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Chapter 3

Determination and Composition of Merchandise Imports and Their Link to Capital Formation

In this chapter and the three that follow, the focus will be on merchandise imports, with some attention given to service imports. The first steps will be to explore the possibility of measuring an "import function" for the postwar Colombian economy, to examine how imports have been allocated into different categories, and to analyze the crucial link between imports and capital formation. Finally, an over-all look will be taken at the different policy instruments used to repress and manipulate the demand for imports, and at the arguments given for relying on several of these instruments.

In chapters 4, 5, and 6 these instruments will be examined in detail, including tariffs, prior import deposits, the exchange rate, and administrative import controls, emphasizing actual practice during 1970 and 1971, with retrospective looks at the postwar evolution of the different mechanisms for containing imports.

AN AGGREGATE IMPORT FUNCTION

The import function to be estimated is somewhat unusual. Time series for merchandise imports entering Colombia legally cannot be assumed to result solely from the interplay of the ex ante domestic demand for imports, itself the difference between the domestic supply of and demand for importables, and a perfectly price-elastic foreign supply of imports. During most of the period under study, the institutional mechanism of import control explicitly aimed at

regulating import permits so that actual imports would be in line with foreign-exchange availability. Such actual and expected availability influenced the amount of import permits granted and, as was seen in Chapter 1, payment crises were blamed on departures from "prudence."

It would seem better, therefore, to seek the implicit average rules of prudence econometrically rather than follow the usual path of making observed imports a function of income and relative prices. Indeed, that usual path is open to serious conceptual criticisms where imports are regulated, as in Colombia. It can be argued that imports in such a case should be considered the independent variable, with income and relative prices both becoming dependent variables.

In what follows, an attempt is made to explain observed annual and quarterly imports as a function of variables which Colombian policymakers typically regarded as proxies for actual and expected foreign-exchange availability, i.e., the level of reserves, expected merchandise exports, and aid.

Why reserves? If the authorities had in mind a desired level of reserves, and always forecasted foreign-exchange earnings exactly, imports would fluctuate with the latter, but would show no correlation with the former. It may be supposed, however, that forecasting is far from perfect, and that unexpected increases or decreases in reserves will be followed by relaxation or tightening of controls, which will be reflected in the level of imports with some lag. The hypothesis is that imports in a given year or quarter will be influenced by the difference between actual and desired central-bank reserves during *previous* years or quarters.

In the regressions that follow, gross central-bank reserves will be used. Earlier experiments showed that gross, rather than net, reserves gave the best fits. This may be due to data problems involved in accurately defining net reserves, but it could reflect a certain type of liquidity preference of central bankers. Desired (gross) reserves were defined in a straightforward and unsophisticated way. Using either occasional public declarations of the government or the actual average ratio of gross reserves to imports for the whole period under study, one obtains an estimate for the desired level of gross reserves amounting to about one-fourth of annual imports, or three months' worth of imports. This relationship has been applied below to actual annual or quarterly imports to calculate desired reserves for each time period. In the annual regressions, only the imports of the previous year were used to calculate desired reserves. If, for example, the average of imports during the previous two years had been used for the calculation a less variable series would have been obtained for desired reserves. No extensive experimentation was carried out on this point either for annual or quarterly regressions, but the assumption of a relatively short memory for exchange-control authorities, going back only about a year, appears to work as well as longer alternatives.

Note that from the time an import license is granted for a commodity to the time the commodity enters Colombia—at which point it is included in our time series—an average of four or five months is said to elapse. Imports of a given time period can then be made to depend on lagged (actual and desired) reserves, avoiding most problems of interdependence, particularly in quarterly regressions.[1]

There are several possible ways of handling expected (nonaid) foreign-exchange earnings, the bulk of which, and probably its most volatile major part, comes from merchandise exports. One way is to use lagged *changes* in reserves as a proxy for these expectations. That approach was tried, yielding on the whole poor results. Another (not tried) would be to rely on lagged changes in coffee prices. In what follows, it was simply assumed that for a given time period, the ex ante guesses of the authorities on average came close to actual, realized merchandise exports. Since there is a lag between the granting and using of import licenses, it should be clear that a given quarter's actual exports can have little direct (Keynesian or monetary) effect on realized imports of that quarter. Therefore, the simultaneous use of imports and exports of the same quarter in a regression need not give rise to identification problems. For the annual observations it is not so easy to dismiss the possibility that exports will influence imports via income or money multipliers; for that case it is necessary to rely primarily on a priori knowledge of how import controls operate and of the chronic (but variable) presence of excess demand for imports.

The inclusion of aid as an independent variable explaining imports in a foreign-exchange–constrained economy seems natural. As the aid variable is based on disbursements, which are in fact typically measured by documentation regarding import flows, the regressions can be viewed as measuring the impact of the other two independent variables on the level of non-aid-financed imports. It was, however, difficult accurately to measure quarterly, as contrasted with annual, aid flows. Repayments of principal were subtracted from gross disbursements to yield net aid used in the regressions. Other capital inflows were excluded from the explanation of imports because it was difficult to separate them for the whole period into those which, like aid, could be considered autonomous and those induced by changes in the import level, and which may be regarded as accommodating, rather than explaining, import fluctuations.

As in the case of minor exports, the over-all conceptual scheme used for measuring aggregate functions has some weaknesses when applied to parts of the import bill. During the period under study there have been, after all, some imports placed under free lists, requiring no prior licenses from control authorities. Recently, imports from Andean countries have been exempted

TABLE 3-1

Recorded Merchandise Imports by Geographical Source, 1957–58 to 1970–72
(per cent of total)

	1957–58	1959–62	1963–66	1967–69	1970–72
United States	59.6	55.2	49.0	47.2	42.3
Canada	2.8	2.9	2.7	2.4	3.0
United Kingdom	4.4	5.6	5.4	5.2	4.6
Japan	1.0	2.8	3.4	4.1	7.2
European Common Market	18.8	18.8	18.1	15.1	18.1
Other industrial Western European	5.8	5.7	5.0	4.7	5.2
Other nonsocialist European	0.7	1.8	4.3	7.3	5.9
Andean Common Market	1.8	1.2	2.3	2.8	4.8
Other LAFTA	0.8	1.0	4.7	6.0	5.3
Central American Common Market	0.3	0.3	0.1	—	0.1
Other Western Hemisphere	2.6	3.2	2.8	1.9	0.9
Socialist	0.5	0.8	1.7	2.6	1.8
Other	0.8	0.7	0.7	0.7	0.8
Total	100.0	100.0	100.0	100.0	100.0

SOURCE: For 1957–69, DANE-ADCE, various issues; for 1970–72, IMF-DOT, various issues.

from quantitative controls. Presumably, these imports are influenced by traditional independent variables, such as relative prices and real incomes. Nevertheless, it remains true that the total import bill was under the control of import authorities who in fact regulated the flow of licenses partly in response to the behavior of unregulated imports. Indeed, the existence and size of a free list was one of the instruments used to control the total import flow.

It is likely that the geographical sources of Colombian imports have been influenced from time to time by the policy instruments used to repress import demand and by the inflow of tied aid, but it is doubtful that such influences have been particularly strong or lasting. More to the point of this chapter, changes in the geographical pattern of imports suggest little about either the past or the future levels of the import bill. Variations in such patterns, shown in Table 3-1, reflect primarily trends regarding the relative competitiveness of industrialized nations, as well as Colombian preferential trade arrangements with other Latin American countries, all of which had led to a fairly diversified import bill in the early 1970s.

TABLE 3-2

Basic Data Used in Annual Import Regressions, 1950–72
(millions of current U.S. dollars)

Year	Merchandise Imports, c.i.f.	Average Gross Reserves in Current Year	Actual Minus Desired Reserves in Previous Year	Net Aid	Merchandise Exports	Actual Imports as Per Cent of Imports Estimated by Eq. 3-1
1950	364.7	122.2	29.6	−4	393.6	95.5
1951	419.0	111.8	31.0	5	483.8	88.7
1952	415.4	140.8	7.0	46	483.0	83.1
1953	546.7	183.4	36.9	22	605.5	90.7
1954	671.8	223.0	46.7	21	669.1	101.1
1955	669.3	157.6	55.0	20	596.7	110.7
1956	657.2	126.0	−9.7	20	551.7	125.8
1957	482.6	165.8	−38.3	9	511.1	105.8
1958	399.9	133.4	45.1	6	460.7	86.5
1959	415.6	186.0	33.4	−3	473.0	91.1
1960	518.6	195.0	82.1	12	464.6	104.5
1961	557.1	142.8	65.3	77	434.8	105.5
1962	540.3	122.2	3.5	80	463.2	104.7
1963	506.0	92.6	−12.9	104	446.7	98.0
1964	586.3	99.8	−33.9	85	548.1	102.4
1965	453.5	82.2	−46.8	79	539.1	82.5
1966	674.3	64.0	−31.2	98	507.6	122.1
1967	496.9	77.6	−104.6	93	509.9	99.1
1968	643.3	115.2	−46.6	131	558.3	103.4
1969	686.0	183.2	−45.6	155	607.4	99.1
1970	754.6	247.0	11.7	160	735.6	88.9
1971	857.5	182.2	58.3	114	686.0	109.1
1972	836.5	238.0	−32.2	181	742.9	98.5

Notes to Table 3-2

SOURCE: Data on imports, exports, and reserves from IMF-IFS. Average gross reserves in current year is the mean of reserves in March, June, September, and December of the current year plus December of the previous year. Actual minus desired reserves are described in the text. Net aid refers to disbursements, as registered in IMF-BOPY, covering long-term loans received by central and local governments as well as those received by the private nonmonetary sector from the IADB, IBRD, IFC, and U.S. government *minus* amortizations of those loans. Data on loans for 1950–55 involved rough estimates of some components.

98.5
742.9
181
−32.2
238.0
836.5
1972

Regression Results.

Table 3-2 contains data used in the annual regressions and additional data on how the independent variables for reserves and aid were constructed. Using those data, the following result is obtained, where the figures in parentheses are t statistics.

$$M_t = \underset{(0.19)}{17.11} + \underset{(4.88)}{0.89X_t} + \underset{(1.81)}{0.65GR_{t-1}} + \underset{(3.05)}{1.06A_t} \qquad (3\text{-}1)$$

$$R^2 = 0.80;\ F \text{ statistic} = 25.82;\ DW = 1.93;\ \text{observations} = 23$$

where

M_t = merchandise imports in year t

X_t = merchandise exports in year t

GR_{t-1} = actual minus desired reserves in previous year

A_t = net aid in year t

DW = Durban-Watson statistic.

The fit of equation 3-1 is good; from the last column of Table 3-2 it may be seen that it is particularly good for the years since 1966 taken as a whole, during which actual imports averaged 99.7 per cent of predicted imports, and absolute deviations around that mean were relatively small. Nevertheless, adding 1971 and 1972 to the regression lowers the t statistics for the GR_{t-1} coefficient; a regression covering just 1950–70 yields a t statistic of 2.20 for that coefficient. If equation 3-1 is taken as embodying the average rule of thumb followed by prudent import control authorities, its residuals should be of interest and would be subject to runs reflecting persistent departures from prudence. For example, the 1955–56 excesses stand out clearly, and are followed by the 1958 austerity. Similarly, the swing from extreme tightness to liberalization during 1965–66 is also reflected in the residuals. A more perceptive look at these subphases, however, will be obtained from quarterly data.

The coefficients for exports and net aid are not significantly different from 1.0 while the constant term is insignificant, all of which one would expect a

priori, given the relative unimportance of service imports. The coefficient for the difference between actual and desired reserves has the expected sign and is significant at the 5 per cent level; it implies that 65 per cent of the excess (or shortfall) in gross reserves during the preceding year is spent on (or withheld from) imports during the current year. Experiments introducing further lags in the *GR* variable were unsuccessful.[2]

Reliable quarterly data start in 1957; Table 3-3 contains the series used in the following regression:

$$M_t = \underset{}{62.72} + \underset{(4.48)}{0.33X_t} + \underset{(2.71)}{0.19GR_{t-1}} + \underset{(2.93)}{1.87A_t} + \underset{(6.42)}{} \qquad (3\text{-}2)$$

$R^2 = 0.65$; F statistic = 37.87; $DW = 0.67$; observations = 64

The subscript t now refers to a given quarter; GR_{t-1} refers to actual minus desired reserves throughout the previous four quarters. The regression fit is again good; the Durbin-Watson statistic indicates, not surprisingly, the presence of runs above and below the prudent norm.

Regression 3-2, taken literally, suggests that a given quarter's imports are made up of some minimum amount, given by the constant term of about $63 million (contrasted with average quarterly imports of $147 million), plus one-third of that quarter's current exports, plus a multiple of the aid inflow, all adjusted by previous deviations between actual and desired reserves. As the GR_{t-1} variables in equations 3-1 and 3-2 cover a similar time span, while the dependent variable does not, the coefficient for GR_{t-1} in equation 3-2 should be multiplied by four, yielding 0.76, before comparing it to the 0.65 coefficient obtained in 3-1.

The coefficient for net aid in equation 3-2 is higher than the expected 1.0; similar results were also obtained using gross aid. It should be noted that the quarterly aid figures are rough estimates. Nevertheless, an aid coefficient significantly higher than 1.0 may be picking up the effect of aid "leverage" on import liberalization, an avowed policy goal of aid-providers during the period under study. It could also reflect a perverse de facto positive correlation of aid disbursements with good times (compare the figures for 1965 and 1967 with those for earlier and later years).

Experiments introducing seasonal dummy variables, as well as actual minus desired reserves further lagged, yielded insignificant results, but no systematic effort was made to calculate the best reserve lag structure.

The last column of Table 3-3 presents actual imports as percentages of those predicted by equation 3-2. Quarterly import series naturally reflect brief unusual events more clearly than do annual data. Some are interesting for our study, e.g., a temporary closing of the office issuing import permits, as during late in 1962, but other, less relevant events, are also reflected, such as harbor

TABLE 3-3

Basic Data Used in Quarterly Import Regressions, 1957–72
(millions of current U.S. dollars)

Year and Quarter	Merchandise Imports, c.i.f.	Average Actual Minus Desired Gross Reserves in Previous Four Quarters	Net Aid	Merchandise Exports	Actual Imports as Per Cent of Imports Estimated by Eq. 3-2
1957 I	91.5	−38.9	2.3	140.0	86.1
II	98.2	1.8	2.3	117.4	92.3
III	138.9	41.3	2.3	138.2	114.9
IV	148.0	56.4	2.3	124.1	124.3
1958 I	120.9	55.4	1.5	105.7	108.7
II	99.4	24.5	1.5	93.1	98.3
III	89.3	−1.3	1.5	134.3	81.2
IV	90.4	12.4	1.5	119.7	83.9
1959 I	86.3	30.5	−0.8	99.9	86.1
II	107.3	55.4	−0.8	116.0	97.2
III	116.9	74.4	−0.8	139.9	95.9
IV	104.9	78.5	−0.8	117.2	91.1
1960 I	124.3	88.7	3.0	111.3	101.7
II	129.6	86.7	3.0	97.5	110.5
III	134.7	83.6	3.0	122.4	107.8
IV	128.6	77.9	3.0	133.4	100.8
1961 I	124.5	60.7	19.3	101.0	86.5
II	147.9	46.2	19.3	113.4	101.7
III	138.0	20.8	19.3	112.5	98.4
IV	146.7	8.8	19.3	106.5	107.9
1962 I	145.9	−3.3	20.0	99.3	110.0
II	141.6	−15.1	20.0	109.4	105.9
III	147.3	−7.3	20.0	146.8	99.8
IV	105.5	−13.9	20.0	107.8	79.1
1963 I	93.4	−17.3	26.0	87.2	68.1
II	136.6	−11.2	26.0	111.3	93.4
III	139.3	−18.5	26.0	141.5	90.0
IV	136.6	−24.7	26.0	106.1	96.2
1964 I	143.4	−32.0	21.3	127.8	103.1
II	147.6	−40.5	21.3	131.7	106.4
III	156.4	−44.0	21.3	140.1	111.0
IV	138.9	−47.3	21.3	148.5	97.1
1965 I	110.4	−43.6	19.8	119.8	84.2
II	126.9	−41.3	19.8	138.2	92.1
III	111.0	−48.9	19.8	141.6	80.8
IV	105.2	−43.1	19.8	138.2	76.6

TABLE 3-3 (*concluded*)

Year and Quarter	Merchandise Imports, c.i.f.	Average Actual Minus Desired Gross Reserves in Previous Four Quarters	Net Aid	Merchandise Exports	Actual Imports as Per Cent of Imports Estimated by Eq. 3-2
1966 I	140.4	−36.6	24.5	123.8	98.3
II	168.0	−55.4	24.5	140.7	116.0
III	193.4	−67.9	24.5	131.6	138.7
IV	172.4	−91.0	24.5	110.3	134.7
1967 I	149.3	−112.6	23.3	114.1	121.5
II	111.1	−105.8	23.3	129.0	86.0
III	118.1	−85.3	23.3	129.9	88.6
IV	118.5	−61.5	23.3	136.8	84.5
1968 I	157.4	−46.5	32.8	128.4	99.7
II	167.0	−52.0	32.8	140.1	103.9
III	162.7	−55.0	32.8	144.0	100.8
IV	156.2	−50.7	32.8	145.7	96.0
1969 I	133.8	−37.6	38.8	131.5	77.8
II	168.5	−6.7	38.8	168.2	88.7
III	203.1	5.0	38.8	150.6	108.9
IV	180.6	8.4	38.8	157.1	95.4
1970 I	161.8	14.3	40.0	210.4	76.9
II	176.9	34.3	40.0	202.2	83.7
III	209.7	60.9	40.0	175.1	101.1
IV	206.3	75.0	40.0	139.0	104.1
1971 I	228.3	64.8	28.5	161.6	125.3
II	232.2	22.0	28.5	186.0	127.5
III	216.8	−20.6	28.5	166.8	129.3
IV	205.2	−43.9	28.5	171.6	124.5
1972 I	220.0	−44.4	45.2	156.5	115.2
II	190.0	−36.6	45.2	122.0	105.0
III	207.4	−13.8	45.2	225.5	94.4
IV	219.1	10.6	45.2	238.9	95.7

SOURCE: Same as for Table 3-2. Figures in second column computed using end-of-quarter data for four quarters preceding current quarter. Yearly net aid figures were allocated to quarters in four equal parts.

and shipping strikes. Noteworthy runs in actual imports are those of 1958III–1959I (austerity), and the remarkable swings from austerity (1965I–1965IV) to excess (1966II–1967I) and back to austerity (1967II–1967IV).[3] Throughout 1971 and 1972, regression 3-2 underestimates actual imports; it may be conjectured that easier access to world private capital markets, buttressed by a favorable exchange earnings outlook, is changing the Colombian import rules that have applied throughout the postwar period.

UNREGISTERED MERCHANDISE IMPORTS

Given the long Colombian coasts on both the Pacific and Atlantic and its frontiers with Venezuela, Brazil, Peru, Ecuador, and Panama, which add up to more than nine thousand kilometers (more than fifty-six hundred miles) of sea and land borders, coupled with a rigorous import control system, one may wonder whether some merchandise imports escape official registration, control, and taxes.[4]

It is obvious that some smuggling does take place. During August 1971 smuggled foreign cigarettes were openly sold in Bogotá's main avenues, and I was pleasantly startled to find Cuban cigars available in a Cartagena restaurant. Businessmen often tell of sending an employee to Miami to bring back, well hidden in his suitcase, small but critical parts and pieces, which they feel

TABLE 3-4

Ratio of Registered Colombian Imports (c.i.f.) to Exports to Colombia Registered by Other Countries, 1958–69

	World	United States, United Kingdom, and Canada	European Common Market	Other Countries
1958	1.07	1.24	1.09	0.63
1959	1.13	1.16	1.03	1.12
1960	1.13	1.17	1.08	1.02
1961	1.11	1.11	1.08	1.18
1962	1.18	1.20	1.18	1.09
1963	1.03	1.00	1.06	1.08
1964	1.11	1.09	1.11	1.14
1965	1.08	1.07	1.07	1.11
1966	1.07	1.06	1.11	1.05
1967	1.12	1.06	1.18	1.23
1968	1.02	1.01	1.06	1.00
1969	1.03	1.02	1.04	1.04
Averages	1.09	1.10	1.09	1.06

SOURCE: Basic data from IMF-DOT, various issues. The corresponding ratios for the group formed by the United States, the United Kingdom, and Canada during 1948–57 were as follows:

Year	*Ratio*	*Year*	*Ratio*	*Year*	*Ratio*
1948	1.17	1951	1.17	1955	1.23
1949	1.09	1952	1.16	1956	1.25
1950	1.09	1953	1.13	1957	1.16
		1954	1.16		

would be unduly delayed or excessively taxed under the import control mechanism. Some cities on the Venezuelan and Ecuadoran borders are well-known centers of two-way unregistered trade. But the extent of such commerce is, of course, difficult to ascertain. Yet for the purpose of this chapter, it is necessary to try to establish at least whether or not unregistered imports invalidate the results obtained by manipulating registered import data.

A first approach will be to compare Colombian official import data with what trade partners claim they have exported to Colombia. This is done, for three broad geographical categories, in Table 3-4. As Colombia reports imports c.i.f., and most countries register their exports f.o.b., a gap of roughly 10 per cent is to be expected between the two sets of figures; and, on average, the gap between the figures for 1958 through 1969 are close to that. There are, however, considerable year-to-year fluctuations and a downward trend if U.S., U.K., and Canadian figures for 1948–57 are compared to those for 1958–

TABLE 3-5

Unregistered Merchandise Imports, c.i.f., 1957–72
(millions of U.S. dollars)

	Border Trade (Imports)	Ships Purchased by Great-Colombian Fleet	Other, Incl. Parcel Post	Border Trade as Per Cent of Recorded Imports
1957	20	5	0	4
1958	20	6	0	5
1959	20	2	0	5
1960	20	3	0	4
1961	20	3	0	4
1962	51	0	0	10
1963	40	0	0	8
1964	50	7	0	9
1965	30	7	−11[a]	7
1966	25	19	0	4
1967	28	4	1	6
1968	33	0	10	5
1969	37	0	10	5
1970	43	0	13	5
1971	39	29	18	4
1972	35	33	17	5

SOURCE: IMF-BOPY, various issues.

a. Refers to military grants, which by international convention are omitted from the balance of payments.

69. A good deal of the year-to-year variation appears to simply reflect statistical difficulties, but some of it can be linked to events in the Colombian payments system. For example, unusual gaps between Colombian and U.S.-U.K.-Canadian data in 1955–56 and 1962 suggest that overinvoicing was used as a means of speculating against an overvalued peso.[5]

Most smuggled merchandise will appear in the official trade figures of neither the importing nor the exporting country, or if they appear in the latter data they will not be allocated correctly among importing countries (i.e., much merchandise apparently sent to Panama and Venezuela may end up in Colombia; note that both Panama and Venezuela have followed relatively liberal import policies). The importance of this trade has prompted "guesstimates" of its value, one of which is presented in Table 3-5. The figures in the second and third columns reflect minor statistical adjustments to import data as reported to the IMF by Colombia; the first column represents an attempt to estimate import smuggling. The "border trade" is estimated to have fluctuated between 4 and 10 per cent of registered imports. Not surprisingly, the high point was reached during troubled 1962, while the estimates for liberal 1966 are much lower. One may speculate that most, but not all, border trade imports involve consumer goods (liquor, cigarettes, radios, watches, and even pornographic materials). But given the orders of magnitude involved it appears that neither the results to be shown in Table 3-7 nor those of earlier regressions would be much changed by inclusion of border trade.

THE ALLOCATION OF OBSERVED MERCHANDISE IMPORTS INTO DIFFERENT CATEGORIES

Since we have derived an over-all import function, it is natural to analyze how that import capacity was distributed among commodity types. Several ways of classifying imports are possible. In this section three subdivisions are used, based on annual data: consumer goods, raw materials and intermediate goods, and capital goods. These data are shown in Table 3-6.

The allocation of imports among these categories will, of course, be influenced by long- and short-term forces. Among the former, import-substituting industrialization looms large, but from the viewpoint of this study, it will be of greater interest to explore hypotheses regarding whether (and how) import control authorities modify import structure on the basis of import capacity.

It is part of the conventional wisdom that during difficult times import control authorities squeeze capital goods first, while trying to maintain the flow of raw materials and intermediate goods. If so, the share of capital goods

TABLE 3-6

Allocation of Registered Merchandise Imports Among Major Use Categories, 1951–72
(per cent of total imports, c.i.f.; underlying data in U.S. dollars at current prices)

Year	Consumer Goods Plus Residual Category	Raw Materials and Intermediate Goods	Capital Goods Incl. Construction Materials
1951	13.1	53.6	33.4
1952	11.9	50.8	37.3
1953	16.0	45.7	38.3
1954	18.4	44.6	37.0
1955	14.9	44.8	40.3
1956	9.6	50.0	40.4
1957	9.6	57.6	32.8
1958	8.3	58.7	33.0
1959	7.5	55.7	36.8
1960	7.8	48.8	43.4
1961	10.1	42.4	47.4
1962	9.5	47.8	42.8
1963	8.3	50.5	41.3
1964	8.9	45.9	45.1
1965	8.3	47.4	44.3
1966	8.4	56.8	34.7
1967	9.9	46.0	44.1
1968	9.8	46.4	43.9
1969	11.5	46.0	42.5
1970	12.1	43.7	44.2
1971	11.9	44.8	43.3
1972	13.4	47.6	39.0

SOURCE: BdlR-IAGJD, various issues. Data for 1971 and 1972 refer to import registrations with INCOMEX. Because of the delay in processing customs data, even the BdlR used those INCOMEX data in its annual report for 1972.

in the import bill should be positively related to the level of imports, while that for raw materials and intermediate goods should show an inverse relationship. The latter expectation is confirmed by the results given in Table 3-7, but the former does not emerge as statistically significant, although the sign is the expected one. There is little doubt that the severe import restrictions of 1957–58 were particularly harsh on machinery and equipment imports. However, the regressions for the whole period warn us against generalizing from that experience and from assuming that more liberal import policies will necessar-

TABLE 3-7

Regressions for Shares in the Import Bill of Major Use Categories, 1951–72
(*t* statistics in parentheses)

	Consumer Goods	Raw Materials and Intermediate Goods	Capital Goods
Constant	−53.81	128.54	25.56
	(3.82)	(4.69)	(0.96)
Logarithm of dollar import value	10.85	−12.66	1.76
	(4.71)	(2.83)	(0.41)
Time trend	−0.49	0.43	0.06
	(3.90)	(1.76)	(0.24)
Net aid as per cent of all imports	0.13	−0.39	0.26
	(1.50)	(2.23)	(1.52)
R^2	0.60	0.46	0.37
F statistic	9.11	5.05	3.53
DW	1.63	2.11	1.61
No. of observations	22	22	22

R^2 = coefficient of multiple determination.
DW = Durbin-Watson statistic.
SOURCE: See text. Basic data obtained as in earlier tables of this chapter. The following simple correlation coefficients are of interest:

	Net Aid as Per Cent of All Imports	*Log of Dollar Import Value*
Share of consumer goods	−0.14	0.39
Share of raw materials and intermediate goods	−0.45	−0.55
Share of capital goods	0.60	0.35
Logarithm of dollar import value	0.43	—

ily lead to a bigger *share* for capital goods imports. Observe how in 1966 that share fell as imports rose dramatically. A positive link between the share of consumer goods and import levels, however, can be established with confidence for the whole period.

In countries with weak machinery and equipment industries, aid flows, designed partly to promote investment, can be expected to influence the share of capital goods in total imports. Such influence need not be dollar for dollar; for example, food aid that supports a shift of agricultural workers to construc-

tion projects can contribute to capital formation even though it has no direct impact on imports of capital goods. But typically, a link can be expected; this is indeed the case for Colombia, as shown in Table 3-7. Indeed, the most significant coefficient in the regression explaining the share of capital goods in the import bill is that for net aid.

The trend for the share of consumer goods in all imports is clearly downward, matched by a rising trend for raw materials and intermediate goods.

IMPORTS AND CAPITAL FORMATION

In Chapter 1, I noted the clear and strong link that has existed in Colombia between foreign trade and capital formation, contrasting it with the weaker (short-term) correlation between changes in GDP or manufacturing output and trade conditions.[6] The link between foreign trade and capital formation does not involve subtle and mysterious relationships between exports (or terms of trade) and propensities to save. The matter is much simpler. During 1950–54 imported commodities accounted for 94 per cent of Colombian gross investment in machinery and equipment; by 1971–72 that share was still a remarkable 68 per cent in spite of rapid growth in the local output of machinery and equipment. During the period under study Colombian investment other than construction could hardly be realized, at least during a longish medium term, without a matching capacity to import. Coffee and, later, aid and minor exports were the basis of nonconstruction capital formation. Note that nothing in the argument assures us that the flow of imported capital goods will be assigned wisely or used fully; therefore, even in the long run no rigid link need exist between growth and the capacity to import. Indeed, it can be argued that periods of import bonanza may lead to a careless allocation of investment, while austerity strengthens the hand of cost-benefit analysts. But without substantial import capacity, even heroic ex ante savings decisions are likely to be frustrated before ever becoming tangible in ex post nonconstruction investments.

The capital formation–import link is documented in Table 3-8, where imports and a time trend appear as the independent variables. The link emerges quite clearly from these regressions; one can discount part of the excellence of the fit on grounds of national accounting methodology without losing the main conclusion.

The elasticity of real gross investment in machinery and equipment with respect to merchandise imports is not significantly different from 1.0; that for all investment emerges as slightly below 1.0. Even investment in construction shows some significant elasticity with respect to imports, although its trend

TABLE 3-8

Links Between Capital Formation and Imports: Regression Results, 1950–72

(*t* statistics in parentheses; all variables except trend are in logarithms)

	Building and Construction	Machinery and Equipment	All Gross Fixed Domestic Capital Formation	Imports of Capital Goods (national accounts)
Constant	5.24	0.64	3.64	−0.02
	(8.95)	(0.88)	(8.67)	(0.02)
All recorded merchandise imports	0.32	1.12	0.72	1.22
	(3.31)	(9.33)	(10.34)	(9.46)
Time trend	0.041	−0.002	0.020	−0.020
	(12.09)	(0.37)	(8.06)	(4.36)
R^2	0.95	0.87	0.96	0.82
F statistic	174.50	69.51	233.43	47.05
DW	1.24	2.11	2.60	2.13
No. of observations	23	23	23	23

R^2 = coefficient of multiple determination.

DW = Durbin-Watson statistic.

SOURCE: Time series on gross investment and imports of capital goods in constant 1958 Colombian pesos from BdlR-CN, including unpublished estimates. Current-dollar value of merchandise imports from IMF-IFS. All gross fixed domestic capital formation is the sum of building and construction plus machinery and equipment.

variable, as expected, shows a heftier *t* statistic than that for machinery and equipment. The Durbin-Watson statistics for the construction regressions also suggest that important independent variables have been left out in the explanation of that type of investment, a fact we know from Chapter 1.

As import quantity indices are available only with a long lag, the regressions shown in Table 3-8 were estimated using current-dollar values for recorded imports. The trend coefficients, therefore, particularly the coefficient for machinery and equipment, reflect two offsetting forces: a positive one arising from the fast growth in local production of capital goods, and a negative one arising from the upward creep in dollar prices paid by Colombia for imports, which may be estimated at about 2 per cent per year during the period under study.

In the last column of Table 3-8, the time series for imports of capital

goods used in the BdlR national accounts is compared with total imports. Here, in apparent contrast to the results presented earlier (Table 3-7), the elasticity of capital goods imports with respect to import levels is greater than 1.0, but the level of significance of this result is not sufficiently high to change my earlier conclusion of proportionality, excluding trend and aid flows.

The fits obtained in Table 3-8 could be further improved by making investment depend not on total imports, but only on imports of capital goods. Such refinement, however, seems unnecessary and even inelegant given the proportionality conclusion and the national accounts methodology. Finally, it may be noted that the rapid growth observed for the whole period in the domestic production of machinery and equipment suggests that in the future the link between imports and capital formation will be less tight than in the past.

POLICY INSTRUMENTS USED TO REPRESS IMPORTS

The import function estimated earlier in this chapter emphasized the power of authorities to limit imports according to foreign-exchange availabilities. The mechanisms used specifically to contain imports have been mainly four: the tariff, prior import deposits, the exchange rate applicable to imports, and import licensing. Other more general policy variables, such as credit, have also been manipulated for the purpose of containing imports, often at the expense of growth. The focus of the next three chapters will be on just the four specific mechanisms listed, leaving the discussion of interactions between trade and macroeconomic policies for chapters 7 and 8.

Since the Great Depression, the typical assumption of Colombian policymakers has been that the imports demanded by the public would exceed the foreign exchange available to finance them. At the exchange rates, tariffs, and other import charges which prevailed during most of the period, this was indeed the case; so available foreign exchange ended up being rationed also by the system of exchange and import licensing. The burden carried by each of the rationing mechanisms, as the authorities struggled to bring the demand for imports into line with exchange availabilities, changed from year to year, and there has been a constantly fluctuating mix of those four instruments since World War II. In retrospect, the authorities appear to have had a vague desire to avoid having any single instrument bear an excessive burden in the task of repressing imports. In other words, when pressures on the licensing authorities became great, i.e., when delays and rejections of import and exchange license requests rose above some tolerable level, there was a tendency to devalue the import exchange rate, or to raise tariffs and surcharges, or to

increase prior import deposits. On the other hand, if the exchange rate was considered adequate, surges in import demand tended to be met by tighter licensing procedures, higher duties, or higher prior import deposits.

Much of this balancing among instruments was done "by ear," and in different ways according to the types of imports. As a result, it is difficult to trace historically the import-repressing weight carried by each policy in a given year. It is clear, however, that the ultimate weapon, not always brought into play at the opportune time, was import and exchange licensing, based, in turn, on actual and expected exchange availability. It is also clear that in practically all years under study (1950–72), the import and exchange controls had a certain bite, in the sense that the exchange rate, tariffs, and import deposits left an ex ante demand for imports higher than what the authorities thought could be financed.

The reasons given in Colombia for relying on a variety of import-repressing mechanisms rather than just one (e.g., the exchange rate, perhaps coupled with a uniform across-the-board tariff) are several. The most interesting relate to the instability of the world coffee market and to the consequent burden of adjustment expected to fall on Colombia. Assume that Colombia is a price taker in the international coffee market and that there is just one flexible exchange rate. Without a licensing mechanism, and with domestic full employment policies, a sudden and unexpected drop in world coffee prices will lead to a devaluation, while an increase will lead to an appreciation of the exchange rate. It has been argued by many influential Colombians that even in the medium run, price elasticities are such that without the licensing mechanism, the exchange rate must fluctuate as much as world coffee prices.[7] The shifting of resources in and out of the import-competing and export sectors would have unfavorable effects on welfare, while asymmetrical reactions to devaluation and appreciation, it is further argued, would also impart an inflationary bias to the economy. Exchange-rate instability reflecting the instability in world coffee prices would tend to destroy the "moneyness" of the Colombian peso.

The holding of much larger Colombian foreign-exchange reserves would be an alternative to a totally flexible exchange rate, but it has been argued that import and exchange licensing coupled with a moderate reserve level is a cheaper and safer way of tackling the instability problem. The possibility that either domestic or foreign speculators would take up the whole burden of offsetting gyrations in coffee prices or exchange rates is not taken very seriously (with good reason).

Note that in this argument import and exchange licensing are closely interlinked, a lesson painfully learned during 1956–58. Granting import licenses freely and holding back later on permits to buy foreign exchange obviously lead to a piling up of commercial arrears and to the transformation of

private debts to suppliers into national foreign debt as the external credit of the country is damaged by payment delays and pressure is exerted by foreign creditors on Colombian authorities. There are, of course, other reasons for maintaining exchange controls, particularly regulating the capital account of the balance of payments and, also, some service items in the current account, particularly profit and royalty remittances. Furthermore, there is in Colombia, as elsewhere, skepticism regarding the effectiveness of prices in regulating quantities demanded; in particular, the long duration of import controls and ill-fated brief liberalization attempts have generated the myth of an irrepressible import and exchange demand that cannot be curbed except by the imposition of extravagant prices.

NOTES

1. The definition of desired reserves makes one of the independent variables, actual minus desired reserves, partly a function of the lagged dependent variable. In the determination of desired reserves the import level is best viewed as a proxy for the expected level of payments imbalances.

2. The (economic) expectation was that proper specification of the lags would yield coefficients for the *GR* variables adding up closer to 1.0, but that expectation could not be realized econometrically.

3. Given a priori knowledge regarding import licensing during these runs, a case could be made for introducing different dummy variables for these periods, thereby improving the regression results. But little of substance would be gained by such a procedure.

4. The Colombian islands of San Andrés, off the coast of Nicaragua in the Caribbean, have free-port privileges. Heavy tourist traffic between these islands and the Colombian mainland adds to the smuggling possibilities. The existence of the free port of Leticia plus the export zones mentioned in Chapter 2 adds to the worries of those charged with controlling inward smuggling.

5. Thus, some of the departures from prudence detected in the first part of this chapter should be interpreted broadly, to include excesses in the licensing of imports, capital exports, or both.

6. In a correlation of year-to-year percentage changes in real GDP ($\widehat{GDP}$) and manufacturing output ($\widehat{MA}$) with those for the dollar value of merchandise imports ($\widehat{M}$), during the same year (t), and the year before ($t-1$), the following results were obtained for the period from 1951 through 1972:

$$\underset{}{(\widehat{\text{GDP}})_t} = \underset{}{4.74} + \underset{(14.39)}{0.04\hat{M}_t} + \underset{(2.70)}{0.01\hat{M}_{-1}} \qquad R^2 = 0.28$$
$$\underset{}{(\widehat{\text{MA}})_t} = \underset{}{6.30} + \underset{(15.22)}{0.04\hat{M}_t} + \underset{(2.13)}{0.001\hat{M}_{-1}} \qquad R^2 = 0.20$$
$$\qquad\qquad\qquad\qquad\qquad\quad (0.06)$$

If the value of imports in year t relative to import levels during $t-1$, $t-2$, and $t-3$ is used as the independent variable, similarly weak results are obtained. Both types of regression show

that while there *is* a significant link between import and output growth, the constant terms account for most of the GDP and manufacturing year-to-year growth. See also the interesting article by Alberto Corchuelo R. and Luis Bernardo Florez E., "El Sector Externo y las Fluctuaciones de Corto Plazo de la Economía," in DANE-BME, November 1971, pp. 9–21.

7. Consider the following Colombian-like situation before and after a 20 per cent drop in world coffee prices, assuming no change in the quantity of coffee exports:

	Before	*After*
Coffee exports	$400	$320
Other exports	150	180
Imports	550	500

To bring about the increase in other exports and the contraction of imports, assuming a supply price elasticity of 1.0 for other exports and of about −0.45 in the price elasticity of import demand, a 20 per cent devaluation in the noncoffee exchange rate would be required, assuming no increase in the prices of home goods. These arguments assume that stabilizing speculation is limited in both the coffee and the foreign-exchange markets.