CHAPTER - I

INTRODUCTION

FOREIGN EXCHANGE CONSTRAINT ON INDIAN ECONOMIC GROWTH

One of the few notions about which economists and policy-makers are in agreement is that the developing countries are facing three fundamental constraints in their initial stages of economic development. The first is set by the limited skill, both managerial and technical; the second consists of the limit set on investment by the availability of domestic savings; and the third constraint is the limit set on much needed developmental imports by the capacity of the economy to import as determined by its level of exports. If, then, exports are insufficient to finance such growing imports, rapid development cannot be achieved. It is this third constraint, popularly known as the 'Foreign Exchange Constraint', as determined by the level of exports of an economy, which forms the subject-matter of the present study.

1.1: METHODS OF RELIEVING FOREIGN EXCHANGE CONSTRAINT :

1.1.1: CONCEPT OF FOREIGN EXCHANGE CONSTRAINT :

It is now widely held that in developing countries there may be a situation wherein raising the rate of domestic savings will have no effect on the rate of growth which is taken as being determined by the availability of foreign exchange. In such cases a critical bottleneck restricting the rate of growth is the shortage of foreign exchange resources. Increasing availability of foreign exchange resources helps to supplement domestic savings (classical view); it helps to purchase many goods and services that have strategic importance in efficient industrial growth but cannot be available domestically in the early stages of industrial development (modern view). We can express this trend of thought in the most simple terms as follows[1] :-

Let K_d - Domestically-produced capital goods

K_f - Foreign-produced capital goods

a - Output/capital ratio of K_d

b - Output/capital ratio of K_f

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[1]R.I. McKinnon, "Foreign Exchange Constraint in Economic Development and Efficient Aid Allocation", Economic Journal, June, 1964

J.Sandee, "Foreign Exchange and Industrial Growth", The Econometric Annual of Indian Economic Journal, Vol.XIII, No.8.

P - Potential output capacity of the economy

Y - Actual output of the economy

S - Savings

E - Exports

M - Current imports

C_f - Net capital inflow

F - Foreign assistance

I - Intestment

Then we have the following aggregate fixed coefficient production function of McKinnon type :

$$P = \min (aK_d, bK_f) \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

This notation means that output is given by whichever bracketed expression yields the smallest value. The units for capital goods are such that one unit of output capacity (P) can be used to construct one unit of K_d or exchange for one unit of K_f at fixed terms of trade.

From (1) we have that one unit of capacity, P, needs $\frac{1}{a}$ units of K_d and $\frac{1}{b}$ units of K_f, requiring $\frac{1}{a} + \frac{1}{b}$ units of domestic output for new investment, Thus,

$$P = \frac{1}{\frac{1}{a} + \frac{1}{b}} \qquad I = \frac{1}{\frac{1}{a} + \frac{1}{b}} (K_d + K_f) \quad \ldots \quad (2)$$

Therefore, we have,

$$P = B(K_d + K_f) \quad \ldots \quad \ldots \quad \ldots \quad (3)$$

Where $B = \frac{1}{\frac{1}{a} + \frac{1}{b}}$, which corresponds to the output-capital ratio of the original Harrod-Domar model.

Also we have,

$$K_d + K_f = S+F+(E-M) = S + F' \quad \ldots \quad \ldots \quad (4)$$

Where $S = sY$

$F' = fY$

Therefore,

$$P = \frac{1}{\frac{1}{a} + \frac{1}{b}} (sY + fY) \quad \ldots \quad \ldots \quad (5)$$

$$= \frac{1}{\frac{1}{a} + \frac{1}{b}} (s + f)^Y$$

i.e. $$\frac{P}{Y} = \frac{s + f}{\frac{1}{a} + \frac{1}{b}} \quad \ldots \quad \ldots \quad \ldots \quad (6)$$

From (6) we have,

$$\frac{d(P/Y)}{df} = \frac{1}{\frac{1}{a} + \frac{1}{b}} \quad \ldots \quad \ldots \quad \ldots \quad (7)$$

The equation (7) shows, if $\frac{1}{a} = 1.5$ and $\frac{1}{b} = 1$ are given, then every 1 % of foreign exchange availability increases the growth rate by 0.4 %. But in developing economies, the model is actually operating under the constraint.

$$F < F \max \quad \ldots \quad \ldots \quad \ldots \quad (8)$$

which "frustrate" the rate of growth of the developing countries.

Many proponents of foreign exchange constraint doctrine have demonstrated with the help of more sophisticated models, the role of foreign exchange balance in affecting the rate of growth. For example, Chenery and Bruno[2] demonstrated how, in case of Israel, the growth of GNP would be lower if there would have been no inflow of foreign capital in the country. Manne[3] found that optionmal use of a relatively small increase ($ 75 million) in foreign exchange availability to Maxican authorities would increase the annual growth of industrial sector from 5.5 to 8.0 per cent. While McKinnon[4] incorporating several ideas given by Chenery and Bruno for Israel, constructed Harrod-Domar type growth model clarifying how marginal and average propensities to save and export affect the rate of growth. In particular, he tried to evaluate the pay-off "in terms of economic growth of foreign transfers under different values of these savings and export parameters".

On the other hand, the critics[5] of the foreign exchange doctrine assert that the constraint operates because of

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[2] H.B.Chenery & M.Bruno, "Development Alternatives in Open Economy: The case of Israel," Economic Journal, March, 1962.

[3] A.Manne, "Key Sectors of the Maxican Economy, 1960-70, Studies in Process Analysis, A.Manne & H.M.Markowitz, eds., Monograph 18, (Cowles Foundation for Research in Economics at Yale University, John Wiley, 1962).

[4] op.cit.

[5] R.Findlay, "The 'Foreign Exchange Gap' and Growth in Developing Economics," Trade, Balance of Payments, and Growth, (North Holland, 1970)

the interference with the free play of the price mechanism, in this case by the government in the foreign exchange market. It is "the manifestation of over-valued currency."[6] It is, however, counterargued that the nature of the "foreign exchange constraint" in developing countries is such that no amount of relative price adjustment can remove it, with the result that the only solution is the requisite amount of foreign aid.[7]

More recently, R.Findlay,[8] tried to identify "the assumptions on which it depends and the manner in which it might restrict the growth rates attainable in developing economies". He pointed out that the proponents of the doctrine take rate of growth and marginal propensity to save as given and a ceiling is imposed on foreign exchange earnings by hypothesis. With these assumptions and in a situation where both, demand for and supply of foreign exchange are perfectly inelastic, with the former exceeding the latter to produce a gap that has to be filled by foreign aid to sustain the postulated growth. He further pointed out that

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[6] Findlay, op. cit., p.179

[7] J.Vanek, Estimating Foreign Exchange Needs for Economic Development (New York: McGraw Hill Book Co., 1967).

[8] op. cit.

"the implication derived from the 'foreign exchange gap' theory, that increase in the propensity to save has no effect in raising the rate of growth in less developing countries, is not valid if there are imports for consumption as well as for investment. What is true, even under much weaker assumptions about the technology of investment and trading opportunities, is that "attempting to raise the rate of growth in a developing country through increasing the propensity to save can run into diminishing returns through worsening terms of trade if investment is more import-intensive than consumption."[9]

In short, the foreign exchange constraint on growth operates when investment is more import-intensive than consumption and when the growth rate, the trading conditions facing the country and the propensity to save are given such that the required growth rate may not be attainable without foreign assistance and/or increased export efforts.

1.1.2: METHODS OF RELIEVING THE CONSTRAINT :

Several policy implications have been drawn from this analysis. One is the need for export promotion and/or import restrictions and substitution in the development strategy

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[9] Findlay, op. cit.

of the country itself. Second, it is also argued that foreign aid (public and private) will be more productive under the circumstances. Finally, two other policy measures used, namely, the drawing on foreign assets and the relative price adjustment, through exchange rate variations, to clear any disequilibrium in the foreign exchange market. It may be noted that all these policy measures are not mutually exclusive and as such are being adopted in various combinations in many developing countries, including India.

To simplify the exposition, these measures can be grouped into the following three groups :-

(1) Cushioning methods : These methods usually act as shock-absorbing cushion. These include (i) drawing on foreign assets or reserves, including the Special Drawing Rights (SDR's)& (ii) I.M.F. drawing rights.

(2) Conserving methods : These methods would economise in the use of foreign exchange resources. These are: (i) import restrictions; and (ii) import substitution.

(3) Augmenting methods : These method help to increase foreign exchange earnings. They consist mainly of (i) foreign assistance (Public or private) through loans or grants; (ii) change in the foreign exchange rate; and (iii) export promotion measures.

It is the purpose of this introductory chapter to survey these different methods as they have operated under

Indian situation, excepting the last two methods from the third group. The results of these two methods will be examined in a separate chapter. Accordingly, next three sections are devoted to an examination of how far these three groups of methods have helped to relieve foreign exchange constraint on growth of the Indian economy. In particular, aid-development relationship for India will be examined in section 1.4. This is followed by summary and conclusion in Section 1.5.

1.2: CUSHIONING METHODS :

The title of these methods itself suggests that the methods are usually employed as shock-absorbing cushions and as such cannot be employed for the long-term solution of the foreign exchange problem. In spite of this, many developing countries, including India, take resort to these methods against persistent payment deficits. It is, therefore, pertinent to review the efficacy of these methods in meeting the foreign exchange problem of India.

1.2.1: MEASUREMENT OF THE AMOUNT OF FOREIGN EXCHANGE RESOURCES :

Obviously, the efficacy of these methods is limited by the amount of foreign exchange resources available to a country. But it is difficult to arrive at the most reasonable measure of the amount of foreign assets or reserves that a particular country commands as there are several forms of

reserves, assets and credits in use that are imperfect substitutes for one another. Thus, equal amounts of gold, foreign currency and credit may make unequal contributions to a country's external liquidity. Further, there is no uniformity of measurement of total reserves assets and credits. There are some who take account of central bank gold and foreign currency, I.M.F. gold tranches and automatic drawing rights under bilateral credit arrangements. While there are others who count all assets likely to be available at moments of crisis - all IMF drawing rights, the long-term foreign assets of official institutions and "potential" bilateral credits.

In order to simplify our evaluation of this method, the definition adopted by I.M.F. may be taken as a basis of measurement of a country's foreign exchange reserves at a given point of time. I.M.F. defines a member's monetary reserves "as its holding of gold, of convertible currencies of other members and of the currencies of such non-members as the Fund specifies"[10]. In other words, a country's holdings of gold and foreign exchange together constitutes its foreign exchange reserves.

With the introduction of Special Drawing Rights (SDR's) through amendments of the IM.F.'s Articles of Agreement

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[10]Articles of Agreement, I.M.F. U.S.Treasurey, Washington, 1944.

which become effective on July 28, 1969, the member countries could supplement their reserves in the form of SDR's. These SDR's are unconditional reserve assets created by the I.M.F. to augment the total level of reserves of the member countries. They are allocated from Special Drawing Account of the Fund to participating members in proportion to their Fund quota. SDR's may be used when a participant has a need to use and as such it forms one of the important consituents of the participating country's foreign exchange reserves. It has, therefore, become a practice to express :

Foreign reserves = Gold + Foreign Exchange Reserves including I.M.F. borrowings + SDR's

This expression may be taken as a ready measure of the level of foreign reserves at a given point of time. Table 1.1 shows the reserves position of India during 1950-51 to 1970-71. The table clearly brings out that foreign reserves took the major brunt in the first year of the First Plan and during the whole of the Second Plan. During the First Plan period, the foreign exchange gap of Rs.287.5 crores was financed through external assistance of Rs.201.7 crores while the remaining amount of Rs.85.8 crores was financed through drawing from foreign exchange reserves. No doubt, the total draft on reserves was of the order of Rs.126.9 crores but the balance (i.e. Rs.126.9 -

Table 1.1

Foreign Exchange Reserves of India (1950-51 to 1970-71)

(Rs. Crores)

~~Item~~ Year	Gold	Foreign Exchange Total	Foreign Exchange of which I.M.F. (Net) (+) Drawing (-) Repurchase	S.D.R.	Total Reserve[1]	Index of (6) 1950-51 = 1.0	Movements in (6) Increase (+) Decrease (-)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950-51	117.8	911.4	--	--	1029.2	100.0	+ 28.6
1951-52	117.8	746.6	--	--	864.4	82.00	- 164.8
1952-53	117.8	763.3	--	--	881.1	84.00	+ 16.7
1953-54	117.8	792.2	- 17.2	--	910.0	87.00	+ 28.9
1954-55	117.8	774.1	- 17.2	--	891.9	85.00	- 18.1
1955-56	117.8	784.6	- 7.1	--	902.4	86.70	+ 10.45
			- 41.1				- 126.8
1956-57	117.8	563.3	+ 54.7	--	681.1	71.60	- 221.3
1957-58	117.8	303.4	+ 34.5	--	421.2	44.30	- 259.9
1958-59	117.8	261.1	--	--	378.9	39.80	- 42.3
1959-60	117.8	245.1	- 23.8	--	362.9	38.10	- 16.0
1960-61	117.8	185.9	- 10.7	--	303.6	31.90	- 59.3
			- 54.5				- 598.8
1961-62	117.8	179.5	+ 58.5	--	297.3	31.20	- 6.3
1962-63	117.8	177.3	+ 11.9	--	295.1	31.00	- 2.2
1963-64	117.8	188.0	- 23.8	--	305.8	32.10	+ 10.7
1964-65	133.8	155.9	0.0	--	249.7	26.20	- 56.1
1965-66	115.9	182.1	+ 29.8	--	298.0	31.30	+ 48.3
			+ 76.4				- 5.6
1966-67[2]	182.5	295.9	+ 97.5	--	478.4	50.30	+ 180.5
1967-68	182.5	356.0	+ 24.4	--	538.5	56.60	+ 60.1
1968-69	182.5	394.2	- 58.5	--	576.7	60.60	+ 38.2
1969-70	182.5	546.4	- 125.4	92.05	820.9	86.3	+ 244.2
1970-71	182.5	438.1	- 154.0	114.04	731.6	70.4	- 89.3
			- 216.0				+ 433.7

Source: As per Table IV from the Appendix.

Notes: 1: Includes holding of (a) gold; (b) foreign assets of the Reserve Bank of India; (c) government balances held abroad, and (d) net borrowings from the I.M.F., (e) SDR'S.

2: Indian rupee was devalued on June 6, 1966 and as such data from June 6, 1966 onwards are not comparable with those for the earlier periods. The amount for April-May, 1966 period is adjusted for the increased value of the pre-devaluation rupee.

Rs.85.8 = Rs.41.1) was used to repurchase obligations from the I.M.F.

This excessive reliance on foreign exchange reserves to fill the persistent foreign exchange gap, resulted into foreign exchange crisis during the Second Plan. The foreign exchange account came under heavy pressure during the first two years of the Second Plan due to the high rate of developmental imports unmatched by the corresponding expansion of exports. The foreign exchange reserves declined by Rs.481.2 crores within the first two years of the Second Plan. Consequently, the Second Plan had to be pruned during 1958. Even then, the draft on the reserves was of the order of Rs.598.8 crores as against the Second Plan estimates of Rs.200 crores. The index of foreign exchange reserves fell from 86.7 in 1955-56 to 31.9 in 1960-61, a fall of 54.8 points during the Second Plan period itself. However, if the First plan period is also considered, the fall in index would be about 68.1 points.

However, it was realised, then, that the country cannot rely excessively on her reserves for her persistent foreign payment deficit. As such during the Third Plan more emphasis was placed on import restrictions and import substitution but not on export promotion. This resulted into very meagre drawings of about Rs.5.95 crores from foreign exchange reserves during the Third Plan period. However, in terms of index,

it may be observed from the table 1.1 that the foreign exchange reserves remained more or less, at the same level at the end of the Plan as it was at the beginning.

During the subsequent Five Year period (1966-67 to 1970-71), the reserves increased by Rs.433.7 crores, reversing the trend itself. How far this trend is expected to be maintained during the remaining period of the Fourth Plan will ultimately depend upon the extent to which exports can be expanded during the Plan, on the one hand, and how far imports demand can be contracted through import restrictions and import substitution, on the other. Before we take stock of these import contracting measures to balance the foreign exchange budget, let us turn to the extent of import financing through foreign exchange reserves.

1.2.2: IMPORT FINANCING THROUGH CUSHIONING METHODS:

Table 1.2 shows the extent of import financing through foreign exchange reserves. It will be observed from the table that by taking the net decline in reserves, total imports and total developmental imports, during the five period, foreign exchange reserves financed 2.91 % and 4.95 % during First Plan, 11.09 % and 15.68 % during the Second Plan and 0.01 % and 0.12 % during the Third Plan and nil during the five year period (1966-67 to 1970-71) of the

Table 1.2

Import financing through Foreign Exchange Reserves (1950-51 to 1970-71)

(Rs. Crores)

Year	Total Imports	Developmental Imports[a]	Total Reserves	Movements in (4) Increase(+) Decrease(-)	(5) as % of (2)	(5) as % of (3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950-51	650	480	1029.2	+ 28.6	--	--
1951-52	963	660	886.7	- 164.8	14.85	25.0
1952-53	633	444	881.1	+ 16.7	--	--
1953-54	592	427	910.0	+ 28.9	--	--
1954-55	690	494	891.9	- 18.1	2.60	3.64
1955-56	773	543	902.4	+ 10.5	--	--
	3651[b]	1568[b]		- 126.8[b]	2.91[d]	4.95[d]
	1653[c]	1154[c]		- 182.9[c]	11.07[e]	15.86[e]
1956-57	1102	732	681.1	- 221.3	20.05	30.19
1957-58	1233	874	421.2	- 259.9	21.06	29.75
1958-59	1029	621	378.9	- 42.3	4.08	6.76
1959-60	932	737	362.9	- 16.0	1.71	2.17
1960-61	1081	856	303.6	- 59.3	5.35	6.89
	5399[b]	3820[b]		- 598.8[b]	11.09[d]	15.68[d]
	3496[c]	2790[c]		- 598.8[c]	11.09[e]	15.68[d]
1961-62	996	891	297.3	- 6.3	0.63	0.67
1962-63	1079	886	295.1	- 2.2	0.20	0.25
1963-64	1217	914	305.8	+ 10.7	--	--
1964-65	1388	1013	249.7	- 56.1	4.03	5.52
1965-66	1351	1028	298.0	+ 48.3	--	--
	6092[b]	4732[b]		- 5.6[b]	0.01[d]	0.12[d]
	6092[c]	4732[c]		- 64.6[c]	1.86[e]	2.33[e]
1966-67	1991	1331	478.4	+ 180.6	--	--
1967-68	2043	1367	838.5	+ 60.1	--	--
1968-69	1740	1391	576.7	+ 38.2	--	--
1969-70	1582	1162	820.9	+ 244.2	--	--
1970-71	1720	--	731.6	- 89.3	5.17	--
	9141[b]	5251[b]		+ 433.7[b]	5.17[e]	
	1720[c]			- 88.6[c]		

Source: As per Tables VI and VII from the Appendix.

Notes: (a) Developmental imports includes imports of capital goods, of raw materials and/or inter-mediate goods.
(b) Total of all the previous 5 years.
(c) Total of only those years during which the reserves decline
(d) % of the net decline in the reserves during previous 5 year to the total imports during the 5 years.
(e) % of the total decline in reserves to the total imports of only those years during which the reserves declined.

total and developmental imports respectively. However, the picture would be different if total decline in the reserves, total and development imports of only those years during which the reserves declined are considered. The corresponding percentages turned out to be 11.07 % and 15.86 % during the First Plan, 11.09 % and 15.68 % during the Second Plan, 1.86 % and 2.33 % during the Third Plan, while it is 5.17 % during the five-year period 1966-67 to 1970-71. Clearly, the second measure really shows the extent to which the foreign exchange reserves have absorbed the shocks during the years in which the shocks were felt while the first measure has under estimated this role of the reserves through taking the net decrease which is usually lower because of the increase in reserves during some previous years. Thus, it is the second measure which gives better picture of import financing through foreign exchange reserves than the previous one. Finally, it may be observed from the Table that the import financing through foreign exchange reserves ranges between 0.20 % to 21 % in any one year during the 20 year period, a reasonably high percentage judging the objectives of keeping foreign exchange reserves.

1.3: CONSERVING MEASURES :

As noted earlier, these methods include (i) import restrictions; and (ii) import substitution. It is worth noting that while conserving scarce foreign exchange resources

is an objective common to both of these methods, they are supposed to serve other complementary objectives also. While import substitution, in the presence of limited capacity to import, constitutes an important and surest path towards industrialization in developing countries, import restrictions help this process through protecting domestic market against competition of imported goods. In other words, both these methods promote two basic objectives of a developing economy: (i) they help to conserve scarce foreign exchange resources for the import of much needed capital goods to accelerate development; (ii) they stimulate, directly or indirectly, the process of industrialization. It is proposed to examine how far the first of these two objectives is being served by these methods.

1.3.1: IMPORT RESTRICTIONS :

Import restrictions were first introduced in India in 1940 under the Defence of India Rules of May 1940. Since then they have continued till today. One can classify these restrictions into two groups : (i) Tariff restrictions; and (ii) Non-tariff restrictions. Non-tariff restrictions include both quantitative and qualitative restrictions. During World War II, under the Defence of India Rules of May 1940, imports of certain items were allowed only on the basis of 'essentiality' but the controls were more or less qualitative

in character with no quantitative limits on imports of different importable items. In the immediate post-war period, imports were liberalized by widening the scope of Open General Licences (OGL) during 1945 and 1946. But with the partition of India in August 1947 and more particularly with the introduction of planning in April 1951, India switched over from 'qualitative' to 'quantitative' restrictions on imports on the basis of upper-limit to foreign exchange use. This policy of import control closely followed the balance of payment position from year to year, and became more strict after the 1956-57 foreign exchange crisis and were somewhat relaxed for a period after the devaluation of Rupee in June 1966. On the whole, India has relied more on non-tariff methods rather than on price adjustment through changes in the structure of tariffs to restrict the imports.

1.3.2: IMPORT SUBSTITUTION :

As noted earlier, one of the major considerations of import restrictions is to stimulate growth of import competing industries in the protected domestic market through a planned programme of import substitution. In fact, import substitution is carried out not only to develop import competing industries internally but also to conserve scarce foreign exchange resources. But how far it can conserve foreign resources ultimately depends on the

nature of import substitution carried out. This is because of the fact that every act of import ~~import~~ substitution is not only a foreign exchange saving device but is also a source of foreign exchange expenditure, the extent of which depends on the nature of the goods so substituted. As such, "the net savings in foreign exchange brought about would often appear to be more imaginary than real,"[11] in some cases.

In case of India, using four different measures of import substitution, Bhagwati and Desai[12] have measured import substitution in Indian economy during the period 1951-63 in three groups of industries, namely, consumer goods, intermediate goods, and investment goods. This study concludes that for the entire period 1951-63 import substitution in investment group seems to predominate; for the period 1951-57, all the measures underline the relatively substantial import substitution in consumer goods followed by the investment and intermediate groups in that order, and during 1957-63 import substitution in the consumer goods industries has been lowest and in the inevestment and intermediate groups considerably high.

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[11] V.V.Desai, "Dim Light on Import Substitution," Economic and Political Weekly, March 1971, p.519.

[12] J.N.Bhagwati and Padma Desai, "India: Planning for Industrialization and Trade Policies Since 1951" (Oxford University Press, 1970), p.91.

1.3.3: FOREIGN EXCHANGE SAVINGS THROUGH CONSERVING METHODS :

Leaving aside the various indirect adverse effects of import restrictions[13] and those of import substitution,[14] let us examine their effect on the total import bill of India during the period of their operations. It may be observed from Table 1.3 that inspite of import controls of varying magnitudes and import substitution in various domestic sectors, the total imports have been increasing very rapidly during the whole planning period. Index of total imports increased by 19 points during the First Plan, by 53.3 points during the Second Plan, by 30.3 points in the Third Plan, and by 62 points during the five-year period 1966-67 to 1970-71. However, due to import substitution during the planning period, the structure of imports changed in a marked degree as could be observed from the Table.

But, if one looks through other angles, it will be observed that these methods have contributed substantially to saving India's scarce foreign exchange resources. Table 1.4 shows two measures of saving through these methods. The first measure is shown in Column 5 which is the difference between the actual imports and imports at first 10 years trend rate, the 10th year being 1957-58, during which imports

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[13] See (12), pp. 312-335.

[14] V.V.Desai, "Import Substitution and Growth of Consumer Industries," Economic and Political Weekly, March 15, 1969.

Table 1.3

Changing Pattern of Indian Imports (1950-51 to 1970-71)

Year	% of total imports during the year			Index (1950-51=100)			
	Consumer Goods	Raw materials and Intermediate Goods	Capital Goods	Consumer Goods	Raw-materials and Intermediate Goods	Capital Goods	Total Imports
1948-49	29.2	50.0	20.8	109.0	92.3	101.5	98.9
1949-50	26.3	49.7	24.0	100.10	92.5	117.4	99.5
1950-51	26.2	53.6	20.2	100.00	100.00	100.0	100.0
1951-52	32.2	50.5	17.3	183.00	141.0	128.0	149.2
1952-53	33.5	45.8	20.7	130.90	87.9	105.3	107.9
1953-54	24.7	53.6	21.7	81.8	87.3	93.1	93.8
1954-55	24.7	54.6	20.5	99.4	103.1	102.2	100.9
1955-56	19.9	51.4	28.7	78.9	100.7	146.9	119.0
1956-57	13.8	56.4	29.8	68.40	137.3	192.4	138.8
1957-58	15.5	54.5	30.0	94.10	162.0	235.6	159.1
1958-59	27.6	43.4	29.0	139.10	107.1	188.6	139.3
1959-60	23.3	47.6	29.1	131.50	131.3	211.3	147.3
1960-61	23.7	46.6	29.7	154.90	150.5	251.5	172.3
1961-62	17.0	49.4	33.6	116.3	150.5	278.7	159.2
1962-63	19.1	46.3	34.6	143.2	143.4	293.1	172.6
1963-64	15.5	48.8	35.7	133.9	141.3	319.7	177.6
1964-65	25.5	39.1	35.4	197.0	153.4	362.1	192.1
1965-66	27.0	38.1	34.9	222.8	153.7	372.7	202.6
1966-67	35.9	36.4	27.7	437.4	215.2	440.9	319.2
1967-68	30.8	44.1	25.1	395.3	250.2	375.7	313.8
1968-69	27.1	45.3	27.6	302.9	247.9	399.2	286.0
1969-70	26.5	47.3	26.2	246.2	214.6	314.3	243.2
1970-71	--	--	--	--	--	--	264.6

Source: Calculated from Table VII from the Appendix.

Table 1.4

Measures of impact of conserving methods on imports
(1958-59 to 1970-71)

(Rs. Crores)

Year	Actual Imports	Imports at first 10 years, (1948-49 to 1957-58) trend rate (y=553+45t)[1]	Imports at first 10 years, (1948-49 to 1957-58) average Import/GNP ratio (7.1 %)	Foreign exchange savings (3)-(2)	Foreign exchange savings (4)-(2)
1958-59	1029	1048	1011	+ 19	- 18
1959-60	932	1093	1045	+ 161	+ 113
1960-61	1102	1138	1063	+ 36	+ 61
Total/	3063/	3279/	4993/	+ 216/	+ 156/
Average	1021	1093	999	+ 72	312
1961-62	978	1183	1132	+ 205	+ 154
1962-63	1098	1228	1212	+ 130	+ 114
1963-64	1245	1273	1395	+ 28	+ 150
1964-65	1421	1318	1630	- 103	+ 209
1965-66	1350	1363	1698	+ 13	+ 348
Total/	6092/	6365/	7067/	+ 273/	975/
Average	1218	1273	1413	+ 55	195
1966-67	1885	2197	1950	+ 312	+ 65
1967-68	2043	2267	2294	+ 224	+ 251
1968-69	1741	2337	2343	+ 596	+ 602
1969-70	1582	2407	2552	+ 825	+ 970
1970-71	1720	2477	2769	+ 759	+1049
Total/	8971/	11685/	11908/	+2714/	+2937/
Average	1794	2337	2382	+ 543	587

Source : Estimated from Table VII from the Appendix.

Note : 1 Figures from 1966-67 onwards are adjusted for the increased value of the pre-devaluation rupee.

reached their peak. While the second measure is shown in Column 6 which is the difference between the actual imports and imports at average import/GNP ratio of the first 10 years, the 10th year being 1957-58, during which import reached its peak. However, it may be mentioned that this is a very crude exercise beset with a number of limitations.

1.4: AUGMENTING METHODS :

One of the most important means of raising external resources is through foreign assistance, whether public or private, loans or grants, technical or non-technical assistance programmes. In the post-Second World War period many developing countries, including India, have accorded to foreign assistance a strategic role in their ambitious plans of economic development. In such developmental plans, foreign assistance is supposed to play an important role mainly in three ways: (i) by supplementing domestic savings and investment efforts; (ii) by relieving foreign exchange constraint on growth; and (iii) by introducing technical know-how and advanced technology.

The main purpose here is only to assess the role of foreign assistance, public or private, in relieving the foreign exchange constraint on Indian economic growth. An attempt is made to test the hypotheses regarding (public)

aid-development. It must be pointed out at this stage that while public foreign assistance has always dominated the Indian economic scene, the private foreign investment and technical collaborations have played a relatively minor role. Hence let us first try to examine the role of foreign private investment so that we can examine the more dominant role of public assistance in greater detail.

1.4.1: PRIVATE FOREIGN ASSISTANCE :

Private foreign assistance takes the form of capital investment and/or technical collaboration. Capital investment may be in the form of (direct) loan capital or equity (portfolio) capital or both. As foreign assistance involves an outflow of foreign exchange on account of repatriation of profits and dividends and also repayment of royalty on sales of know-how, the government have from time to time tried to regulate the volume and pattern of the inflow of foreign private capital. In spite of such government regulations, total outstanding private capital has kept a continuously rising trend. Table 1.5 clearly shows this rising trend. Foreign Private Investment increased at an annual average of Rs.38.5 crores, Rs.73.3 crores and Rs.180.9 crores during the Second, Third and the Three Annual Plans. In 20 years, it increased from Rs.246.6 crores in mid 1948 to Rs.1542.8 crores at the end of 1968, that is, an increase of Rs.1286.9 crores or 542.7 %.

Table 1.5

Outstanding Foreign Private Investment[1] in India (1948 to 1968)

(Rs. Crores)

As at end of		Portfolio				Total amount (2) + (5)	Increase over previous year
		Direct	Private	Official	Total (3) + (4)		
(1)		(2)	(3)	(4)	(5)	(6)	(7)
June	1948	--	--	--	--	246.6	--
December	1953	--	--	--	--	397.1	--
December	1955	--	--	--	--	442.4	45.3
December	1956	--	--	--	--	478.3	35.9
December	1957	--	--	--	--	532.0	53.7
December	1958	--	--	--	--	562.5	30.5
December	1959	--	--	--	--	582.8	20.3
December	1960	--	--	--	--	634.7	51.9
							192.3/38.5
December	1961	--	--	--	--	679.8	45.1
December	1962	--	--	--	--	735.5	55.7
March	1963	541.5	153.0	111.6	264.6	806.1	70.6
March	1964	546.5	181.2	142.2	323.4	893.8	87.7
March	1965	610.1	220.1	164.8	384.9	1001.1	107.3
							366.4/73.3
March	1966	633.1	242.4	194.4	436.8	1069.3	68.2
March	1967	700.5	437.1	344.8	781.9	1465.9	396.6
March	1968	--	--	--	--	1542.8	77.9
							542.7/180.9

Source : Reserve Bank of India Bulletin, April, August 1969 and March, 1971.

Note : [1]Excludes banking and insurance.

According to the Fourth Five Year Plan document, during the First Plan, the actual fresh inflow came to Rs.75 crores as against the expectation of Rs.45 crores, and the Second Plan target of Rs.200 crores was nearly attained. While during the Third Plan, the actual inflow of about Rs.380 crores exceeded the figure of Rs.300 crores envisaged in the Plan. Thus, while fulfilling the Plan targets, the total private foreign investment of Rs.625 crores during the three Plans constituted about 25 % of the total private sector investment of about Rs.2500 crores in the industrial field.[15]

1.4.1.1: Import financing through private foreign assistance :

This enormous growth in private foreign investment occurred due to (i) revaluation of assets; (ii) retained profits; fresh capital inflow in terms of (iii) cash and (iv) non-cash capital. It is evident that neither (i) nor the (ii) contribute to an increased availability of foreign exchange in the investing country. It is only the fresh capital inflow which helps to relieve the foreign exchange constraint on growth of the investing country. Table 1.6 shows the amount of fresh capital inflow during 1948-68. But the fresh capital inflows include cash and non-cash inflows. As such in order to assess the role of private assistance in relieving the foreign exchange constraint one should

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[15]Mehta G.L., "Development and Foreign Collaboration in Development, Trade and Aid," A Golden Jubilee Symposium of Indian Economic Conference, 1967, (Bombay: Popular Prakashan), p.56.

Table 1.6

Increase in Foreign Investment in India's Private Sector

(Rs. Crores)

Item	Period							
	1948-59	1961	1962	1963-64	1964-65	1965-66	1966-67	1967-68
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 Revaluation of assets	- 49.0	0.2	15.3	1.4	1.7	1.1	238.9	20.4
2 Retained Earnings	170.0	15.8	7.8	7.4	20.4	18.8	14.9	18.2
3 Fresh inflow	173.0	44.9	51.2	94.1	120.5	111.5	228.2	176.6
(i) Cash	55.0	29.1	25.4	78.6	99.1	98.2	215.9	157.1
(ii) Non-cash	118.0	15.8	25.8	20.5	21.4	13.3	12.3	19.5
4 Gross Addition (1+2+3)	392.0	60.9	74.3	102.9	142.7	131.4	482.0	215.2
5 Outflow	137.0	15.8	20.9	33.6	55.0	63.2	85.4	137.3
6 Net increase (4-5)	255.0	45.1	53.4	69.3	87.7	68.2	396.6	77.9
7 Net Cash Capital inflow (3-5)	- 82.0	+ 3.3	+ 4.5	+ 45.0	+ 44.1	+ 35.0	+ 130.5	+ 19.8

Source : (i) Reserve Bank of India Bulletin, March, 1971.

(ii) Dr. Chatterjee P.K., Foreign Capital and Economic Development, Progressive Publisher, Calcutta, 1971. p.153.

consider only the net inflow of foreign capital in cash. From the Table, it may be seen that it was negative during the eleven years 1948 to 1959 and were Rs. + 3.3 crores, Rs. + 4.5, Rs. + 45.0, Rs. +44.1, Rs. +35.0, Rs.+130.5, and Rs. +19.8 crores during 1961, 1962, 1963-64, 1964-65, 1965-66, 1966-67, and 1967-68. These net cash flows have to be related to the total and gross developmental imports in order to arrive at the true measure of the role of private foreign capital in relieving the constraint. Table 1.7 shows net inflow of cash foreign capital as percentage of total imports of goods and as percentage of developmental imports. It may be observed from the Table that the net inflow of cash foreign private capital could finance between 0.34 % to 7.0 % of the total imports and between 0.37 % to 9.8 % of the developmental imports during 1961-62 to 1967-68. However, in case of India, its significance lies not in the proportion of imports it could finance but in "the introduction of modern techniques and provisions of opportunities for training and growth of Indian enterepreneurs."[16]

1.4.2: PUBLIC FOREIGN ASSISTANCE :

While the strategy of Indian economic planning has been based on closed-economy theoretical models, in actual

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[16]Dr. P.K.Chatterjee, Foreign Capital and Economic Development, Progressive Publishers, Calcutta, 1971, p.147.

Table 1.7

Net inflow of cash private foreign capital as % of total imports of goods and as % of developmental imports

(Rs. Crores)

Years	Total imports	Developmental imports	Net cash capital inflow	(4) as % of (2)	(4) as % of (3)
(1)	(2)	(3)	(4)	(5)	(6)
1961-62	978	891	3.3	0.337	0.370
1962-63	1097	886	4.5	0.410	0.508
1963-64	1245	914	45.0	3.614	4.923
1964-65	1421	1012	44.1	3.103	4.358
1965-66	1351	1027	35.1	2.598	3.418
1966-67	1886	1331	130.5	6.919	9.805
1967-68	2043	1367	19.8	0.969	1.448

Source : Estimated from table 1.6 and table VII from the Appendix.

practice, throughout the development process, Indian planners have allowed the external resources to play their role in Indian economic development. This is more true in case of public foreign assistance.

On the eve of the First Five Year Plan, though the need for a definite state policy, "to create and maintain conditions favourable to the inflow of foreign capital was clearly indicated,"[17] the attitude towards foreign capital was dominated more by reluctance. Consequently, the First Plan closed with gross utilization of Rs.201.67 crores, of which debt service constituted Rs.23.80 crores. Though the planners clearly recognized the need for external finance for the Second Plan, they underestimated the need. In a single year [of the Second Plan,] the use of external assistance exceeded that during the whole of the First Plan. As early as 1956, the process of adjustment had begun and with the foreign exchange crisis that developed after the third year of the Second Plan, the process got on its way towards removal of the inhibitions about the consequences of foreign aid. Consequently, the Second Plan ended up with a total of Rs.1430.20 crores of gross foreign aid, but the net aid

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[17] Third Five Year Plan (New Delhi : Planning Commission) Government of India), p.107.

amounted to Rs.1310.80 crores. While framing the Third Plan a substantial amount of such aid was considered not only inevitable but also "advantageous from the point of view of recipient country". As such, during the Plan, while the gross inflow of foreign aid was about Rs.2867.72 crores, the net aid was Rs.2325.12 crores. The Fourth Five Year Plan[18] indicated a gross flow of Rs.4130.0 crores during the Plan, of which service charges are estimated at 62.0 % of the gross aid. Table 1.8 shows the gross and net foreign aid utilization during the various Plans of India.

1.4.2.1: Foreign aid and economic development :

With this background of the extent of external aid utilization, let us now turn to its role in the process of economic development. As already pointed out in the beginning of this section it, (i) supplements domestic savings and investment efforts; (ii) provides foreign exchange for financing much needed imports; and (iii) introduces modern technology. However, in the literature on aid-development relationship in developing countries, two opposite hypotheses have been formed. While it is generally believed[19] that aid accelerates the process of growth through

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[18] Fourth Five Year Plan, (New Delhi : Planning Commission, Government of India).

[19] For example, Chenery & Burno, "Development Alternatives in an open Economy; the case of Israel," Economic Journal, March, 1962.

Table 1.8

Gross and Net foreign aid utilization in India

(Rs. Crores)

Period		Gross Aid Utilized	Debt Service	Net Aid Utilized	(3) as % of (2)	(3) as % of (4)	(3) as % of exports of Goods and Services
(1)		(2)	(3)	(4)	(5)	(6)	(7)
I Plan:	Total	201.67	23.80	177.87	11.7	13.4	0.675
	Average per year	40.33	4.76	35.55	--	--	--
II Plan:	Total	1430.20	119.40	1310.80	8.32	9.07	3.32
	Average per year	280.04	23.88	265.18	--	--	--
III Plan:	Total	2867.72	542.60	2325.12	18.92	23.25	13.10
	Average per year	573.74	108.52	465.02	--	--	--
Three Annual Plans & First two years of IV Plan.	Total	4839.00	1724.00	3115.00	35.62	55.32	23.83
	Average per year	967.80	344.80	623.00	--	--	--
IV Plan:	Total	4130.00	2560.60	1569.40	62.00	163.15	30.85
	Average per year	826.00	512.12	313.88	--	--	--

Source: As per Table VI from the Appendix.

serving and a dual role, namely, supplementing domestic savings and financing much needed developmental imports, there are a few[20] who have observed that foreign assistance is not associated with growth and, indeed, may deter it through substituting domestic savings and through unfavourable effects of capital imports on development.

The question is: why may there be an inverse relationship between foreign assistance and growth ? In the usual Chenery-Strout type models, such a result is impossible as capital imports through foreign aid is viewed to have two effects: (i) it increases the level of investment directly by the amount of the aid; and (ii) it increases the rate of savings indirectly by raising the level of income due to capital accumulation through the first effect. In short, "it is believed that all aid is invested, and this leads not only to a higher rate of capital accumulation but also to a larger proportion of income being saved."[21] Chenery and Strout assume that the recipient country is "unwilling or unable to increase aid merely to increase consumption," and they believe recipient governments have "no incentive... ..... to increase aid by reducing savings."[22] But these

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[20]For example, Griffin & Enos, "Foreign Assistance, Objectives and Consequences, Economic Development & Cultural Change, April, 1970.

[21]See (19), p.320.

[22]See (19), p.686.

are extremely odd assumptions. Foreign aid and domestic savings are substitutable resources since as long as the cost of aid (in terms of interest etc.) is less than the incremental output-capital ratio, it will pay a country to borrow as much as possible and substitute foreign aid for domestic savings. In other words, given a target rate of growth in the developing country, foreign aid will permit higher consumption, and domestic savings will simply be a residual. It is in this way that the foundations of models of the Chenery-Strout type are weak, since one would expect, even on theoretical grounds to find an inverse association between foreign aid and domestic savings.[23]

1.4.2.1.1: Aid-development relationship of other countries :

This theoretical conclusion is reinforced by the statistical studies in the field. This has been observed by Chenery himself: speaking of Latin Amereican countries he notes that "aid has been a substitute for savings, not an addition to investment. The saving rate has decreased and there has been no increase in the overall rate of growth of the gross national product."[24] In other words, foreign

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[23] See (20), p.320.

[24] H.B.Chenery, "Trade, Aid and Economic Development," International Development, (1965), S.M.Roback and L.M.Soloman editors (Dobbs Ferry, N.Y.:Oceana Publications, 1966), p.187.

aid often tends to supplant rather than supplement domestic savings and its frequently becomes a substitute for tax reforms. Statistically, Griffin and Enos[25] have cited many cross section results of regression of growth of national income on aid flows. Following are some of them:

Sr. No.	Sample	Regression equation	R^2
(1)	15 Latin American countries (1962-64)	Average rate of growth of GDP ($\dot{Y}$) = $4.8 + 0.18\,(A/Y)_t$ Where A/Y is the ratio of foreign aid to GNP.	023
(2)	Turkey (1951-65)	Percentage change in GNP per capita $Q_{t+1} = 12.5 - \underset{(0.011)}{0.047}\,A_t$ Where A is the foreign aid.	062
(3)	12 Latin American countries (1957-64)	$\dot{Y}_t = 42.97 - 6.78(A/Y)_t$	013

Typically, the regression coefficients in (1) and (2) are very small and not significant, while in (2) it is negative. The negative value of the coefficient of regression between foreign aid and rates of growth in GNP for the twelve Latin American countries is clearly evident and

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[25] op. cit.

is taken by the author for his interpretation of negative relationship between growth and aid.

While criticizing the results of twelve Latin American countries on grounds of inadequate data, sample size and nonrepresentative character of the sample of countries, Mitchell Kellman[26] tried to test the hypothesis, through regression analysis run for forty countries and then for a subsample of the twelve Latin American countries that are considered by Griffin and Enos. The results are summerized below. In the results, $\dot{Y}$ and $\dot{Y}/P$ are growth rates of income and of income per capita respectively; A/M is aid as a proportion of imports.

Sr. No.	Sample	Regression equation	Regression equation
(1)	40 countries	$\dot{Y} = 5.0-1.2\ (\frac{A}{M})$ (0.11)	$\dot{Y}/P = 2.7+0.01(\frac{A}{M})$ (0.003)
(2)	12 Latin American countries	$\dot{Y} = 3.4-64.6(\frac{A}{M})$ (0.93)	$\dot{Y}/P = 15.8-85.1(\frac{A}{M})$ (9.4)

These findings substantiate the conclusions of previous authors. Further, "in the larger sample, the coefficient,

[26]Mitchell Kellman, "Foreign Assistance: Objectives and Consequences: Comment," Economic Development and Cultural Change, October, 1971, p.144.

while still negative, is much smaller and less significant than that of the smaller sample"[27] used by the previous authors.

Griffin and Enos[28] have also tested the hypotheses, indirectly, through regression of savings on aid flows. The results areas follows :

Sr. No.	Sample	Regression equation	R^2
(1)	32 countries (1962-64)	$S_d/GDP = 11.2-0.73\ S_f/Y$ (0.11)	0.54
(2)	13 Asian and Mid.Eastern countries (1962-64)	$S_d/GDP = 16.1-0.82\ S_f/Y$	0.71
(3)	Colombia (1950-63)	$S_d/GDP = 21.50-0.84\ S_f/GDP$ (0.29)	0.43

Where S_d and S_f are domestic and foreign savings respectively.

The regression results suggest inverse relationship between foreign saving as percentage of GNP and domestic savings as percentage of GDP, as shown by the negative sign of the coefficients of (S_f/Y) in the three equations.

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[27] ibid. p.146

[28] op. cit. p.321.

1.4.2.2: Aid-Development Relationship of India :

So far as India is concerned, not much analytical work has been done on aid-development relationship. However, mention must made of two major works in this direction. Katz[29] has estimated aid generated share of national income, savings and investment in India. These are summarized in Table 1.9 below :

Table 1.9

Aid Generated Share of National Income, Savings and Investment 1951-61

($ Billions at 1960-61 prices)

	Total		Aid Generated Share		Domestic Share	
	Absolute	%	Absolute	%	Absolute	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
National Income	250.7	100	5.1	2	245.6	98
Savings	19.0	100	0.9	5	18.1	95
Investment	24.2	100	2.8	12	21.4	88

Source: Tables III & IV by S.S.Katz. pp.46-47.

From these results the author concludes: "The Aid contribution to Indian economic activity interms of the volumes of income

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[29]Katz S.S., External Assistance and Indian Economic Growth. (Bombay: Asia Publishing House, 1968).

and saving was of minor proportions and it is clear that the domestic economy was the main source of the economic activity realized during the period". He further adds: "This is, of course, as one would expect, since economic activity can be supplemented by external sources but it must be domestic in origin. The role of aid was merely that of a catalyst."[30]

Another study is that of Dr. Chatterjee[31] "Foreign Capital and Economic Development." In this study, using Adelman and Chenery model,[32] he has tried to assess the productivity of foreign aid in the Indian context. during two separate periods 1950-51 to 1962-63 and 1961-62 to 1965-66. For the first period, he assumed capital output ratio (K) = 4; marginal propensity to consume (b) = 0.8023, and estimated $\frac{dY_t}{dF_t} = \frac{1}{K-(1-b)} = \frac{1}{3.8023} = 0.263$ For the second period, he estimated: $\frac{dY_t}{dF_t} = \frac{1}{1.564} = 0.625$

Clearly these are multiplier values of foreign aid. Hence "once the investment is undertaken it goes on yielding income for a long period of time. This fact should also be taken into account in assessing the impact of foreign

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[30]Katz. op.cit. p.46

[31]op. cit.

[32]Adelman Irma and H.B.Chenery, "Foreign Aid and Economic Development: The case of Greece," The Review of Economics and Statistics, February, 1966.

aid on present and future income generation," the author concludes. But it may be observed that while the first is significantly low, and the second one is less than unity. As such their effects will be very much insignificant in future period which itself will be very small due to their numerical values.

In what follows, the hypothesis regarding aid-development will be tested first through regression analysis and then through multiplier analysis as a cross-check. So far as the former is concerned, it is carried out at two levels: one direct and the other indirect. So far the former is concerned, the hypothesis to be tested is (i) whether increase in foreign aid has increased the rate of growth of Indian economy or not. As for the latter, two different hypostheses are to be tested; viz. (ii) whether foreign aid has helped to generate domestic savings; and (iii) whether foreign aid has accelerated capital formation. These three hypotheses will be tested through regression analysis, the conclusion of which will be checked through multiplier analysis.

1.4.2.1.2.1: Regression Analysis :

Table 1.10 summarizes the results of regression analysis carried out for 18 years period (1951-52 to 1968-69). In the various regression equations, the notations used

are as under :

Y_t - Gross national product (GNP) at time t

$\overline{Y}_t$ - Growth rate of Y_t

Q_t - Change in per capita GNP at time t

S_t - Savings at time t

I_t - Investment at time t

$\overline{I}_t$ - Growth rate of I_t

I_{ft} - Gross fixed capital formation at time t

A_t - Net foreign Aid utilized at time t

X_t - Exports of goods and services at time t

$\overline{X}_t$ - Growth rate of X_t

E_t - Short-run fluctuations in X_t

F_t - Foreign exchange reserves at time t

$\overline{F}_t$ - Growth rate of F_t

To test the first hypothesis, a simple regression analysis between (i) gross national product (Y_t) and net foreign aid utilized (A_t); (ii) rate of growth of Y_t and ratio of A_t and Y_t and (iii) change in per capita GNP (Q_{at}) and ratio of A_t and Y_t; all with one period lag, was carried out. From Table 1.10, it will be observed that, statistically, the second equation is a better fit. However, if change in per capita GNP be considered as a better criterion of economic development than the growth

Table 1.10

Results of the Regression Analysis of effects of foreign aid on Indian Economic Development (1950-51 to 1968-69)

Sr. No.	Regression equation	R^2	D. -W.	Coe.of V. %
i. 1c	$Y_{t+1} = 15008.75 + \underset{(.881)}{1.78}\ A_t$	.0151	.2036	37.86
ii.2c	$\overline{Y}_{t+1} = 5.50 + \underset{(.756)}{22.70}\ (\frac{A}{Y})_t$	.0294	1.5213	105.48
iii.3c	$Q_{t+1} = 4.18 - \underset{(-.124)}{2.94}\ (\frac{A}{Y})_t$	.0706	1.8698	154.71
iv. 4c	$Y_{t+1} = -6028.27 + \underset{(7.343)}{4.64}\ (I_t - A_t) + \underset{(1.402)}{6.25}\ E_t + \underset{(3.613)}{14.32}\ X_t + \underset{(7.063)}{4.59}\ A_t$	.9550	1.5748	7.97
v. 5c	$\overline{Y}_{t+1} = 2.78 \underset{(-.108)}{-.02}\ \overline{I}_t + \underset{(.423)}{.001}\ A_t + \underset{(1.968)}{.32}\ \overline{X}_t + \underset{(.822)}{.02}\ F_t$	.0019	2.2941	103.86
vi. 6c	$Q_{t+1} = 1.86 \underset{(-.550)}{-.07}\ \overline{I}_t + \underset{(.578)}{.001}\ A_t + \underset{(2.257)}{.35}\ \overline{X}_t + \underset{(.549)}{.01}\ E_t$	.1021	2.6124	141.68
vii.7c	$S_t = -298.50 + \underset{(9.550)}{.11}\ Y_t$	.8574	1.0214	18.54
viii.8c	$S_t = -298.48 + \underset{(8.998)}{.21}\ Y_t - \underset{(-.146)}{0.01}\ A_{t-1}$	.8467	1.0185	19.22

contd...

continued Table No.1.10

(1)	(2)	(3)	(4)	(5)
ix.	$S_t = 1106.02 + .30\ (\Delta Y_t - \Delta A_t) - .12\ \Delta A_t$	.3328	1.1258	40.10
	$(3.079) \qquad (-\ .893)$			
x.	$I_{ft} = 1407.11 + .21\ A_t$	.0295	0.2021	54.84
	$(.755)$			
xi.	$(I/Y)_t = .14 + .08\ (A/Y)_t$	.0292	0.6804	15.18
	$(.758)$			
xii.	$(I/Y)_t = .13 + .13\ (A/Y)_t + .001\ \overline{X}_t + .00004\ E_t - .0004\ \overline{F}_t$	.1120	1.4856	14.10
	$(1.282) \qquad (2.109) \qquad (.566) \qquad (-1.703)$			
xiii.	$\overline{I}_t = 14.43 - 1.15\ (A/Y)_t + .03\ \overline{X}_t - .05\ E_t + .10\ \overline{F}_t$	.1600	2.3270	192.93
	$(-.018) \qquad (.072) \qquad (-1.153) \qquad (.715)$			

Notes : (1) The figures in brackets under co-efficients of variables in equtions are 't' ratios. 't' score of 1.75 or above is good.

(2) R^2 is adjusted for degree of freedom.

(3) D. -W. means Durbim - Watson Statistics which shows whether or not serial correlation of disturbance are present.

(4) Coe. of V. is defined as $\frac{\text{Standard error of the estimate}}{\text{mean of the dependent variable}}$ X 100. Generally, the less Coe. of V. the better is the fit.

rate of GNP, then the negative sign of the coefficient of (A_t/Y_t) suggests negative aid-development relationship. No doubt, the significance of the coefficient is quite low as indicated by 't' score of the coefficient.

Further multiple regression analysis was carried out through adding three more variables in the above three equations, giving u&xequations (iv), (v) and (vi). It can be observed that, statistically, equation (iv) shows the best fit. But the equation shows the relationship between the variables in the absolute terms which is not relevant to our hypothesis. For our purpose equations (v) and (vi) are more relevant. From these two equations, (vi) is the better one with higher values of R^2 and 't' of the coefficient of A_t. While the sign of the coefficient is positive indicating a direct relationship between aid and economic development, the magnitude of it is very low which indicates a weak relationship between them.

In other words, while the simple regression analysis suggests insignificant negative relationship, the multiple regression analysis yields insignificant positive relationship between aid and economic development. In short, the direct test of the hypothesis suggests a weak aid-development relationship for India.

Now coming to the indirect testing, regression analysis was carried out, to test the second hypothesis, bet-

ween (vii) savings (S_t) and GNP; (viii) S_t, GNP and foreign aid (A_t); and (ix) first difference between change in GNP and A_t and change in A_t. The resulting regression equations (vii), (viii) and (ix) show that while equation (vii) is the best fit, statistically, equations (viii) and (ix) suggest a negative relationship between savings and foreign aid. No doubt, here also, 't' score of the coefficient of A_t is quite low in (viii) than that in equation (ix). However, the equations, because of the negative coefficients of (A_t), help us to reject the hypothesis that foreign aid has helped in generation of domestic savings of India.

Finally, the third hypothesis that foreign aid has accelerated capital formation in India gains no support from both the simple and multiple regression analysis as shown by equations (x), (xi), (xii) and (xiii) in the Table. While the equation (x) has positive but low coefficient of A_t, its R^2 is also quite low. Same is the case with the other three equations. Further 't' scores of the coefficients of A_t in all the four equations is much lower than 1.45, indicating insignificant positive relationship between foreign aid and capital formation in India.

All in all, the foregoing direct and indirect tests carried out through simple and multiple regression analysis tend to show that foreign aid has not contributed significantly in the generation of Indian economic development.

This conclusion is reinforced by the results of multiplier analysis that follows:

1.4.2.1.2.2: Multiplier Analysis :

In order to find out foreign aid multiplier of India, the multiplier formula is modified in order to suit the availability of Indian data. The following notations are used to derive the formula :

Y - Gross national product

C - Consumption

I - Investment

X - Exports

M - Imports

A - Foreign Aid

$c' = c(1 - \frac{M_c}{C_d})$ Where, c - average propensity to consume

M_c - import content of consumption

C_d - consumption of domestically produced goods plus foreign produced goods, imported out of current account.

We have: $Y = C + I + X - M$ ... ... (1)

$C = C_d + C_f$ (C_d as defined above, C_f consumption of goods received as aid)

$I = I_d + I_f$ (I_d investment goods produced domestically plus foreign produced investment goods, I_f investment goods received aid)

$$M = M_c + M_x + M_i$$

Where, M_c - Import content of consumption

M_x - Import content of exports

M_i - Import content of investment

Therefore,

$$Y = (C_d + C_f) + (I_d + I_f) + (X) - (M_c + M_x + M_i) \quad \ldots \quad (2)$$

$$= (C_d + C_f) + (I_d + If) + (X) - (M_c + M_x + M_{if} + M_{ica})$$

Where, M_{if} - Imports of investment goods out of Aid

M_{ica} - Imports of investment goods from export earnings.

$$= (C_d) + (C_f + I_f) + (I_d) + (X) - (M_c + M_x + M_{if} + M_{ic}) \text{ Where } C_f + I_f = A$$

$$= C_d + A + I_d + X - (M_c + M_x + M_{if} + M_{ic}) \quad \ldots \quad \ldots \quad (3)$$

$$= (C_d - M_c) + (A - M_{if}) + (I_d - M_{ic}) + (X - M_x)$$

$$= \frac{A - M_{if}}{1 - c'} + \frac{I_d - M_{ic}}{1 - c'} + \frac{X - M_x}{1 - c'}$$

$$= \frac{1 - \frac{M_{if}}{A}}{1 - c'} A + \frac{1 - \frac{M_{ic}}{I_d}}{1 - c'} I_x \quad \frac{1 - \frac{M_x}{X}}{1 - c'} X \quad \ldots \quad \ldots \quad (4)$$

In the equation (4) the factor $\frac{1 - \frac{M_{if}}{A}}{1 - c'}$ is the foreign aid multiplier. It shows the how far aid contributes to current and future income flows. Clearly, any value greater than unity can be taken to mean that foreign aid helps to increase income by more than the aid and hence significant.

Table 1.11 summarizes the main finding of the multiplier analysis. It will be observed from the Table, the values of the multiplier are quite low in all the plans excepting the First plan and also that of the whole planning period. Further, while the value of the First Plan is very high, it was decreased substantially if the first Plan is lumped with the second plan. Thus the value of the multiplier of the First Plan is 4.2, while that of the first and second Plans together is 0.82.

These results of the multiplier analysis confirm our conclusion of the regression analysis. It may be recalled that values of the multiplier found out by Dr. Chatterjee for periods 1950-51 to 1962-63 and 1961-62 to 1965-66 were 0.263 and 0.625 respectively. The values of the multiplier for the first two Plan period and for the Third Plan in our case are 0.82 and 0.29 respectively. There is significant difference between the values of his multiplier and those of ours. This is due to the difference in methodology and in the assumptions made.

The question that remains to be asked: Why is the value of the multiplier high for the First Plan and why are the values low for the subsequent Plans and the whole planning period ? There seem to be two possible reasons for such a result : (i) high capital/output ratio; and (ii) long gestation period. These can very well be observed

Table 1.11

Foreign Aid Multiplier of India during the Planning period

Period	GNP (Y_t) (Rs. Crores)	Consumption (C) (Rs. Crores)	Foreign Aid Utilized (Rs.Crores)			Import of consumption goods (c) (Rs. Crores)	$C_d = C - C_f$	$c' = c(1 - \frac{M_c}{C_d})$	$\frac{M_{if}}{A}$	Foreign Aid Multiplier $I' = \frac{1 - M_{if}/A}{1 - c'}$
			Consumption Aid (C_f)	Investment Aid ($I_f = M_{if}$)	Total Aid (A)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Ist Plan	54844	46623	90.3	36.1	126.4	980	46533	.830	.29	4.20
IInd Plan	70321	60511	15.7	697.8	713.5	1005	60495	.860	.98	0.14
Total of Ist and IInd Plan	125165	107134	106.0	734.0	840.0	1985	107028	.888	.91	0.82
IIIrd Plan	99542	87444	--	1892.3	1908.3	1391	87444	.880	.96	0.29
Three Annual Plans	92786	76936	109.3	2139.4	2325.8	1942	76827	.830	.92	0.47
Planning Period	317493	271514	215.3	4716.6	5074.0	5318	271299	.840	.92	0.49

(Source : Estimated from Tables II and VI from the Appendix.

from the Table 1.12 which shows the purpose-wise distribution of aid received by India during the periods.

1.4.2.2: Foreign aid and Foreign exchange constraint of India :

From the above regression and multiplier analysis, we may state that foreign aid had no significant quantitative impact on Indian economic development. But one can state that its impact on growth is both quantitative and qualitative, direct and indirect, tangible and intangible, economic and non-economic, short-run and long-run. As such, in order to get the correct impact of foreign aid, one should probe deeper into the actual process of effective utilization of aid resources. For the purpose in hand, the only aspect of aid utilization that remains to be analysed is its role in easing the foreign exchange constraint of India's economic development. The following Table 1.13 shows the extent to which foreign aid has helped to relieve the constraint.

It will be clear from the Table that the dependence on foreign aid has increased from Plan to Plan. While the percentage foreign aid to total imports was 5.52 in the First Plan, it increased to 50.3 % during the five year period 1966-67 to 1970-71, an increase of about eight to

Table 1.12

Purposewise Distribution of foreign assistance to India

(Rs. in Crores)

Item	Ist Plan		IInd Plan		IIIrd Plan	
	Absolute Amount	% of the Total	Absolute Amount	% of the Total	Absolute Amount	% of the Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1: Transport and Communication	15.60	12.30	152.20	21.33	291.40	15.27
2: Port Development	--	--	6.80	0.95	0.20	0.00
3: Power Projects	12.10	9.54	29.30	4.11	152.60	8.00
4: Steel and Steel Projects	2.80	2.21	254.1	35.61	94.20	5.00
5: Orrisa Iron Ore Project	--	--	--	--	10.40	0.05
6: Industrial Development	2.30	1.81	255.40	35.80	1270.40	66.57
7: Agricultural Development	3.40	2.68	--	--	22.50	1.18
8: Food Aid	90.30	71.21	15.3	2.14	--	--
9: Debt Relief	--	--	--	--	66.00	3.46
10: Miscellaneous	--	--	--	--	--	--
T o t a l	126.80	100.00	713.50	100.00	1908.30	100.00

continued ...

continued Table No.1.12

(Rs. in Crores)

Item	Three Annual Plans		Whole Planning Period	
	Absolute Amount	% of the Total	Absolute Amount	% of the Total
	(8)	(9)	(10)	(11)
1: Transport and Communication	176.60	7.59	635.80	12.529
2: Port Development	0.20	--	7.20	0.142
3: Power Projects	266.70	11.467	460.70	9.079
4: Steel and Steel Projects	122.80	5.279	473.90	9.339
5: Orrisa Iron Ore Projects	1.30	0.064	11.70	0.231
6: Industrial Development	1493.40	64.21	3021.50	59.543
7: Agricultural Development	77.80	3.345	103.70	2.004
8: Food Aid	109.30	4.699	214.90	4.234
9: Debt Relief	77.10	3.314	143.10	2.820
10:Miscellaneous	0.60	0.025	0.60	0.012
Total	2325.80	100.00	5074.40	100.000

Source : Report on Currency and Finance, Reserve Bank of India, 1969.

Table 1.13

Foreign assistance and Balance of payments of India

(Rs. in Crores)

Sr. No.	Item	Ist Plan	IInd Plan	IIIrd Plan	Three Annual Plans and first two years of IVth Plan	IVth plan
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1:	Foreign aid/ import ratio	5.52	27.3	46.7	50.3	42.6
2:	Foreign aid/ current account deficit in balance of payments	37.20	64.20	147.6	183.0	--
3:	Foreign aid/ total deficit in balance of payment	70.4	69.1	97.1	107.1	--

Source : Estimated from Table VI and VII from the Appendix

nine time. However, according to the Fourth Five Year Plan document, this trend is intended to be reversed during the Fourth and the subsequent Plans. This enormous amount of inflow of foreign aid during the planning period helped India not only in relieving the foreign exchange constraint externally but also in easing the capital and tedhnical know-how constraints domestically.

1.4.2.3: Debt-service liabilities of foreign aid:

But this will be a partial conclusion in the absence of any analysis of future debt-service liabilities of foreign aid. It must be said that this aspect of the aid problem is widely discussed in recent literature and it is usually argued that if debt service liabilities are taken into consideration, India is, in fact, an under-aided country and as such foreign aid contribution in India's growth process and in relieving foreign exchange constraint is exaggerated.

It is easy to see that the level of debt service liability in any year depends upon the quantum of loan element of the external aid, the period of the various previous loans and the structure of rates of interest for these loans. Larger the debt-service liability in a particular year, the lower will be the net aid flow, given the gross aid flow in that year. Table 1.14 below shows the

debt-service liabilities, gross and net aid flow in India (1951-71-68).

Table 1.14

Extent of Debt Service liabilities of India

(Rs, in Crores)

	During Ist Plan	During IInd Plan	During IIIrd plan	During three Annual Plans & two years of IV Plan	During the IVth Plan
(1)	(2)	(3)	(4)	(5)	(6)
1 Gross Aid Flow	201.67	1430.20	2867.72	4839.00	4130.00
2 Debt Service Liabilities	23.80	119.40	553.00	1724.00	2560.00
2.1 Amortilization	10.50	55.20	305.60	1050.00	--
2.2 Interest payments	13.30	64.20	247.40	674.00	--
3 Net Aid Flow (1-2)	177.87	1310.80	2325.12	3115.00	1570.00
4 Extent of Debt Service:					
4.1 (2) as % of (1)	11.70	8.32	18.92	35.62	62.00
4.2 (2) as % of (3)	13.40	9.07	23.35	55.32	163.05
4.3 (2) as % of exports	0.675	3.32	13.10	23.83	31.00
4.4 (2) as % of GNP	.000434	.00169	.00556	.01028	--

Source : As per Table VIfrom the Appendix.

The Table clearly brings out the fact that while debt-service liabilities is gradually increasing in terms of all the four measures, liability is more than 100 % of the net foreign aid utilization during the Fourth Five Year Plan. In particular, the liability constituted 0.7 % of the export earnings during the First Plan, 3.32 % during the Second Plan, 13.10 % during the Third Plan and 23.83 % during the five years 1966-67 to 1970-71. During the Fourth Plan, it is expected to increase to 31 % reducing the net worth of foreign aid and of export earnings. The need for debt rescheduling, therefore, becomes of urgent importance. If this is not done, then in the absence of any appropriate quantum of net foreign aid, a considerable part of the inescable imports and debt service payment will have to be financed by running down foreign exchange reserves in future. This indicates the long-run difficulties created by foreign aid. No wonder, therefore, that indiscriminate acceptance of foreign aid in future might even stagger the economy to such an extent that self-reliance would remain merely a pious hope.

1.5: SUMMARY AND CONCLUSION :

A developing economy usually faces, in its initial stages of development, a critical constraint, in terms of shortage in foreign exchange resources. The constraint on growth operates when investment is more import -

intensive than consumption and when the growth rate, the trading conditions facing the country and the propensity to save are given such that the required growth rate may not be attainable without foreign assistance and/or increased export efforts. In other words, the extent of the constraint is determined by the level of export earnings of an economy. It is this aspect of the Indian economy development that forms the subject-matter of the present study.

The methods that are generally employed to relieve such constraint are :-

(i) Cushioning methods;

(ii) Conserving methods; and

(iii) Augumenting methods.

In India all these three groups of methods have been employed in varying combinations with more or less success. The following summary Table 1.15 shows the extent of financing foreign exchange needs during 1951-52 to 1970-71 through methods of group (i) and through such methods like foreign assistance and export earnings from the (iii) group. It may be observed from the table that India has relied much on the first group of methods during the period. The country cannot continue to do so indefinately. since the main purpose of such methods is to maintain stable exchange rate. On the

Table 1.15

India's Foreign Exchange Receipts and Payments
(1951-52 to 1970-71)

	Item	Ist Plan (Rs. Crores)	IInd Plan (Rs. Crores)	IIIrd Plan (Rs. Crores)	1966-67 to 1970-71 (Rs. Crores)
	(1)	(2)	(3)	(4)	(5)
I	Total Foreign exchange resources available	3368.00	3301.50	3815.60	6762.50
	(1) Exports	3108.60	3063.60	3766.00	6587.10
	(2) Invisibles (Net)	(85.00)	(56.60)	(55.60)	(59.40)
	Excluding interest	+ 404.50	+ 419.10	+ 70.50	+ 145.50
	(3) Non-monetary gold movement (Net)	--	+ 5.90	+ 15.95	+ 13.10
	(4) Capital Transactions (Net)	- 46.40	- 119.10	+ 94.50	+ 301.10
	(5) Errors and Omissions	- 98.10	- 68.10	- 101.40	- 284.30
II	Total Foreign exchange resources utilized	3654.60	5414.70	6722.70	11088.70
	(6) Imports	3650.50	5339.20	6048.20	9216.00
	(7) Interest payments on loans and interest	+ 13.30	+ 61.90	+ 341.90	+ 905.00
	(8) Amortization payments	- 9.20	+ 13.60	+ 332.60	+ 967.70
III	Total Deficit (I-II)	- 286.60	-2113.20	-2907.10	-4326.40
IV	Deficit financed through :				
	(9) External assistance (Gross)	201.70	1460.00	2825.10	4634.00
	(10) I.M.F. (Net) Net Drawing (+)/Net Purchase (-)	(5.00)	(27.00)	(42.00)	(41.80)
		- 41.20	+ 54.50	+ 75.95	- 215.90
		(-1.00)	(+1.00)	(+1.10)	(-1.90)
	(11) S.D.R.	--	--	--	+ 169.80
					(1.50)
	(12) Change in reserve decrease(+)/ increase (-)	+ 126.90	+ 598.60	+ 5.95	- 262.80
		(3.00)	(19.50)	(00.90)	(-2.30)

Source: As per Table I from the Appendix.

Note: Figure in the brackets are the percentages to total foreign exchange resources utilized.

other hand, the second group of methods has a tendency to do greater harm to the economy than helping the economy in conserving its scarce foreign exchange resources. Finally, while foreign assistance has contributed substantially in relieving foreign exchange constraint of the Indian economy, as can be seen from Table 1.15, it has neither contributed significantly in the process of Indian economic development nor the prospects of getting it on large-scale and on easy terms and conditions are bright in the context of the present political and economic climate. Moreoever, it has got its own problems and pitfalls and as such a country cannot and should not rely on it indefinitely.

Under the circumstances, therefore, if the objective of "no net aid by 1978-79"[33] is to be achieved, the country must enhance its export earning at an accelerated rate. Accelerating the rate of growth of export earnings is not the only and ultimate solution to the persistent problem of foreign exchange resources but is also the best method of achieving the goal of self-sustained growth of Indian economy.

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[33]"Approach to the Fifrth Five Year Plan", Government of India, New Delhi, 1972.