mill. 1970 Imports	More Than U.S. \$2 Mill. 1970 Imports	Less Than U.S. \$2 Mill. 1970 Imports
	Bogotá or Medellín	83.7%	70.4%	86.8%
Elsewhere	69.6	62.6	75.4	67.2

SOURCE: See text.

THE IMPORT-EXPORT-TAXES-WAGES NEXUS

In the first part of this chapter some characteristics of the major Colombian importers were explored. In this section, a further examination will be made of possible interrelationships among company size, imports, minor exports, and wages and taxes paid for the total sample.

One way of carrying out such an analysis is to define, say, company "import functions" as a means of explaining 1970 imports per employee on the basis of size, ownership, and other independent variables. 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 would be suggested by a model specifying dependent and independent variables. The results shown in tables 6-14 and 6-15 should therefore be interpreted with caution; their usefulness lies primarily in presenting in a systematic fashion the interrelations among import, export, taxes, and wages as found in the sample data.¹¹

Industrial companies with high imports per employee clearly tend to pay relatively high taxes per employee and high wages; more surprisingly, they also have relatively high minor exports per employee. Once this nexus is allowed for, the size variable as measured by 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 6-15, are clearest regarding the per employee import-taxes link, which is particularly strong.

A traditional criticism of a system that represses imports by quotas rather than duties is that it involves public revenue losses. The data in tables 6-14

TABLE 6-14

**Multiple Regressions for Imports, Exports, Wages, and Taxes per Employee
of Industrial Companies**
(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	-2.624	-2.869	-1.804	7.830
Log of number of employees	-0.107 (3.55)	-0.452 (9.82)	0.148 (3.22)	0.011 (0.84)
Foreign owned (0) or national (1)	-1.258 (13.01)	-0.356 (2.21)	-0.090 (0.58)	-0.461 (10.90)
Bogotá or Medellín (1) or elsewhere (0)	0.137 (1.49)	-0.951 (6.68)	0.405 (2.91)	0.071 (1.79)
Log of average wage	0.524 (8.26)	0.341 (3.35)	0.287 (2.92)	—
Log of income and sales taxes per employee	0.154 (8.58)	0.102 (3.55)	—	0.023 (2.92)
Log of 1970 registered imports per employee	—	0.079 (1.81)	0.354 (8.58)	0.097 (8.26)
Log of 1970 registered minor exports per employee	0.032 (1.81)	—	0.095 (3.55)	0.026 (3.35)
R^2	0.327	0.131	0.136	0.270
F statistic	103.57	31.96	33.56	78.69
No. of observations	1,284	1,284	1,284	1,284

and 6-15 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 indication in the third column of Table 6-14 is that a 10 per cent increase in imports per employee appears to lead to a 3.5 per cent 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, these results can be viewed as the consequence of a policy of channeling the still scarce imports, *ceteris paribus*, toward companies that yield the government high tax returns. It is also argued that such companies "deserve" import permits, as they have

TABLE 6-15
**Multiple Regressions for Imports, Wages, and Taxes per Employee
of Commercial Companies**
(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
330	Constant	-0.352	1.820	7.435
011 84)	Log of number of employees	-0.114 (3.04)	-0.078 (1.90)	0.077 (3.56)
161 90)	Foreign owned (0) or national (1)	-0.568 (4.33)	-0.580 (4.03)	-0.422 (5.60)
071 79)	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)	—
023 92)	Log of income and sales taxes per employee	0.551 (26.30)	—	0.003 (0.17)
097 .26)	Log of 1970 registered imports per employee	—	0.661 (26.30)	0.076 (4.63)
026 .35)	Log of 1970 registered minor exports per employee	0.063 (2.19)	0.037 (1.16)	0.017 (1.00)
270	R^2	0.459	0.438	0.136
69	F statistic	170.94	156.59	31.79
84	No. of observations	1,215	1,215	1,215

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. My data contain no information regarding industrial allocation or 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, in both tables 6-14 and 6-15, a strong link is shown between wages and imports. On the whole, the figures

in 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 somewhat 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 6-4, regarding the concentration of large minor exporters, cannot be gainsaid.

On the basis of the information shown in Table 6-4 and that presented in Chapter 2,¹² 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 Vallejo Plan and LAFTA trade) is a matter deserving further research.

SOME CONCLUSIONS

There is substantial concentration in the distribution of Colombian imports, a concentration that makes the control system easier to manage. The control system, in turn, appears to buttress such concentration because 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 reached without taking into account the "discouraged firm" effect. In

other words, data on actual import requests were generated by a group of firms that had some hope of receiving a license; the average size of this group of companies 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, which makes importation possible without 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.

In this chapter, attention was also called to the even greater concentration of minor industrial exports in 1970 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 even 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 or that it will never generate more modern-sector employment than a comparable amount of import substitution. It does suggest, however, that for a given over-all growth rate, the employment difference may be only marginally superior, so long as the 1970 industrial and export structure is maintained. It may be hoped that such a structure could still reflect the early stages of industrial export promotion, one which may change as new exporters, less committed to earlier import-substituting ventures, enter the field.

While the revealed INCOMEX criteria for allocating import licenses include the historical import record of companies, no evidence has appeared that this "fair-share" approach is rigidly applied or that it is linked systematically to installed capacity. Resolution 15 forms for the industrial category do request information on maximum production capacity. But that information, provided in physical units by some companies and in value terms by others, is clumsy and less easily handled by INCOMEX than the four-year import record expressed in dollars appearing in the same form. Therefore, although the protection generated by the import control system combined with the monopolistic competition also encouraged by that system can lead to excess capacity in some import-competing sectors, a matter to be reviewed in Chapter 8, it would be difficult to argue that INCOMEX fair-share rules lead companies to create excess capacity for the sake of improving their chances of

obtaining import licenses, as appears to have been the case in India and Turkey. By seeking information on company inventories of merchandise involved in the import request, as well as on the value of past requests approved but not actually used, INCOMEX attempts to limit spurious creation of import "track records," an unimportant issue at any rate during 1970-71.

The avoidance of rigid rules combined nevertheless with a style making access to import licenses far from "democratic" has probably helped reduce the real resource costs in the public and private sectors of running the import control machinery. It was seen that the bureaucratic framework of INCOMEX is quite lean. During 1970-71, large private companies did incur additional costs in trying to obtain import licenses, but even so, their marginal cost of dealing with INCOMEX was small, partly because of the clarity of the unwritten rules of the game, and partly because of reliance on company clerks who were used to dealing with *many* public agencies involved in matters such as taxation, credit, health, and other regulations. In other words, the fixed costs for a large company of keeping a Bogotá lobby could be spread out among several activities, only one of which was dealing with INCOMEX. Smaller firms outside of this circle typically would not invest resources trying to break in; under a more populist environment they probably would, leading to a greater resource use by the import control system.¹³

APPENDIX: COMPANIES WITH IMPORTS WORTH MORE THAN \$1 MILLION IN 1970

(N.B. Companies placed by INCOMEX under *both* the industrial and commercial categories are here listed only under the industrial category.)

Foreign-owned; Industrial

	PRESUMED MAJOR ACTIVITY
Abonos Colombianos, S.A. (I.P.C.)	Fertilizers
Aluminio Alcan de Colombia, S.A.	Aluminum products
Armco Colombiana, S.A.	Construction materials and welding equipment
BASF Química Colombiana, S.A.	Chemicals
Bayer de Colombia, S.A.	Pharmaceuticals
Bristol Farmacéutica, S.A.	Pharmaceuticals
Cartón de Colombia, S.A. (Container Corporation of America)	Paper products
Cela Colombiana Ltda.	Printing
Celanese Colombiana, S.A.	Textiles (synthetic fibers)

Foreign-owned; Industrial (continued)

	PRESUMED MAJOR ACTIVITY
Ciba Colombiana, S.A.	Pharmaceuticals
Colgate Palmolive, S.A.	Soap, toothpaste, chemicals
Cyanamid de Colombia, S.A.	Chemicals
Dow Química de Colombia, S.A.	Chemicals
Du Pont de Colombia, S.A.	Chemicals
Eli Lilly Interamericana, Inc.	Pharmaceuticals
Enka de Colombia, S.A.	Tires
E. R. Squibb and Sons, S.A.	Pharmaceuticals
Eternit Colombiana, S.A. (Johns Mansville Corporation)	Construction materials
Fábrica Chrysler Colombiana de Automotores, S.A.	Automobiles
Fábrica de Hilazas Vanylon, S.A.	Textiles (synthetic fibers)
General Electric de Colombia, S.A.	Electrical equipment
Goodyear de Colombia, S.A.	Tires
Hilanderías Medellín, S.A. (Branch River Wool Combing Co.)	Textiles
Hilos Cadena	Textiles
Hoechst Colombiana, S.A.	Chemicals and drugs
I.B.M. de Colombia, S.A.	Office machines
Icollantas, S.A. (B.F. Goodrich)	Tires
Industrias Phillips de Colombia, S.A.	Electrical equipment
International Petroleum Colombia Ltda. (I.P.C.)	Petroleum refining
Laboratorios Life, S.A.	Pharmaceuticals
Laboratorios Undra, S.A.	Pharmaceuticals
Monómeros Colombo-Venezolanos, S.A. ¹⁴	Petrochemicals
Monsanto Colombiana, Inc.	Chemicals
Olivetti Colombiana, S.A.	Office machines
Organización Farmacéutica Americana (Foremost McKesson)	Pharmaceuticals
Petroquímica Colombiana, S.A. (Diamond Shamrock Co.)	Petrochemicals
Polímeros Colombianos, S.A.	Synthetic fibers, chemicals
Productos Quaker, S.A.	Foodstuffs
Productora de Papeles, S.A. (Grace)	Paper products
Química Schering Colombiana, S.A.	Chemicals
Rhinco Productos Químicos, S.A.	Chemicals
Sandoz Colombiana Ltda.	Pharmaceuticals

Foreign-owned; Industrial (concluded)

	PRESUMED MAJOR ACTIVITY
Siemens Colombiana, S.A.	Telephone material and electronics
SOFASA (Renault-IFI)	Automobile engines
Texas Petroleum Co.	Petroleum products
The Sidney Ross Company of Colombia	Pharmaceuticals
Uniroyal Croydon, S.A.	Tires
Aluminio de Colombia, Ltda. (Reynolds Metals)	Aluminum products
Productos Roche, S.A.	Chemicals and drugs

Foreign-owned; Commercial

Distribuidora Nissan, Ltda.
Distribuidora Toyota, Ltda.
Kodak Colombiana, Ltda.
Productos Químicos Esso, Inc.
Shell Colombiana, S.A.
Union Carbide Colombiana, S.A.

National; Industrial

Acerías Paz del Rio, S.A.	Steel
Bavaria, S.A.	Beer
Britilana Benrey Ltda.	Not known
Cano Isaza y Cia.	Not known
Cales y Cementos de Toloviejo, S.A.	Construction materials
Carvajal y Cia.	Printing
Casa Editorial El Tiempo	Publishing
Cementos del Caribe, S.A.	Cement
Cia. Colombiana de Alcalís	Chemicals
Cia. Colombiana de Tabaco	Cigarettes
Cia. Colombiana de Tejidos (Colte- jer)	Textiles
Cia. Pintuco	Paints
Consortio Metalúrgico Nacional, S.A.	Metals
Corporación de Acero (Corpacero)	Steel products
David y Eduardo Puyana	Liquor and cigarettes
Detergentes Limitada	Detergents
Empresa Siderúrgica, S.A.	Steel products
Fábrica de Hilados y Tejidos del Hato	Textiles

National; Industrial (concluded)

	PRESUMED MAJOR ACTIVITY
Fábrica Nacional de Chocolates, S.A.	Food products
Gaseosas Posada Tobón, S.A.	Beverages
IFI-Concesión de Salinas	Mining of salt
Leónidas Lara e Hijos	Agricultural machinery and autos
Llorede, Jabones y Glicerina, Ltda.	Soaps, detergents
Planta Colombiana de Soda	Chemicals
Productos Fitosanitarios de Colombia, S.A.	Not known
Rosemberg Hermanos e Hijos	Toiletries and soap
Siderurgica del Pacífico, S.A.	Steel products
Vitabono, S.A.	Fertilizers
Empresa Colombiana de Cables, S.A.	Steel cables
Tejidos Leticia, Ltda.	Textiles
Facomec, S.A. Colombia, S.A.	Electrical equipment

National; Commercial

Almacenes Angel, S.A.
 Avianca
 Central Colombiana Auto-Agrícola Ltda.
 Corpal
 Distribuidora Química Holanda-Colombia, S.A.
 Distribuidora Saja Ltda.
 Droguería Gutiérrez
 Ingenieros Civiles Asociados
 Jorge Manuel Gómez (Jomago)
 Nepomuceno Cartagena e Hijos
 Pfaff de Colombia, S.A.
 Praco Ltda.
 Almacén El Motorista
 Distribuidora Pantécnica, S.A.

NOTES

1. In establishing company ownership, I placed heavy reliance on information supplied by knowledgeable Colombians and on the following: U.S. Department of Commerce, Bureau of International Commerce, *American Firms, Subsidiaries and Affiliates—Colombia* (Washington,

182 IMPORT CONTROLS IN 1970-71: SOME QUANTIFIABLE FEATURES

D.C.: U.S. Govt. Printing Office, May 1970); "The Fortune Directory: The 300 largest industrials outside the U.S.," *Fortune*, August 1972, pp. 152-161; and Juvenal L. Angel, ed., *Directory of American Firms Operating in Foreign Countries*, 7th ed. (New York: World Trade, 1969).

2. In several cases, a given company in the sample had import requests listed by INCOMEX under both the industrial and commercial categories. In those cases, the company was placed only under the industrial category. The same procedure was followed in the few cases in which a company was listed under both the industrial and official categories (e.g., Acerías Paz del Rio).

3. Total income and sales taxes paid in cash during 1970 amounted to P7,220 million, as reported in the *Revista del Banco de la República*. These data, like those shown in the tables, exclude tax payments made with tax certificates issued in connection with export subsidy payments. Total national tax revenues in the same year were P12,591 million. The number of workers and employees engaged in manufacturing and registered with the Colombian Social Security Institute was 384,600 in December 1970. See Gabriel Turbay M., "Una Política Industrial Para Estimular Las Exportaciones y Fomentar al Empleo," mimeographed (FEDESARROLLO, May 1972), Table 9. The equivalent amount for the commercial sector was 203,000. For both commerce and manufacturing, the employment figures are limited mostly to their "modern" segments, leaving out the "informal" sector.

4. See Turbay, "Una Política Industrial," 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 but less than 501 employees	143
More than 100 but 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.

5. See FEDESARROLLO, *Coyuntura Económica*, July 1972, Table X.2, p. 87.

6. 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:

Registered Import Category, 1970	Number of Institutions	1970 Registered Imports (mill. U.S. dol.)
More than \$1 mill.	19	130.83
Between \$0.5 mill. and \$1 mill.	10	7.17
Between \$0.1 mill. and \$0.5 mill.	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, and waterworks); public agencies marketing basic foodstuffs (IDEMA) or rural inputs (Caja Agraria); and the ministries of Public Works and Defense.

For 1970, the 119 largest industrial, commercial, and official importers combined accounted for \$445 million in registered imports, or 48 per cent of the total import bill.

7. See James Tobin, "The Application of Multivariate Probit Analysis to Economic Survey Data," mimeographed, Cowles Foundation Discussion Paper 1, December 1, 1955. The condition that the dependent variable must always have a value within the interval from zero to 1 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" (Ph.D. diss., Yale University, 1972) for another application of probit analysis.

8. The average value of import requests under the industrial nonreimbursable category, however, was only U.S. \$8,200, compared to \$12,174 for those in the reimbursable category. In the commercial group the corresponding figures were \$2,285 and \$5,276.

9. When partial rejections are counted as approvals, the percentages of reimbursable licenses approved, according to size as measured by 1970 imports in U.S. dollars, are as follows: under \$50,000, 70.1; over \$50,000, but under \$200,000, 71.3; over \$200,000, but under \$500,000, 71.2; over \$500,000, but under \$2 million, 70.7; over \$2 million, 81.5.

10. 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, 9.082; and partial rejections as rejections, 4.098.

11. Note also that the calculations in tables 6-14 and 6-15, although based only on the census-like information of my sample, have as many observations as tables 6-7 and 6-8. 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. In making the compilations, it was also noted that on 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 or 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, these zeros were transformed into 1s, so that the logarithms would make sense. Finally, the simple correlation coefficients among the variables appearing in the more interesting Table 6-14 should be noted. Denoting X_1, X_2, \dots, X_7 the independent variables in the order in which they are presented in Table 6-14 (extreme left-hand column), we have the following results:

	X_1	X_2	X_3	X_4	X_5	X_6
X_2	-0.26	—	—	—	—	—
X_3	-0.07	0.08	—	—	—	—
X_4	0.09	-0.45	0.01	—	—	—
X_5	0.08	-0.21	0.06	0.23	—	—
X_6	0.03	-0.47	0.02	0.42	0.33	—
X_7	-0.22	-0.11	-0.16	0.15	0.12	0.16

12. Albert Berry has also 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, nonmetallic minerals, paper products, and leather products.

13. For a stimulating discussion of these issues placed in a general context, see Anne O. Krueger, "The Political Economy of the Rent-Seeking Society," *American Economic Review*, June 1974, pp. 291-303.

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