

CHAPTER 4

ESTIMATES OF IMPORT SUBSTITUTION FOR THE MANUFACTURING SECTOR (1969-70 TO 1984-85)

A major objective of this study is to estimate the extent of import substitution in the manufacturing sector for the period 1969-70 to 1984-85. In this chapter, an attempt has been made to estimate it. The notable studies that have evaluated the performance and changing structure of the industrial sector in India in relation to imports have been by Desai (1970), Bokil et al (1981), Ahluwalia (1985) and Sastry (1988).

Most of the studies mentioned earlier have used the relative measure, Chenery measure or variants of the Chenery measure; the exception being Nambiar who has used the Fifth Plan input-output model to estimate direct and indirect import requirements. However, inconsistency arises, when the sectoral measures are applied to the global level. In order to rectify the shortcomings in estimating import substitution, a modified version has been adopted.¹

To estimate the extent of import substitution for the manufacturing sector for 1969-70 to 1984-85, we have used four bench-mark years, namely, 1969-70, 1974-75, 1979-80 and 1984-85. The relative and Chenery measures have been adopted to estimate import substitution for these years. The relative measure computes the difference between the ratios of import availability during different periods of time, as a proportion with reference to the base year import availability ratio. In the Chenery measure, import substitution is the difference between growth in output with no change in import ratio and the actual growth.² A modified version of the existing measure to capture the direct and indirect requirements of imports has been applied for the year 1973-74 to 1979-80. From these estimates of import requirements, import substitution has been computed for individual industries as well as for the manufacturing sector as a whole. The estimates used in current and constant

1. See Section 2.3, Chapter 2.

2. Refer Chapter 2 for details.

prices have been presented, but our analysis is based on constant prices.³

4.1 Relative measure of import substitution

Table 4.1 and 4.2 provide estimates of IS based on relative measure at current and constant prices.

Import substitution during 1969-70 to 1974-75 occurred in fewer industry groups, the highest being in paper and paper products (34 per cent) and the lowest in electrical machinery (11 per cent). Import dependence occurred in 8 industry groups. Import dependence occurred in rubber, petroleum and coal products (12 per cent). Food products, beverages, tobacco and tobacco products experienced decline in both production and imports. This could be attributed to a decline in demand.

In the year 1979-80, as compared to 1974-75, import substitution occurred in 7 industries. IS in machinery and machine tools was as high as 43 per cent. The effect of the oil price hike in 1973 led to the change in scenario in rubber, petroleum and coal products industry. The shift from import dependence to import substitution is marked. In the year 1984-85, as compared to 1979-80, import substitution occurred in only 3 industries, namely, rubber, petroleum and coal products, basic metal and alloy industries and transport equipment. Import substitution had considerably reduced in 1984-85, this could be due to the liberalization policy that had come to occupy the centre stage of India's industrialization strategy.

During the decade 1969-70 to 1979-80, import substitution occurred in 8 industrial groups. In 3 groups, namely beverages, tobacco and tobacco products, leather and fur products and non-electrical machinery, the range of import substitution was between 60 to 75 per cent. In two industries it ranged between 40 to 50 per cent and in three industry groups it ranged from 10 to 25 per cent. During the 15 year period 1969-70 to 1984-85, import substitution occurred in 6 industries, the major industry groups being that of rubber, petroleum and coal products in which import substitution was estimated to be 63 per cent.

4.2 Chenery Measure of Import Substitution

Tables 4.3 and 4.4 show estimates of import substitution according to the Chenery measure. The relationship between the Chenery measure and the relative measure has already been noted.⁴ A comparison of the estimates

3. Refer Chapter 3, Section 3.7

4. See Chapter 2, footnote 2.

Table 4.1

Import Substitution According to the Relative Measure

Sl. No.	ASI code	Name of the industry group	(at current prices)					
			1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
			to 1974-75	to 1979-80	1984-85	to 1979-80	1984-85	to 1984-85
1.	20-21	Food products	-0.0571	-0.0942	0.6089	-0.1404	0.4574	0.3830
2.	22	Beverages, tobacco & tobacco	—	-0.6923	1.0000	-0.6923	-0.3846	-0.3846
3.	23-26	Textiles	-0.2400	0.7544	0.8100	0.3333	2.1754	1.4133
4.	27	Wood & wood products, furniture and fixtures	2.1364	1.0145	-0.1799	5.3182	0.6522	4.1818
5.	28	Paper & paper products, printing publishing & allied industries	-0.1577	0.5251	-0.0514	0.2845	0.4468	0.2186
6.	29	Leather, leather & fur products	0.1429	-0.6250	37.6667	-0.5714	13.5000	15.5714
7.	30	petroleum & coal products	1.0338	0.0606	-0.4163	1.1571	-0.3809	0.2591
8.	31	Chemicals & chemicals products (except products of petroleum and coal)	0.0572	-0.0522	0.1121	0.0020	0.0541	0.1143
9.	32	Non-metallic mineral products	0.2900	3.8372	-0.6667	5.2400	0.6124	1.08
10.	33	Basic metal and alloy industries	0.5674	-0.0839	-0.3881	0.4356	-0.4394	-0.1213

Table 4.1 (Contd.)

Sl. No.	ASI code	Name of the industry group	1969-70 to 1974-75	1974-75 to 1979-80	1979-80 to 1984-85	1969-70 to 1979-80	1974-75 to 1984-85	1969-70 to 1984-85
11.	34	Metal products & parts except machinery	0.7098	0.8417	0.0847	2.1490	0.9977	2.4157
12.	35	machine tools & parts	-0.3400	-0.1186	0.3036	-0.4183	0.1490	-0.2417
13.	36	except electrical machinery						
		Electrical machinery, apparatus, appliances and supplies and parts	-0.1019	-0.2076	0.3935	-0.2883	0.1043	-0.0083
14.	37	Transport equipment & parts	0.1931	-0.3780	-0.4491	0.5562	-0.2814	-0.1427
15.	38	Other manufacturing industries	0.8344	0.6865	0.1417	2.0937	0.9254	2.4319
			0.4377	0.1630	-0.1278	0.7086	0.0366	0.4903

Source : ASI, MSFTI, WPI, ITJ

Table 4.2

Relative Measure of Import Substitution at Constant Prices

Sl. No.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
			to 1974-75	to 1979-80	to 1984-85	to 1979-80	to 1984-85	to 1984-85
1.	20-21	Food products	-0.1651	-0.3736	1.5965	-0.4771	0.6264	0.3578
2.	22	Beverages, tobacco & tobacco	-0.1538	-0.6364	2.2500	-0.6926	-0.5455	-0.6154
3.	23-26	Textiles	-0.2464	1.0577	0.5888	0.5507	2.2692	1.4638
4.	27	Wood & wood products, furniture and fixtures	1.5000	3.6000	0.2522	10.5000	4.7600	13.4000
5.	28	Paper & paper products, printing publishing & allied industries	-0.3417	0.7271	0.0034	0.1369	0.7330	0.1408
6.	29	Leather, leather & fur products	0.2857	-0.7778	0.0145	-0.7143	31.4444	
7.	30	Rubber, petroleum & coal products	0.1172	-0.1952	-0.5939	-0.1008	-0.6731	-0.6348
8.	31	Chemicals & chemicals products (except products of petroleum and coal)	-0.2158	0.1168	0.1236	-0.1242	0.2549	-0.0160
9.	32	Non-metallic mineral products	0.4673	0.7070	0.3769	1.5047	1.3503	2.4486
10.	33	Basic metal and alloy industries	0.4983	0.0429	-0.0732	0.5626	-0.0334	0.4482

Table 4.2 Contd.

Sl. No.	ASI code	Name of the industry group	1969-70 to 1974-75	1974-75 to 1979-80	1979-80 to 1984-85	1969-70 to 1979-80	1974-75 to 1984-85	1969-70 to 1984-85
11.	34	Metal products & parts except machinery	1.0437	0.2885	0.7546	1.6332	1.2607	3.6201
12.	35	Machinery, machine tools & parts except electrical machinery	-0.32228	-0.4283	1.0648	-0.6129	0.1804	-0.2007
13.	36	Electrical machinery, apparatus, appliances and supplies and parts	-0.1082	-0.3819	0.6340	-0.4487	0.0100	-0.0993
14.	37	Transport equipment & parts	0.2520	-0.3948	-0.4540	-0.6007	-0.4314	-0.1260
15.	38	Other manufacturing industries	0.4512	0.0977	0.2014	0.5940	0.3188	0.9150
Total (a)			0.0660	-0.0332	0.1840	0.0637	0.1840	0.2594
(b)			0.1441	-0.0147	0.1208	0.1525		0.2917

Source: ISI, MSFTI, WPI, ITJ.

Table 4.3

Import Substitution According to the Chenery Measure

(at current prices)

Sl. No.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
			to 1974-75	to 1979-80	to 1984-85	to 1979-80	to 1984-85	to 1984-85
1.	20-21	Food products	0.0029	0.0052	-0.0277	0.0051	-0.0155	-0.0113
2.	22	Beverages, tobacco & tobacco	-0.0002	0.0022	-0.0006	0.0013	0.0008	0.0006
3.	23-26	Textiles	0.0039	-0.0110	-0.0236	-0.0039	-0.0208	-0.0138
4.	27	Wood & wood products, furniture and fixtures	-0.0089	-0.0167	0.0006	-0.0162	-0.0069	-0.0111
5.	28	Paper & paper products, printing publishing & allied industries	0.0299	-0.1224	0.0137	-0.0431	-0.0576	-0.0275
6.	29	Leather, leather & fur products	-0.0002	0.0008	-0.0414	0.0005	-0.0142	-0.0124
7.	30	Rubber, plastic, petroleum and coal products	-0.5286	-0.0720	0.4100	-0.4731	0.2488	-0.0737
8.	31	Chemicals & chemicals products (except products of petroleum and coal)	-0.0145	0.0181	-0.0383	-0.0567	-0.0132	-0.0746
9.	32	Non-metallic mineral products	-0.0064	-0.1044	0.0670	-0.0759	-0.0090	-0.0123
10.	33	Basic metal and alloy industries	-0.1480	0.0336	0.1360	-0.0772	0.1139	0.0175

Table 4.3 (Contd.)

Sl. No.	ASI code	Name of the industry group	1969-70 to 1974-75	1974-75 to 1979-80	1979-80 to 1984-85	1969-70 to 1979-80	1974-75 to 1984-85	1969-70 to 1984-85
11.	34	Metal products & parts except machinery	-0.0404	-0.0822	-0.0192	-0.0820	-0.0695	-0.0809
12.	35	machine tools & parts except electrical machinery	0.2295	0.0614	-0.1488	0.2052	-0.0554	0.1131
13.	36	Electrical machinery, apparatus, appliances and supplies and parts	0.0197	0.0412	-0.0738	0.0413	-0.0152	0.0011
14.	37	Transport equipment & parts	-0.0287	0.0647	0.0985	-0.0584	0.0324	0.0119
15.	38	Other manufacturing industries	-	-0.9952	-0.5213	-1.9369	-1.2293	-1.9445
		All Industries	-0.0818	-0.0488	0.0442	-0.0900	-0.0071	-0.0560

Table 4.4

Cheney Measure of Import Substitution at Constant Prices

Sl. No.	ASI code	Name of the industry group	1969-70 to 1974-75	1974-75 to 1979-80	1979-80 to 1984-85	1969-70 to 1974-75	1974-75 to 1984-85	1969-70 to 1984-85
1.	20-21	Food products	-0.0325	0.0214	-0.1077	0.0429	-0.0266	-0.0213
2.	22	Beverages, tobacco & tobacco	-0.0145	0.0030	-0.0030	0.0040	0.0012	0.0018
3.	23-26	Textiles	0.0436	-0.0238	-0.0639	-0.0146	-0.0388	-0.0304
4.	27	Wood & wood products, furniture and fixtures	-0.0130	-0.0925	—	-0.0558	-0.1243	-0.0720
5.	28	Paper & paper products, printing Publishing & allied industries	0.2276	-0.2425	-0.0016	-0.0446	-0.1258	-0.0305
6.	29	Leather, leather & fur products	-0.0013	0.0018	0.2262	0.0010	-0.0612	-0.0524
7.	30	Rubber, plastic, petroleum & coal products	-0.2252	0.2205	0.3193	0.7020	0.3168	0.2380
8.	31	Chemicals & chemicals products (except products of petroleum and coal)	0.0780	-0.0339	-0.0616	0.0295	-0.0550	0.0034

Table 4.4 (Contd.)

Sl. No.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
			to 1974-75	to 1979-80	to 1984-85	to 1979-80	to 1984-85	to 1984-85
9.	32	Non-metallic mineral products	-0.0658	-0.0467	0.0285	-0.0547	-0.0422	-0.0617
10.	33	Basic metal and alloy industries	-0.4639	-0.0280	0.0789	-0.1877	0.0153	-0.1162
11.	34	Metal products & parts except machinery	—	-0.0504	-0.4173	-0.1509	-0.1771	-0.2623
12.	35	Machinery, machine tools & parts except electrical machinery	0.3546	0.3038	-0.5601	0.3691	-0.0903	0.1109
13.	36	Electrical machinery, apparatus, Appliances and supplies and parts	-0.0431	0.1097	-0.1518	0.0965	-0.0021	0.0187
14.	37	Transport equipment & parts	-0.0785	0.1123	0.0089	0.0357	0.0471	0.0296
15.	38	Other manufacturing industries	—	-0.1226	-0.3944	—	-0.3241	-1.2726
Total (a)			-0.0423	0.0104	-0.0864	-0.0064	-0.0372	-0.0423
(b)			-0.0920	0.0042	-0.0680	-0.0254	-0.0272	-0.0462

Note: ** Both the numerator and denominator are negative.

Source: ASI, MSFTI, WPI, ITJ.

of these two measures, shows the same results, i.e. the industries which experienced import substitution/import dependence by the use of relative measure showed import substitution/import dependence by the Chenery measure too, the variation between the two measures has been in the extent of import substitution. In the Chenery measure, the estimates of import substitution are much lesser than that obtained by using the relative measure.

Examining the Table 4.4, we notice that import dependence in the periods 1969-70 to 1979-80 and 1969-70 to 1984-85 and in the sub-periods are visible in non-metallic mineral products, metal products except machinery and other manufacturing industries. Import dependence in the case of rubber, petroleum and coal products and transport equipment occurred in 1969-70 to 1974-75, but later for the decade 1969-70 to 1979-80 and the 15 year period and the sub-periods there was an increase in import substitution.

In the case of electrical and non-electrical machinery, import dependence occurred in 1979-80 to 1984-85. But in other periods and sub-periods there was import substitution.

Tables 4.5 and 4.6 depict the estimates of import substitution based on the use-based and input-based industry groups, according to the relative and Chenery measure. They are based on current prices. In consumer durables import dependence is noticeable in all the sub-periods except for the year 1969-70 to 1974-75, when there was IS, whereas in the case of non-durables, import substitution has occurred during 1969-70 to 1974-75 and during the decade 1969-70 to 1979-80 and during 1969-70 to 1984-85. This would imply that we have obtained a certain amount of self-sufficiency in this group of industries. In the case of capital goods, import substitution occurred during the decade 1969-70 to 1979-80 (6 per cent) and import dependence during the decade 1974-75 to 1984-85. Import substitution has occurred in basic (7 per cent) and intermediate goods industries (5 per cent).

From the estimates of import substitution based on input-based classification, we notice that import substitution occurred in agro-based industries for the sub-period 1969-70 to 1974-75, but for the later periods and sub-periods there is import dependence. In the chemical-based industries, import substitution has occurred during the decade 1974-75 to 1984-85 (8 per cent) and the sub-period 1979-80 to 1984-85 (16 per cent). Major contribution to IS in this group is from that of rubber, petroleum and coal products.

4.3 Estimation of Import Substitution using the input-output framework (1973-74 - 1979-80)

In estimating the extent of import substitution for the manufacturing

Table 4.5

**Estimates of Import Substitution According to the Relative
Measure Use-Based and Input-Based Classification**

		1974-75	1979-80	1984-85	1979-80	1984-85	1985-85
		over	over	over	over	over	over
		1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
A. Use-Based Classification							
1.	Basic goods	0.5707	-0.0933	-0.1683	0.4242	-0.2458	0.1846
2.	Intermediate goods	2.4817	0.2639	-0.3309	3.4006	-0.1543	1.9444
3.	Capital goods	-0.1598	-0.0601	0.1420	-0.2103	0.0734	-0.0982
4.	Consumer goods						
	(a) Durables	-0.2384	0.8917	0.1767	0.4406	1.2259	0.6952
	(b) Non-durables	-0.3656	0.0265	0.4903	-0.3487	0.5298	-0.0294
	TOTAL	0.4377	0.1630	-0.1278	0.7086	0.0366	0.4903
B. Input-based Classification							
1.	Agro-based	-0.0633	0.2518	0.4262	0.1726	0.7530	0.6724
2.	Chemical-based	0.5148	0.0801	-0.2615	0.6361	-0.2024	0.2082
3.	Metal-based	0.0372	0.0601	-0.0376	0.0995	0.0202	0.0582

Source: ASI, MSI/FII.

Table 4.6

**Estimates of Import Substitution According to the Chenery Measure
Use-Based and Input-Based Classification**

		1974-75	1979-80	1984-85 over	1979-80 over	1984-85 over	1985-85 over
		1969-70	1974-75	1979-80	1969-70	1974-75	1969-70
A Use-based Classification							
1.	Basic goods	-0.1512	0.0379	0.0590	-0.0758	0.0663	-0.0279
2.	Intermediate goods	-0.6177	-0.1495	0.2205	-0.4318	0.0538	-0.1775
3.	Capital goods	0.0652	0.0204	-0.0489	0.0572	-0.0174	0.0237
4.	Consumer goods						
	(a) Durables	0.0865	-0.3675	-0.1475	-0.1482	-0.3656	-0.2273
	(b) Non-durables	0.0139	-0.0009	-0.0179	0.0107	-0.0122	0.0008
	TOTAL	-0.0818	-0.0488	0.0442	-0.0900	-0.0073	-0.0560
B. Input-based Classification							
1.	Agro-based	0.0029	-0.0119	-0.0249	-0.0053	-0.0235	-0.0714
2.	Chemical-based	-0.1665	-0.0497	0.1623	-0.1682	0.0796	-0.0461
3.	Metal-based	-0.0119	-0.0208	0.0140	-0.0224	-0.0048	-0.0114

Source: ASI, MSFTI.

sector for the years 1979-80 as compared to 1973-74, we take into account the change in the structure of final demand. We attribute the change in imports to (a) growth in final demand (b) change in composition of final demand (c) import substitution.

In estimating import substitution, we assume the technology matrix to remain the same for both the years namely, the base year 1973-74 and the terminal year 1979-80. We consider only the changes in import co-efficients and final demand. The direct and indirect requirements of imports for 1979-80, based on its import co-efficients and final demand is denoted as $i M^I [(1-A)^o + M^I]^{-1} F^I$. The direct and indirect requirements of imports for 1973-74, based on its import co-efficient and final demand is denoted as $i M^I [(1-A)^o + M^o]^{-1} F^o$ ⁵. The import requirements are shown in the following table:

Table 4.7
Direct and Indirect Requirements of Imports

(Rs. Million at 1971-72 Prices)	
Imports required for fulfilling final demand in 1973-74	23,409.7
Imports required for fulfilling final demand in 1979-80	16,830.0
Change in import requirements	(-)6579.7

From Table 4.7, we notice that for the Indian economy there has been a decline in import requirements in 1979-80 as compared to 1973-74 in real terms. To determine the cause for the decline in imports, the import requirements to meet per unit of final demand at a disaggregated level presented in Table 4.8. The dependency in imports in 1979-80 has declined substantially as compared to 1973-74. In 9 sectors, we notice the decline due to the effect of import substitution. In order to verify whether the extent of import substitution (-10523.4) has been over-estimated, a comparison with the R.B.I. data was made⁶. At constant prices (1971-72 = 100), there was

5. For further details ref. Chapter 2; and Tables A.4(a), A.4(b) and A.4(c).
6. Refer Appendix A.4.2.

Table 4.8

**Effect of Import Substitution in the Manufacturing
Sector at 71-72 Prices (1973-74 to 1979-80)**

Sl. No.	Sector	Direct and indirect requirement of imports for per unit final demand			Rank over 1973-74	Effect of import- substitution 1979-80 over 1973-74
		1973-74	Rank	1979-80 Rank		
1.	Agriculture and service	0.0293	14	0.0199	15	-0.0094
2.	Food products	0.0384	12	0.0425	10	0.0041
3.	Textiles	0.0333	13	0.0235	13	-0.0098
4.	Wood & wood products	0.0177	15	0.0129	14	0.0048
5.	Paper & paper products	0.2832	2	0.1751	4	-0.1081
6.	Leather & leather products	0.0702	10	0.0415	11	-0.0287
7.	Rubber plastic petro- leum and coal products	0.2266	5	0.1127	7	-0.1139
8.	Chemical & chemical products	0.2729	3	0.1638	5	-0.1091

Table 4.8 (Contd.)

Sl. No.	Sector	Direct and indirect requirement of imports for per unit final demand			Effect of import- substitution 1979-80 over 1973-74	
		1973-74	Rank	1979-80		
8.	Non-metallic mineral products	0.0598	11	0.0257	12	-0.0341
9.	Basic metal and alloy industries	0.2283	4	0.2794	1	0.0511
10.	Metal products and parts except machinery	0.0835	9	0.0961	8	0.0126
11.	Machinery, machine tools & parts except electrical machinery	0.7528	1	0.1774	3	-0.5754
12.	Electrical machinery	0.1262	6	0.1784	2	0.0522
13.	Transport equipment and parts	0.1066	7	0.1238	6	0.0172
14.	Miscellaneous industries	0.1001	8	0.0917	9	-0.0084

considerable difference between the data of the Planning Commission and that of the RBI In the group machinery and transport equipment, the difference substantial between the two sources of data. When we examine the import matrix of the Fifth Plan, we notice in the group machinery and machine tools, iron and steel is an important item of imports. And in RBI non-electrical machinery is a major item of import. Further break-up of this industry group is not available. In the case of mineral oil and lubricants, we notice that according to RBI there has been an increase, but the Planning Commission data reveals a decline. This could be due to the fact that crude oil is the major item in petroleum group, which gets included in crude materials, according to the RBI classification. The import price of this item was very high. The reason for the decline in imports in real terms could be due to the enormous increase in import price of petroleum products in 1979, the year of the second oil price hike (refer Table 3).

The break-up of changes in imports due to changes in final demand and due to import substitution are shown in Table 4.9. The changes in final demand consists of two components namely (i) growth in final demand and (ii) composition of final demand. The growth rate is estimated on the basis of growth of final demand in the current year, vis-a-vis, the base year keeping the composition of final demand constant. The estimates derived from

$$i M^1[(1-A)^0 + \hat{M}^1]^{-1} F_1 - i \hat{M}^0[(1-A)^0 + \hat{M}^0]^{-1} F^0$$

is attributed to import substitution; and that due to growth effect is

$$i M^0[(1+A)^0 + \hat{M}^0]^{-1} [\lambda F^0 - F^0]$$

and due to composition of final demand is obtained from

$$i M^0[(1-A)^0 + \hat{M}^0]^{-1} [F^1 - \lambda F^0]$$

The estimates so derived are given in the following table:

Table 4.9

**Estimates of Import Substitution and Final Demand
for the Manufacturing Sector**

(Rs. Million 1971-72 Prices)		
Changes due to growth effect	=	1338.2
Changes due to composition effect	=	2605.5
Changes due to import substitution	=	(-) 10523.4
Change in final demand	=	3943.7

That import substitution strategy played a major role in reducing imports is evident from our estimates; machinery and machine tools, rubber, petroleum and coal products and chemicals were the important industries in which import substitution has taken place. That during the year 1979-80, IS was externally enforced, cannot be over-ruled.

4.4 Summary and Conclusions

In this study, comparable data of industrial imports and industrial production, which follow different classifications has been made. From this correspondence at the 3 digit level, emerged the correspondence at the two digit level for the manufacturing sector. From the 3 digit level classification an intermediate level, namely the use-based classification was computed. From the 2-digit level classification an intermediate level, namely the input-based classification was computed. The analysis at the two- digit level is at constant prices, whereas at the intermediate level, i.e. use-based classification is at current prices, estimates at constant prices for input-based classification has been given.

Within this board framework, we examined the extent of structural changes in industrial production and industrial imports for the period 1969-70 to 1984-85. We notice that dramatic changes have taken place during this period, the changes in structure were measured at both constant and current prices for industrial imports and industrial production. An increasing share in imports and production of intermediate goods and consumer durables in 1984-85 as compared to 1969-70 and a decline in the share of imports of consumer non-durables during the same period is evident. A plausible explanation is that, these changes could have been policy induced.

The analysis of the growth rates gave us a glimpse of whether there was import substitution or import dependence. The manufacturing sector recorded a moderate growth rate of 6 per cent for the period 1969-70 to 1984-85. The fast growing industries were rubber, petroleum and coal products; chemicals, non-electrical machinery, electrical machinery and transport equipment. A significant decline in their imports was noticed. At the intermediate level, which is based on current prices, for the period 1969-70 to 1984-85, there has been a high growth rate of imports of intermediate goods and consumer durables. In the input-based classification high growth rate of imports was witnessed in the chemical based industries. At constant prices, for chemical-based industries, the compound growth rate of production was 10 per cent, and that of imports was 8 per cent. This group of industries showed high growth rate in imports accompanied by high growth rate in production.

Our analysis of import availability ratios fall in line with the analysis

provided by the growth rates. The point to be highlighted is that when trends in some of the major industry groups were examined, substantial divergence in current and constant prices were noticed.

As a sequel to this exercise, the wholesale price indices and the unit value import indices were examined and since divergent trends were clearly visible, it was realised that analysis based on constant prices, would be meaningful. The reason for divergence between the domestic prices and import prices is due to differential rates of inflation. During the 70s, the world economy experienced high inflation rates, whereas in India the increase was moderate. This was due to improved performance of the agricultural sector.

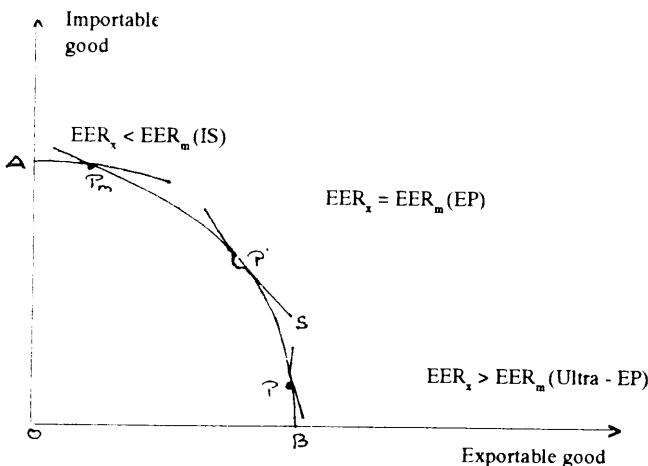
To assess the impact of the changes in policy measures, namely, import substitution and liberalization, the capacity utilisation rates and the import-availability ratios were examined for some selected industry groups. Industries were classified on the basis of movements of import-availability ratio and capacity-utilisation rates into four categories. In the case of petroleum products, it was clearly observed that decline in import-availability ratio resulted in increased capacity utilisation. This industry experienced import substitution. In the case of machinery, machine tools and electrical machinery, it was observed that for some years there could have been supply constraints while in other years there could have been demand deficiency due to higher import-availability ratio. When import availability ratios for the year 1984-85, as compared to 1979-80, were examined and the machine tools industries experienced import dependence, but when we examine the trend in import availability ratios with reference to capacity utilisation years from 1979-80 to 1984-85 (refer Chart 3.3) we notice that this has not affected capacity utilisation adversely. This would imply that import substitution has occurred and liberalisation has helped in importation of critical inputs. In the case of chemicals, positive effects of liberalization was experienced, as there was both an increase in import-availability ratio and an increase in capacity utilisation. Decline in import-availability ratio and capacity utilisation ratio meant that there were other factors affecting the industry and hence liberalization policies had no impact.

The focus of our study has been on the estimation of import substitution. We have used the Relative and Chenery measures to estimate import substitution. A modified measure using the input-output matrix has been used to estimate the extent of import substitution in the manufacturing sector, which is consistent with that of the individual industry groups.

Estimates of import substitutiton for the year 1984-85 as compared

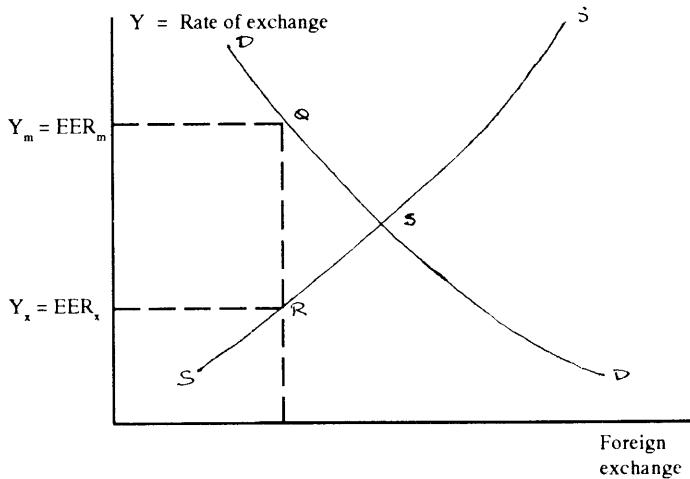
to 1979-80 show that we are now moving into an era of import dependency. If critical inputs are imported that result in better performance of the industry, then the import dependency could be justified, but if it happens otherwise, this could result in deceleration of growth in industry.

The definition of the neo-classicals could be illustrated by a two good model,



Assume AB to be the country's production possibility curve with increasing opportunity costs for the two commodities. The country could produce OA of cloth or OB of wheat. The country will specialise in the commodity in which she has a comparative advantage, say wheat. She will exchange some of her wheat output at the world terms of trade, given the international prices P^* 's, the equilibrium production would be reached at P^* . If the exchange rate is such as to ensure that the relative goods price, domestically, is also equal P^* 's, then we have $ERP_x = EER_m$. Now, if tariffs are imposed, the incentives to produce the import competing good (say cloth) is greater than that of the exportable good. The protection afforded to the cloth industry will lead to an expansion of domestic output. The production shifts to P_m , the $EER_x < EER_m$. This is IS strategy (Bhagwati, 1988). The tendency of the IS strategy to overvalue the exchange rate, as suggested by the neo-classicals could be depicted as follows:

* This is extracted from Bhagwati (1988)



SS represents the supply curve of foreign exchange, DD the demand curve for foreign exchange. If the exchange rate is adjusted to clear the market at S, then $EER_x = EER_m$, because an identical parity applies to both export and import transactions. But if the exchange rate is overvalued by import tariffs and restrictions and exchange controls, then the overvalued exchange rate would be $Y_m = EER_m$, foreign exchange earned would be OW, corresponding to R on the SS and which would be rationed to the users, fetching a market determined price which exceeds Y_x . This price is determined by Q on the demand curve with Y_m corresponding to R on the supply curve. Since the demand exceeds the supply, the premium at which the scarce foreign exchange commands is $Y_m - Y_x$. Overvalued exchange rate thus Y_s implies the

$$Y_x$$

pursuit of IS strategy according to the neo-classicals.

Table A.2.1

Correspondance between Industries and Trade Classification in India

SI. No.	Name of sector	SIC (ASI before 1970)	NIC (ASI after 1970)	ITC (before 1970)	ITC-Rew (After 1977)
(1)	(2)	(3)	(4)	(5)	(6)
1.	Slaughtering, preparation & preserving of meat	201	200	011,012,013	011,012,014
2.	Manufacturing of dairy products	202	201	022,023,024	022,023,024
3.	Canning & preserving of fruits and vegetables	203	202	052,053 (ex 0.532) 055 (ex 055.4)	056(ex 056.4), 058,057
4.	Canning and preserving of fish and other sea foods	204	203	032	037

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
5.	Manufacture of grain mill products	205	204	046,047,049, 048,1,048,2, 081,2,081,3, 055,4	042,2,046,047 048,1,056,4, 081,2,081,3
6.	Manufacture of bakery products	206	205	048,4,048,8	048,4,048,8, 056,4
7.	Sugar factories & refineries	207	206,207	061	061
8.	Manufacture of cocoa, chocolate & sugar confectionery	208	209	062,072,073	062,072,073
9.	Manufacture of miscellaneous food preparation	209	208,210,211, 212,213,214, 215,217,219.	09,048,3,081,4 081,9,048,8(3), 071 (ex.071,1A), 074,075,051,7	09,048,3(ex.048 (3),071(ex.071,A 074,075,057,7
10.	Distilling, rectifying and blending of spirits	211	220	112,4	112,4

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
11.	Wine industries	212	221	112(ex.112.4 & 112.3)	112(ex.112.4 & 112.3)
12.	Breweries & manufacturing of malt	213	222	112.3 & 048.2	112.3 & 048.2
13.	Soft drinks & carbonated water industries	214	223,224	111	111
14.	Tobacco manufactures	220	225,226,227, 228,229	122,121.0B	122
15.	Spinning, weaving & finishing of textiles	231	231,232,234, 235,236,239, 240,241,242, 243,244,245, 246,249,250, 251,252,259, 262,263.	261.3,262.2,262.3, 262.5,262.7,262.8, 262.9,263.2,263.4, 267,651,652,653, (ex.653.7),654, 655.5,655.9,656.6, 656.9,265,659.	261.3,268.2,268.3, 268.5,268.7,268.9, 651.21,263.2,263.4, 269,651,653,654, 265,652,655,656, 657, (ex.657.6012), 658,659.

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
16.	Knitting mills	232	260	653.7,841.4(1), 658.3,658.6,	
17.	Cordage, rope & twine industries	233	264,261	655.6	
18.	Manufacture of textiles n.e.c.	230,233, 253,267, 268,269.	261.2,262.6,263.3, 264,655.1,655.4, 655.8,656.1,656.2, 657,658.2,658.4, 658.5		
19.	Manufacture of wearing apparel except footwear	243	265,266	655.7,841.1,841.2, 841.3,841.5,842.0, 899.4. (ex.848.21),899.4,847.	657,6012,842,843 844,846,848
20.	Saw mills, plaining & other wood mills	251	270,271	243,631	247,634
21.	Wooden & cane containers & cane small ware	252	272	632.1,632.2	635.1,635.2

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
22.	Manufacture of cork & wood products - n.c.c.	259	273,275,279	632(ex.632.1, 632.2),633,244.	244,635.9,633.
23.	Manufacture of furniture & fixtures	260	274,276,277	821.1,821.09(9 821.92)	821.1(ex.821.1102)
24.	Manufacture of paper & paper products (board) and pulp	271	280,281,282, 283,287. 251	641,642(ex.642.3) (ex.642.3)	641,251,642
25.	Printing, publishing & allied industries	280	284,285,286, 288,289.	892,642.3	892,642.3
26.	Tanneries & leather finishing plants	291		611,211.8A	611,211.9
27.	Manufacture of leather products except footwear & other wearing apparel	293	292,293,295 299	612,613,211.8B, 831.OA	612,613,831.0101, 831.0201,831.0901.
28.	Manufacture of rubber products	300	300,301,302.	621,629,841.6, 231.3,231.4	621,625,628,848.2, (ex.848.21),233.1, 233.2.

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
29.	Petroleum refineries	321	304	332(ex.332.9, 332.1A),521.4, 331.0.	333,334,335 (ex.335.2)
30.	Manufacture of miscellaneous products of petroleum & coal	329	305,306,307	321.5,321.6B, 321.7B,321.8C, 332.9,521.1, 521.3,341 (ex.341.1A)	323,341,335.2
31.	Basic industrial chemicals including fertilizers	311	247,248,303 310,311,316 318.	512,513,514, 515,266,571, 581,431.3, 2312,561.	511,512,513,514, 515,516,522, 323.21,287.32, 523,572,582,583, 584,585,562, 233.1,266,267.1,
32.	Vegetable and animal oil & fats (except edible oils)	312	315	421,422,431.1, 431.2,221.9, 411.3.	423,424,431.1, 431.2,431.3,411.3.

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
33.	Manufacture of paints, varnishes and lacquer	313	312	532,533 (ex.533.2),534.	532,533(ex.533.2) 531.
34.	Manufacture of miscellaneous chemical products	319	313,314,317 319	541,551,553, 554,599,533.2, 899.3,431.4.	541,551,553,554, 59,533.2,899.3, 431.4.
35.	Manufacture of structural clay products	331	320	662,812.2	662,812.2
36.	Manufacture of glass and glass products	332	321	664,665.	664,665,812.4.
37.	Manufacture of pottery, china & earthen ware	333	322,323,327.	666,663.9.	666,663.9.
38.	Manufacture of cement (hydraulic)	334	324	661.2	661.2
39.	Manufacture of non-metallic mineral products - n.e.c.	339	325,326,328 329	661(ex.661.2), 663(ex.663.9)	661(ex.661.2), 663(ex.663.9).

Table A.2.1 (Contd.).

(1)	(2)	(3)	(4)	(5)	(6)
40.	Iron & steel basic industries	341	330,331,332.	276,6,282,321.8A, 321.8B,671,672, 673,674,675, 676,677,678,679.	278,6,282,323. 671,672,673, 674,675,676, 677,678,679.
41.	Non-ferrous metal industries	342	333,334,335, 336,339.	68	68
42.	Manufacture of metal products except machinery and transport equipment	350	340,341,343, 345,349,342.	69,284,812.1, 812.3,812.4, 894.3.	69,288,812.1, 812.2,812.4, 894.6.
43.	Manufacture of machinery except electrical machinery	360	350,351,352, 353,354,355, 356,357,358, 359.	711,712,714, 715,717,718, 719.	711,712,713,714, 718,722,723,724, 775.12,727,736, 737(ex.737.32), 74,697.81,697.35, 728.1,775.3, 791.91,728.4,75, 775.2102,775.220

Table A.2.1 (Contd.)

(1 (2))	(3)	(4)	(5)	(6)
44. Manufacture of electrical machinery apparatus, appliances and supplies	370 363,364,365, 366,367,369.	360,361,362 72	737.32,741.31, 741,4902,716, 761,762,764, 771,772,773, 774,775.2	
		(ex.775.2102, ex.775.2202),	775.4,775.7, 775.8,776,778.	
45. Ship building & repairing	381	370	735	793
46. Manufacture of railroad equipment	382	371,372,373.	731	791(ex.791.9).
47. Manufacture of motor vehicles	383	374	732	781,782,783, 784.
48. Manufacture of motor cycles & bicycles	385	375,376.	733(ex.733.3C)	785(ex.785.31(B) & 785.39(B)).

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
49.	Manufacture of air craft	386	377	734	792
50.	Manufacture of transport equipment - n.e.c.	389	378,379.	733.3C,894.1	786.8,786.11, 786.12,785.31B, 785.39B.
51.	Manufacture of professional and scientific measuring and controlling instruments	391	380	861	87
52.	Manufacture of photographic and optical goods	392	381	862,863.	881,882,883, 884.
53.	Manufacture of watches & clocks	393	382	864	885
54.	Manufacture of jewellery and related articles	394	383,384.	897,275.1B, 275.2,667 (ex667.1A,867.2A 667.3A)	897,277.1,277.2, 667(ex.667.1001, ex 667.2, ex 667.31 ex.667.33, ex 667.900

Table A.2.1 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
55.	Manufacture of musical instruments	395	386	891	898,763,764.9, 762.8.
56.	Manufacture of industries n.c.c.	399	385,387,389.	893,894(ex.894.3) 895.2,895.9,899 (ex.894.63),895.2, (ex.899.3 & 899.4),896, 831.OB,895.1, 821.0.	893,848.21,894 (ex.894.63),895.2, 899(ex.899.3 & 899.4) 951.09,896, 895.1,821.0.

Notes:

1. The A & B refer to those commodities in the 'Classification of Commodities by Industrial Origin' published by United Nations.
2. Bracket (ex.) for the exclusion of specific item.
3. SIC - Standard Industrial Classification.
4. NIC - National Industrial Classification.
5. RITC - Revised Indian Trade Classification.
6. ITC-REV2 - Indian Trade Classification Revision-2.
7. ASI - Annual Survey of Industries.

Table A.2.2

**Correspondence between Industrial and Trade Classification in India
According to use Based Classification**

Use-based classification	NIC (ASI before 1970)	SIC (ASI after 1970)	ITC (Before 1977)	ITC-REV-2 (After 1977)
Basic goods	311, 312, 334, 341, 342	310, 311, 316, 318 319, 324, 328, 33	221.9, 231.2, 411.3, 421, 422, 431.1, 431.2, 431.3, 512, 513, 514, 534, 561, 571, 581, 661, 67, 68	411.3, 423, 424, 431.1, 431.2, 431.3, 511, 512, 513, 514, 515, 516, 522, 523, 531, 562, 572, 582, 583, 584, 585, 59, 661, 67, 68
Intermediate goods	233, 251, 252, 259, 271, 291, 292, 300, 313, 321, 329, 331, 339, 350	230, 233, 240, 244, 25, 261, 267, 268, 269, 270, 271, 272, 273, 274, 275, 279, 280, 281, 283, 287,	211.8A, 211.8B, 243, 244, 261.3, 262.2, 262.3, 262.5, 262.7, 262.8, 262.9, 264, 265 266, 267, 276.6, 282, 284, 286.5, 268.7, 269, 278.6, 282, 287.32, 288, 323.2, 431.4, 532, 533, 321-A & B, 431.4, 532, 533,	211.9, 233.1, 244, 247, 251, 261.3 264, 265, 266, 267.1, 268.2, 268.3 268.5, 268.7, 269, 278.6, 282, 287.32, 288, 323.2, 431.4, 532, 533, 611, 612, 633, 634, 635.1, 635.2, 641, 642, 65, 662, 663, 69, 791.91, 894.6.
			304, 305, 306, 307, 312, 315, 320, 325, 326, 328, 329, 340, 341, 343, 344, 349, 362, 364.	611, 612, 633, 634, 635.1, 635.2, 641, 642, 65, 662, 663, 69, 791.91, 894.6.

Table A.2.2 (Contd.)

Use-based classification	NIC (ASI before 1970) SIC (ASI after 1970)	RINC (Before 1977)	RINC-RIV-2 (After 1977)
Capital goods	360, 370, 381, 382, 386, 389, 391, 392	350, 351, 352, 353, 354, 355, 356, 357, 360, 361, 365, 366, 367, 369, 370, 371, 372, 373, 377, 378, 379, 380, 381	71, 72, 731, 734, 735, 812.1 722, 723, 724, 727, 728.1, 728.4, 736, 737, 741, 31, 741.4, 761, 762, 764, 771, 772, 773, 774, 775.4, 775.8, 776, 778, 791, 792 793, 812.1, 902
Consumer goods			
(i) Consumer durables	383, 384, 385, 393, 394, 395, 399	276, 277, 342, 345, 358, 359, 374, 375, 376, 38, (ex 380, 381)	275.1B, 275.2, 667, (ex 667.1A, ex 667.2A, ex 667.3A), 732, 733, 812.2, 821, 831.0B, 861, 862, 863, 864, 897, 891, 893, 894, ex 894.3, 895.1, 895.2, 895.9, 896, 899, (ex 899.3, ex 899.4)
			277.1, 277.2, 667 (ex 667.1001, ex 667.2, ex 667.31, ex 667.33, ex 667.4002), 697, 81, 697.35, 75, 762.8, 763, 764.9, 775.1, 775.2, 775.3, 775.7, 781 to 786 821, 848.21, 87, 881 to 885, 893, 894, 895.1, 895.2, 896, 899 (ex 899.3, ex 899.4), 951.09.

Table A.2.2 (Contd.)

Use-based classification	NIC (ASI before 1970)	SIC (ASI after 1970)	ITC (Before 1977)	ITC-REV-2 (After 1977)
(ii) Consumable non-durables	20-21, 22, 231, 232, 239, 241, 243, 260, 280, 293, 319, 332, 333.	20-21, 22, 231, 232, 234, 235, 236, 230, 241, 2, 2, 243, 24, 246, 24, 248, 249, 260, 262, 263, 264, 265, 266, 282, 284, 285, 286, 288, 289, 291, 292, 293, 295, 296, 299, 301, 313, 314, 317, 319, 321, 322, 323, 327.	541, 551, 553, 554, 655, 4, 655, 5, 655, 8, 655, 9, 656, 1, 656, 6, 656, 9, 658, 2, 658, 3, 658, 4, 658, 5, 658, 6, 664, 665, 666, 831, 841, 1, 841, 4(1), 892, 899, 3	541, 551, 553, 554, 665, 666, 831, 0201, 831, 0901, 842, 843, 844, 847, 848, 892, 899, 3, 899, 4

Appendix III

Table A.3.1

Value of Production in Indian Manufacturing Sector

Sl. no.	ASI code	Name of the industry group	(Rs. crores at current prices)			
			1969-70	1974-75	1979-80	1984-85
1.	20-21	Food products	2453.78	4356.66	7382.61	13684.54
2.	22	Beverages, tobacco & tobacco products	403.28	628.49	1035.14	1990.13
3.	23-26	Textiles	2225.99	4081.82	6774.97	10380.10
4.	27	Wood & wood products, furniture & fixtures	100.93	218.51	379.06	636.98
5.	28	Paper & paper products, printing, publishing & allied industries.	383.88	864.37	1442.52	3076.88
6.	29	Leather, leather & fur products	93.22	200.41	622.66	860.05
7.	30	Rubber, petroleum & coal products	562.63	1683.81	4287.30	10452.26
8.	31	Chemical & chemical products (except products of petroleum & coal)	1246.29	4044.19	8584.50	17908.59

Table A.3.1 (contd.)

Sl. no.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
9.	32	Non-metallic mineral products	373.28	701.25	1417.55	3869.18
10.	33	Basic metal & alloy industries	1173.36	2636.01	5932.00	12854.54
11.	34	Metal products & parts except machinery	332.97	625.21	1213.52	1992.45
12.	35	Machinery, machine tools & parts except electrical machinery	595.07	1485.64	2966.49	5941.87
13.	36	Electrical machinery, apparatus, appliances & supplies & parts	520.70	1384.36	2980.13	5562.00
14.	37	Transport equipment & parts	667.64	1360.74	2778.57	5831.82
15.	38	Other manufacturing industries	206.45	173.38	400.43	755.86
Total			11339.47	24444.85	48197.45	95795.25

Source: Annual Survey of Industries.

Table A.3.2

Value of India's Industrial Imports

Sl. no.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85	(Rs. crores at current prices)
1.	20-21	Food products	59.0562	99.1505	152.0222	459.6612	
2.	22	Beverages, tobacco & tobacco products	0.5110	0.8295	0.4602	1.5022	
3.	23-26	Textiles	16.7624	23.3786	68.6745	191.2868	
4.	27	Wood & wood products, furniture & fixtures					
5.	28	Paper & paper products, printing, publishing & allied industries.	0.2188	1.5247	5.3432	7.3608	
6.	29	Leather, leather & fur products	41.2259	76.8921	205.4129	412.4889	
7.	30	Rubber, plastic, petroleum & coal products	0.0643	0.1594	0.1752	10.0814	
8.	31	Chemical & chemical products (except products of petroleum & coal)	141.5834	1165.4870	3284.5715	3543.0205	
9.	32	Non-metallic mineral products	217.6787	754.0815	1503.1268	3555.7593	
10.	33	Basic metal & alloy industries	3.7656	9.1842	94.3145	82.3083	
			156.7988	597.5793	1208.9385	1486.0614	

Table A.3.2 (Contd.)

Sl. ASI No. code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
11. 34	Metal products & parts except machinery	8.7222	28.4989	105.8865	190.1147
12. 35	Machinery, machine tools & parts except electrical machinery	279.2112	396.7540	698.6961	1899.8957
13. 36	Electrical machinery, apparatus, appliances & supplies & parts	63.6344	150.1269	250.2249	673.5664
14. 37	Transport equipment & parts	49.8190	122.8970	336.5255	368.8513
15. 38	Other manufacturing industries	47.7339	91.1276	555.1778	1484.8435
Total		1086.7858	3517.6712	8469.5503	14366.8026

Source: Monthly Statistics of Foreign Trade of India. Volume-II, Imports
March Issues of 1970, 1975, 1980, 1985.

Table A.3.3

Index Numbers of Imports of the Unit Values

Sl. No.	Item	(1970-71=100)			
		1969-70	1974-75	1979-80	1984-85
1.	Food	102	229	385	362
2.	Beverages & tobacco	90	182	232	359
3.	Textiles yarn fabrics	98	176	190	298
4.	Wood & wood products	105	220	131	144
5.	Paper & paper products	92	226	255	366
6.	Leather & leather products	107	159	428	161
7.	Rubber, petroleum & coal products	95	583	1617	3051
8.	Chemical & chemical products	98	247	241	351
9.	Non-metallic mineral products	88	134	602	239
10.	Basic metal & alloy industries	90	180	229	244
11.	Manufacturing of metals	98	157	319	273
12.	Machinery except electrical	111	181	419	368
13.	Electrical machinery	79	138	229	244
14.	Transport equipment	112	171	257	363
15.	Miscellaneous manufacturing industries	69	159	434	512
	General Index	100	239	360	421

Source: IIJ Vol. 275, February, 1976. Vol. 298, November, 1981. Vol. 320, June, 1987.

Table A.3.4

Index Number of Wholesale Prices

Sl. No.	ASI code	Name of the Industry Group	1969-70	1974-75	1979-80	1984-85
1.	20-21	Food products	94.6	186.9	214.8	328.8
2.	22	Beverages, tobacco & tobacco products	93.8 90.7	148.2 159.8	186.6 203.2	254.0 280.1
3.	23-26	Textiles				
4.	27	Wood & wood products, furniture & fixtures	94.9	157.8	219.2	369.3
5.	28	Paper & paper products, printing, publishing & allied industries.	98.4	184.8	237.4	363.5
6.	29	Leather, leather & fur products	101.9	184.0	345.0	413.6
7.	30	Rubber, petroleum & coal products	98.7	253.9	483.6	736.8
8.	31	Chemical & chemical products (except products of petroleum & coal)	94.5	168.8	198.7	292.1

Table A.3.4 (Contd.)

Sl. no.	ASI code	Name of the Industry Group	1969-70	1974-75	1979-80	1984-85
9.	32	Non-metallic mineral products	94.2	163.3	249.5	431.6
10.	33	Basic metal & alloy industries	91.7	173.7	256.8	445.1
11.	34	Metal products & parts except machinery	87.5	169.2	234.8	388.5
12.	35	Machinery, machine tools & parts except electrical machinery	89.8	155.2	218.8	324.5
13.	36	Electrical machinery, apparatus, appliances & supplies & parts	91.4	158.1	199.8	251.2
14.	37	Transport equipment & parts	97.7	156.8	229.9	323.6
15.	38	Other manufacturing industries	99.2	171.9	206.7	237.5
		Manufacturing Products	94.8	174.9	217.6	334.4

Source: Chandhok, WPI.

Table A.3.5

Value of Production

(at constant prices (1970-71 = 100))

Sl. No.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
1.	20-21	Food products	2593.84	2331.01	3436.97	4161.96
2.	22	Beverages, tobacco & tobacco products	429.94 2454.23	424.08 2554.33	554.74 3334.14	783.52 3705.86
3.	23-26	Textiles				
4.	27	Wood & wood products, furniture & fixtures	106.35	138.47	172.93	172.48
5.	28	Paper & paper products, printing, publishing & allied industries	390.12	467.73	607.63	846.46
6.	29	Leather, leather & fur products	91.48	108.92	180.48	207.94
7.	30	Rubber, plastic, petroleum & coal products	570.04	663.18	886.54	1418.60

Table A.3.5 (Contd.)

Sl. No.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
8.	31	Chemical & chemical products (except products of petroleum & coal)	1318.83	2395.85	4320.33	6130.98
9.	32	Non-metallic mineral products	396.26	429.42	568.16	898.56
10.	33	Basic metal & alloy industries	1279.56	1517.56	2292.12	2901.70
11.	34	Metal products & parts except machinery	380.54	369.51	516.83	588.61
12.	35	Machinery, machine tools & parts except electrical	662.66	957.24	1355.80	1831.08
13.	36	Electrical machinery, apparatus, appliances & supplies & parts	569.69	875.62	1491.56	2196.68
14.	37	Transport equipment & parts	683.36	867.82	1208.60	1802.17
15.	38	Other manufacturing industries	208.11	100.86	193.73	317.01
Total (a)		12135.01	14201.60	21120.56	27963.61	
(b)		11961.47	13976.47	22149.56	28308.29	

Notes:

- (a) Total of 1 to 15.
 (b) Deflated by index of manufacturing industries.

Table A.3.6

Value of Imports at Constant Prices (1970-71 = 100)

(Rs. in crores)

Sl. no.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
1.	20-21	Food products	57.8982	43.2972	39.4863	126.982
2.	22	Beverages, tobacco & tobacco products	0.5678 17.1045	0.4558 13.2833	0.1984 36.1445	0.4184 64.1902
3.	23-26	Textiles				
4.	27	Wood & wood products, furniture & fixtures	0.2084	0.6930	4.0788	5.1117
5.	28	Paper & paper products, printing, publishing & allied industries	44.8108	34.0231	80.5541	112.7019
6.	29	Leather, leather & fur products	0.0601	0.1003	0.0409	6.2617
7.	30	Rubber, plastic, petroleum & coal products	149.0352	199.2120	203.1274	116.1265
8.	31	Chemical & chemical products (except products of petroleum & coal)	222.1211	305.2962	623.7041	1013.0368

Table A.3.6 Contd.

Sl. no.	ASI code	Name of the industry group	1969-70	1974-75	1979-80	1984-85
9.	32	Non-metallic mineral products	4,2791	6,8539	15,6668	34,4386
10.	33	Basic metal & alloy industries	174,2209	331,9885	527,9207	609,0415
11.	34	Metal products & parts except machinery	8,9002	18,1522	33,1933	69,6191
12.	35	Machinery, machine tools & parts except electrical machinery	251,5420	219,2011	161,5774	516,2760
13.	36	Electrical machinery, apparatus appliances & supplies & parts	80,5499	108,7876	109,2685	276,0518
14.	37	Transport equipment & parts	44,4813	71,8696	130,9438	101,6119
15.	38	Other manufacturing industries	69,1796	57,3130	127,9212	290,0085
Total (a)			1124,9591	1411,2268	2093,8262	3341,8766
(b)			1086,7858	1471,8290	2352,6529	3412,5422

Notes:

(a) Refers to total of all the industries (1 to 15).

(b) Refers to total of the manufacturing sector at current prices deflated by the General index of the unit values of imports.

Table A.3.7

Trends in India's Imports, Production & Availability Since 1973-74

(In Rs. crores at current prices)

Sl. Code No.	Name of the sector	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
1. 30	Rubber, petroleum & coal products	I 567.36	1165.49	1233.30	1419.30	1565.07	1688.34	3284.57	5215.50	5959.53	4864.96	3543.02	
	P 615.70	1683.81	2144.73	2601.97	2992.68	3331.63	4287.30	5683.88	7208.28	9559.56	9112.92	10452.26	
2. 304, 305	Petroleum crude	I 560.27	1156.95	1225.69	1412.06	1550.98	1676.77	3267.08	5263.47	5189.26	5621.92	4831.99	3494.14
	P 387.28	1088.58	1332.38	1672.35	2081.32	2292.89	3050.87	3926.08	5370.31	7255.90	6720.79	7676.02	
3. 31	A 947.55	2245.53	2578.07	3084.41	3632.30	3969.66	6317.95	9189.55	10559.57	12877.83	11552.78	11170.16	
	I 421.73	754.08	751.61	577.12	1586.85	1596.34	1503.13	2141.55	2222.81	1619.14	2348.17	3555.76	
4. 311	Chemical & chemical products	P 2851.10	4044.19	4651.32	5270.17	6274.74	6115.30	8584.50	10176.41	12440.85	14042.85	15871.44	17908.59
	A 3272.83	4798.27	5402.93	5847.29	7861.59	7711.64	10087.63	12317.96	14663.66	15661.99	18219.61	21464.35	
	Fertilizers	I 162.20	425.18	434.49	197.72	258.12	370.72	371.22	652.30	509.71	204.56	204.48	1006.37
	P 433.68	758.58	893.93	980.47		1364.58	1701.57	2005.17	2807.84	3234.30	3533.46	3760.48	
	A 595.88	1183.76	1328.42	1178.19		1735.30	2072.79	2657.47	3317.55	3438.86	3737.94	4767.05	

Table A.3.7 (Contd.)

Sl. Code	Name of the sector	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
5. 33	Basic alloy metals	I 385.36	597.58	406.74	385.95	467.00	743.45	1208.94	1365.06	1710.35	1616.21	1575.70	1486.06
		P 2034.76	2636.01	3030.59	3615.59	3807.67	4899.80	5932.00	7181.55	9243.31	10669.41	10357.14	12854.54
		A 2420.12	3233.59	3437.33	4001.54	4274.67	5643.25	7140.94	8546.61	10953.66	12285.62	11932.84	14340.60
6. 34	Manufacture of metals	I 23.70	28.50	33.38	36.60	83.40	114.18	105.89	149.08	179.08	143.86	149.28	190.12
		P 533.58	625.21	710.73	833.49	949.11	974.54	1213.52	1393.82	1652.20	1758.48	1690.78	1992.45
		A 557.28	653.71	744.11	870.09	1032.51	1088.72	1319.41	1542.90	1831.28	1902.34	1840.06	2182.57
7. 35	Machinery except electrical	I 416.46	396.75	564.49	638.73	637.27	706.60	698.70	973.95	1229.23	1417.91	1689.74	1899.90
		P 1039.72	1485.64	1690.90	1705.41	2190.86	2485.84	2966.49	3585.90	4257.68	4809.94	4861.58	5941.87
		A 1456.18	1882.39	2255.39	2364.14	2828.13	3192.44	3665.19	4559.85	5486.91	6227.856651.32	7841.77	
8. 36	Electrical machinery	I 1241.4	1501.3	187.18	173.01	163.34	214.85	250.23	293.41	397.31	458.94	622.03	673.57
		P 1114.96	1384.36	1669.79	1918.02	2099.65	2350.77	2980.13	3619.22	3918.35	4740.64	4486.78	5562.00
		A 1239.10	1534.49	1856.97	2091.03	2262.99	2565.62	3230.36	3912.63	4315.66	5199.58	5108.81	6235.57

Notes:
 I = Imports.
 P = Production.
 A = Availability.

Source: ASI, MSFI.

Table A.3.8

Trends in India's Imports, Production & Availability Since 1973-74

(In Rs. crores at constant prices 70-71 = 100)

Sl. Code no. no.	Name of the sector	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
1. 304, 305	Crude petroleum	I 169.27	158.70	149.29	154.16	163.95	177.62	217.81	232.28	192.19	217.31	199.92	130.33
	P 122.13	158.57	193.11	225.90	264.26	285.58	220.44	192.29	252.04	365.72	386.36	441.35	
	A 291.40	317.27	343.40	380.06	428.21	463.20	438.25	424.57	444.23	583.03	586.28	571.68	
2. 31	Chemical & chemical products	I 337.38	305.30	239.37	281.52	793.42	763.80	623.70	706.78	733.60	570.12	844.66	1013.04
	P 2449.40	2395.84	2648.82	3074.78	3631.22	3451.07	4320.33	4217.33	4781.26	5216.51	5636.16	6130.98	
	A 2786.78	2701.14	2888.19	3356.30	4424.64	4214.87	4944.03	4924.11	5514.86	5786.63	6480.82	7144.02	
3. 311	Fertilizer	I 112.64	144.62	107.28	97.40	126.53	179.96	157.30	204.48	144.80	68.88	75.18	272.78
	P 380.76	373.68	416.36	525.72		778.87	1017.69	826.19	1026.26	1164.67	1320.92	1432.56	
	A 493.40	518.30	523.64	623.12		959.83	1174.99	1030.67	1171.06	1233.55	1396.10	1705.34	
4. 33	Basic alloy metals	I 318.48	331.99	193.68	203.13	240.72	385.21	527.92	626.18	780.98	728.02	679.18	609.04
	P 1463.86	1527.24	1639.93	1901.94	1964.74	2319.98	2354.90	2639.31	2914.95	3008.86	2718.41	2901.70	
	A 1782.39	1839.23	1833.56	2105.07	2205.46	2705.19	2882.82	3265.49	3695.93	3736.88	3397.59	3510.74	

Table A.3.8 (Contd.)

Sl.Codit no. no.	Name of the sector	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
5. 34	Manufacturing of metals	I 24.44	18.15	21.12	19.26	33.10	29.81	33.19	42.35	47.75	31.27	46.36	69.64
	P 419.49	369.51	404.28	458.97	491.77	483.88	516.83	534.85	577.50	575.61	520.72	588.61	
	A 443.92	387.66	425.40	478.23	524.87	513.69	550.02	577.20	626.25	606.88	567.08	636.25	
6. 35	Machinery except electrical	I 306.22	219.20	221.37	235.26	191.95	216.75	166.75	359.39	-	527.10	627.68	516.28
	P 826.49	957.24	964.03	968.98	1231.51	1313.87	1355.80	1457.68	1548.25	1651.77	1560.20	1831.08	
	A 1132.71	1176.44	1185.40	1204.24	1423.46	1530.62	1522.55	1817.07	-	2178.87	2187.88	2347.36	
7. 36	Electrical machinery	I 144.34	108.79	105.75	94.03	204.18	121.38	109.27	-	240.79	312.21	264.69	276.05
	P 955.41	985.13	875.62	1181.05	1274.06	1359.61	1491.56	1733.34	1772.21	2058.46	1872.61	2196.68	
	A 1099.75	984.41	1090.88	1275.08	1478.24	1480.94	1600.83	-	2013.00	2370.67	2137.30	2472.73	

Source: ASI, MSHTI,WPI, SA.

Notes: I = Imports.

P = Production.
A = Availability.

Appendix IV

Table A.4.1a

Estimates of Direct and Indirect Requirements of Imports for the Year 1973-74

(Rs. million at 71-72 prices)						
Sl. No.	ASI Code	Sector	Final demand	Estimated output	Import ratio	Estimates of direct & indirect requirement of imports for
						Total final demand
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	1-10,62	Agriculture & service sector	336141.8	402738.6	0.0197	9861.2
	63-64					0.0293
2.	11-14	Food products	37225.0	65044.7	0.0150	1428.3
3.	15,18,28	Textiles	34268.6	55146.2	0.0034	1142.4
4.	19	Wood & wood products	2418.2	3096.9	0.0003	43.7
5.	20,61	Paper & paper products	2459.1	3235.8	0.2455	696.4
6.	21	Leather & fur products	1877.8	3647.3	0.0002	131.9
						0.0702

Table A.4.1a (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7.	22,26,30	Rubber, petroleum & coal products	3241.8	4932.3	0.2116	734.4	0.2266
8.	23-25	Chemical & chemical products	5414.2	6664.9	0.2684	1477.5	0.2729
9.	31-33	Non-metallic mineral products	1657.4	2048.7	0.0426	99.1	- 0.0598
10.	34-35	Basic metal & alloy industries	910.6	1114.4	0.2003	207.9	0.2283
11.	36-39	Metal products & parts except machinery	7726.0	1078.2	0.0109	644.7	0.0835
12.	40,42,43	Machinery, machine tools & parts	6331.4	2594.7	2.5603	4766.1	0.7528
13.	41,44-51	Electrical machinery	7712.7	11998.4	0.0482	973.3	0.1262
14.	52-57	Transport equipment	7006.4	12094.8	0.0238	746.6	0.1066
15.	58-60	Miscellaneous industries	4558.0	7606.3	0.0155	456.2	0.1001
	Total		458949.0	577042.2		23409.7	

Source: A Technical note on the Fifth Plan of India (1975-80), Government of India.

Table A.4.1b

**Estimates of Direct and Indirect Requirements of
Imports Using Current Year (1979-80) Final
Demand & Base Year (1973-74) Import Ratio**

Sl. No.	Sector	Final demand	Estimated output	Import ratio	Estimates of direct & indirect requirement of imports for	
					Total final demand	Per unit of final demand
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Agriculture		355732.9	426211.6	0.0197	10435.9	0.0293
2. Food products		56521.9	98762.8	0.0150	2171.7	0.0384
3. Textiles		42166.5	67855.8	0.0034	1405.7	0.0333
4. Wood & wood products		2439.4	3127.0	0.0003	43.1	0.0177
5. Paper & paper products		852.6	1121.9	0.2455	241.4	0.2831
6. Leather & fur products		2916.2	5664.2	0.0002	204.8	0.0702
7. Rubber, petroleum & coal products		2097.0	3190.5	0.2116	475.0	0.2266

Table A.4.1b (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.	Chemical & chemical products	245.3	302.0	0.2685	66.9	0.2729
9.	Non-metallic mineral products	3256.5	4025.4	0.0426	194.7	0.0598
10.	Basic metal & alloy industries	-1692.3	-2071.0	0.2003	-386.4	0.2283
11.	Metal products & parts except machinery	4977.2	6945.8	0.0109	415.3	0.0834
12.	Machinery, machine tools & parts	11905.9	4879.1	2.5603	8962.3	0.7528
13.	Electrical machinery	7505.3	1675.7	0.0482	947.1	0.1262
14.	Transport equipment & parts	9822.9	16956.8	0.0238	1046.7	0.1066
15.	Miscellaneous industries	11282.5	18828.1	0.1552	1129.2	0.1001
	Total	510029.8	657472.7		27353.4	

Source: Technical Note on the Sixth Plan of India 1982-85
 (Government of India).

Table A.4.1c

**Estimates of Direct and Indirect Requirements of
Imports Using Base Year (1973-74) Final
Demand & Current Year (1979-80) Import Ratio**

Sl. No.	Sector	Final demand	Estimated output	Import ratio	Estimates of direct & indirect requirement of imports for	
					Total final demand	Per unit of final demand
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Agriculture & service	336141.8	407043.6	0.0134	6679.3	0.0199
2.	Food products	37225.0	64682.2	0.0259	1580.5	0.0425
3.	Textiles	34268.6	55690.8	0.0035	806.1	0.0235
4.	Wood & wood products	2418.2	3117.6	0.0021	31.2	0.0129
5.	Paper & paper products	2459.1	3723.8	0.1323	430.9	0.1751
6.	Leather & fur products	1877.8	3739.7	0.0002	77.9	0.0415
7.	Rubber, petroleum & coal products	3241.8	5640.1	0.0841	365.3	0.1127

Table A.4.1e (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.	Chemical & chemical products	5414.2	7661.5	0.1384	886.9	0.1638
9.	Non-metallic mineral products	1657.4	2125.7	0.0122	42.6	0.0257
10.	Basic metal & alloy industries	910.6	1040.9	0.2723	254.4	0.2794
11.	Metal products & parts except machinery	7726.0	10629.8	0.0106	742.5	0.0961
12.	Machinery, machine tools & parts	6331.4	8641.0	0.1064	1122.9	0.1779
13.	Electrical machinery	7712.7	11299.2	0.1013	1375.9	0.1784
14.	Transport equipment & parts	7006.4	11879.2	0.0508	867.6	0.1238
15.	Miscellaneous industries	4558.0	5960.4	0.0320	418.0	0.0917
	Total	458949.0	602875.5		15682.0	

Source: Op.cit.

Table A.4.2

India's Imports of Principal Commodities

Sl. No.	Commodity	R.B.I.		Planning Commission		At Current Prices (Rs. Million at 71-72 Prices)
		1973-74	1979-80	1973-74	1979-80	
1.	Food	2920	710	-	-	-
2.	Mineral oils & lubricants	2740	3470	1405	785	-
3.	Chemicals	2680	3720	4035	4687	11244
4.	Iron & Steel	1890	3220	2712	3900	12070
5.	Machinery & Transport	5090	3830	4975	1492	10328
	Total	19960	23010	25337	23944	6633
<hr/>						
1.	Food	5470	2810	-	-	-
2.	Mineral oils & lubricants	5610	33320	-	-	-
3.	Chemicals	3570	9560	-	-	-
4.	Iron & Steel	2490	8340	-	-	-
5.	Machinery & Transport equipment	6520	13680	-	-	-
	Total	29550	579184	-	-	-