

**A STUDY OF INDIA'S IMPORTS OF MACHINERY  
AND TRANSPORT EQUIPMENT WITH SPECIAL  
REFERENCE TO IMPORT POLICY AND IMPORT  
SUBSTITUTION 1960 - 61 TO 1970 - 71**

**1975**

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REFERENCE TO IMPORT POLICY AND IMPORT  
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SUBMITTED TO THE  
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This study examines India's imports under Machinery and Transport equipment over the decade 1960-61 to 1970-71. For a proper analysis and appreciation of the magnitude and nature of the problem, it is proposed to examine it against the background of shifts in Import Control Policy and also in the production of the industry. An analysis of the extent to which imports are associated with the production of the corresponding products, leads to an assessment of import substitution.

For a detailed analysis in its micro aspect, the study pertains to the various industries under Machinery and Transport equipment. A modest attempt is made to bring to the light with available information the complexity of the problem.

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## CHAPTER I

### INTRODUCTION

This brief introductory chapter presents the importance, scope and method of the study and also discusses the main theme underlying the study.

#### 1.1 Background

Import of numerous products of Machinery and Transport Equipment normally referred to as "capital goods" became the keystone in the development strategy of most of the economies in the Third World including India. During the post-Second World War period the developing economies facing structural problems in foreign trade have chosen the path of development through 'Industrialization for home market' as against export-led growth. The strategy of introduction of new technology in the import sector enables the economy to retain the benefit of growth with itself which otherwise would have been exported to developed economies. The long run tendency of terms of trade to go against the developing economies which are mainly primary producers in the present international market leaves them with no choice but to restrict the volume of imports. The economy thereby becomes less susceptible to the vicissitudes of international market.

In setting priorities for import-substitution or in selecting the field or specific project, a number of factors are to be taken into account such as the stage of development, structure of the economy, size of the market and importance of the production about to be started to the national economy. However, by and large, the strategy of industrialization through import substitution proceeds through certain specific stages. In the first stage there is a shift away from imports of manufactured goods in favour of capital goods. As an example, import of Textile machinery to manufacture textile goods which were imported earlier, would illustrate the point. The expansion of producer-goods industries and particularly those of machine industries offers the largest scope in the next stage. In the above example the domestic production of textile machinery would replace import of textile machinery. This does not mean the economy has built the industry from its basis. At this point the economy would be still dependent on the world market for the import of higher order equipment, such as Machinery producing Textile machinery, key spares, components etc. A full production cycle cannot be envisaged at this juncture. The implantation of producer goods is started by constructing assembly line plants without completing the full production cycle. The scope for import substitution gets limited as the economy moves to the higher stages. The most important factor which

restricts the scope is the 'limited size of domestic market'. Requirement of sophisticated capital equipment and technical know-how is another limiting factor. At this level it is possible to take the benefit of international divisions of labour and large scale production by resorting to import of such items rather than to go in for domestic production. A saturation point is likely to be reached at this stage when further import substitution (vertical) is not possible.

#### 1.2 The Present Work and Its Purpose

In order to solve the most pressing problem of economic development Indian planners selected the path of 'industrialization with particular expansion of key and heavy industries'. Such a strategy involved the adoption of the advanced technology which is capital intensive in character. Since the domestic availability of capital goods then was very meagre, a larger proportion of it was secured through imports. Import capacity, therefore, became a crucial factor in the determination of the pace and nature of development. Increased imports can be financed through increased exports, reduction in foreign exchange reserves, or by foreign aid and loan.

Before the launching of her five-year plans, India had already attained a fair stage of industrialization. She had developed consumer goods industries like textile,



sugar, soap and matches. Thus the programme of industrial development after independence, did not begin from the initial stage, rather it was a continuation of the process already began. Nevertheless in the process, the industrial complex radically changed. There was a shift in the emphasis from consumer goods industries to those of capital goods. During the course of planned development, the tempo of industrialization was accelerated; the importance of capital goods increased especially since 1955. The Second Plan assigned a crucial role to industrial expansion with special emphasis on heavy industries. The strategy of industrialization leading to larger imports of "Capital Goods" was designed to reduce economic dependence in the long run.

The Machinery and Transport industry covers a large number of heterogeneous, but closely inter-connected group of industries. It is primarily a metal using industry. The main function of the industry is to process the products of iron and steel and non-ferrous metal industries and assemble the processed parts into final products. This industry plays a key role in the economic development because, in the form of metal products, machinery and transport equipment, it makes an appreciable contribution towards gross fixed capital formation. It helps in the generation of new production capacities that are required

for the growth of national income. As the supplier of capital equipment, it plays a crucial role in the industrial development of the economy. When the economy produces its own means of production it is able to protect to some extent its overall rate of growth against business-cycle fluctuations abroad. The process affects the structure of imports. In fact, imports occupy such a key position that a two way relation between imports and economic development each influencing the other is observed.

Indian experience since 1951 in economic development has demonstrated the vital role of imports planning. In this study, we proposed to analyse the trends in imports of "Machinery and Transport Equipment" during the past twenty years, especially since 1960-61, and assess import-substitution that has taken place in this field. The study does not claim to have made a theoretical contribution to the various aspects of import substitution. It makes a modest attempt to verify empirically the behaviour of imports of Machinery and Transport Equipment in relation to domestic production and requirements.

### 1.3 Outline of the Subsequent Chapters

The layout of the Thesis is presented as in the following :

The First introductory Chapter is followed by

Chapter II, entitled "India's Foreign Trade Statistics". It gives an account of the salient features of the foreign trade statistics in India.

Chapter III describing 'Import Control Policy' is mainly historical in nature, presenting broad features of Import Control Policy and its evolution since independence.

Chapter IV offers description of behaviour of imports since 1950-51. It reviews the main trends in Indian imports indicating changes in their magnitude and composition. The general economic factors causing these changes are discussed.

Chapter V deals with imports of Machinery and Transport Equipment during the period 1960-61 to 1970-71 in detail. A comparable time series of imports at constant prices is the first requirement for any kind of study of trends in imports. This chapter is divided into two parts. The first part deals with the method and problems arising in the construction of time series data of imports. The second part attempts to analyse trends in the imports of various groups of 'Machinery and Transport Equipment' with a view to examine whether these trends in imports are in accordance with the trends in Import Control Policy.

Chapter VI attempts to study the growth of the Machinery and Transport Industry during the period 1960-61 to 1970-71.

Chapter VII giving 'Import Substitution in different industries under Machinery and Transport Equipment' during the period of ten years, 1960-61 to 1970-71, attempts to identify import substitution in various groups of industries producing Machinery and Transport Equipment. It requires a comparable set of data on production and imports at constant prices for each of the industry. The first section discusses the different measures used in this context. The second section deals with the method of construction of comparable series of data. The results are presented in the last section.

Chapter VIII summarises the results and offers concluding remarks on the limitation of the study.

## CHAPTER II

### INDIA'S FOREIGN TRADE STATISTICS

#### 2.1 Sources

Foreign trade statistics in India are a by-product of Government administration, of tariff regulations and of foreign exchange regulations. As such there are two main sources for collecting import statistics, viz., the Department of Commercial Intelligence and Statistics of the Ministry of Commerce and the Department of Exchange Control of the Reserve Bank of India. Trade statistics are collected by the Department of Commercial Intelligence and Statistics on the basis of custom returns. Since January 1957 customs data are published in a monthly publication viz. the 'Monthly Statistics of Foreign Trade in India'. This publication contains statistics of quantity and value of exports, imports and exports by all routes i.e. air, sea and land for all merchandise with each country. Customs data are based on the physical arrival or departure of goods from the customs area of control. In the case of Exchange Control data, the basis of the data is the receipt and payment of foreign exchange for goods exported or imported. Evidently the Exchange Control data differ significantly from those of the Customs. The main difference

between the two sources of collecting import data is due to lack of coincidence between the transfer of ownership of goods sold and payments made for them. However, Government imports if financed by the drawing on loans authorized by foreign governments or receipt of grants in cash and kind against the creation of counterpart funds, barter transactions as well as private imports not requiring foreign exchange are not shown in exchange control records. Thus the divergent practices followed by the two agencies in regard to the basis and principle of recording cause discrepancies between the two sets of data. Table 2.1 gives the value of imports into India as recorded by the Department of Commercial Intelligence and Statistics and the Reserve Bank of India. The problem of reconciling the differences between the customs and the Reserve Bank of India's data has been receiving the attention of both the authorities. In April 1959 officials of the Ministry of Commerce and Reserve Bank, held discussions on the discrepancies in imports from the two sources. The meetings held that the Note Pass System of Government imports was largely responsible for these differences. Under this system, Government agencies are allowed to take away imported goods without fully furnishing the required particulars within a period of three months. The data enter with a time lag.

To sum up, exchange control data are useful in estimating the total foreign exchange commitment whereas the

Table 2.1 : Total Imports in India (1950-51 to 1970-71)

Year	(Value Rs. Crores)	
	Customs data	R.B.I. data
1950-51	646.5	650.3
1951-52	962.1	962.9
1952-53	661.5	633.0
1953-54	567.1	591.8
1954-55	651.3	683.8
1955-56	672.4	761.4
1956-57	844.3	1099.5
1957-58	994.9	1233.6
1958-59	856.1	1029.0
1959-60	960.7	928.3
1960-61	1073.9	1100.2
1961-62	1038.5	978.0
1962-63	1077.1	1089.4
1963-64	1143.6	1230.7
1964-65	1264.2	1396.0
1965-66	1391.6	1335.3
1966-67	2078.3	1885.6
1967-68	1972.1	2042.8
1968-69	1878.8	1740.5
1969-70	1567.9	1582.3
1970-71	1623.9	1885.6

pattern or structure of imports can be studied only on the basis of customs data. The data for the analysis in the present study are drawn from the publication viz. Monthly Statistics of Foreign Trade in India which gives the data on imports at a very disaggregative level. Details of the statistics in the source are discussed below.

## 2.2 Coverage

The principle of covering only merchandise goods for the purpose of trade statistics is followed. However, certain types of goods such as goods consigned by Government to its armed forces and diplomatic representatives abroad, diplomatic goods, transshipment trade, tourists and travellers effects, animals for racing and breeding, exhibition goods, defence goods, non-dutiable passengers baggage, and articles traded by post are excluded and does not constitute merchandise trade.

From January 1957 to December 1960 the data were aggregated on the basis of calendar year. But with effect from April 1961 they are being aggregated on a fiscal year (April to March) basis, and are published in the issue of month of March of respective years.

From April 1964, the statistics for the land and air-borne have been integrated and are published in the main tables along with other countries in the monthly publications. Prior to that data for Indo-Nepal trade was published separately.



### 2.3 System of Registration

India has adopted 'General Trade basis' as against 'Special Trade basis' for recording trade statistics. 'Special Trade System'<sup>1</sup> is based on the concept that regards clearance through customs as the criterion for recording trade statistics. Special imports, therefore, are defined as imports for home consumption or goods withdrawn from customs-controlled premises.

On the other hand General Trade System is a record of all goods entering the country as imports and all goods leaving as exports. The port or any other point of entry or departure is regarded as the statistical frontier. Imports under this system consist of imports entering directly for home consumption or imports into customs-bonded warehouse for re-exports. Re-exports comprise reshipment of foreign goods which were imported previously after some processing plus foreign goods which did not leave customs area for home consumption i.e. indirect transit trade. Goods imported for further processing and if exported are shown as re-exports only if value added does not exceed 25 per cent of the value of goods when they were imported. If this limit is exceeded then the goods are shown as exports.

Figures of retained imports, i.e. Imports - re-exports, under General System are not comparable with special imports for two reasons. Firstly there is a time-lag between

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1 'A Guide to Official Statistics of Trade, Shipping and Custom Revenue of India' - Department of Commercial Intelligence and Statistics, Calcutta, 1965.

importation and subsequent re-exportation which in some cases may exceed one year. Secondly a commodity re-exported would have a higher value than when it was imported due to charges for internal warehousing, insurance, transport etc. So even if goods are imported and re-exported in the same accounting year the value of retained imports would be lower than that of special imports.

#### 2.4 Valuation

Valuation of trade-data is done on the basis of the declaration made by exporters and importers in the bills of exit and entry duly checked by customs authorities. In practice values recorded agree by and large with the transaction value. In the case of imports, the transaction value is in general the value at which the goods were sold plus the cost of transportation and insurance (c.i.f.) and in the case of exports the transaction value is the value free on board (f.o.b.) at the frontier of the country of export. In the case of imports, import duties, indirect taxes and similar charges imposed in the country are excluded from the transaction value. Value of exports, however, includes export duties and other internal taxes. This has the advantage that c.i.f. price is more nearly comparable to domestic value in the importing country and f.o.b. prices are closer to the domestic prices in the exporting economy. As such assessment of the role of

imports and exports in the domestic economy is easier with c.i.f. valuation of imports and f.o.b. valuation of exports. In the case of non-commercial transactions such as gifts made by private agencies trade, barter transactions without stated prices, imputed value i.e. the value which would be attached to the merchandise in question if it were subject to commercial transaction is used.

The accuracy of statistics depends upon the goodwill and intelligent co-operation of private traders as well as Government undertakings. There is a possibility of deliberate wrong reporting by traders in order to avoid taxes or to earn undue advantage of subsidies or to avoid foreign-exchange regulations. An exporter may tend to under-value his exports and an importer may tend to overvalue his imports in order to build secret foreign exchange reserves abroad.

## 2.5 Classification

Since January 1957 the data in 'Monthly Statistics of Foreign Trade in India' have been classified according to Indian Trade Classification, broadly based on the scheme of classification formulated by U.N. known as the Standard Indian Trade Classification. Altogether 4,850 items are arranged in 150 groups which are in turn assembled into 52 divisions designed to summarise the groups according to their general characteristics. The divisions are finally

consolidated into ten sections which are in accordance with the overall economic categories. The Indian Trade Classification is more disaggregative as it accords 9 digit code number to item and accommodates 4850 items as against standard International Trade Classifications which accords a five digit number to item and consists of only 570 items.

The ten sections are listed below :

- 0 Food
- 1 Beverages and Tobacco
- 2 Crude material inedible except fuels
- 3 Mineral fuels, lubricants and related material
- 4 Animal and vegetable oils and fats
- 5 Chemicals
- 6 Manufactured goods classified chiefly by material
- 7 Machinery and Transport Equipment
- 8 Miscellaneous manufactured articles
- 9 Miscellaneous transactions and commodities not elsewhere classified.

Each item (9 digit) group (3 digit) division (2 digit) and section (1 digit) is identified by a numerical code.

In March 1965 Indian Trade Classification was revised due to the revision of standard International Trade Classification. Revised Indian Trade Classification broadly retained the basic framework upto two digit in the old Indian Trade Classification. It used a seven digit code for the

item, accommodating 5000 items. At three digit level there are 177 groups against 150 groups in old Indian Trade Classification. New classification came into use from 1st April 1965. This change in the classification posed a major problem in constructing a comparable time series of imports.

These and other data problems which had to be resolved in order to construct a time series of imports are discussed in detail in Chapter V.

## CHAPTER III

### IMPORT CONTROL POLICY

#### 3.1 Role of Import Planning

The Indian economic experience in the post-independence period has demonstrated the important role of planning for exports and imports. The necessity of regulation of imports stems from the need to protect the external payment position which is usually severely strained by the import requirement of a massive investment programme and to stimulate import-substitution. A continuous and steep rise in the imports resulting from the strategy of growth based on the import of technology coupled with the lower rate of growth of national income and a comparatively sluggish growth in exports has created a chronic problem of balance of payment for many developing countries including India.

Import planning in a developing economy involves a detailed scrutiny of domestic requirements, various sources of their supply and different means of paying for them. There are two instruments through which imports are controlled viz. import tariff and quotas, and import licensing which are not mutually exclusive. The first is relatively indirect in character whereas licensing provides a more direct control on quantities and sources of imports.

India has resorted to both with a special emphasis on quantitative controls rather than on price adjustments alone. In 1947, the Import and Export Control Act, 1947, was enacted and foreign exchange budgeting was initiated. The objective has been to reduce total volume of imports, and within the limit of given level of imports, allocation among different sectors assumed importance. Import planning thus has become an integral part of India's planning.

### 3.2 Nature of Import Control

Upto March 1962 the Import Control Policy was fixed for every six months, but since then it has been fixed for one fiscal year, and extends practically to all articles of importation. The annual publication of Ministry of Commerce viz. 'Import Trade Control Policy', popularly referred to as the Red Book because of the colour of its cover, embodies the import control policy for the current period. It contains a list of commodities for which licences could be granted and import policy that would be followed with regard to those items. Licences issued are legally not negotiable and are valid for the period specified. Before 1956 there were separate licences for hard and soft currencies but since then no such distinction has been made. With the exhaustion of sterling balances which were accumulated during war time, all foreign exchange has become equally hard.

Import licences are granted by the following authorities :

1. Chief Controller of Imports and Exports, New Delhi.
2. Iron and Steel Controller along with the Mineral and Trading Corporation, New Delhi.
3. Development Officer (Tools), Directorate General of Technical Development, New Delhi.

To decentralize the functions of the Chief Controller of Imports and Exports, twelve regional Import Controllers have been appointed to deal with imports in their respective jurisdiction.

Importers for the purpose of import licensing have been broadly classified into five categories.

1. Imports on Government account comprise : (a) Defence imports, (b) Foodgrains, (c) Railway stores, (d) Capital goods and heavy electrical plant for public undertakings and (e) other departmental imports required for various ministries. The quantum of Government imports with the considerable expansion of public sector enterprises and requirement of foodgrains increased a great deal. Table 3.1 gives imports on Government and private accounts. It may be noted that Government imports increased both absolutely as well as relatively over the period 1950-51 to 1970-71. The year 1955-56 constitutes a landmark because since then Government imports showed a very sharp increase. In 1970-71 the total imports on Government



**Table 3.1 : Total Imports in India and Its Distribution into Private and Government Accounts (1950-51 to 1970-71)**

(Value Rs. Crores)

Year	Government Imports	Private Imports	Total Imports	$\frac{\text{Col. 2}}{\text{Col. 4}} \times 100$
(1)	(2)	(3)	(4)	(5)
1950-51	174.1	476.2	650.3	26.8
1951-52	294.7	668.2	962.9	30.7
1952-53	190.3	442.7	633.0	30.1
1953-54	133.7	458.1	591.8	22.6
1954-55	159.9	523.9	683.8	23.4
1955-56	140.1	621.3	761.4	18.5
1956-57	287.6	811.9	1099.5	26.2
1957-58	537.4	692.2	1233.6	43.6
1958-59	525.4	503.6	1029.0	51.1
1959-60	416.4	511.9	928.3	44.5
1960-61	478.5	621.7	1100.2	43.5
1961-62	378.0	600.0	978.0	38.7
1962-63	463.5	625.9	1089.4	42.5
1963-64	610.2	620.3	1230.5	49.5
1964-65	783.5	612.5	1396.0	56.1
1965-66	786.4	548.9	1335.3	51.2
1966-67	1145.8	139.8	1885.6	60.7
1967-68	1257.6	785.2	2042.8	61.5
1968-69	1094.0	646.5	1740.5	62.8
1969-70	953.7	628.6	1582.3	60.2
1970-71	1074.2	646.1	1720.3	62.5

**Source :** "Report on currency and Finance" (1950-51 to 1971-72).

account amounted to Rs. 1146 crores and accounted for 62.5 per cent of total imports against 26.8 per cent in 1950-51.

2. Established importers : Those persons or firms which have been engaged in the import trade of the articles for at least one financial year specified for the article listed in the Import Trade Control Schedule.

3. Actual Users : Those undertakings which require raw material and accessories for their own use are considered Actual Users.

4. Special category imports such as capital goods and heavy electrical plants : If the value of imports of plants and machinery required for new installations and for the substantial expansion of the existing ones exceeds Rs. 1 lakh, they can be imported under special provision. For such imports, prior to applying for import licence it is necessary to secure permission from Ministry of Industry either for expanding the existing industrial undertakings or for setting up a new establishment. Having secured the permission, an application for the grant of import licence of capital goods can be made. Such importers have to indicate, in the application, the countries from which they are expecting to make the imports and the financial arrangement for the payment, the purpose for which machinery under application is required and must give an assurance that no indigenous substitute is available.

Besides these main categories, other categories have been created from time to time. After devaluation of the Rupee in June 1966 new categories such as Registered Exporters, Small Scale Industries were created.

### 3.3 Import Control Policy Since Independence

A study of import policy extending over more than twenty years throws light on the different factors which affected the pace and pattern of economic growth. The industrial structure has significantly altered during the course of development. This increased the need for importing a large variety of goods. A rigid discipline of foreign exchange control is necessary to make full possible use of the limited capacity to import. Import policies are formulated within an overall frame of economic planning.

India's import policy since independence falls broadly into four phases. The first phase which lasted till 1951-52 was characterized by the continuance of import control exercised during the war. India emerged a creditor nation after the Second War due to the accumulation of sterling balances. After attainment of independence she elected to remain in the British Commonwealth and was attached to the Sterling area. India could not have an independent policy towards "Hard Currency" area. In conformity with the British Policy, goods could be freely imported within an overall limit of foreign exchange allowed

from the sterling area but imports from other countries were subject to scrutiny and control. The war economy experienced severe shortages of essential consumer goods and raw materials and was under inflationary pressure. In order to relieve economy from these shortages, a large number of industrial and consumer goods were added to the list which were freely licensable from sterling area and the scope of open general licences was expanded. Consequently the level of imports rose from Rs. 520.1 crores in 1947-48 to Rs. 766.3 crores in 1948-49 which resulted in the deficit of the order Rs. 252.1 crores. Number of consumer items like toilet requisites, silk piece goods, motor cars, ivory manufactures were imported. So the Government of India decided to curb the growing imports. Imports of inessential consumer goods were drastically curtailed. Restrictions were imposed even on imports from sterling area. Imports were permitted purely on the basis of essentiality.

In July 1950 Government of India set up an Import Policy Enquiry Committee, under the chairmanship of G. L. Mehta.<sup>1</sup> The main function of the Committee was to enquire into the working of import trade control organisation and to recommend ways for improving efficiency. The Committee

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<sup>1</sup> Government of India, Ministry of Commerce. Report of the Import Control Committee 1950. New Delhi.

made an exhaustive study and submitted its report to Government in October which was soon accepted by Government. Besides making recommendations to simplify procedure and expedite issue of licences, the Committee laid down three basic objectives of Import Control Policy : (1) To limit aggregate imports on Government and commercial account to the total foreign exchange available including releases of sterling balances, (2) To allocate the available foreign exchange resources among the commodities required for the planned development of agriculture, industry and essential requirement of consumer, (3) To moderate fluctuations in prices on account of shortages resulting from deficiency in supply. The Committee assigned top priority to raw materials and intermediates and essential consumer goods.

Large quantities of imports to augment the domestic availability of consumer goods and raw material were permitted in that year.

In 1951-52 due to shortfall in agricultural production 4.5 million tons of foodgrains were imported. The situation improved in 1952-53 and imports declined from Rs. 962.9 crores in 1951-52 to Rs. 633.0 crores in 1952-53. In 1953-54, imports declined further and imports under cereals, raw jute, artificial silk yarn, basic chemical and transport equipment, agricultural machinery were reduced.

In the second half of the First Plan period the tempo of economic activity was accelerated which resulted

in an increase in demand for raw material. Demand for consumer goods also registered an increase. Imports were needed in order to overcome the domestic shortages of various commodities. Hence the policy was liberalized. Import of items such as cotton yarn above 60 counts, flash light cases, sheet and plate glass, certain chemicals, pumps, electric control gears, essential oils, milling and gear cutters, reamers, drills, packing and wrapping paper etc. was liberalized. Established importers were allowed larger quotas of machinery and scientific and optical instruments etc. On the other hand with the progress made by the indigenous industry it was possible to reduce imports of a number of items such as art silk, woollen fabrics, some drugs and medicines, hacksaw blades, shuttles, torch bulbs, buttons etc.

The Second Five Year Plan was finalized in May 1956. It laid greater emphasis on the rapid industrialization which required imports of capital goods and basic raw material. Year 1956 closed with a heavy deficit in the balance of payments account of the country. Imports became costly because the freight as well as insurance rates were increased due to Suez Crisis. Imports established an all time record in respect of annual growth during the 1956 and stood at Rs. 815 crores as compared to Rs. 675 crores in 1955. This increase was due to increase in the import of capital goods and raw materials. The changing pattern

of the country's import requirement was reflected in the heavy licensing done under capital goods and heavy electrical plant. The value of licences issued to capital goods and heavy electrical plants had risen from Rs. 106 crores in 1955 to Rs. 363 crores in 1956. Foreign exchange reserves declined to a critical level. On January 1, 1956, the total of our sterling balances stood at Rs. 738.6 crores. By May 1957, this figure had fallen to Rs. 469 crores, a fall of almost Rs. 269 crores over a period of 17 months. At this juncture a radical revision of import policy became necessary. During the period from 1957 to 1965-66 a restrictive import policy was adopted in an effort to conserve foreign exchange.

An elaborate system of foreign exchange budgeting was introduced and the licensing period was altered to make it concurrent with the fiscal year to ensure greater co-ordination between domestic and foreign exchange budgeting. In 1957-58 attempts were made to slash the non-essentials. Imports of capital goods were permitted for those projects which were assigned the highest priority in the Second Plan. The priority could be ascertained on the basis of foreign exchange earnings or savings that could be possible as a result of such projects. If capital goods could be obtained under deferred payment arrangements or if certain projects could secure foreign collaboration to the extent the foreign exchange was required, imports for such goods were permitted.

The general policy was restrictive to consumer goods. As many as 158 items were banned for import by the established importers. Such items included power driven road rollers, diesel engines of road vehicular type, motor cycles and scooters, clocks and watches, air conditioners, wollen fabrics, safety razor blades etc. Special provision was made for the issue of quota licences to established importers for such important raw material as non-ferrous metals, raw wool, sulphur rock phosphate etc.

With the expansion in the industrial capacity in 1958 new products, consumer goods as well as engineering goods were produced. Quotas for such items were reduced not only to conserve the foreign exchange but also to protect the developing indigenous industry. Imports on Government account increased mainly due to a substantial increase in the imports of capital equipment for Government projects.

Nature of the control measures is illustrated by the fall in imports in 1958-59. Textile mills were given permission to import raw material such as dyes and chemicals as well as machinery to modernize their plants provided they were able to obtain the required machinery on deferred payment terms and were prepared to pay for it out of their export earnings. Quotas were reduced in respect of certain items where indigenous production had increased as in the



case of ball bearings, electric motors starters, certain chemicals etc. Increased quotas were granted for items required for industries such as taper and roller bearings, earth moving equipment, refrigeration and air conditioning machinery etc.

Import policy during the year 1959-60 and 1960-61 remained more or less same as that of previous year. Emphasis was laid on the raw material imports and on export promotion. Larger allocation of foreign exchange was made for the import of essential raw materials and spares like industrial exhaust fans and blowers, switch air and oil current braklers, parts of motor cycles, water meters, copper unwrought etc., while quotas of certain textile chemicals, number of drugs and medicines and certain motor vehicle parts were reduced.

In March 1961 an Import and Export Policy Committee under the chairmanship of Mr. A. Ramaswamy Mudliar<sup>1</sup> was set up by Ministry of Commerce and Industry, Government of India. It emphasized the role of import planning for encouraging exports and suggested that the scope for further reduction in imports was limited. It accorded priority to certain sectors such as power, transport and industries producing import substitutes or exportables and advocated

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<sup>1</sup> Government of India, Ministry of Commerce and Industry. Report of the Import and Export Policy Committee 1962. New Delhi.

annual basis for licensing. Import policy during the Third Plan (1961-65) continued to be restrictive, with priority to defence and export industries in particular. The value of licences to capital goods however increased with the increase in the foreign aid/loan.

Two wars, stagnant exports and stagnant agricultural production on one hand increased imports, and on the other had put severe strain on the balance of payments of the economy, leading to the devaluation of rupee in June 1966. This necessitated drastic changes in the import policy. Import policy during the year 1966-67 was aimed at liberalizing imports of essential items within the availability of foreign exchange resources and simplifying the licensing procedure so as to ensure flexibility in the utilization of import licences. Import policy for raw material and component and spares was liberalized in order to secure a high level of production. For 59 industries arrangements were made to maintain production at full capacity. The list of priority industries consisted of many important export industries, some consumer industries like sugar and cotton textile, and some capital goods industries like industrial and mining machinery and basic metals. These 59 priority industries were given licences equivalent to twelve times the values given in 1965-66. For non-priority industries the Import Control Policy provided for foreign exchange allocation for import of raw material and spares

during 1966-67 at the same level as in 1965-66. A new category viz. Registered Exporters was introduced to provide for the replenishment of import content in terms of raw material and intermediates against export of the specified product. This policy of linking the issue of import licences to export programme was the main feature of the post-devaluation period. An obligation was imposed on a number of industries such as bicycles, diesel engines, stationary-type storage and dry batteries to export certain percent of their production.

This brief account of the development of Import Control Policy since independence throws light on the considerations which from time to time have shaped the policy. Within the limit of foreign exchange resources two considerations, viz. to stimulate import substitution and export promotion determined its course. The whole period may be broadly divided into five sub-periods :

1. Pre-planning (1947 to 1950-51) : Continuation of war-time controls with occasional liberalization to meet the pent-up demand.
2. 1951-52 to 1956-57 : Liberal due to the comfortable position with respect to reserves mainly because of sterling balances.
3. 1957-58 to 1962-63 : Restrictive import policy in response to the depletion of foreign exchange reserves. Raw materials and intermediates were accorded priority.

4. 1963-64 to 1965-66 : Continuation of restrictive policy but with a change in priority in favour of capital goods.
5. 1966-67 to 1970-71 : Policy of import for export was formulated with special emphasis on import of raw materials and intermediates.

Table 3.2 gives the percentage share of important categories over the period 1958-59 to 1970-71. It indicates broadly the course of import policy during the period. The time series data of important factors which determined the pattern of import control viz. balance of payment, foreign exchange reserve and amount of aid utilized are presented in Table.3.3

#### 3.4 Evaluation of Import Control Policy

The broad survey of Import Control Policy since independence reveals that the major factor determining the policy and degree of rigour of control has been the foreign exchange position. In this sense Import Control Policy is negative in character. It is control of imports rather than a plan of imports and to that extent it has remained an instrument to regulate the pattern of imports in the context of planning for industrialization of economy only indirectly.

The foreign exchange position is determined chiefly by three factors : (1) Export earnings, (2) Foreign aid,

**Table 3.2 : Percentage Share of Important Categories of Importers (1958-59 to 1970-71)**

Year	Esta- blished Importer	Actual Users	Raw Material	Capital Goods	Total value of licences Rs. Crores
1958-59	14.08	14.20	20.74	15.23	528
1959-60	9.77	23.28	20.24	19.27	757
1960-61	9.69	26.78	19.03	22.99	791
1961-62	8.99	45.80	15.27	21.82	856
1962-63	4.98	42.04	8.68	36.92	983
1963-64	5.63	43.83	8.27	36.88	779
1964-65	4.55	37.30	15.27	33.19	995
1965-66	2.20	45.41	15.75	24.46	696
1966-67	9.20	32.33	24.26	22.78	1811
1967-68	7.52	42.82	20.71	13.90	1110
1968-69	4.71	45.73	24.57	8.88	940
1969-70	3.64	50.71	22.83	6.08	1203
1970-71	2.56	51.33	23.57	7.78	1634

**Source :** "Annual Administration Report of the Import and Export Trade Control Organization". The Chief Controller of Imports and Exports, New Delhi (1959 to 1971).

(3) Capital in-flow on private account. Of these, export earnings have failed to increase in proportion to import requirement and, therefore, import capacity as indicated by foreign exchange position has depended more on foreign

**Table 3.3 : An Account of International Reserves, Utilization of Aid and Balance of Payment in India (1951-52 to 1970-71)**

Year	International Reserves U.S.\$ million	Utilization of Aid Rs. crores	Balance of Payment Rs. crores
1951-52	1797	65	- 162.6
1952-53	1862	46	60.2
1953-54	1868	18	47.4
1954-55	1882	17	6.0
1955-56	1464	55	12.3
1956-57	942	110	- 312.3
1957-58	722	265	- 427.0
1958-59	814	341	- 326.1
1959-60	670	295	- 185.6
1960-61	665	419	- 392.4
1961-62	512	339	- 306.4
1962-63	607	451	- 345.5
1963-64	498	590	- 349.4
1964-65	600	720	- 452.0
1965-66	608	775	- 489.8
1966-67	662	675	- 845.9
1967-68	682	793	- 804.3
1968-69	926	680	- 365.2
1969-70	1006	661	- 217.0
1970-71	1206	659	- 331.4

**Source :** "Report on Currency and Finance" (1951-52 to 1971-72).

aid and capital in-flow. The element of uncertainty in capital in-flow, both on Government and private account is the main reason for the ad-hocism apparent in the Import Control Policy during the post-independence period.

Uncertainty in agricultural production affecting the agro-based industries is another factor causing ad-hocism in the control of imports in these years. However no direct strain of food imports on foreign exchange was felt, as most of the food imports were financed under P.L. 480 agreement involving rupee payment. Another constraint on import planning is the growing requirement of maintenance imports.

The current strategy of India's foreign trade is on the one hand to reduce the import bill to the minimum and on the other to augment export earnings. Import substitution and export promotion are two manifestations of this strategy. An acceptable pace of future growth requires the building up of capital stock which obviously places a premium on capital imports. Maintenance imports contribute not only to immediate output but also supplements capital formation if output consists of producer goods. The proper balance between capital and maintenance imports has been the basic issue of import policy. The relative premia attached to the maintenance and capital imports should be based upon the contribution of each type of imports both to immediate output, exports and to the rate of capital

formation. Increased imports of capital goods ensures increase in the capital formation thereby stepping up the rate of growth of national income only if the capital imports are put to production of essential goods or producer goods. In an 'import sensitive economy' the market mechanism favours an investment in those branches of industry which produce relatively non-essential consumer goods. This is so because restrictions on imports of such goods ensure a protected market for the domestic production.

Another undesirable feature is that the imports of machinery tended to be in excess of actual needs. This is done because of a fear of future tightening of controls and a more austere policy by the government.<sup>1</sup> Furthermore, as argued by Bhagawati and Desai,<sup>2</sup> the artificial cheapening of capital goods could lead to increased capital intensity in relation to labour.<sup>3</sup> The significant impact of Indian Import Control Policy under which the principle of domestic availability was used to restrict imports in favour of domestic products was that protection was automatically extended to all industries regardless of cost, efficiency and comparative advantage. The import allocation system

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1 B. Datta, "Planning for Exports," *Economic Weekly*, Bombay, July 1962.

2 Jagdish Bhagawati and Padma Desai, *India Planning for Industrialization*. O.E.C. Paris, 1970.

3 *Ibid.*



had virtually eliminated the possibility of competition, domestic or foreign. Every item of domestic production, no matter how much its cost of production exceeded the land c.i.f. price was automatically shielded from competition through imports. Bhagwati and Desai proposed, "a flexible exchange rate policy with the few priority sectors assured of their capital goods and maintenance imports by subsidies to enable them to outbid their rivals, while leaving the remaining exchange to be freely bid for by other entrepreneurs private and public"<sup>1</sup> as an alternative to the policy that prevailed at that time. The ultimate effects of import control, seen from the point of view of planned economy, depend to a large extent on the administration and its ability to enforce the discipline of import control.

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1 Ibid.

## CHAPTER IV.

### TRENDS IN INDIA'S IMPORTS : A GENERAL SURVEY

This chapter attempts to examine the main trends in India's imports reflecting changes in their magnitude and composition against the background of the shifts in Import Control Policy. The general economic causes affecting these changes are also discussed.

#### 4.1 Imports of World and India

To begin with India's imports are compared with the world imports. Table 4.1 gives the values of world imports and India's imports and the percentage share of the latter in the total for the period 1951 to 1971.

It is observed that India constitutes a very small market for the rest of the world. In 1951, the world imports totalled U.S. \$ 8051 crores of which India accounted for 2.04 per cent.

Over the period, India's imports did not keep pace with the world imports and this has resulted in a decline in her relative share. This trend of decline is observed to be particularly sharp since 1966. Her imports registered a decline while the world imports increased by 73 per cent during the period of five years from 1966 to 1971. Devaluation of rupee in June 1966, and decline in food imports

**Table 4.1 : An Account of India's Share in World Imports  
(1951 to 1971)**

(In million U.S.Dollars)

Year (1)	World (2)	India (3)	$\frac{\text{Col.3}}{\text{Col.2}} \times 100$ (4)
1951	80,508	1,639	2.04
1952	79,370	1,627	2.05
1953	75,794	1,161	1.53
1954	78,982	1,252	1.59
1955	88,587	1,356	1.53
1956	97,877	1,661	1.70
1957	1,06,923	2,005	1.88
1958	1,00,368	1,644	1.64
1959	1,06,477	1,979	1.86
1960	1,19,449	2,303	1.93
1961	1,24,747	2,286	1.83
1962	1,32,524	2,362	1.78
1963	1,43,875	2,477	1.72
1964	1,61,398	2,875	1.78
1965	1,75,501	2,838	1.62
1966	1,92,707	2,928	1.52
1967	2,02,143	2,772	1.37
1968	2,25,180	2,569	1.14
1969	2,56,586	2,214	0.86
1970	2,94,391	2,125	0.72
1971	3,29,367	2,421	0.74

**Source:** "International Financial Statistics" 1971.

can be said to be the important factors contributing to the decline in the total imports.

It may be mentioned here that the trend is in tune with the trend in imports of most of the developing countries. Export earnings is the most important variable that determines a country's capacity to import. Several factors have hindered the export prospects of these countries.

#### 4.2 Role of Imports in the National Economy

In a large country continental in character the foreign trade would constitute a very small proportion of national income. The share of foreign trade in national income broadly indicates the degree of dependence of the economy on the rest of the world. The data in Table 4.2 on the percentage shares of imports and exports in national income for the period 1950-51 to 1970-71 show that the share of imports in India's national income has not exceeded 11 per cent any time. A closer examination of data would throw some light on the relationship between rise in national income and the level of imports. Proportion of imports to national income during the Second Five Year Plan period reached the highest level especially in the year 1957-58 (11.41 per cent). After that with certain fluctuations it declined over the period.

The level of imports in a developing economy depends

**Table 4.2 : Total Imports and Its Share in National Income in India (1950-51 to 1970-71)**

(Rs. Crores)			
Year	National Income	Imports	$\frac{\text{Col.3}}{\text{Col.2}} \times 100$
(1)	(2)	(3)	(4)
1950-51	9,530	647	6.8
1951-52	9,970	962	9.6
1952-53	9,820	662	6.4
1953-54	10,480	567	5.6
1954-55	9,610	651	7.1
1955-56	9,980	672	7.6
1956-57	11,310	844	9.7
1957-58	11,390	995	10.8
1958-59	12,600	856	8.2
1959-60	12,950	961	7.2
1960-61	14,029	1,074	7.6
1961-62	14,866	1,039	6.9
1962-63	15,803	1,077	6.8
1963-64	18,088	1,144	6.3
1964-65	21,176	1,264	5.9
1965-66	21,839	1,392	5.3
1966-67	25,285	2,078	8.2
1967-68	29,889	1,972	6.5
1968-69	30,329	1,879	6.1
1969-70	33,019	1,568	4.7
1970-71	36,090	1,624	4.1

**Source:** Col. 2 : 'Estimates of National Income' 1948-49 to 1960-61 and 1960-61 to 1970-71. C.S.O., Calcutta.

Col. 3 : a) Kishore Thanawala. Statistics relating to India's Foreign Trade 1948-49 to 1959-60. Bombay, 1967.  
b) Monthly Statistics of Foreign Trade in India. DGCIS, Calcutta.

on two factors: (1) its capacity to import, (2) its import absorption capacity. Import capacity is linked with the availability of foreign exchange resources depending on reserve position and earning through either foreign capital inflow including private foreign capital or/and foreign aid that is available during a particular period. Import absorption capacity, i.e., capacity of the economy to profitably use the imported equipment is dependent upon the level of development and rate and pattern of the development. The period of twenty years, 1950-51 to 1970-71, in Indian economy can be broadly divided into four sub-periods. In the first period from 1950-51 to 1956-57 import capacity was adequate due to the large accumulation of sterling balances during war period. But import absorption capacity of the economy was limited as the contemplated rate of growth during the First Plan was modest and so also the Plan was not designed for rapid industrialization. The second period which lasted till 1960-61 was characterized by an increase in import capacity and import absorption capacity as well. Import capacity increased during this period mainly due to the increased availability of foreign aid. Import absorption capacity increased with the increase in the momentum of developmental planning and its emphasis on basic and heavy industries which had a large import content. Hence imports of capital goods and raw material in addition to food imports became necessary.

During the Third Plan period, from 1960-61 to 1965-66, while import absorption capacity continued to rise, import capacity came under heavy strain. Relatively stagnant exports, obligation of payment of interest on foreign loans put pressure on the balance of payments and ultimately led to the devaluation of rupee in June 1966. Thereafter, the period is characterized by a decline in import capacity as well as import absorption capacity. Import capacity declined despite increase in exports as larger proportion of export earnings came to be used for meeting interest and debt repayment obligations. Import absorption capacity did not increase significantly partly due to the recession in 1967 and partly due to the availability of indigenous products as a result of import substitution and sharp rise in agricultural production. It may be noted that this periodization with respect to the shifts in import control policy more or less coincides with the above scheme.

There is one special feature <sup>about</sup> of the relationship between imports and national income which may be taken into account while assessing the significance of imports to national income. India is primarily an agricultural country where agricultural output accounts for about half the national income of India (51 per cent in 1960-61). As such it would be more meaningful to examine whether imports excluding food items bear any significant relationship with the net output of the industrial sector of the economy.

**Table 4.3 : Proportion of Non-food Imports in the Net Output of Mining, Manufacturing and Small Enterprises in India (at Current Prices) (1950-51 to 1970-71)**

Year	Percentage	Year	Percentage
1950-51	33.9	1961-62	30.9
1951-52	42.0	1962-63	28.6
1952-53	26.5	1963-64	26.3
1953-54	27.9	1964-65	24.5
1954-55	32.0	1965-66	23.6
1955-56	38.2	1966-67	28.3
1956-57	52.9	1967-68	25.8
1957-58	53.8	1968-69	25.8
1958-59	38.7	1969-70	20.9
1959-60	32.1	1970-71	18.8
1960-61	33.1		

It is observed in Table 4.3 that it constituted a significantly large proportion in the output under industrial sector. Imports as percentage of the net output of this sector increased from 33.9 per cent in 1950-51 to 53.8 per cent in 1957-58, after which there has been a decline in the proportion. Food imports tend to decline with the increase in domestic food production whereas imports of raw materials, intermediates and equipment tend to increase with the increasing tempo of industrialization at least during the initial stages.



To assess the role of imports in the national economy, besides considering it solely in quantitative terms (share of foreign trade in the national income), the commodity pattern of foreign trade and the critical role of imported commodities at a particular stage should also be taken into account. In that sense, imports of food as well as capital good may be said to have played a key role in the economy, especially during the Second and Third Five Year Plan periods.

#### 4.3 Trade Balance

It is stated earlier that the capacity to import is dependent upon the availability of foreign exchange. The gap between imports and exports is met by external assistance, private capital inflow or/and a reduction in reserves. If the term 'self-reliance' is taken to mean that the imports are fully financed out of export earnings the ratio of exports to imports can be taken as an indicator of self-reliance. Table 4.4 gives the values of exports, imports and the percentage ratio of exports to imports for all the years from 1950-51 to 1970-71. It is observed that during the seventeen years from 1950-51 to 1966-67 the gap between imports and exports continued to widen. Consequently the percentage ratio of Exports/Imports declined from 91.70 per cent in 1950-51 to 56.58 in 1966-67. The decline was particularly sharp since 1955-56. In

**Table 4.4 : Percentage Ratio of Exports to Imports in India  
(1950-51 to 1970-71)**

('000 Dollars)			
Year	Imports	Exports	$\frac{\text{Col.3}}{\text{Col.2}} \times 100$
(1)	(2)	(3)	(4)
1950-51	14,47,026	13,26,941	91.70
1951-52	21,53,947	16,42,460	76.25
1952-53	14,77,171	12,73,072	86.18
1953-54	12,65,709	11,67,822	92.27
1954-55	14,53,887	13,07,087	89.90
1955-56	15,00,420	13,12,980	87.51
1956-57	18,86,571	13,80,068	70.50
1957-58	22,10,912	13,87,574	62.76
1958-59	19,02,607	12,57,491	66.09
1959-60	21,35,046	13,99,643	65.56
1960-61	23,78,120	14,06,401	59.14
1961-62	23,08,051	14,59,539	63.24
1962-63	23,93,522	15,25,091	63.72
1963-64	25,41,333	16,95,240	66.71
1964-65	28,04,707	18,55,908	66.17
1965-66	30,93,274	17,89,954	57.87
1966-67	27,71,140	15,68,161	56.58
1967-68	26,29,835	15,90,001	60.46
1968-69	24,78,486	18,08,003	72.94
1969-70	20,89,207	18,77,715	89.87
1970-71	21,65,202	20,32,009	93.85

**Source :** a) Kishore H. Thanawala. Statistics relating to India's Foreign Trade 1948-49 to 1959-60. Bombay (For 1950-51 to 1959-60).

b) Monthly Statistics of Foreign Trade in India. DGCIS, Calcutta (1960-61 to 1970-71).

1966-67 the percentage ratio started showing an upward trend and reached as high as 93.85 in 1970-71. During this period imports declined by 28 per cent and the exports increased by 11 per cent.

The gap between imports and exports, which may be termed import surplus, accounts for the gap between total national expenditure and national product and properly utilized should lead to an increase in investment in the economy. An import surplus permits an economy to invest more than the domestic saving would allow, provided the consumption is firmly controlled.

In the process the commodity pattern of foreign trade changes radically. In this context, it would be meaningful to examine in detail the changes in the composition of Indian imports and to see how different <sup>categories</sup> ~~sections~~ have behaved during the last few years.

#### 4.4 Composition of Imports

For the examination of changes in the structure of imports or trends in imports at a disaggregative level a comparable time series of imports by major categories is required. Kishore Thanawala has constructed such a series for the period 1950-51 to 1959-60 which is by and large comparable with the data in 'Monthly Statistics of Foreign Trade in India'. Hence data for this period 1950-51 to 1959-60 is taken from Thanawala's publication.

Table 4.5 : Distribution of Total Imports under Various Heads (1950-51 to 1970-71)

		(Values in million of Rupees)									
No.	Title	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
a.	Food, Beverages and Tobacco, Animal and Vegetable Oils and Fats	1393 (21.39)	2751 (28.38)	1848 (27.79)	1066 (18.72)	1431 (21.87)	644 (9.51)	674 (6.76)	1051 (10.56)	1952 (22.78)	1873 (19.50)
b.	Crude material inedible except fuels	1617 (24.83)	2483 (25.62)	1197 (18.01)	973 (17.08)	1114 (17.02)	1204 (17.83)	1133 (13.34)	1017 (10.29)	787 (9.20)	1065 (11.08)
c.	Mineral fuels, lubricants and related material	554 (8.50)	717 (7.40)	774 (11.64)	848 (14.88)	828 (12.66)	557 (8.24)	762 (8.98)	1092 (10.97)	716 (8.36)	868 (9.04)
d.	Chemicals	526 (8.08)	690 (7.11)	378 (5.69)	520 (9.13)	573 (8.76)	618 (9.16)	697 (8.21)	795 (7.49)	680 (7.94)	926 (9.63)
e.	Manufactured goods	1049 (16.83)	1319 (14.35)	1048 (16.30)	1034 (18.72)	1231 (19.27)	1760 (26.51)	2754 (33.00)	2940 (29.55)	2046 (23.90)	2083 (21.68)
f.	Machinery and Transport Equipment	1326 (20.37)	1661 (17.14)	1370 (20.57)	1230 (21.59)	1336 (20.42)	1941 (28.95)	2523 (29.71)	3104 (31.20)	2380 (27.80)	2793 (29.07)
Total		6465 (100.00)	9621 (100.00)	6615 (100.00)	5671 (100.00)	6513 (100.00)	6724 (100.00)	8443 (100.00)	9949 (100.00)	8561 (100.00)	9607 (100.00)

(continued)

(Figures in parantheses indicate percentage to the total.)

Table 4.5 : (Continued)

No.	Title	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
a.	Food, Beverages and Tobacco, Animal and Vegetable Oil and Fats	1826 (17.06)	1365 (13.15)	1596 (14.81)	1690 (14.77)	2569 (20.20)	3567 (27.63)	7206 (35.49)	6142 (31.15)	4335 (22.78)	3522 (22.42)	3106 (19.12)
b.	Crude material inedible except fuels	1532 (14.31)	1295 (12.47)	1270 (11.77)	1226 (10.72)	1251 (9.91)	1215 (8.73)	1992 (9.81)	1913 (9.70)	1999 (10.27)	1767 (11.28)	2003 (12.34)
c.	Mineral fuels lubricants and related material	695 (6.49)	958 (9.23)	880 (8.17)	1045 (9.15)	687 (5.44)	683 (4.91)	633 (5.12)	749 (3.80)	842 (4.53)	1379 (8.80)	1360 (8.83)
d.	Chemicals	859 (8.02)	888 (8.55)	1004 (9.32)	884 (7.73)	907 (7.19)	1045 (7.53)	1967 (9.68)	2686 (13.62)	2814 (15.14)	1845 (11.77)	1923 (11.84)
e.	Manufactured goods	2524 (23.59)	2390 (23.00)	2300 (21.30)	2376 (21.32)	2501 (19.81)	2511 (18.04)	3224 (15.87)	3269 (18.90)	3635 (19.56)	3239 (20.67)	4002 (24.64)
f.	Machinery and Transport Equipment	3267 (30.53)	3489 (33.60)	3724 (34.58)	4216 (36.86)	4727 (37.45)	4895 (35.16)	5761 (26.03)	4962 (25.16)	5164 (27.78)	3927 (25.06)	3845 (23.68)
Total		10739 (100.00)	10385 (100.00)	10774 (100.00)	11437 (100.00)	12642 (100.00)	13916 (100.00)	20783 (100.00)	19721 (100.00)	18788 (100.00)	15679 (100.00)	16239 (100.00)

For the later period, data are taken directly from 'Monthly Statistics of Foreign Trade in India'. In Table 4.5, the values of imports and its percentage distribution by six major economic categories are presented to examine the trends in the composition of imports. While presenting the data on composition of imports, three sections in Trade Classification viz., Food and Live Animals (0), Beverages and Tobacco (1) and Animal and Vegetable Oil and Fats (4) are combined. Food imports account for a major portion of imports in the combined sections. Hence the category is termed as 'Food and others'. Another category 'Manufactured goods' comprise three sections viz., Manufactured goods classified chiefly by material (6), Miscellaneous manufactured articles (8), and Commodities not elsewhere classified according to kind (9). This is referred to as 'Manufactured goods'. Trends in important economic categories are discussed below under separate headings.

(1) Food and Others (a) : Evidently though basically an agricultural economy, the country frequently required to import large quantities of foodgrains during the period. In 1950-51 the value of imports of food totalled Rs. 139 crores, accounting for 21.39 per cent of total imports which increased to 28.49 per cent in the following year. Thereafter the proportion started showing decline till 1956-57. The decline was the sharpest in 1955-56 when the proportion had fallen from 21.87 per cent in 1954-55 to

9.51 per cent in 1955-56. The trend of decline continued for another year and the value and the relative share reached the lowest level.

This was immediately followed by a sharp increase in the value and its percentage share in total imports. In one year from 1956-57 to 1957-58 the total imports almost doubled. By 1966-67 the share of food imports was as high as 34.67 per cent of total imports. It is only in 1967-68 that a sharp reversal in trend is observed when food imports declined markedly. Thus the proportion of food imports had a wide range from 6.80 per cent in 1956-57 to 34.67 per cent in 1966-67.

During the Second Plan period arrangements under P.L. 480 agreements were made to import food from U. S. Payments for these imports were made in rupee currency. Under this agreement food imports increased considerably till 1966-67. Fluctuations in the import of this category was the main factor causing fluctuations in the composition of imports.

(2) Crude Material Inedible Except Fuels (b) and Mineral Fuels, Lubricants and Related Material (c) : The products under these two categories are intermediate products and together accounted for about 34 per cent of total imports in 1950-51. Textile fibres, Crude Fertilizers, Ores, Petroleum and Petroleum Products are some of the

**Table 4.6 : Share of Cereals, Wheat and Rice in Total Imports (1950-51 to 1970-71)**

Year	Cereals	Wheat	Rice
1950-51	14.56	8.21	3.76
1951-52	23.45	15.73	3.94
1952-53	22.66	12.31	6.48
1953-54	10.79	6.73	2.34
1954-55	10.43	2.00	8.40
1955-56	2.53	1.79	0.70
1956-57	0.91	0.16	0.67
1957-58	6.04	4.01	1.70
1958-59	18.45	13.37	4.73
1959-60	15.66	13.51	1.70
1960-61	13.54	11.32	1.76
1961-62	9.32	7.47	1.45
1962-63	10.87	8.53	1.97
1963-64	11.35	8.99	1.78
1964-65	16.46	13.89	2.07
1965-66	22.17	18.99	2.71
1966-67	29.96	20.21	3.94
1967-68	26.25	19.17	2.77
1968-69	18.08	13.94	3.09
1969-70	16.65	11.76	3.72
1970-71	13.11	10.67	1.83



important products which were imported. Over the period imports of Textile fibres declined relatively while that of crude fertilizers registered a sharp increase. Rock phosphate and Muriate of Potash had to be imported for domestic production of superphosphate and other chemical fertilizers. The imports of crude fertilizers increased from Rs. 9 crores in 1960-61 to Rs.35 crores in 1970-71.

Petroleum and Petroleum products are important items under Mineral fuels lubricants and related material. Upto 1955-56, the entire demand for Petroleum products was met by imports. With the commissioning of three new oil refineries in the private sector in the First Plan period, the domestic availability of petroleum increased. Nevertheless imports of Petroleum increased markedly from Rs.20 crores in 1960-61 to Rs. 106 crores in 1970-71. However, there was a steady decline in the imports of Petroleum Products from Rs. 55 crores in 1950-51 to Rs. 49 crores in 1960-61 and further to Rs. 30 crores in 1970-71.

(3) Chemicals (d) : Imports of chemicals which amounted to Rs. 53 crores in 1950-51 generally increased. Chemical elements and compounds, dyeing, tanning and colouring materials, medicinal and pharmaceutical products and fertilizers are some of the important items under this category. The value of imports of chemical elements and compounds registered a fourfold increase. The increase

was particularly sharp during the first decade. Imports of fertilizers rose sharply during the second decade which is marked by a more than fivefold increase. Imports of dyeing, tanning and colouring material which amounted to Rs. 14 crores in 1950-51 registered a steady decline over the period. Imports under medicinal and pharmaceutical products have been gradually increasing over the years. Consequently the proportion of imports of chemicals in total imports rose from 8.08 per cent in 1950-51 to 12.14 per cent in 1970-71.

(4) Manufactured Goods (e) : The goods comprising this category are either finished or semi-finished products. Imports of metals and textile yarn and manufactures accounted for a large portion of imports of manufactured goods in 1950-51 (Table 4.7). The proportion of manufactured goods in total imports has almost doubled during the first six years from 16.83 per cent in 1950-51 to 33 per cent in 1956-57. Iron and steel imports which amounted to Rs. 16 crores in 1950-51 rose to Rs. 129 crores in 1956-57, constituting about 75 per cent of imports under manufactured goods. Thereafter, the proportion of iron and steel in total imports declined. Imports of non-ferrous metals especially copper since 1956-57 increased because of development of electrical and other engineering goods industries. Increase in the imports of manufactured goods

in recent years has been mainly due to increase in the imports under non-ferrous metals. Between 1960-61 and 1970-71 imports of non-ferrous metals almost doubled.

Over the period imports of Textile manufacture which accounted for about 30 per cent of the imports of manufactured goods at the beginning of the period registered a sharp decline since 1956-57.

(5) Machinery and Transport Equipment (f): Imports of Machinery and Transport Equipment which amounted to Rs. 133 crores in 1950-51 constitute 20.37 per cent of total imports. Imports of these items increased till 1965-66 when they constituted 35 per cent of total imports. The imports of Machinery and Transport Equipment increased steadily since 1953-54 excepting in the year 1958-59 when imports declined due to critical foreign exchange position. Thereafter increase in foreign aid made possible a larger import of these items.

The year 1965-66 marks the end of the period as the composition of imports radically changed in favour of raw materials. The percentage share of imports under Machinery and Transport Equipment in total imports registered a sharp decline, as in 1970-71 it accounted for only about 24 per cent of the total imports as against 36 per cent in 1965-66. The value of imports was less than half of the corresponding value in 1965-66.

**Table 4.7 : Percentage Distribution of Imports under Machinery and Transport Equipment (1950-51 to 1970-71)**

Year	Machinery other than electric	Electrical Machinery	Transport Equipment
1950-51	51.60	17.74	30.66
1951-52	52.46	18.84	28.70
1952-53	49.60	23.67	26.73
1953-54	53.10	25.82	21.08
1954-55	48.45	20.51	31.04
1955-56	48.48	18.82	32.70
1956-57	51.95	18.47	29.58
1957-58	57.19	20.33	22.48
1958-59	54.75	19.56	25.69
1959-60	55.42	19.03	25.55
1960-61	61.62	17.19	21.19
1961-62	66.40	18.06	15.54
1962-63	66.37	16.69	16.94
1963-64	65.79	19.80	14.41
1964-65	66.92	18.78	14.30
1965-66	67.92	17.80	14.28
1966-67	71.38	17.96	10.66
1967-68	67.70	16.92	15.38
1968-69	71.65	15.70	12.65
1969-70	71.10	16.20	12.70
1970-71	66.82	18.03	15.15

**Table 4.8 : Percentage Distribution of Imports into  
Different Economic Categories (1950-51 to 1970-71)**

Year	Consumer goods	Raw materials and intermediates	Capital goods
1950-51	26.0	54.0	20.0
1951-52	32.0	51.0	17.0
1952-53	34.0	45.0	21.0
1953-54	25.0	53.0	22.0
1954-55	25.0	55.0	20.0
1955-56	20.0	51.0	29.0
1956-57	14.0	56.0	30.0
1957-58	16.0	53.0	31.0
1958-59	28.0	44.0	28.0
1959-60	23.0	48.0	29.0
1960-61	24.0	45.0	31.0
1961-62	17.0	48.0	34.0
1962-63	19.0	46.0	35.0
1963-64	19.0	44.0	37.0
1964-65	24.0	39.0	37.0
1965-66	26.0	39.0	35.0
1966-67	39.0	35.0	26.0
1967-68	33.0	42.0	25.0
1968-69	27.0	45.0	28.0
1969-70	26.0	49.0	25.0
1970-71	20.0	56.0	24.0

Non-electrical machinery normally accounted for more than half of total imports under capital goods throughout the period (Table 4.8). Hence changes in imports of Non-electrical machinery mainly explain changes in imports under Machinery and Transport Equipment.

#### 4.5 Economic Classification of Imports

Table 4.9 presents the distribution of imports according to broad economic categories viz. consumer goods, raw materials and intermediates and capital goods. If the period of twenty years is broadly sub-divided into four periods (a) 1951-52 to 1955-56, (b) 1956-57 to 1961-62, (c) 1961-62 to 1965-66 and (d) 1966-67 to 1970-71, and changes in the average proportion of each category are examined, it becomes evident <sup>that</sup> proportion of capital goods in total imports registered a steady increase during the first three periods. In the last period the relative shares of consumer goods, raw material and intermediates increased while that of capital goods declined.

Table 4.9: Average Proportion of Imports in Total Imports

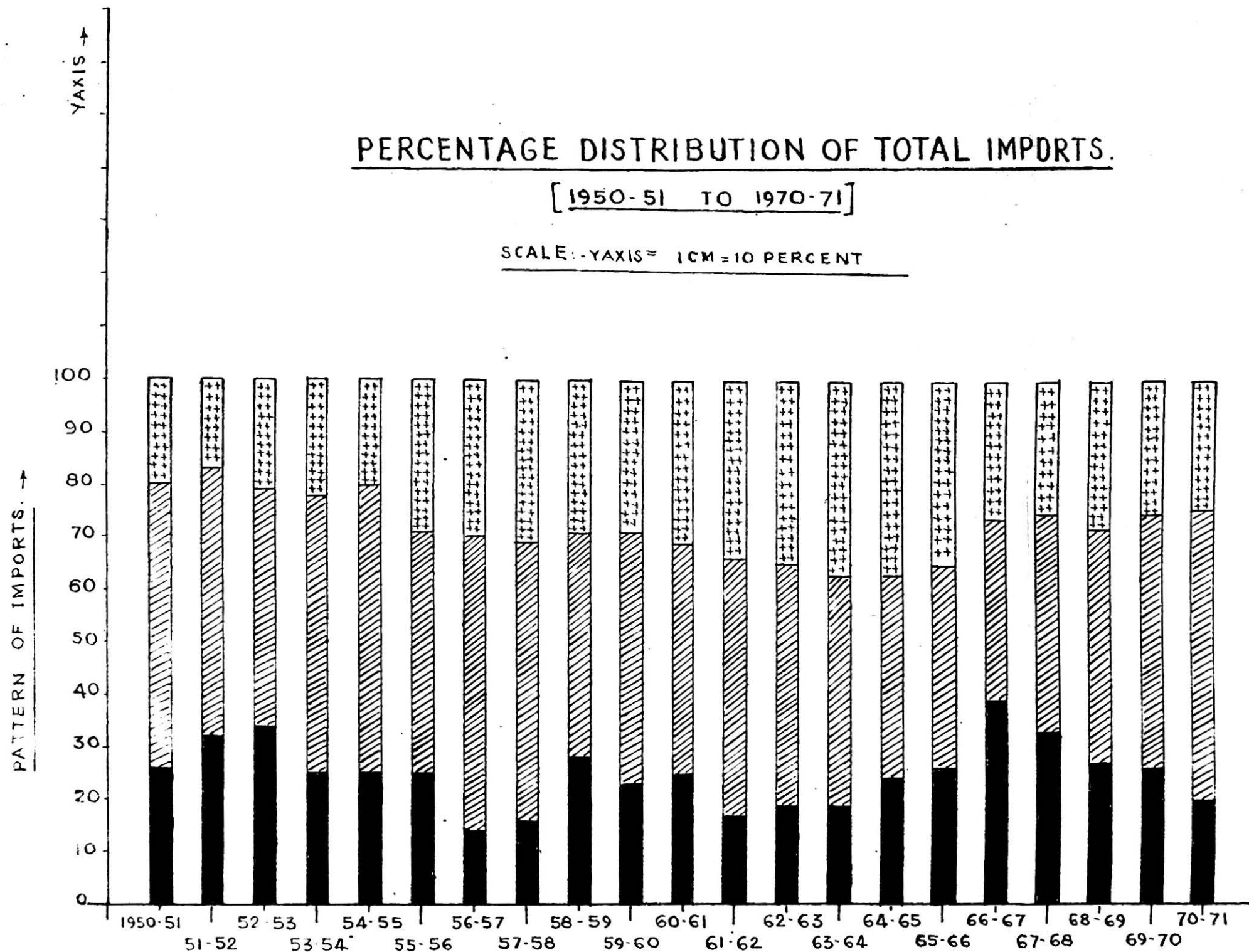
Sr. No.	Period	Consumer goods	Raw material & intermediates	Capital goods
1.	1951-52 to 1955-56	27.20	51.54	21.26
2.	1956-57 to 1960-61	19.70	51.90	28.40
3.	1960-61 to 1965-66	22.59	41.80	35.61
4.	1966-67 to 1970-71	29.40	44.70	25.90

GRAPH 1

PERCENTAGE DISTRIBUTION OF TOTAL IMPORTS.

[1950-51 TO 1970-71]

SCALE: -YAXIS= 1CM=10 PERCENT



- 1) CONSUMERS - GOODS.
- 2) RAW MATERIAL AND INTERMEDIATE GOODS.
- 3) CAPITAL GOODS.

Increase in imports of consumer goods is explained by the increase in food imports in two years 1966-67 and 1967-68. An analysis of the sharp decline in imports of capital goods is attempted in the next chapter.



## CHAPTER V

### IMPORTS OF MACHINERY AND TRANSPORT EQUIPMENT IN INDIA 1960-61 TO 1970-71

#### 5.1 Introduction

We observed while discussing the broad features of imports in the earlier chapter that the proportion of imports under Machinery and Transport Equipment in total imports declined from 30.53 per cent in 1960-61 to 23.68 per cent in 1970-71. This chapter proposes to deal with the behaviour of imports of Machinery and Transport Equipment in greater details over the period of ten years, from 1960-61 to 1970-71.

It may be pointed out here that industrial development in India especially during the Second and Third Plan had been largely dependent on imported capital equipment. The strategy of development in the Second as well as Third Plan laid great stress on the expansion of heavy industries. A number of public enterprises in the heavy industries were commissioned during the period.

In view of this, in what follows, we examine the shifts in the pattern in the imports of Machinery and Transport Equipment over the period 1960-61 to 1970-71. During this period a number of significant events occurred, e.g.,

two successive wars, widespread droughts, advent of green revolution, devaluation of Indian rupee and consequent recession in industry which had considerable repercussion on the course of economic planning. These economic events naturally affected the pattern of imports.

## 5.2 Methodology of Construction of Time Series Data on Imports

The data for this analysis are drawn from Monthly Statistics of Foreign Trade in India.<sup>1</sup> It was mentioned earlier that foreign trade statistics in India were recorded on the basis of Indian Trade Classification (ITC) till March 1965, and since April 1965 a revised scheme of classification viz. Revised Indian Trade Classification (RITC) came into use. The change in classification posed a major problem in constructing a comparable time series of imports. Due correspondence had to be established at a very disaggregative level which is presented in Table A<sub>5</sub>.1.

For assessing the trend in the real terms it is the quantities of imports that are relevant. The quantities of different items in an industry are not additive in character. As such for the purpose of computation of quantity index at an aggregative level the quantities in different years are expressed in a common unit, that is rupee by multiplying

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<sup>1</sup> 'Monthly Statistics of Foreign Trade in India'. Department of Commercial Intelligence and Statistics, Ministry of Commerce, Government of India. (March numbers.)

them with the base year prices. In the present exercise the base year that is chosen is year 1960-61, and the same is used as base year by Central Statistical Organisation for the computation of production index for this period. These prices i.e. 1960-61 prices are used as weights for construction of index. The index constructed from such a series can be termed as Quantity index. Thus symbolically the quantity index of the given group can be expressed as:

$$I_a = \frac{\sum_{i=1}^n Q_{it} P_{im}}{\sum_{i=1}^n Q_{im} P_{im}} \times 100$$

$$= \frac{Q_{1t}P_{1m} + Q_{2t}P_{2m} + \dots + Q_{nt}P_{nm}}{Q_{1m}P_{1m} + Q_{2m}P_{2m} + \dots + Q_{nm}P_{nm}}$$

where  $I_a$  = Quantity index of given group a

$Q_{it}$  = Quantities of different items in year t

$Q_{im}$  = Quantities of different items in year m

$P_{im}$  = Prices of different items in base year m

n = Number of items in group a

The basic assumption underlying the exercise is that the quality of item remained same over the period.

Number of difficulties were encountered in getting a continuous time series quantity data on imports. Some of the problems frequently arising are discussed below.

The first one arises in the case of items for which unit of measurement changed over time into units which are

not comparable or convertible. For instance, in power generating machinery comprising 45 items the unit of measurement changed in the year 1965-66 in case of five items viz., fire tubes, water tubes, steam generating boilers, parts of engines for motor vehicles and parts of internal combustion engines from number to kilograms. The value of these items in the base year 1960-61 totalled Rs. 52.713 thousand accounting for about 21 per cent of imports of power generating machinery. In such cases the adjustment made is as follows. Price per unit weight (kg) for these items in year 1965-66 was computed. Assuming the same price the quantity in terms of weight in the previous year i.e. 1964-65 was estimated from the given value of imports of the item in that year. The quantity of these items for the year 1964-65 was thus estimated in two units i.e. in number of pieces as obtained from the data source and in weights as estimated. A ratio between these two units was computed and the quantity data for the earlier years were converted into weights applying the estimated ratios. In Table A<sub>5</sub>.2 such items and their values in 1960-61 and 1970-71 in each industry are listed under category A.

The second type of difficulty arises in the case of items which do not appear in the base year. So for such items the base year prices which are used as weights in quantity index were to be estimated. In power generating

machinery out of 45 items there were two items which were not imported in the base year, namely, (1) steam engines mobiles (2) Diesel oil engines, horizontal (marine) 11 to 20 B.H.P. They appeared for the first time in 1961-62. We computed prices for these two items for the year 1961-62. Base year prices were estimated by applying price ratio of this year to base year of items similar in character. For the first item the price ratio of steam engines other than mobiles and for the second item the ratio of diesel oil engines 1 to 10 B.H.P. were applied. Symbolically,

$$\text{Price of steam engines mobile in 1960-61} = \frac{\text{Price of steam engines other than mobile in 1960-61}}{\text{Price of steam engines other than mobile in 1961-62}} \times \text{Price of steam engines mobile in 1961-62}$$

The values of such items, however, do not account for a large proportion in any of the group.

The third type of difficulty arises in the case of items for which quantity data are not available for some years. In power generating machinery there are three items, viz., gas turbines, diesel oil engines vertical upto 20 B.H.P. and parts of engines n.e.s. for which the data on the quantity of imports are not reported from 1960-61 to 1964-65 but are available for the subsequent period. The quantities of such items for these years were estimated by the procedure that is explained in the following. The prices for these items were computed for year 1965-66, for

which both quantity as well as value data are available. The prices for the earlier years were estimated on the basis of trends in prices of the items similar in character, e.g., the price index of gas turbines was applied to the prices of parts of engines n.e.s. to estimate prices for these years. The quantities for these years were estimated by dividing the values of these items by the estimated prices respectively. These items are listed in Table A<sub>5.2</sub> under category C and it is worth mentioning that the quantities are not reported usually for the period 1960-61 to 1964-65 for the items falling under this category. Such items accounted for a large proportion in imports of equipment for distribution of electricity (44 per cent) and telecommunication apparatus (21 per cent).

Apart from these major difficulties there was the minor problem of non-availability of quantity data for a particular year. To estimate the quantity, prices of the proximate years were used. For illustration, quantities of imports of a large number of items are not reported for the year 1969-70, though value data are reported. Quantities of these items were estimated using the prices prevalent either in 1968-69 or in 1970-71.

Having made all these adjustments, quantity index of imports was constructed for each of the industries under Machinery and Transport equipment. The various items

could be classified into two economic categories, namely, (1) finished products, (2) parts and accessories. As such quantity indices for these were also constructed separately. The changing pattern of import of Machinery and Transport equipment is discussed in the following section.

### 5.3 Behaviour of Imports of Machinery and Transport Equipment

Machinery and Transport equipment consists of three types of goods: (1) Capital equipment or means of production, such as agricultural machinery, machine tools, power generators etc. (2) Consumer durables e.g. television sets, refrigerators. (3) Parts and accessories comes under the category of maintenance imports.<sup>1</sup> While discussing the shifts in India's import control policy it was observed that the proper balance between the capital imports and maintenance imports had been a basic issue underlying the determination of import policy.

It is proposed to examine the trend in the imports of Machinery and Transport Equipment in detail. Decline in imports of capital equipment may be either due to increase in domestic availability or fall in domestic demand.

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<sup>1</sup> Maintenance imports comprise raw material, intermediates and parts and accessories of machinery and transport equipment.

The data are presented in the form of three Tables. The first Table i.e. Table 5.1 gives the value of imports of Machinery and Transport Equipment and its distribution in the three divisions viz., Non-electrical Machinery, Electrical machinery and transport equipment in 1960-61 and 1970-71. The indices of import under Machinery and Transport Equipment and its three industries are presented in Table 5.1.1. As pointed out earlier the indices are constructed for the finished products, parts and accessories and for total of the two and are presented in the same Table. Table 5.1.2 gives the values and percentage share of finished products in the imports of the Machinery and Transport Equipment and in its three divisions. This sequence of tabulation is retained while discussing the trend in the imports of each of the three divisions, viz. Non-electrical machinery, electrical machinery and transport equipment.

Imports of Machinery and Transport Equipment, as seen in Table 5.1, amounting to Rs. 323 crores in 1961-61, accounted for 30.53 per cent of total imports. Non-electrical machinery accounts for the major portion of imports under Machinery and Transport Equipment (61.16 per cent in 1960-61 and 66.88 per cent in 1970-71). Therefore, it is expected that any change in the import of Machinery and Transport Equipment as a whole over the years would be largely dictated by a corresponding change in the import



**Table 5.1 : Distribution of Imports under 'Machinery and Transport Equipment' in 1960-61 and 1970-71**

(In Thousand Rupees)

RITC Code No.	Title	Value in 1960-61	Percentage to total imports	Value in 1970-71	Percentage to total imports
71	Machinery other than electric	19,73,775	61.16	25,72,114	66.88
72	Electrical Machinery, apparatus and appliances	5,25,891	16.29	6,01,035	17.97
73	Transport equipment	7,27,692	22.55	5,82,774	15.15
<b>Total</b> 7	<b>Machinery and Transport Equipment</b>	<b>32,27,358</b>	<b>100.00</b>	<b>38,45,923</b>	<b>100.00</b>

5-1-1  
**Table 5-2 : Indices of Imports under 'Machinery and Transport Equipment' and Its Three Divisions (At 1960-61 Prices)**

(1960-61 = 100)

RITC Code No.	Title		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
7	Machinery and Transport Equipment	T	103	114	125	132	143	101	95	88	73	74
		F	94	98	91	98	136	115	121	89	103	108
		P	123	129	157	164	149	98	79	86	53	50
71	Machinery other than electric	T	121	127	136	147	157	124	108	90	70	71
		F	109	108	101	102	143	142	144	87	91	104
		P	131	142	164	182	169	109	79	93	55	44
72	Electrical machinery, apparatus and appliances	T	108	121	135	144	184	131	143	123	159	162
		F	98	114	105	106	183	122	139	115	182	178
		P	137	141	221	256	185	158	153	146	92	117
73	Transport equipment	T	81	77	93	87	76	42	43	55	31	31
		F	45	43	42	77	48	18	22	62	20	13
		P	101	96	121	93	92	56	55	52	37	41

T = Total.

F = Finished Products.

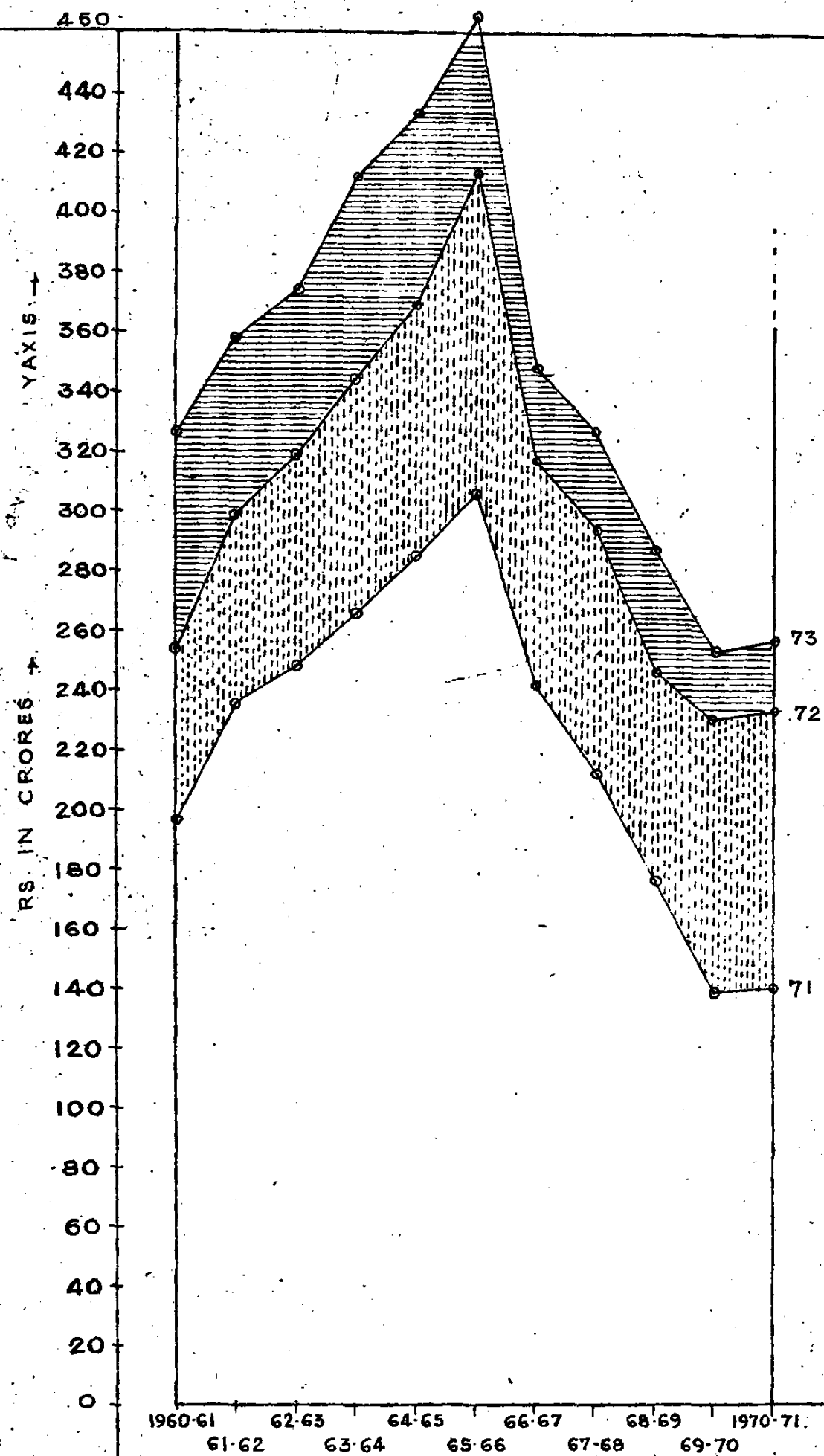
P = Parts and accessories.

GRAPH. 2

CUMULATIVE VALUES OF IMPORTS.  
 ( AT 1960-61 PRICES )  
UNDER MACHINERY AND TRANSPORT EQUIPMENT.  
 ( 1960-61 TO 1970-71 )

SCALE:- YAXIS :- 1 CM = RS. 20 GROES OF RUPEES.

71. NON ELECTRICAL MACHINERY.  
 72. ELECTRICAL MACHINERY.  
 73. TRANSPORT EQUIPMENT.



5-1-2

**Table ~~5-3~~ : Share of the Finished Products in the Total Imports under Machinery and Transport Equipment and Its Three Divisions in 1960-61 and 1970-71**

RITC Code No.	Title	Imports of Finished products in 1960-61	Percentage to total imports	Imports of Finished products in 1970-71	Percentage to total imports
7	Machinery and Transport Equipment	15,78,792	49.92	17,34,021	45.09
71	Machinery other than electric	8,89,642	45.07	13,79,434	53.63
72	Electrical machinery, apparatus and appliances	4,31,936	82.13	2,73,872	39.63
73	Transport equipment	2,57,214	35.34	80,715	13.85

under non-electrical machinery. Presently we shall examine such changes.

A cursory glance of the Table 5.1.1 brings out that over the decade total imports of Machinery and Transport equipment show a fall of about 25 per cent. On the basis of the trend observed, the period from 1960-61 to 1970-71 can be divided into two. The first one which lasted till 1965-66 is characterized by steady increase in imports while in the following one the imports generally declined. The year 1965-66 therefore can be marked as a turning point when the imports reached the peak level; the index rising from 100 in 1960-61 to 143 in 1965-66.

The above trend is clearly observable in the import of non-electrical machinery and since this industry accounts for more than 60 per cent of total imports under Machinery and Transport Equipment, such a trend of increase upto 1965-66 and decline in the same thereafter is noticed in the Machinery and Transport Equipment too. Imports of transport equipment, however, started declining right from the early years, i.e. since 1962-63, except for a small increase in 1963-64; on the whole a very steep decline in imports is observed. Imports under electrical machinery shows an overall increase particularly during the first half of the period when imports show a continuous increase. But the trends in import under these two divisions have

smaller impact on the trends in total imports in the Machinery and Transport Equipment industry.

The sharp fall in the imports particularly in non-electrical machinery and electrical machinery in the year 1966-67 after attaining the peak levels in the previous year occurred after devaluation of rupee in June 1966. If we take a look at import control policy during these years, a sharp fall in the value of licences issued for the importation of capital goods is observed in the year 1965-66 itself. The value of import licences under capital goods and heavy electrical plant registered a decline from Rs.330.39 crores in 1964-65 to Rs.170.22 crores in 1965-66. Its effect on the corresponding imports is observed with a time lag of one year.

While breaking down the total imports and classifying it into finished product and parts and accessories it is observed that the proportion of these two components is more or less the same over the years (Table 5.1.2). Examination of the imports of these two components demonstrates more or less the same features, as observed under total imports. Though imports of finished products show a small increase in 1970-71 over 1960-61, but no marked trend in import of finished products could be observed over the years.

Imports under parts and accessories started decreasing from 1965-66 onwards and it appears that a steep fall

in the import of parts and accessories in non-electrical machinery is largely responsible for the steep decline in the same under the Machinery and Transport Equipment. The imports of parts and accessories show a steep decline in transport equipment too. However, under electrical machinery no definite trend is observed.

In the light of this, we propose to examine the behaviour of imports under each of the three industries, namely, Non-electrical, electrical machinery and transport equipment, separately under the respective headings. While the goods under non-electrical and electrical machinery are directly employed in the process of production, those under transport equipment enter the production process indirectly in the form of infrastructure.

### 5.3 (a) Non-electrical Machinery

We turn to Table 5.2 in order to know the nature and composition of giving the values and percentage share of imports of each of the seven industries under this non-electrical machinery, in 1960-61 and 1970-71. All the industries excepting one viz., Office machines, can be considered as capital equipment. It is interesting to note that the proportion of imports of agricultural machinery and textile and leather machinery has increased and decreased respectively in 1970-71 over 1960-61.

Industrial machinery presumably comprising metal

working machinery, textile and leather machinery, machinery for special industries and other non-electrical machinery accounts for about 75 per cent of imports of non-electrical machinery both in 1960-61 and in 1970-71. Therefore, the trends in imports over the years of non-electrical machinery would be largely dictated by the trends observed in the industrial machinery groups. We shall now examine the trends in imports under important industries with the break-up of the total imports into finished products and parts and accessories.

We observed earlier (Table 5.1.1), that the imports under non-electrical machinery steadily increased upto 1965-66 and thereafter showed a steady declining trend. This particular trend in the import of non-electrical machinery is observed because of the similar distinct trend observable in textile and leather machinery, machines for special industries and other non-electrical machinery (Table 5.2.1) which together accounts for about 60 per cent of imports under non-electrical machinery as a whole. The power generating machinery also shows the same features in the trend of import. Metal working machinery, however, displays no marked trend in imports over the years. Imports of agricultural machinery shows an increase over the years, particularly from 1965-66 onwards against a general decline in the remaining industries. Perhaps a sharp increase in the imports of agricultural machinery from 1965-66 onwards



5-2  
**Table ~~5.1.1~~ : Distribution of Imports under 'Non-Electrical Machinery' in 1960-61 and 1970-71**

(In thousand Rupees)					
RITC Code No.	Title	Value in 1960-61	Percentage to total imports	Value in 1970-71	Percentage to total imports
711	Power generating machinery other than electric	2,50,923	12.71	2,31,970	9.02
712	Agricultural machinery and implements	51,329	2.60	2,78,421	10.82
714	Office Machines	19,518	0.99	35,405	1.38
715	Metal working machinery	4,85,173	24.58	6,21,989	24.18
717	Textile and leather machinery	2,44,123	12.37	1,09,118	4.24
718	Machines for special industries	2,50,038	12.67	3,11,560	12.11
719	Other non-electrical machinery	6,72,671	34.08	9,83,651	38.25
<b>Total</b>	<b>Non-Electrical Machinery</b>	<b>19,73,775</b>	<b>100.00</b>	<b>25,72,114</b>	<b>100.00</b>

**Table 5.2.1 : Groupwise Indices of Imports under Non-Electrical Machinery (At 1960-61 Prices)**

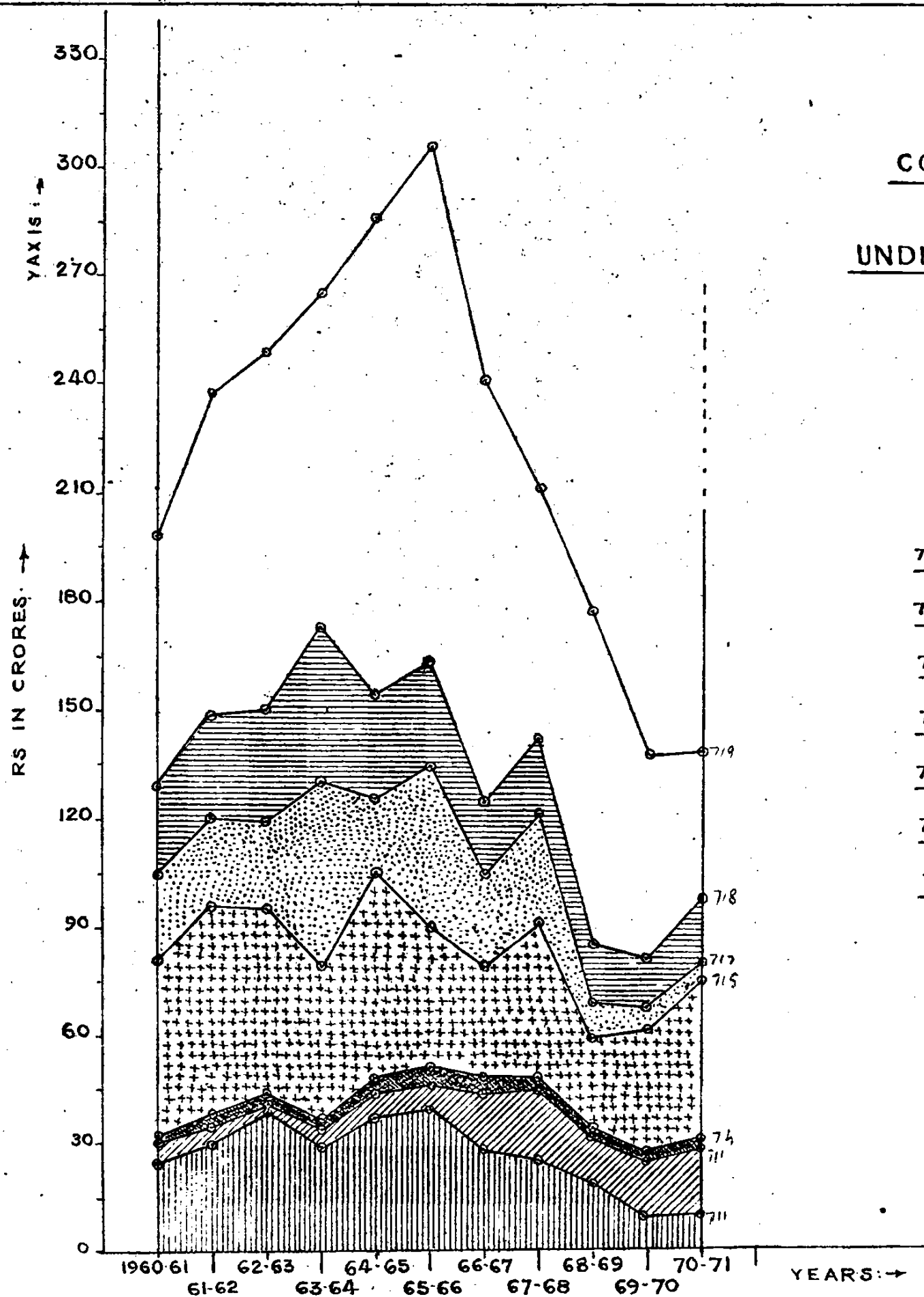
(1960-61 = 100)

RITC Code No.	Title		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
711	Power generating machinery other than electric	T	122	159	118	155	163	115	100	76	39	41
		F	158	158	68	66	141	109	111	33	19	19
		P	103	155	137	190	169	113	92	92	46	49
712	Agricultural machinery and implements	T	95	85	95	99	143	301	409	251	295	363
		F	94	80	95	97	104	260	394	220	257	332
		P	115	204	96	114	1205	1436	839	1128	1384	1242
714	Office machines	T	156	76	88	222	194	265	109	72	51	96
		F	154	69	77	199	286	278	42	73	28	97
		P	115	71	89	214	79	153	124	85	92	87
715	Metal working machinery	T	120	106	89	119	85	64	121	54	75	92
		F	126	119	113	148	114	73	182	69	112	139
		P	111	85	51	73	39	48	27	29	16	19
717	Textile and leather machinery	T	100	99	218	86	184	108	67	40	23	21
		F	71	71	65	67	308	180	85	30	20	19
		P	118	116	320	97	89	53	52	45	22	19
718	Machines for special industries	T	117	125	173	121	120	78	83	70	59	40
		F	84	115	172	95	94	49	68	53	54	89
		P	146	130	169	141	139	105	95	82	61	46
719	Other non-electrical machinery	T	131	146	138	195	210	176	104	136	84	62
		F	93	89	66	59	120	235	117	137	98	75
		P	150	174	174	263	255	146	97	135	77	55

GRAPH 3

COMULATIVE VALUES OF IMPORTS  
 [ AT 1960-61 PRICES ]  
UNDER NON ELECTRICAL MACHINERY.

SCALE :- YAXIS 1 CM = 15 CRORES OF RUPEES



- 711) POWER GENERTING MACHINERY.
- 712) AGRICULTORAL MACHINERY.
- 714) OFFICE MACHINERY.
- 715) METAL WORKING MACHINERY.
- 717) TEXTILE AND LEATHER MACHINERY.
- 718) MACHINES FOR SPECIAL INDUSTRIES.
- 719) OTHER NON ELECTRICAL MACHINERY.

**Table 5-3.1 : Share of the Finished Products in the Total Imports under Non-Electrical Machinery and also in Its Seven Groups in 1960-61 and 1970-71**

(In Thousand Rupees)						
S. No.	RITC Code No.	Title	Imports of Finished products in 1960-61	Percentage to total imports	Imports of Finished products in 1970-71	Percentage to total imports
	71	Machinery other than electric	8,89,642	45.07	13,79,434	53.63
1	711	Power generating machinery other than electric	75,639	30.37	18,117	8.13
2	712	Agricultural machinery and implements	49,584	96.60	2,31,120	83.01
3	714	Office machines	13,970	71.57	18,488	52.22
4	715	Metal working machinery	2,95,322	60.87	5,81,952	93.56
5	717	Textile and leather machinery	1,02,448	41.96	41,465	38.00
6	718	Machines for special industries	1,31,982	52.78	1,61,489	51.83
7	719	Other non-electrical machinery	2,20,697	33.73	3,26,803	34.94

**Table 5.2.3 : Imports of Different Commodities under Non-Electrical Machinery in 1960-61 and Their Indices (At 1960-61 Prices) in 1965-66 and 1970-71**

(1960-61 = 100)

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of imports	
			1965-66	1970-71
711	POWER GENERATING MACHINERY OTHER THAN ELECTRIC	2,509	163	41
711.1	Steam generating boilers and parts thereof	566	266	33
a)	Boilers	112	51	7
b)	Parts of boilers	454	319	41
711.2	Boiler house plant	12	180	17
711.3	Steam engines	192	46	98
711.31	Steam Engines incorporating boilers	10 3	225 1343	- 533
711.32	Steam engines not incorporating boilers	51	106	56
	Parts thereof	128	91	51
711.4	Aircraft engines	390	212	82
711.41	Internal combustion engines	103	396	96
711.42	Jet and gas turbines parts	287	146	77
711.5	Internal combustion engines	1,257	104	27
711.51	Diesel oil engines marine	158	127	3
711.52	Diesel oil engines for motor vehicles	145	8	2
711.53	Diesel oil engines, stationary	92	52	-
711.54	Petrol engines for motor vehicles	2	39255	800
711.55	Internal combustion engines n.e.s.	16	1109	3
711.56	Parts of diesel engines	406	98	43
711.57	Parts of petrol engines	158	63	33
711.59	Parts of other internal combustion engines	283	110	34
711.6	Gas turbines and parts thereof	52	232	88
711.60	Gas turbines	17	25	-
711.61	Parts of engines n.e.s.	35	334	132
711.7	Nuclear reactor	3	235	218
711.8	Engines n.e.s.	37	50	-
711.81	Water turbines	37	50	-
711.89	Other engines	26	-	-
712	AGRICULTURAL MACHINERY AND IMPLEMENTS	513	143	363
712.1	Agricultural machinery for preparing and cultivating soil	29	666	799
712.11	Machine drawn machinery	19	470	935
712.12	Animal driven machinery	3	1460	-
712.12	Parts of agricultural machinery	9	1045	544
712.2	Agricultural machinery for harvesting, threshing and soiling	9	60	198
712.20	Complete set	7	8	2
212.20	Parts	2	269	770

(continued)

Table 5.2.3 : (continued)

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of imports	
			1965-66	1970-71
712.3	Cream separators	37	48	32
712.31	Cream separators	3	22	39
712.31	Parts			
712.39	Dairy machinery	34	50	32
712.5	Tractors	424	98	336
712.9	Agricultural machinery and appliances n.e.s.	14	800	1141
712.99	Other agricultural machinery	8	20	72
	Parts thereof	6	1743	2434
714	OFFICE MACHINES	195	194	96
714.1	Typewriters and cheque writing machines	2	50	171
714.2	Calculating machines	46	128	91
714.3	Statistical machines	90	340	116
714.9	Office machines n.e.s.	57	78	86
714.91	Duplicating, addressing machines	2	46	49
714.92	Parts of office machinery	55	79	87
715	METAL WORKING MACHINERY	4,852	85	92
715.2	Metal working machinery other than machine tools	3,461	77	124
715.21	Converters	1,523	124	256
	Parts of converters	1,899	39	19
715.22	Rolling mills	15	138	114
715.23	Welding and cutting machines	24	2	41
715.3	Automatics, capstans, turrets, lathes	345	140	11
715.31	Automatics	31	88	56
715.32	Capstans and turrets	115	87	2
715.33	Lathes	199	179	10
715.4	Boring, broaching, drilling and threading machine	257	129	28
715.41	Boring machines	115	155	23
715.42	Broaching machines	18	152	121
715.43	Drilling machines	91	93	26
715.44	Threading machines	33	129	4
715.5	Milling, planing, shaping machines	212	80	19
715.51	Milling machines	118	59	6
715.52	Planers	37	62	2
715.53	Shaping machines	17	55	22
715.54	Slotting machines	12	107	4
715.55	Gear cutting, generating and finishing machines	28	186	97
715.6	Grinding, lapping, boning and polishing machines	230	53	8
715.61	Grinding machines	230	53	8
715.62	Lapping, boning and polishing machines	230	53	8

(continued)

Table 5.2.3 : (continued)

ITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of Imports	
			1965-66	1970-71
715.7	Sawing, contour sawing, filing and cutoff machines	23	64	4
715.8	Metal forming machinery	324	105	8
715.81	Bending machines	20	128	1
715.82	Drawing machines	32	17	4
715.83	Presses	172	120	8
715.84	Punching and shearing machines	69	22	1
715.85	Forging machines	27	305	35
715.86	Riveting machines	3	118	29
717	TEXTILE AND LEATHER MACHINERY	2,441	184	21
717.1	Textile machinery	2,376	185	18
717.11	Spinning machines	560	440	32
717.12	Weaving machines	273	76	12
717.13	Other machines parts of textile machinery	966	93	13
717.14	Machinery for the manufacture of felt	1	2000	350
717.15	Bleaching, washing, printing machinery	161	70	-
	Parts of bleaching machinery	415	81	21
717.2	Leather machinery	20	102	341
717.3	Sewing machines	45	136	23
717.31	Household sewing machines	2	23	-
	Parts	9	51	9
717.32	Industrial machines	9	403	75
	Parts	22	15	4
717.33	Sewing machine needles	5	295	24
718	MACHINE FOR SPECIAL INDUSTRIES	2,501	120	40
718.1	Paper machinery	255	53	51
718.11	Machinery for making pulp, paper	89	22	7
	Parts	150	66	24
718.12	Paper cutting machines	10	26	18
	Parts	6	212	1359
718.2	Printing and book binding machinery	276	125	103
718.21	Book-binding machinery	5	279	379
718.22	Type making and setting machinery	53	343	230
718.29	Other printing machinery n.e.s.	148	191	298
	Parts	74	72	41
718.3	Food processing machines	135	157	117
718.31	Machinery for milling grain etc.	21	172	39
	Parts	9	149	118
718.39	Other food processing machines	105	154	132
718.4	Construction and mining machinery	1,778	121	53

(continued)

Table 5.2.3 : (continued)

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of imports	
			1965-66	1970-71
718.41	Road rollers	1	2041	-
	Parts	617	67	15
718.42	Excavating machinery	835	80	67
	Parts	324	325	88
718.5	Mineral crushing, sorting, moulding machinery	57	92	350
718.51	Mineral crushing sorting etc. machinery	41	69	4
718.52	Glass working machinery	16	151	1245
719	MACHINERY AND APPLIANCES (OTHER THAN ELECTRICAL) AND MACHINE PARTS N.E.S.	6,727	210	62
719.1	Heating and cooling equipment	628	248	211
719.11	Gas generators	2	8231	327
719.12	Air conditioning machines	25	17	38
	Parts	49	49	8
719.14	Industrial and laboratory furnace	3	2176	625
719.15	Refrigerators and cooling equipment	50	7	5
	Parts	42	142	40
719.19	Other - cement making, petrol refining, distilling, sterilizing apparatus	158	301	278
719.2	Pumps and centrifuges	610	96	56
719.21	Pumps for liquids	243	121	75
	Parts	119	123	104
719.22	Pumps for gases	225	40	11
719.23	Centrifuges	24	221	57
719.3	Mechanical handling equipment	996	60	7
719.31	Lifting and loading machinery	598	40	5
	Parts	37	60	12
719.32	Fork lift trucks	255	85	2
	Parts of trucks	106	112	23
719.4	Domestic appliances (non-electrical)	5	113	13
719.41	Food processing machines	5	-	-
719.42	Domestic refrigerators (non-electrical)	4	3	3
	Parts	3	1548	144
719.43	Water heaters	2	17	-
719.5	Powered-tools for working minerals	334	404	6
719.52	Machine tools for working stone	85	45	28
719.53	Motorised hand tools	76	153	7
719.54	Parts of machine tools	173	695	108
719.6	Other non-electrical machines	55	44	12
719.62	Machinery for cleaning, filling, packing machinery	.05	848	94
719.63	Weighing machinery	39	32	4
719.64	Spraying machinery	16	72	30

(continued)



**Table 5.2.3 : (continued)**

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of imports	
			1965-66	1970-71
719.7	Ball bearings and parts	369	226	164
719.71	Ball bearings	329	247	174
719.79	Parts of ball bearing	40	54	76
719.8	Machinery and mechanical appliances n.e.s.	104	41	21
719.9	Parts of machinery n.e.s.	3,626	250	44

is largely responsible for an increase in its share in the total imports of the non-electrical machinery as observed in Table 5.2. This is the period in the Indian economy when the onset of green revolution in certain areas resulting from the introduction of new technology which is largely capital intensive, necessitated increased use of modern agricultural implements. This phenomenon largely explains the increase that is observed in the imports under agricultural machinery.

Among the two components of the total imports i.e. finished product and parts and accessories, it is the latter which largely explains the behaviour of imports in different groups, particularly in other non-electrical machinery, machines for special industries and also power generating machinery (Table 5.2.2). Though imports of parts and accessories of agricultural machinery increased tremendously over the years, the total imports of agricultural machinery did not keep pace with the increase in that in parts and accessories because of the smaller increase in the import of the finished products accounting for 96 per cent of the total imports under the industry (Table 5.2.2). So far as import of finished product component is concerned only that of metal working machinery shows an increasing trend.

We shall now refer to Table 5.2.3 for examining the imports of some of the important products in each group.

Under industrial machinery group (metal working machinery, textile and leather machinery, machines for special industries and other non-electrical machinery) the important products which show increase in the import upto 1965-66 and decrease in the same in 1970-71 which has been the general feature of import of non-electrical machinery are as follows: Lathes, boring, broaching and drilling machines, slotting machines, bending machines, presses, forging machines, riveting machines, textile machinery especially spinning machines, sewing machines, paper machinery, printing and book binding machinery, gas generators, industrial and laboratory furnace, cement making petroleum refining distilling sterilizing apparatus, pumps for liquids, centrifuges, parts of trucks, parts of domestic refrigerators (non-electrical), powered tools, ball bearings parts and accessories of machinery n.e.s.

Under power generating machinery the important products showing similar trend are internal combustion engines and steam generating boilers. Under the agricultural machinery the industry which shows increase in import in the second half of the decade (Table 5.2.1) the most important item showing similar trend is tractor.

### 5.3 (b) Electrical Machinery

It comprises goods of two types: (1) machinery and equipment used for power generation and distribution of

electricity, viz. electrical power machinery and switch-gear, equipment for distributing electricity and other electrical machinery, (2) consumer durables, viz. telecommunication equipment, domestic electric equipment, electric apparatus for medical purposes and radiological apparatus. The first type comprising of electrical power machinery and switch-gear group, equipment for distribution of electricity and other electrical machinery and apparatus group account for about 90 per cent of total imports under electrical machinery in 1960-61. Thus the trends in import in electrical machinery as a whole would be guided by the trends in these industries.

The share of telecommunication apparatus in the total imports of electrical machinery shows marked increase in 1970-71 over 1960-61 while that of equipment for distribution of electricity shows a steep decline over the years (Table 5.3).

We observed earlier in Table 5.1.1 that over the period imports of electrical machinery increased particularly during the first half. We shall now examine the trends in imports under major industries and see the influence of these trends on that of electrical machinery as a whole.

Electrical power machinery and switch-gear displays exactly the same trend in imports as observed under the

5.3  
**Table ~~5.1.2~~ : Distribution of Imports under 'Electrical Machinery, Apparatus and Appliances' in 1960-61 and 1970-71**

(In Thousand Rupees)

RITC Code No.	Title	Value in 1960-61	Percentage to total imports	Value in 1970-71	Percentage to total imports
722	Electrical power machinery and switchgear	2,78,983	42.61 ✓	3,53,380	51.14
723	Equipment for distributing electricity	83,829	15.94 ✓	34,048	4.93
724	Telecommunication apparatus	40,765	7.75 <sup>22</sup>	1,29,505	18.74
725	Domestic electric equipment	6,561	1.25	2,842	0.41
726	Electrical apparatus for medical purposes and radiological apparatus	6,227	1.18	25,711	3.72
729	Other electrical machinery and apparatus	1,64,451	31.27 ✓	1,45,549	21.06
Total Electrical Machinery Apparatus and Appliances			100.00	6,91,035	100.00

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5.3-1

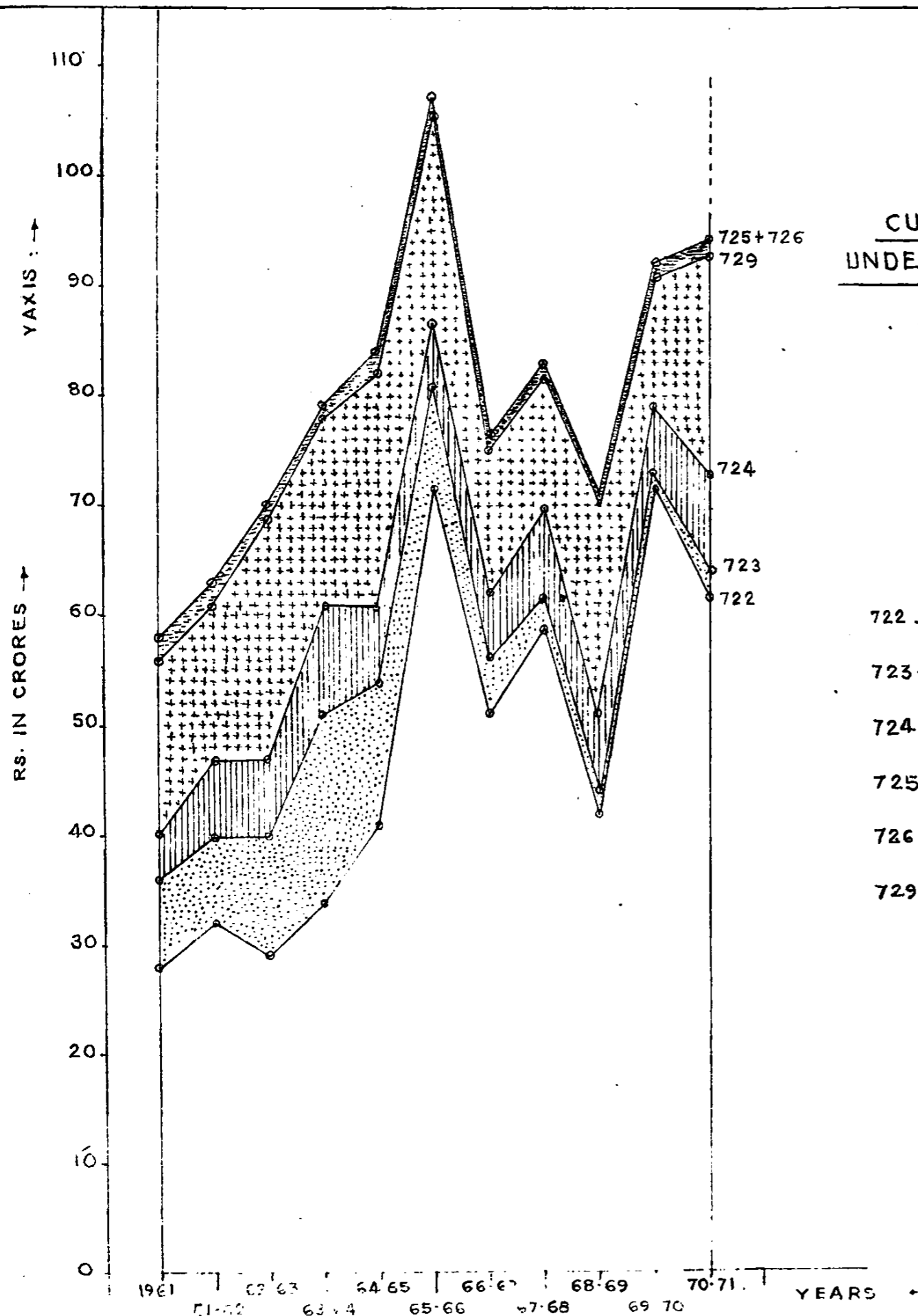
**Table 5.2.2 : Groupwise Indices of Imports under Electrical Machinery Apparatus and Appliances (at 1960-61 Prices)**

			(1960-61 = 100)									
RITC Code No.	Title		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
722	Electrical power machinery and switchgear	T	115	102	120	147	258	183	211	152	260	223
		F	95	90	84	93	259	158	215	131	292	142
		P	181	142	245	334	239	260	182	215	123	136
723	Equipment for distributing electricity	T	97	133	198	150	105	61	37	24	8	19
		F	97	133	198	150	105	61	37	24	8	19
		P	-	-	-	-	-	-	-	-	-	-
724	Telecommunication apparatus	T	167	167	251	176	140	140	199	167	140	217
		F	214	87	61	36	162	155	42	48	158	194
		P	155	186	296	209	134	136	236	195	135	223
725	Domestic electric equipment	T	105	107	69	58	43	32	18	28	22	25
		F	136	154	99	63	52	40	25	30	12	23
		P	87	81	53	56	38	27	13	28	27	26
726	Electric apparatus for medical purposes & radiological apparatus	T	143	114	148	185	174	149	159	77	103	173
		F	131	91	109	93	55	87	70	24	28	49
		P	157	143	197	297	317	224	267	140	194	322
729	Other electrical machinery and apparatus	T	86	136	102	131	115	80	70	118	77	124
		F	92	145	80	102	99	93	73	152	100	167
		P	71	115	155	201	153	48	65	33	20	16

GRAPH 4

CUMULATIVE VALUES OF IMPORTS (AT 1960-61 PRICES)  
UNDER ELECTRICAL MACHINERY APPARATUS.  
AND APPLIANCES 1960-61 TO 1970-71.

(SCALE :- YAXIS · 1 CM. = 5 CRORES OF RUPEES)



- 722 - ELECTRICAL POWER MACHINERY AND SWITCH GEARS
- 723 - EQUIPMENT FOR DISTRIBUTING ELECTRICITY.
- 724 - TELECOMMUNICATION EQUIPMENT.
- 725 - DOMESTIC ELECTRICAL EQUIPMENT.
- 726 - ELECTRO-MEDICAL APPARATUS.
- 729 - OTHER ELECTRICAL MACHINERY

**Table 5.3.2 : Share of the Finished Products in the Imports under Electrical Machinery, Apparatus and Appliances and also in Its Six Groups in 1960-61 and 1970-71**

(In Thousand Rupees)

S. No.	RITC Code No.	Title	Imports of Finished products in 1960-61	Percentage to total imports	Imports of Finished products in 1970-71	Percentage to total imports
	72	Electrical machinery, apparatus & appliances	4,31,936		2,73,872	
1	722	Electrical power machinery and switchgear	2,17,360	77.91	1,41,114	39.93
2	723	Equipment for distributing electricity	83,829	19.4	34,048	12.4
3	724	Telecommunication apparatus	7,885	19.34	9,478	7.32
4	725	Domestic electric equipment	2,337	35.62	1,051	36.98
5	726	Electric apparatus for medical purposes and radiological apparatus	3,412	54.79	7,548	29.36
6	729	Other electrical machinery and apparatus	1,17,113	71.21	80,633	55.40



**Table 5.3.3 : Imports of Different Commodities under Electrical Machinery, Apparatus and Appliances in 1960-61 and Their Indices (At 1960-61 Prices) in 1965-66 and 1970-71**

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	(1960-61 = 100)	
			Index of imports 1965-66	1970-71
722	ELECTRICAL POWER MACHINERY AND SWITCHGEAR	2,790	258	223
722.1	Electric power machinery	1,345	173	63
722.11	Generators and generating sets	468	363	90
722.12	Electric motors	484	54	24
722.13	Transformers	383	83	8
722.19	Electric power machinery n.e.s.	10	293615	2725
722.2	Electrical apparatus for making and breaking or for protecting electrical circuits	1,445	133	373
722.21	Control and switchgear	690	91	53
722.22	Electrical apparatus for making, breaking or for protecting electrical circuits n.e.s.	755	172	665
723	EQUIPMENT FOR DISTRIBUTING ELECTRICITY	838	105	19
723.1	Insulated wire and cable	636	117	21
723.11	Insulated wire	342	77	16
723.12	Insulated cables and flexes	294	163	27
723.2	Electrical insulating equipment	202	68	14
723.21	Electrical insulators	169	69	16
723.22	Other insulating fittings for electrical equipment	33	63	5
724	TELECOMMUNICATIONS APPARATUS	407	140	217
724.1	Television broadcast receiver sets	4	1756	1631
724.2	Radio broadcast receivers	24	15	12
724.9	Telecommunication equipment n.e.s.	379	130	213
724.91	Telephone and telegraph apparatus and instruments and parts	245	78	167
724.92	Microphones, loudspeakers and amplifiers	36	55	139
724.99	Other telecommunication equipment	99	287	359
725	DOMESTIC ELECTRIC EQUIPMENT	66	43	25
725.0	Domestic electric equipment	66	43	23
725.01	Domestic refrigerators	39	16	12
725.02	Domestic washing machines	.8	69	309
725.03	Electro-mechanical domestic appliances	13	97	56
725.05	Electric space heating equipment	13	67	14
726	ELECTRIC APPARATUS FOR MEDICAL PURPOSES RADIOLOGICAL APPARATUS	63	174	173
726.1	Electromedical apparatus	17	131	176
726.2	X-ray apparatus	46	190	171

(continued)

Table 5.3.3 : (continued)

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	Index of imports	
			1965-66	1970-71
729	OTHER ELECTRICAL MACHINERY AND APPARATUS	1,645	115	124
729.1	Batteries and accumulators	45	93	610
729.11	Primary batteries and cells	4	112	6062
	Parts	33	50	40
729.12	Electric accumulators	8	269	219
729.2	Electric lamps	41	98	280
729.21	Electric discharge lamps	8	227	91
729.22	Electric filament lamps	17	81	34
729.23	Other electric lamps	10	13	1
729.24	Parts of electric lamps	6	105	22
729.3	Thermionic etc. valves, tubes, transistors, photocells	52	20	4
729.4	Automotive electrical equipment	169	58	49
729.41	Electrical starting and ignition equipment for internal combustion engines	144	62	53
729.42	Electrical lighting equipment for vehicles	25	34	23
729.5	Electrical measuring and controlling instruments	182	268	34
729.51	Electricity supply meters	56	2	.01
729.52	Electrical measuring and controlling instruments	126	386	49
729.6	Electro-mechanical hand-tools	450	157	.13
729.9	Electrical machinery and apparatus n.e.s.	706	72	204
729.91	Electro magnets	17	82	54
729.92	Electric furnaces	513	55	14
729.93	Electric traffic control equipment	20	151	16
729.94	Electric sound or visual signalling apparatus parts	12	3	5
729.95	Electric condensers	32	10	12
729.96	Electric carbons	112	160	1204
729.98	Parts of machinery and appliances n.e.s.	434	162	14

electrical machinery as a whole, while other electrical machinery and apparatus shows a similar trend though not exactly the same (Table 5.3.2). The trends in imports in these two industries largely determined the trend observed under the electrical machinery. The third industry, viz., equipment for distributing electricity, however, depicts a sharp decrease in imports from 1964-65 onwards. Under consumer durables the import of telecommunication apparatus increased steadily over the years. This possibly explains the increase in the share of the industry in total imports of electrical machinery in 1970-71 over 1960-61 as observed in Table 5.3.

We shall now proceed to examine some of the major products given in Table 5.3.3 and see the influence of the imports of these products on the total import of the industry. The import of electrical power machinery comprising products like transformers generators, electric motors etc. declined while that of electric apparatus for making electrical circuits (switch gear etc.) increased considerably in 1970-71 over 1960-61. The combined effect of the import of these products resulted into small decline in the import of electrical power machinery and switchgear between 1965-66 and 1970-71. Similarly the import of products like electrical machinery and apparatus n.e.s. accounting for about 50 per cent of the value of import under other electrical machinery and apparatus though

increased considerably the total imports of other electrical machinery and apparatus did not register a similar increase because of the decrease in import of rest of the products constituting the other 50 per cent of the total import of the group. A steep decline in the import of equipment for distributing electricity as observed earlier is due mainly to the similar decline in the import of insulated wires and cables. Increase in the import of products like telephone and telegraph apparatus, microphones, loudspeakers and amplifiers and parts thereof largely accounts for the increase in the import of telecommunication apparatus as a whole.

### 5.3 (c) Transport Equipment

This industry as seen earlier accounts for about 23 per cent of the total import under Machinery and Transport equipment. Imports of railway vehicles and road motor vehicles accounted for more than 80 per cent of total imports in transport equipment in 1960-61 (Table 5.4). However, in 1970-71 their share decreased to 63 per cent, but on the other hand the share of aircraft in the total imports increased from 12.43 per cent to 33.02 per cent between 1960-61 and 1970-71. We shall now take a look at Table 5.4.1 to observe the trends in imports under each group.

It is seen that there is a marked decrease in the import of road motor vehicles over the years particularly

Table <sup>2-4</sup> ~~5-1-3~~ : Distribution of Imports under Transport Equipment in 1960-61 and 1970-71

(In Thousand Rupees)					
RITC Code No.	Title	Value in 1960-61	Percentage to total imports	Value in 1970-71	Percentage to total imports
731	Railway vehicles	2,40,043	32.99	1,40,052	24.03
732	Road Motor vehicles	3,55,597	48.87	2,29,705	39.41
733	Road vehicles other than motor vehicles	14,566	2.00	919	0.16
734	Aircraft	90,464	12.43	1,92,423	33.02
735	Ships and boats	27,332	3.71	19,675	3.38
<hr/>					
Total 73	Transport Equipment	7,27,692	100.00	5,82,774	100.00

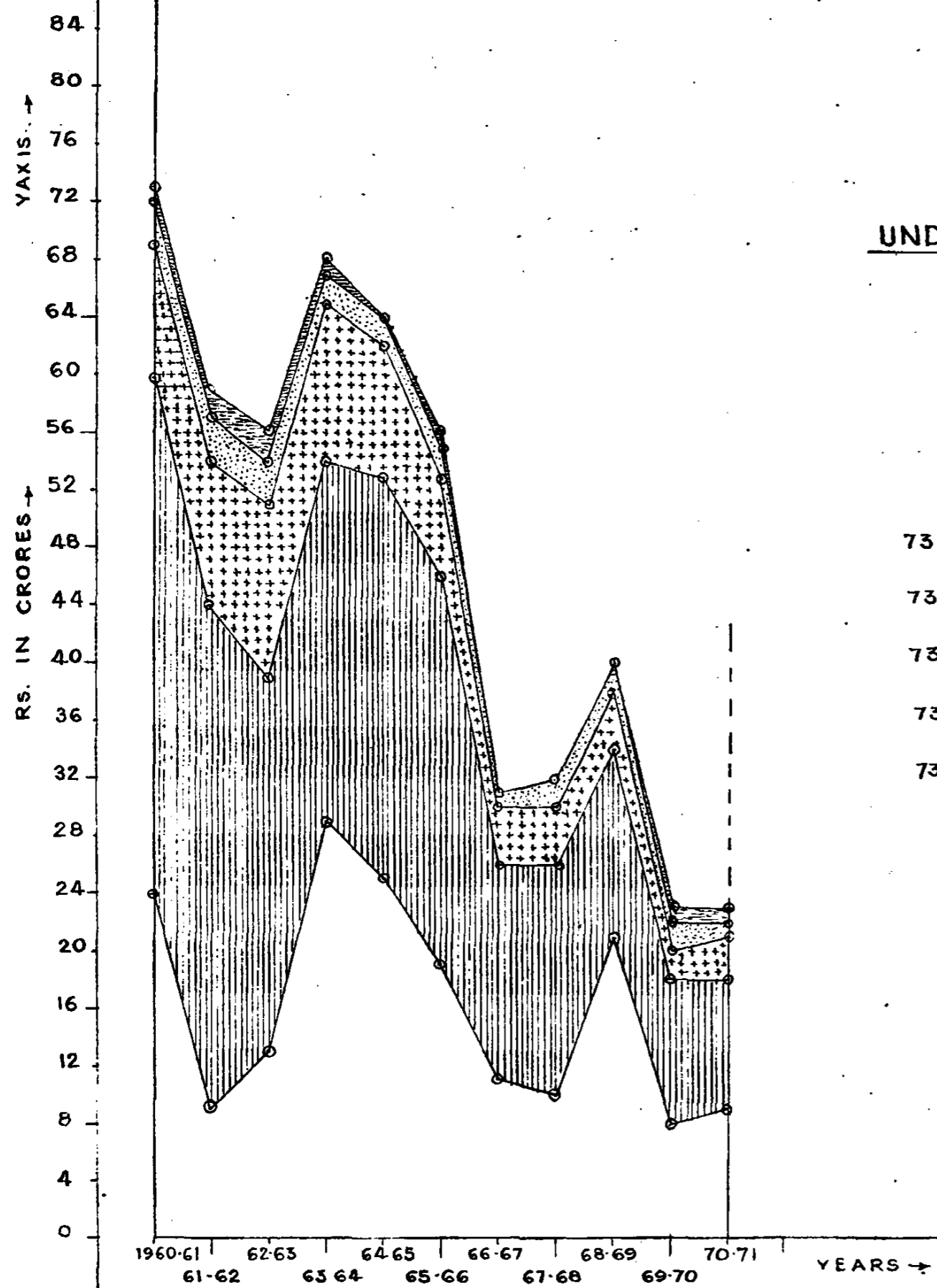
5-4-1  
**Table 5.2.3 : Groupwise Indices under 'Transport Equipment' (At 1960-61 Prices)**

(1960-61 = 100)

RITC Code No.	Title		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
731	Railway Vehicles	T	39	56	121	105	78	45	40	87	33	39
		F	24	29	43	105	43	9	8	73	2	1
		P	72	117	302	104	157	128	114	119	104	126
732	Road motor vehicles	T	98	73	72	79	75	42	44	37	29	26
		F	47	26	33	17	20	18	23	13	34	25
		P	108	82	79	91	86	47	48	41	28	26
733	Road vehicles other than motor vehicles	T	90	32	23	16	11	8	9	10	6	3
		F	88	32	28	16	9	7	9	12	7	4
		P	93	32	12	17	15	12	8	3	5	3
734	Aircraft	T	110	137	125	96	83	49	44	45	20	31
		F	3602	2234	1517	609	3910	4106	1728	2234	1267	1586
		P	96	128	119	94	67	32	37	36	14	25
735	Ships and boats	T	128	147	57	56	90	26	82	80	87	44
		F	119	167	46	43	111	28	104	101	111	56
		P	163	74	97	103	12	20	2	5	1	-

GRAPH. 5

CUMULATIVE VALUES OF IMPORTS.  
 (AT 1960-61 PRICES.)  
UNDER TRANSPORT EQUIPMENT (1960-61 TO 1970-71)  
 [SCALE :- YAXIS :- 1 CM = 4 CRORES OF RUPEES]



- 731) RAIL ROAD EQUIPMENT.
- 732) ROAD MOTOR VEHICLES.
- 733) ROAD VEHICLES OTHER THAN MOTOR VEHICLES.
- 734) AIRCRAFT.
- 735) SHIPS AND BOATS.

5-4.2  
**Table 5-3-3** : Share of the Finished Products in the Imports under 'Transport Equipment' and also in Its Five Groups in 1960-61 and 1970-71

(In Thousand Rupees)

S. No.	RITC Code No.	Title	Imports of Finished products in 1960-61	Percentage to total imports	Imports of Finished products in 1970-71	Percentage to total imports
	73	Transport Equipment	2,57,214	25.34	80,715	13.85
1	731	Railway vehicles	1,67,467	70.67	2,14,544	10.38
2	732	Road Motor vehicles	57,890	16.37	2,19,673	8.56
3	733	Road Vehicles other than motor vehicles	10,577	72.61	617	67.14
4	734	Aircraft	373	0.41	26,206	13.62
5	735	Ships and boats	21,589	78.98	19,675	100.00



**Table 5.4.3 : Imports of Different Commodities under Transport Equipment in 1960-61 and Their Indices (At 1960-61 Prices) in 1965-66 and 1970-71**

RITC Code No.	Title	Value of imports in 1960-61 (Rs. lakh)	(1960-61 = 100)	
			Index of imports 1965-66	Index of imports 1970-71
731	RAILWAY VEHICLES	2,400	78	39
731.1	Railway locomotives, steam	27	50	130
731.2	Railway locomotives, electric	1,395	44	-
731.3	Railway locomotives other than steam or electric	113	83	8
731.4	Mechanically propelled railway and tramway cars	39	-	-
731.5	Railway and tramway passenger cars not mechanically propelled	62	-	-
731.6	Railway and tramway service vehicles	40	3	3
731.7	Parts of railway locomotives	724	157	126
732	ROAD MOTOR VEHICLES	3,555	75	26
732.1	Passenger motor cars	200	18	39
732.2	Buses	13	53	8
732.3	Lorries and Trucks	209	15	5
732.31	Assembled	145	17	8
732.32	Not assembled	64	12	-
732.4	Special purpose lorries, trucks and vans	22	200	241
732.6	Chassis for motor cars	.01	544000	-
732.7	Other chassis for tractors	198	231	202
732.8	Bodies, chassis parts of motor vehicles	2,705	72	12
732.9	Motor cycles	209	79	33
732.91	Motor cycles, auto cycles	182	.07	.10
732.92	Parts of motor cycles	28	599	250
733	ROAD VEHICLES OTHER THAN MOTOR VEHICLES	145	11	3
733.1	Bicycles and other cycles and parts	110	8	3
733.11	Cycles	1	1	2
733.12	Parts	109	-	-
733.3	Trailers	35	20	6
734	AIRCRAFT	905	83	31
734.1	Aircraft	4	3910	1586
734.9	Airships and balloons and parts	901	67	25
735	SHIPS AND BOATS	273	90	44
735.3	Ships and boats			
	Complete	62	60	18
	Incomplete	5	600	250
		57	12	-
735.9	Ships and boats n.e.s.	211	97	1
735.91	Tugs	9	33	33
735.92	Special purpose vessels	202	98	25

from 1966-67 onwards. Their trend is in tune with the trend of import observed under transport equipment as a whole (Table 5.1.1). The other important importing group i.e. railway vehicles does not show any marked trend except more or less maintaining the sudden fall in import observed in 1961-62 with a spurt in between 1963-64. Rest of the groups also show decrease in import over the years. As seen in Table 5.4.2 parts and accessories accounts for more than 80 per cent of imports under road motor vehicles and as such a continuous decrease in the import of parts and accessories (Table 5.4.1) causes a similar decrease in the import of road motor vehicles as a whole. But since parts and accessories accounts for only 30 per cent of the total import under railway vehicles, the increase in its imports is not reflected in the imports of railway vehicles as a whole.

Table 5.4.3 shows that import of railway locomotives electric and parts of electric railway locomotives constitute the lion's share in the import of railway vehicles. Similarly the import of bodies, chassis and parts of motor vehicles has the major share in the import of road motor vehicles. A decrease in the import of these products in 1970-71 over 1965-66, as seen in Table 5.4.3, explains the decreasing trend in imports, under railway vehicles and road motor vehicles, particularly from 1966-67 onwards.

#### 5.4 Concluding Remarks

It only remains now to be summarised the issues raised in the preceding sections and make a few concluding observations from this summary.

1. As a preamble it would be in the fitness of the things to recall that over the years, trends in imports of Machinery and Transport Equipment as well as total imports was more or less same. This was possibly due to the fact that the import of maintenance and consumer goods had to be kept more or less at the required level irrespective of fluctuations in the foreign exchange resources and consequently any cut in imports to adjust balance of payment was possibly at the cost of reduced imports under Machinery and Transport Equipment.

2. This trend is broadly in conformity with the shifts in Import Control Policy during this period. The import policy during the period 1966-67 to 1970-71 accorded top priority to the basic raw material as against capital goods. The emphasis was accorded to capital goods prior to that. The proportion of licences issued to capital goods in total licences declined from 24.46 per cent in 1965-66 to 7.78 per cent in 1970-71.

3. Import of non-electrical machinery appears to have the major share of total imports under the Machinery and Transport Equipment as such the trends in imports in

non-electrical machinery determined the trends in Machinery and Transport Equipment as a whole. It is observed that the general trend in import under Machinery and Transport Equipment is that of a steady increase upto 1965-66 and a gradual but continuous decrease thereafter and, as expected, a similar trend in import under non-electrical machinery too. A noteworthy feature, as presented in the Figure 5.1, is that the quantity index under each of the industry of Machinery and Transport Equipment i.e., non-electrical machinery, electrical machinery and transport equipment reach the peak in 1965-66 and thereafter decline continuously upto 1970-71.

4. As pointed out earlier, a general decline in the level of imports can normally be attributed to two factors, viz., demand and production. Any firmer conclusion regarding the factors causing the observed trend can be drawn only when the production trend of the industry is compared alongside the import trend, which we propose to do in the following two chapters.

**Table A<sub>5.1</sub> : Statement showing Correspondence between Code No. Adopted by Revised Indian Trade Classification (RITC) and Indian Trade Classification (ITC)**

S. No.	Title	Code No. in RITC	Code No. in ITC
1.	Power generating machinery other than electric	711	711
2.	Agricultural machinery and implements	712	712 & 713
3.	Office machines	714	714
4.	Metal working machinery	715	715
5.	Textile and leather machinery	717	716
6.	Machines for special industries	718	
7.	Machinery and appliances (other than electrical) and machine parts n.e.s.	719	
8.	Electrical power machinery and switchgear	722	721
9.	Equipment for distributing electricity	723	
10.	Telecommunication apparatus	724	
11.	Domestic electric equipment	725	
12.	Electric apparatus for medical purposes and radiological apparatus	726	
13.	Other electrical machinery and apparatus	729	
14.	Railway vehicles	731	731
15.	Road motor vehicles	732	732
16.	Road vehicles other than motor vehicles	733	733
17.	Aircraft	734	734
18.	Ships and boats	735	735

Table A<sub>5.1(a)</sub> : Correspondence at a Disaggregative Level

S. No.	Title	Code No. in RITC	Code No. in ITC
<b>711 POWER GENERATING MACHINERY</b>			
1.	Steam generating boilers (fire tubes)	7111001 and 7111002	711010100
2.	Steam generating boilers (water tube)	7111003 and 7111004	711010200
3.	Other steam generating boilers	7111009	711010900
4.	Parts and accessories of boilers	7111011, 1012 and 1019	711011100
5.	Boiler house plant	7112000	711020000
6.	Steam engines other than mobiles	7113101 and 7113203	711030109
7.	Steam engines, mobiles	7113102	711030101
8.	Parts of steam engines	7113103 and 7113204	711030201 and 711030209
9.	Steam turbines	7113201	711030400
10.	Parts of steam turbines	7113202	711030500
11.	Aircraft engines	7114101 and 7114201	711040100
12.	Parts of aircraft engines	7114102, 7114202	711040200
13.	Diesel oil engines Horizontal upto 10 B.H.P.(marine)	7115101	711050102
14.	Diesel oil engines Horizontal 11 to 20 B.H.P.	7115102	711050104
15.	Horizontal above 20 B.H.P.	7115103	711050106
16.	Diesel oil engines Vertical upto 10 B.H.P.	7115111	711050101
17.	Diesel oil engines Vertical 11 to 20 B.H.P.	7115112	711050103
18.	Diesel oil engines Vertical above 20 B.H.P.	7115113, 7115114, 7115115	711050105
19.	Diesel oil engines for motor vehicles Horizontal upto 20 B.H.P.	7115201	711050302
20.	Horizontal above 20 B.H.P.	7115202, 7115203	711050304
21.	Vertical upto 20 B.H.P.	7115211	711050301
22.	Vertical above 20 B.H.P.	7115212, 7115213	711050303
23.	Diesel oil engines Stationary Horizontal upto 10 B.H.P.	7115301	711050502
24.	Horizontal above 10 B.H.P.	7115302	711050504, 711050506
25.	Vertical upto 10 B.H.P.	7115311	711050501
26.	Vertical above 10 B.H.P.	7115312, 7115313	711050503, 711050505
27.	Petrol engines for motor vehicles	7115401, 7115402, 7115409	711051300
28.	Oil engines other than diesel (marine)	7115501	711050200
29.	Petrol engines n.e.s.	7115502	711051501, 711051502, 711051503

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
30.	Kerosene engines	7115503	711051101, 711051102, 711051103
31.	Gas engines	7115504	711050700
32.	Other internal combustion engines	7115509	711051900
33.	Component parts of diesel oil engines for motor vehicles	7115601 to 7115619	711050400, 716131301, 716131302
34.	Component parts of petrol engines for motor vehicles	7115701 to 7115709	711051400
35.	Component parts of diesel engines (marine)	7115901	711050601
36.	Component parts of diesel engines (stationary)	7115902	711050602
37.	Component parts of petrol engines	7115903	711051600
38.	Component parts of kerosene engines	7115904	711051200
39.	Component parts of gas engines	7115905	711050800
40.	Parts of internal combustion engines	7115909, 7192102, 7192103, 7192302	711052100
41.	Gas turbines	7116001	711090200
42.	Parts of engines n.e.s.	7116002, 7009, 7118102, 8911	711091100, 891010204
43.	Other engines	7117001, 8909	711090900, 711090100
44.	Water turbines	7118101	711090300
45.	Gramophone motors	7118901	891010203
<b>712. <u>AGRICULTURAL MACHINERY</u></b>			
1.	Rotary hoes	7121101	71210101
2.	Rotary tiller	7121102	712010102
3.	Disc harrows	7121103	712010502
4.	Disc ploughs	7121104	712011102
5.	Tractor ploughs	7121105	712011103
6.	Others	7121109	712010302, 011600 712010402, 012900 712010503, 010802 712010600, 712010702, 090700 712011302, 712011402, 712011502
7.	Parts for animal drawn and power driven agricultural machinery	7121111, 7127202	712010200 712011200 712011300
8.	Animal drawn agricultural machinery	7121201	712010301, 011301 712010401, 011401 712010501, 011501 712010701, 712010801, 712011101

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
9.	Agricultural machinery and appliances for harvesting, threshing and sorting	7122001	712020100, 021202 712020200, 021300 712020300, 022900 712020400, 090901 712020500, 090102 712020600, 090200 712020701, 090300 712020702, 091100 712020800 712021100 712021201
10.	Parts of agricultural machinery	7122002	712023100
11.	Cream separators	7123101	712030300
12.	Parts of cream separators	7123109 7129911	712092100
13.	Milking machines	7123901	712030400
14.	Dairy farm equipment - other sorts	7123909	712030302 712030900
15.	Tractors	7125001, 5002 5003, 5009	712030301 712030309 713010101 713010102 713010103 713010109
16.	Poultry incubators	7129901	712090400
17.	Other agricultural machinery	7129909 7129911 7129100	712090500 712090600 712090800 712091900
<b>714. OFFICE MACHINES</b>			
1.	Typewriters	7141001	714010101 714010102
2.	Cheque-writing machines	7141002 7142001, 2006	714010109 714021900
3.	Calculating machines electrically operated	7142002	714020301, 020302
4.	Calculating machines manually operated	7142003	714020303
5.	Accounting machines, electrically operated	7142004	714020101 714020102 714020201 714020202
6.	Accounting machines manually operated	7142005	714020103 714020203
7.	Other office machines, with a calculative device	7142006, 2007 7149109	714020402, 716070800 714020403, 714020401
8.	Statistical machines operated in conjunction with punched card machines	7143001, 3002 3003, 3004, 3005 3006, 3007, 3009	714020800
9.	Duplicating machines	7149101	714020600
10.	Staplers	7149102	714020900
11.	Parts of typewriters and cheque-writing machines	7149201	714010200
12.	Parts of office machinery	7149202 7149203 7149204	714022100
<b>715. METAL WORKING MACHINERY</b>			
1.	Converters	7152101	716136900
2.	Component parts of metal working machinery,	7152102, 2103, 2111, 2202, 2203, 2311	715020700

(continued)



Table A<sub>5</sub>-1(a) : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
3.	Moulding machines	7152104	715020606
4.	Diecasting machines	7152105	715020603
5.	Metal working machinery, other than machine tools	7152106, 2109, 8202, 8209, 8900, 9001 to 9019	715020619, 020602, 715010709, 715011802
6.	Rolling mills	7152201	715020611
7.	Gas operated welding and cutting machines	7152301, 2302, 2309	715020500
8.	Automatics n.e.s.	7153101	715010109
9.	Bar, chucking, spindles - Automatics	7153102, 3103, 3104, 3105	715010101
10.	Capstans and Turrets	7153201, 3202, 3203	715011101, 715011102
11.	Centre lathes	7153301	715011202, 715011203, 715011204
12.	Lathes n.e.s.	7153302, 3304, 3305, 3309	715011209
13.	Tool room lathes	7153303	715011205
14.	Wheel and axle	7153306	715011206
15.	Horizontal and vertical boring machines	7154101, 4102	715010201
16.	Jig boring machines	7154103	715010202
17.	Boring machines n.e.s.	7154104, 4109	715010209, 715010703
18.	Broaching machines	7154201, 4202, 4209, 6200	715010300, 010800, 715010702, 011801
19.	Drilling machines	7154301, 4302, 4303	715010402
20.	Cylinder	7154304	715010404
21.	Drilling machines n.e.s.	7154309	715010409, 715010701
22.	Tapping	7154401	715011802
23.	Threading machines	7154402, 4404, 4405, 4409	715011700
24.	Screwing machines	7154403	715011500
25.	Milling machines plain	7155101	715011304
26.	Milling machines n.e.s.	7155102, 5103, 5109	715011309, 715011301, 715011302, 715011303
27.	Plano miller	7155104	715011305
28.	Planers	7155201, 5202, 5203, 5204, 5209	715011400
29.	Shaping machines	7155300	715020300
30.	Slotting machines	7155400	715011600
31.	Gear shapers	7155501	715010503
32.	Gear cutting machines n.e.s.	7155502, 5503	715010509
33.	Gear cutters and generators	7155504, 5505, 5506, 5507, 5508, 5509	715010501
34.	Gear tooth grinders	7155511, 5512	715010504

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
35.	Gear finishers	7155513, 5514, 5515, 5519	715010502
36.	Grinding machines (all types)	715610, 6102, 6103, 6104, 6105, 6111, 6112, 6121, 6129, 6131, 6132, 6133, 6134, 6199	715010600
37.	Sawing, contour sawing, filling and cutoff machines	7157001, 7002, 7003, 7004, 7157009	715020201, 715020209, 715020202, 715041301, 715041302
38.	Bending and forming machines Wire drawing machines	7158100 7158201	715020601, 715020401 715020614
39.	Press, hydraulic Press, Power n.e.s.	7158301, 8309 7158311, 8321, 8322, 8323, 8324, 8325, 8326, 8327, 8329	715020105 715020104, 715020101, 715020103
40.	Press, n.e.s.	7158331, 8339	715020109
41.	Punching and shearing machines	7158401, 8402, 8403, 8404, 8405, 8409	715020403, 715020405, 715020409
42.	Nibbling	7158406	715020402
43.	Forging machines	7158501, 8502	715020605
44.	Reeling machines	7158509	715020604
45.	Riveting machines	7158600	715020608
<b>717. TEXTILE AND LEATHER MACHINERY</b>			
1.	Blow room machinery	7171101	716080117
2.	Carding machines	7171102	716080118
3.	Combing machines	7171103	716080121
4.	Yarn reeling machines	7171104	716080122
5.	Doubling frames	7171105	716080123
6.	Doubling twisting machines	7171106	716080124
7.	Drawing frames	7171107	716080125
8.	Intermediate frames	7171108	716080126
9.	Ring frames	7171111	716080127
10.	Spinning frames	7171112	716080128
11.	Spinning machinery	7171119	716080102, 716080131, 716080139
12.	Textile machines for making artificial or synthetic fibres	7171121	716080302
13.	Jute carding and spinning machines	7171131, 1219	716080201, 716080209
14.	Spinning and weaving machines for silk and manmade fibres	7171141, 1221	716080309, 716080402, 716080403, 716080409
15.	Wool textile machinery	7171151, 1213	716080509
16.	Machines for carding, spinning & washing of wool	7171159, 1514	716080501
17.	Other sorts of textile machinery	7171191, 1241, 1502, 1507, 1511, 1513, 1517	716081900
18.	Automatic power loom	7171201, 1504	716080151
19.	Plain power loom	7171202	716080152

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
20.	Weaving machinery (warping)	7171203	716080155
21.	Cotton weaving winding machinery	7171204	716080156
22.	Cotton weaving machines n.e.s.	7171209	716080169
23.	Jute looms	7171211	716080202
24.	Machines for preparing yarn for the manufacture of textile	7171257	716080157
25.	Knitting machines	7171252, 1253, 1254, 1255, 1256, 1257	716080700
26.	Parts of spinning machinery	7171301, 1302, 1314	716080149, 716080142, 716080143
27.	Accessories of textile machinery	7171303, 1312, 1329	716080189, 716080116
28.	Healds and reeds for cotton machinery	7171304	716082201
29.	Healds wire	7171305	716082300
30.	Healds and reeds for other textile machinery	7171306	716082209
31.	Parts of hosiery machinery	7171307, 1313	716080108
32.	Heald knitting needles and cords	7171308	716080800
33.	Jacquard and harness linen cords	7171311	716080172
34.	Parts and accessories of cotton spinning machinery n.e.s.	7171315	716080144, 716080153, 716080154, 716080171, 716080179
35.	Parts of textile machinery n.e.s.	7171316, 1312, 1329, 1524	716082900
36.	Parts of wool machinery n.e.s.	7171318, 1321	716081200
37.	Parts of knitting machines n.e.s.	7171322	716081100
38.	Pirns	7171323	716082401, 716082409
39.	Shuttles	7171324	716082500
40.	Machinery for the manufacture of felt	7171400	716080600
41.	Bleaching machinery for cotton textiles	7171501	716080101
42.	Dyeing machinery for cotton textiles	7171503	716080104
43.	Fabric folding, reeling and cutting machines	7171505	716080108
44.	Finishing machinery n.e.s. for cotton textiles	7171506	716080105
45.	Dry cleaning machines	7171508	716080111
46.	Printing machinery	7171512	716080113
47.	Sizing machines	7171515	716080114
48.	Rayon sizing machinery	7171516	716080301
49.	Boot and shoe manufacturing machinery	7172001	716130400
50.	Parts of boot and shoe manufacturing machinery	7172002	716130500
51.	Leather, tanning and curing machinery	7172003	716132700
52.	Other textile machines	7172009	716137109
53.	Household sewing machines	7173101, 3102	716110100
54.	Parts of household sewing machines	7173103	716110209
55.	Industrial sewing machines	7173201	716110309
56.	Parts of industrial sewing machines	7173202	716110400
57.	Sewing machine needles	7173300	716110201

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
<b>718. MACHINES FOR SPECIAL INDUSTRIES</b>			
1.	Rolling machines	7181100	716074200
2.	Machinery for making cellulose pulp	7181101	716060300
3.	Machinery for making paper or paper board	7181102	716060100
4.	Parts of paper machinery	7181103	716060200, 716060400
5.	Paper and paper board cutting machines	7181201	716072700
6.	Machinery for the manufacture of paper, paper board	7181202, 1203	716060900
7.	Book binding machinery	7182100	716110301
8.	Brass rules	7182201	716070100
9.	Chases	7182202	716070300
10.	Polished copper sheets	7182203	716071500
11.	Polished zinc sheets	7182204	716071600
12.	Blocks, plates, cylinders n.e.s.	7182205, 2207	716075500, 072300 716090400, 073400 716070500 716070700, 073600 716071300, 074700 716071700, 716072200
13.	Lithographic plates	7182206	716072400
14.	Plates, blocks, prepared for printing presses	7182208	716072500
15.	Printing type plates, blocks etc.	7182211	716073300
16.	Parts of printing machines	7182219, 2919	
17.	Flour mill machinery	7183101	716131700
18.	Parts of flour mill machinery	7183102	716137101
19.	Rice mill machinery	7183103	716134300
20.	Parts of rice mill machinery	7183104	716137102
21.	Bakery and confectionary	7183901	716131500
22.	Sugar manufacturing machinery others	7183903, 3909, 4100	716131800, 716132100
23.	Sugarcane crushers	7183904	718135401
24.	Sugar manufacturing machinery	7183905	716135409, 716135500 716135403
25.	Road rollers upto 5 tonnes	7184101	716032301
26.	Above 5 tonne capacity	7184102	716032302, 716032303
27.	Parts of construction machinery	7184103, 7192134, 3129	716034200
28.	Bulldozers	7184201	716030300
29.	Coal mining machinery	7184202	716031701
30.	Excavators	7184203	716030603
31.	Levellers	7184204	716030401, 716030400
32.	Mechanical shovels	7184205	716030609
33.	Mining machinery	7184206	716031702, 716031709
34.	Petroleum and gas drilling equipment	7184207	716031800
35.	Pile drivers	7184208, 7193111	716030409, 716033900
36.	Rock drilling machinery	7184211	716134400

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
37.	Scrapers	7184212	716030402, 716030404
38.	Tubewell drilling and core drilling machinery	7184213	716136500
39.	Parts of mining machinery	7184221	716034100
40.	Parts of petroleum and gas well drilling equipment	7184222	716032100
41.	Parts and accessories of excavating machinery	7184223	716030500, 716030700
42.	Brick or tile making machinery	7185101, 5104	716131201, 716131209
43.	Ceramic and clay working machinery	7185102	716130800
44.	Concrete mixers	7185103	716131202
45.	Crushing machinery	7185105	716030201
46.	Glass working machinery	7185201, 5202	716132300
<b>719. <u>MACHINERY AND APPLIANCES (OTHER THAN ELECTRICAL) AND MACHINE PARTS N.E.S.</u></b>			
1.	Gas generators	7191100	716132200
2.	Air conditioning machines	7191201	716120100
3.	Parts of air conditioning machines	7191202	716120200
4.	Industrial and laboratory furnaces	7191400	716133600
5.	Ice making machinery	7191501	716120300
6.	Water coolers	7191502, 1503	716120500, 716120600
7.	Parts of refrigerators	7191504	716120700
8.	Cement making machinery	7191901	716136400
9.	Petroleum refining equipment	7191902, 1903	716131400
10.	Electric sterilizers	7191904	721060400
11.	Sterilizers n.e.s.	7191905	716133700
12.	Rubber machinery	7191906	716134500, 716134600
13.	Machinery for heating, cooking, roasting, drying, cooling n.e.s.	7191909	716121900 716131100, 716135200
14.	Deep well turbine pumps	7192104	716010300
15.	Hand pumps	7192105	716010500
16.	Hydraulic rams	7192106	716010600
17.	Centrifugal pumps	7192107	716010101
18.	Centrifugal pumps (electrical operated)	7192108	716010102
19.	Reciprocating pumps	7192111	716010701
20.	Reciprocating pumps (engine operated)	7192112	716010702
21.	Other pumps	7192119, 2121	716011900, 716032400
22.	Parts of centrifugal pumps	7192131	716010200
23.	Parts for deep well turbine pumps	7192132	716010400
24.	Parts for reciprocating pumps	7192133	716010800
25.	Parts for pumps for liquid	7192139	716012100
26.	Air or gas compressors	7192201	716130200
27.	Suction pumps	7192202	716135300
28.	Vacuum pumps	7192203	716011100

(continued)

Table A<sub>5</sub>.1(a) : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
29.	Industrial fans	7192204	716120401, 716120409
30.	Centrifuges	7192301	716130700, 716135402
31.	Filtering and purifying machinery	7192303	716136100
32.	Capstans	7193101	716030100
33.	Conveyors	7193102, 3103	716030601
34.	Hoisting machines	7193104	716030800
35.	Lifts for goods and persons	7193105	716031100, 716031300
36.	Lifting jacks	7193106	716031500
37.	Power cranes	7193107	716030604
38.	Pulleys	7193108, 9303	716032200
39.	Winches	7193113	716032500
40.	Lifting and loading machinery	7193119	716031600
41.	Parts of lifts	7193121	716031200, 716031400
42.	For lift trucks	7193201, 3209	716020100
43.	Parts of industrial trucks	7193211	716020201, 716020209
44.	Parts of trucks (industrial)	7193901	716130300
45.	Domestic food processing appliances	7194100	712030100
46.	Domestic refrigerators	7194201	899080109
47.	Parts of refrigerators	7194202	
48.	Water heaters	7194300	699220500
49.	Boring and drilling machines for working wood	7195201	716040100
50.	Lathes	7195202	716040400
51.	Planing machines	7195203	716040700
52.	Sanding machines	7195204	716041100
53.	Sawing machines for wood	7195205	716041201, 716041202
54.	Veneer and Plywood making machines	7195206	716041209, 721041600
55.	Others	7195209	716040600, 716040800 716041400
56.	Grease guns	7195301, 5309	716050900
57.	Pneumatic drills	7195302	716050100
58.	Pneumatic hammers	7195303	716050200
59.	Parts of machine tools	7195401, 5404, 5406, 5407, 5409	715012200
60.	Parts of machine tools for working wood	7195403	716042100
61.	Chucks, mechanical	7195405	715012109, 715012103 715012102, 715012101
62.	Machinery for aerating beverages	7196201	716130100
63.	Beam scales	7196301	716136200
64.	Weighing machines	7196312	716136300
65.	Agricultural sprayers	7196401, 6403	716134700, 716134800
66.	Fire extinguishers	<del>7196401</del> 7196402	716131600

(continued)

Table A5.1(a) : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
67.	Steam or sand blasting machines	7196404	715020612
68.	Mechanical appliances for spraying liquids	7196409	716135100
69.	Ball roller bearings	71971, 71972 and 73	716140100 to 716141400
70.	Parts of roller and ball bearings	7197901, 7909, 9301	716140500
71.	Cigar making machinery	7198001	716135801
72.	Cigarette making machinery	7198002	716135802
73.	Oilseed crushing or grinding machinery	7198004	716133300, 716133400
74.	Tea-leaf cutting machines	7198005	716135600, 716135700
75.	Taps, cocks, valves etc.	7199201, 9202	716150200
76.	Parts of machinery n.e.s.	7199203, 9900, 6601, 6602, 6603, 2205, 5402, 2309, 6411, 6311, 6211	716150300, 137109 716150900 716132400 716134200
77.	Pulleys, power transmitters	7199302	716150100
78.	Transmission shafts, cranes, gears etc.	7199304	
79.	Gaskets	7199401	
80.	Joints of metal	7199409	
<b>722. ELECTRICAL POWER MACHINERY AND SWITCHGEAR</b>			
1.	A. C. Generators	7221101	721010401
2.	D. C. Generators	7221102	721010402, 721010403 721010404
3.	Complete generating sets with diesel engines	7221103	721010407
4.	Complete generating sets with steam engines	7221104	721010405
5.	Complete generating sets with water turbines	7221105	721010406
6.	Complete generating sets n.e.s.	7221109	721010408, 721010411, 721010412
7.	Parts of generators	7221111	
8.	Electric motors 1 to 20 H.P. cage A.C. induction motors	7221201	721010601
9.	" 20 to 50 H.P.	7221202	721010602
10.	" 50 to 100 H.P.	7221203	721010603
11.	" above 100 H.P.	7221204	721010604
12.	A.C. slip-ring motors - below 10 H.P.	7221205	721010605
13.	" 10 to 50 H.P.	7221206	721010606
14.	" 50 to 100 H.P.	7221207	721010607
15.	" Above 100 H.P.	7221208	721010608
16.	A.C. Single phase F.H.P. motors Upto 1/4 H.P.	7221211	721010611
17.	" Above 1/4 H.P.	7221212	721010612
18.	Other than F.H.P.	7221213	721010613
19.	Other types of A.C. motors - Upto 50 H.P.	7221214	721010619
20.	" Above 50 H.P.	7221215	721010629
21.	D. C. motors 1 to 50 H.P.	7221216	721010631
22.	" Above 50 H.P.	7221217	721010633

(continued)

Table A<sub>5</sub>.1(a) : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
23.	D. C. fractional H.P. motors	7221218	721010632
24.	Universal motors all types	7221221	721010634
25.	Electric motors n.e.s.	7221229	721010639
26.	Traction motors	7221231	721011300
27.	Other motors	7221238	721011400
28.	Parts and accessories of electric motors	7221239, 1902, 1904, 1905, 1909	721190300
29.	Transformers	7221301 to 7221318	721012601 to 721012604, 721012614, 721012616 721012618 721011401 to 721011606
30.	Parts and accessories of transformers	7221319	
31.	Rotary conveyers	7221901	721011100, 721011200
32.	Rectifiers	7221903	721010800
33.	Oil circuit breakers for use above 660 V.	7222101	721010104
34.	Oil circuit breakers and switches of rating 10 amps at 660 V or below	7222102	721010105
35.	" upto 660 V	7222103	721010106
36.	Motor starters	7222104	721010111
37.	For A. C. Motors	7222105	721010112
38.	For D. C. Motors	7222106	721010114
39.	Switch fuse units Upto 15 amps	7222107	721010115
40.	" Above 15 amps	7222108	721010116
41.	Fuses rewirable	7222111	721070600, 721010101
42.	Fuses high rupturing capacity	7222112	721010102
43.	Fuse gear	7222113	721010300
44.	Relays	7222114	721010103
45.	Switch boards and control gears	7222115	721010107, 721010108
46.	Switches	7222121 7222122	721071600, 721191201 721191209
47.	Control and switch gear n.e.s.	7222129	721010111, 721010119
48.	Electrical resistance wire	7222201, 2202	721191300
49.	Nichrome insulated wire	7222203	721130300
50.	Insulated wires other than nichrome	7222204	721130301, 721130302 721130309
51.	Potential meters	7222205	721080600
52.	Other resistors	7222209, 7222219, 7297001, 9509, 9900	721191900
53.	Automatic voltage regulators	7222211	721012500
54.	Plugs, sockets, plastic lamp holders	7222213	721190801, 721191101
55.	Parts and accessories of switch gear	7222214, 2221, 2222, 1911	721190809, 721191109

(continued)



Table A<sub>5.1(a)</sub> : (continued)

No.	Title	Code No. in RITC	Code No. in ITC
<b>723. EQUIPMENT FOR DISTRIBUTING ELECTRICITY</b>			
1.	Enamelled copper winding wire	7231101	721130502
2.	Insulated copper winding wires and strips n.e.s.	7231109	721130400, 721130501 721130503, 721130509
3.	Wires (asbestos covered)	7231111, 1119, 1216, 1219	
4.	Plastic insulated wires and cables	7231112, 1213	721130104, 721130105
5.	Rubber insulated wire	7231113, 1214	721130106, 721130107
6.	Dry core paper insulated telephone cable	7231201	721130201
7.	Other insulated cables, cords, flexes for telephone and telegraph purpose	7231209	
8.	Lead alloy sheathed cables	7231211	721130101
9.	Paper insulated cables	7231212	721130102, 721130103
10.	Varnished cambric insulated cables and flexes	7231215	721130108, 721130111
11.	Porcelain discs	7232101, 2111, 2112, 2121, 2122	721130505
12.	Porcelain insulators of voltage above 11 K.V. for transmission and distribution of this	7232102, 2113, 2114, 2115, 2124, 2131	721130506
13.	Porcelain and regulators for telephone and telegraph apparatus	7232141	721130508
14.	Electric insulators	7232151, 2211, 2300, 2151	721130600
15.	Porcelain insulators & busing for transformers	7232201	721130507
16.	Porcelain insulators n.e.s.	7232209	721130509
<b>724. TELECOMMUNICATION EQUIPMENT</b>			
1.	Radio receiver sets	7241001, 2009	721041101, 721041109
2.	Radio phonographs	7242001	721040800
3.	Radio receiver sets other than transmitter sets	7242002	721041102
4.	Transistor radio receiver sets	7242003	721041103
5.	Parts of telephone and telegraph apparatus	7249101, 1002, <del>200</del> 2011, 9103	
6.	Telephone and telegraph apparatus	7249102, 9501, 9101	721050400 72105200, 721050100
7.	Microphones	7249201	721040402
8.	Loudspeakers	7249202	721040401
9.	Radio loudspeakers	7249203	721041201
10.	Amplifiers	7249204, 9209	721040300
11.	Radio, telegraphic, telephonic transmission apparatus	7249901	721041500
12.	Broadcasting apparatus, T.V. cameras	7249902	
13.	Apparatus for wireless reception	7249903	721041301, 721041309
14.	Radio navigational apparatus	7249904	721040101, 721040109
15.	Parts of transmission apparatus	7249911	721040500 721040600, 721040700
16.	Parts of radio broadcasting apparatus	7249912	721041600 721041409

(continued)

Table A<sub>5</sub>.1(a) : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
17.	Parts for combined wireless reception	7249913	721040200
18.	Parts of radio navigational and apparatus	7249914, 7293009	721042900
<b>725. DOMESTIC ELECTRIC EQUIPMENT</b>			
1.	Domestic refrigerators	7250101	899080101
2.	Parts of refrigerators	7250102	899080200, 899080300
3.	Domestic washing machines	7250201	721120103
4.	Parts of domestic washing machines	7250202	721120200
5.	Air circulator	7250301	721120301
6.	Blowers	7250302	721120302
7.	Ceiling fans	7250303	721120303
8.	Pedestal fans	7250304	721120304
9.	Railway carriage fans	7250305	721120305
10.	Table fans	7250306	721120306
11.	Electric coffee mills and grinders	7250311	721120109
12.	Electric vacuum cleaners	7250312	721120102
13.	Other electro mechanical domestic appliances	7250319	721120101
14.	Regulators and parts of electric fans	7250321	721120400
15.	Parts of electro mechanical domestic appliances	7250322	721121900
16.	Domestic room heaters	7250501	721060104, 721060105
17.	Domestic water heaters	7250502	721060109
18.	Stoves, ovens	7250503	721060101, 721060103
19.	Smoothing irons and electric hair dressing appliances	7250504	721060106 721060102
20.	Electrical heating resistors	7250511	721060200
<b>726. ELECTRIC APPARATUS FOR MEDICAL PURPOSES AND RADIOLOGICAL APPARATUS</b>			
1.	Electric apparatus for medical purposes n.e.s.	7261001, 1002, 1003, 1009	721110100 721110900, 861030100
2.	Ultraviolet and infrared lamps	7261004	721110200
3.	Parts of electric apparatus	7261011	721110300
4.	X-Ray appliances	7262001	721110400, 861020404
5.	X-Ray tubes and valves	7262002	721041700
6.	Parts and accessories of X-Ray appliances	7262009	821020103
<b>729. OTHER ELECTRICAL MACHINERY AND APPARATUS</b>			
1.	Flash light batteries	7291101	721020102
2.	Dry cell primary batteries	7291102	721020101, 721020103
3.	Wet cell primary batteries	7291103	721020104
4.	Parts of primary batteries	7291109	721020200
5.	Nickel cadmium type batteries (storage)	7291201	721190109
6.	Lead acid type batteries	7291202	721190102

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
7.	Others	7291209	721190101
8.	Accumulator cases and parts of accumulators	7291211, 1219	721190109
9.	Fluorescent tube lamps	7292101	721030101
10.	Mercury vapour lamps	7292102	721030102
11.	Other sorts	7292109, 2301	721030103 721030104, 721030109
12.	Bulbs for torches miniature bulbs	7292201, 2202	721030201
13.	Bulbs for automobiles	7292203	721030202
14.	Gas filled lamps	7292204	721030203
15.	Studio lamps	7292205	721030206
16.	Other incandescent glow lamps	7292209	721020204, 721030205 721030207, 721030208 721030219
17.	Electrically ignited photographic flash bulbs	7292302	721030901
18.	Infrared electric bulbs	7292303, 2304	721030909
19.	Parts of electric lamps	7292400	721031101 721031102, 721031103
20.	Radio receiving tubes	7293001	721041202
21.	Radio transmitting tubes	7293002	721041401
22.	Distributors	7294101	721070400
23.	Generators	7294102	721070700
24.	Ignition coil	7294103	721071200
25.	Sparking plugs	7294104	721071401 721071402, 721071403
26.	Starting motors	7294105, 4109	721071500
27.	Automobile lighting equipment	7294201	
28.	Head lamps	7294202	721070800
29.	Horns	7294203	721071100
30.	Wind-screen wiper	7294204	721071700
31.	Other electrical lighting & signalling equipment	7294209	721070300, 721070500
32.	Electricity supply meters	7295100	721080500
33.	Ammeters	7295201	721080100
34.	Apparatus for physical and chemical analysis	7295202, 5205	861091400
35.	Meters electrical n.e.s.	7295206	721081400
36.	Power factor indicator	7295207	721080700
37.	Testing machines	7295208, 5203, 5204, 5219, 9409	721080801, 721080809 721081200
38.	Voltmeters	7295211	721081300
39.	Electric drills	7296001	721120501
40.	Other electric tools	7296009	721120502, 721120503 721120509
41.	Parts	7296011, 7002, 9241, 9511, 9800	721192100
42.	Electro magnets	7299101	721192200
43.	Electric furnace	7299201, 9202	721060300

(continued)

Tabla A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
44.	Electric induction and dielectric heating equipment	7299209, 9231	721060900
45.	Arc welding machinery	7299211, 9212, 9219, 9221, 9222, 9229	721060500
46.	Electric traffic control equipment	7299301	721081100
47.	Bells, sirens, fire alarms etc.	7299401	721080200, 721080400
48.	Indicator panels	7299402	721080300
49.	Power capacitors	7299502	721010700
50.	Electric condensers for power	7299503	721190400
51.	Arc lamp carbons	7299601	663050500
52.	Battery carbons	7299602	663050300
53.	Carbon blocks	7299603	603050100
54.	Carbon brushes	7299604	663050200
55.	Carbon furnace electrodes	7299605	663050400
56.	Other carbon articles	7299609	663050900
<b>731. RAIL-ROAD EQUIPMENT</b>			
1.	Railway locomotives, steam and tenders	7311000	731010100, 731010200
2.	Railway locomotives electric	7312000	731020100
3.	Railway locomotives other than steam or electric	7313000	731030100
4.	Mechanically propelled railway & tramway cars	7314000	731040900
5.	Railway and tramway passenger cars not mechanically operated	7315000	731050000
6.	Railway and tramway service vehicles	7316100, 6200 & 6300	731060100, 731060900
7.	Parts of railway locomotives	7317001, 7004, 7005, 7006, 7009	731010309, 070900, 731010200, 731070100, 731030200,
8.	Wheels, tyres, axles for locomotives	7317002	731010302
9.	Wheels, tyres, axles for wagons and carriages	7317003	731070200
10.	Parts of tramway	7317011	731040200
<b>732. ROAD MOTOR VEHICLES</b>			
1.	Motor cars new	7321101	732010100, 732010900
2.	Jeep and land rover vehicles	7321102	732010400
3.	Second-hand or used motor cars	7321103	732010500
4.	Not assembled passenger motor cars	7321200	732010300
5.	Lorries and trucks (New) (assembled)	7323101	732030301
6.	Second-hand lorries and trucks (assembled)	7323102	732030304
7.	Not assembled lorries and trucks	7323200	732030302, 732030303
8.	Fire engines	7324001	732030100
9.	Others	7324009, 5000	732030900
10.	Chassis with engines mounted for passenger motor cars	7326000	732040000
	Chassis with engines mounted	7327001, 8901	713010200
11.	Chassis with engines mounted	7327009	732050000

(continued)

Table A<sub>5.1(a)</sub> : (continued)

S. No.	Title	Code No. in RITC	Code No. in ITC
12.	Bodies for motor vehicles other than for motor cycles	7328101, 8902, 8102, 8903	732060000
13.	Auto-rikshaws	7329101	732020100
14.	Motor cycles with or without side cars	7329102	732020201, 732020202
15.	Motor scooters with or without side cars	7329103	732020300
16.	Moped auto cycles	7329104	732020900
17.	Parts and accessories of motor cycles etc.	7329200	732070100, 732070900
<b>733. ROAD VEHICLES OTHER THAN MOTOR VEHICLES</b>			
1.	Bicycles	7331101	733010100
2.	Other cycles	7331109	733010900
3.	Bicycle chains	7331201	733020101
4.	Bicycle free wheels	7331202	733020105
5.	Hubs and parts of bicycles	7331203, 7331209	733020102, 020106 733020103, 020111 733020104, 020119
6.	Bicycle rims	7331204	733020101
7.	Bicycle saddles	7331205	733020108
8.	Bicycle spokes	7331206	733020112
9.	Parts of other cycles	7331211	733020200
10.	Parts of invalid carriages	7331212, 7333011	733090200
11.	Trailers	7333001	733090103, 733090104
12.	Other vehicles	7333009, 7334000	733090102, 733090109
<b>734. AIRCRAFT</b>			
1.	Aeroplanes	7341001, 1002	734010100
2.	Helicopters	7341003	734010200
3.	Others	7341009	734010300
4.	Parts of aeroplanes	7349201, 9202	734030100, 734020000
5.	Aircraft materials n.e.s.	7349201	734030900
<b>735. SHIPS AND BOATS</b>			
1.	Warships	7351000	735010100
2.	Boats	7353101	735090302
3.	Launches	7353103	735090303
4.	Ships, boats other vessels	7353104, 3105, 8000	735020100, 090109 735090101
5.	Ships and boats	7353109, 9209, 9300	735090301, 090900 735090309
6.	Incomplete boats	7353200	735010200
7.	Tugs	7359100	735090304
8.	Dredgers of all kind	7359201	716030602

**Table A<sub>5.2</sub> : Statement showing the Items for which Different Adjustments Were Made in Constructing Quantity Index for Various Industries under Machinery and Transport Equipment**

Code No.	Title	1960-61	1970-71
<b>711</b>	<b><u>POWER GENERATING MACHINERY OTHER THAN ELECTRIC</u></b>		
	<b><u>(a) Non-convertible Units</u></b>		
711 1001	Fire tubes	14,24,305	-
711 1003	Water tubes	29,08,321	-
711 1009	Steam generating boilers except those for central heating	68,36,033	-
711 5601	Component parts of diesel oil engines for motor vehicles	4,06,26,188	4,30,68,835
711 5909	Parts of internal combustion engines	9,18,615	71,44,285
		<u>5,27,13,462</u>	<u>5,02,13,120</u>
	<b><u>(b) Items not imported in the base year</u></b>		
711 3102	Steam engines mobiles	-	4,46,323
711 5102	Diesel oil engines, marine, 11 to 20 B.H.P.	-	96,212
		<u>-</u>	<u>5,42,535</u>
	<b><u>(c) Quantity data not available for few years</u></b>		
711 5504	Gas engines	15,013	-
711 5211	Diesel oil engines, vertical, upto 20 B.H.P.	5,55,105	-
711 6002	Parts of engines n.e.s.	34,57,832	1,03,33,789
		<u>40,27,950</u>	<u>1,03,33,789</u>
	<b>Total (a + b + c)</b>	<u>5,67,41,412</u>	<u>6,10,89,344</u>
<b>712</b>	<b><u>AGRICULTURAL MACHINERY AND IMPLEMENTS</u></b>		
	<b><u>(a) Non-convertible Units</u></b>		
712 1109	Agricultural machinery for preparing and cultivating n.e.s.	4,21,322	73,39,036
712 2001	Agricultural machinery for harvesting, threshing and sorting	7,02,609	8,26,066
712 3101	Cream separators	2,74,229	2,35,680
712 3901	Milking machines	1,29,888	1,07,248
712 9901	Poultry incubators	57,044	47,669
712 9909	Other agricultural machinery	6,94,218	4,21,665
		<u>22,79,310</u>	<u>89,20,116</u>
<b>714</b>	<b><u>OFFICE MACHINES</u></b>		
	Nil		
<b>715</b>	<b><u>METAL WORKING MACHINERY</u></b>		
	<b><u>(a) Non-convertible units</u></b>		
715 7009	Sawing, contour sawing, filling and cutoff machines	1,93,887	23,66,552

(continued)

Table A<sub>5</sub>.2 : (continued)

Code No.	Title	1960-61	1970-71
717	<u>TEXTILE AND LEATHER MACHINERY</u>		
	(a) <u>Non-convertible units</u>		
717 1119	Cotton spinning machines	46,91,152	16,23,396
717 1191	Sort of textile machinery	65,30,538	42,56,129
717 1209	Cotton weaving machines	6,09,447	30,51,666
717 1315	Parts and accessories of cotton weaving machinery	1,12,25,105	85,20,282
717 1400	Machinery for the manufacture of felt	18	1,97,729
		<u>2,30,56,260</u>	<u>1,76,49,202</u>
	(b) <u>Items not imported in the base year</u>		
717 1104	Cotton yarn reeling machines	-	88,669
717 1112	Cotton spinning roving frames	-	-
	Total (a + b)	<u>2,30,56,260</u>	<u>1,77,37,871</u>
718	<u>MACHINES FOR SPECIAL INDUSTRIES</u>		
	(a) <u>Non-convertible units</u>		
718 1101	Machinery for making cellulose pulp	4,50,770	-
718 1102	Machinery for making or finishing paper	83,88,734	5,98,820
718 2213	Type casting machines	15,15,216	24,39,183
718 2214	Type setting machines	18,67,576	10,76,753
718 4207	Petroleum and gas well drilling machines	27,98,993	73,66,058
718 4208	Pile drivers	4,47,70,947	43,37,657
		<u>1,94,98,385</u>	<u>1,58,18,471</u>
	(c) <u>Quantity data not available for few years</u>		
718 2208	Plates, blocks for printing purposes	41,752	3,05,759
718 2919	Parts of printing presses n.e.s.	74,02,205	1,20,44,756
		<u>74,43,957</u>	<u>1,23,50,515</u>
	Total (a + c)	<u>2,69,42,342</u>	<u>2,81,68,986</u>
719	<u>MACHINERY AND APPLIANCES (OTHER THAN ELECTRICAL) AND MACHINE PARTS N.E.S.</u>		
	(a) <u>Non-convertible units</u>		
719 1904	Electric sterilizers	9,56,516	6,122
719 2201	Air or gas compressors	1,55,04,361	59,56,067
719 2303	Filtering and purifying machinery	11,43,025	13,81,559
719 3106	Lifting jacks	11,50,081	2,61,635
719 3108	Pulley tackle	8,08,392	2,52,922
719 4300	Domestic water heaters non-electrical	26,327	-
719 6201	Milk bottling machines	5,302	5,86,726
719 6301	Weighing machines	39,08,340	4,67,193
719 6401	Spraying machines n.e.s.	36,475	1,36,575
719 8001	Cigar making machines	7,62,596	6,58,270
719 8002	Cigarette packing machines	5,74,231	30,85,114
		<u>2,48,75,646</u>	<u>1,27,92,183</u>

(continued)

Table A<sub>5.2</sub> : (continued)

Code No.	Title	1960-61	1970-71
<u>(b) Items not imported in the base year</u>			
719 3901	Parts of industrial trucks	-	-
<u>(c) Quantity data not available for few years</u>			
719 4202	Parts of domestic refrigerators	38,104	3,52,631
Total (a + b + c)		2,49,13,750	1,31,44,817
722	<u>ELECTRICAL POWER MACHINERY AND SWITCHGEAR</u>		
<u>(a) Non-convertible items</u>			
722 2209	Resistors	2,38,94,911	4,82,46,709
722 1239	Parts and accessories of electric motors	1,63,87,364	2,80,79,814
		4,02,82,275	7,63,26,523
<u>(c) Quantity data not available for few years</u>			
722 1111	Parts of generators	83,99,516	6,01,43,269
722 1319	Parts and accessories of transformers	33,84,951	79,62,213
722 2221	Parts and accessories of switchgear	4,97,67,731	13,42,29,023
		6,15,51,698	20,23,34,505
Total (a + c)		10,18,33,973	27,86,61,028
723	<u>EQUIPMENT FOR DISTRIBUTING ELECTRICITY</u>		
<u>(c) Quantity data not available for few years</u>			
723 1111	Cables and flexes n.e.s.	1,13,62,979	89,69,256
723 1209	Cables for telephone and telegraph purpose	69,44,791	97,84,468
723 2101	Porcelain insulators for voltage upto 11 K.V.	15,13,721	9,23,536
723 2102	Porcelain insulators of voltage above 11 K.V.	62,02,564	14,45,356
723 2151	Electric insulators	80,76,804	29,59,010
723 2201	Porcelain insulators and bushing	15,35,612	4,09,633
723 2209	Other porcelain fittings	17,98,732	3,69,387
Total		3,74,35,203	2,48,60,646
724	<u>TELECOMMUNICATION APPARATUS</u>		
<u>(b) Items not imported in the base year</u>			
724 2011	Parts of radio receiver sets	-	-
<u>(c) Quantity data not available for few years</u>			
724 9209	Parts of microphones etc.	4,93,146	7,99,411
724 9911	Parts of radio telegraphic transmission and reception	24,37,104	43,31,018
724 9912	Parts of radio broadcasting, television transmission and parts of television camera	38,25,048	29,78,637
724 9913	Parts for combined wireless reception and transmitting apparatus	1,53,021	2,24,55,930
724 9914	Parts of radio navigational apparatus	14,73,755	6,03,00,176
Total (b + c)		83,82,074	9,08,65,172

(continued)



Table A<sub>5.2</sub> : (continued)

Code No.	Title	1960-61	1970-71
<b>725</b>	<b><u>DOMESTIC ELECTRIC EQUIPMENT</u></b>		
	<b>(a) <u>Non-convertible units</u></b>		
725 0311	Electrical coffee mills and grinders	2,48,767	5,882
	<b>(b) <u>Items not imported in the base year</u></b>		
725 0305	Railway carriage fans	31	1,280
	<b>(c) <u>Quantity data not available for few years</u></b>		
725 0102	Parts of domestic refrigerators	36,48,494	10,28,521
725 0321	Regulators and parts of electric fans	3,05,537	4,68,396
725 0322	Parts of electro mechanical domestic appliances n.e.s.	3,17,381	4,65,033
725 0511	Electrical heating resistors other than those of carbon	2,23,181	2,03,737
725 0202	Parts of domestic washing machines	35,078	93,922
		45,29,671	22,59,609
	<b>Total (a + b + c)</b>	<b>47,78,469</b>	<b>22,66,771</b>
<b>726</b>	<b><u>ELECTRIC APPARATUS FOR MEDICAL PURPOSE AND RADIOLOGICAL APPARATUS</u></b>		
	<b>(c) <u>Quantity data not available for few years</u></b>		
726 1011	Parts of electro medical apparatus	5,90,444	58,12,433
726 2009	Parts of X-Ray apparatus	19,66,244	1,10,46,140
	<b>Total</b>	<b>25,56,688</b>	<b>1,68,58,573</b>
<b>729</b>	<b><u>OTHER ELECTRICAL MACHINERY AND APPARATUS</u></b>		
	<b>(a) <u>Non-convertible units</u></b>		
729 1101	Flash light batteries	4,503	38,465
729 1102	Dry cell primary batteries	2,76,093	10,60,822
729 1103	Wet cell primary batteries	1,19,868	1,98,395
729 4404	Sparking plugs	83,095	2,50,214
729 4209	Other electrical lighting and signalling equipment	91,921	50,53,336
729 9201	Electric furnace for melting	1,54,34,285	28,51,171
729 9211	Automatic spot welding machinery	2,06,77,403	36,07,141
		3,66,87,168	1,30,59,845
	<b>(b) <u>Items not imported in the base year</u></b>		
729 4201	Automobile lighting equipment	-	43,634
729 5205	Frequency meters	-	6,32,696
		-	6,76,330

(continued)

Table A<sub>5.2</sub> : (continued)

Code No.	Title	1960-61	1970-71
	<u>(c) Quantity data not available for few years</u>		
729 1211	Hard rubber accumulator cases	41,620	15,28,105
729 2400	Parts of electric lamps	5,92,324	7,54,081
729 4109	Others	82,08,699	62,72,530
729 5208	Testing machines	1,05,42,416	2,98,74,031
729 6011	Parts of electro mechanical hand tools	4,34,45,914	6,18,68,836
729 9101	Electro magnets	17,03,145	15,63,125
729 9209	Electric induction and dielectric equipment	1,51,86,414	6,44,095
		<u>8,17,09,043</u>	<u>10,31,71,493</u>
729 9605	Carbon furnace electrodes	6,01,000	7,95,426
	Total (a + b + c)	<u>11,83,96,211</u>	<u>11,69,07,668</u>
731	<u>RAIL ROAD EQUIPMENT</u>		
	Nil		
732	<u>ROAD MOTOR VEHICLES</u>		
	<u>(a) Non-convertible units</u>		
732 7001	Chassis for motor cars	1,53,20,708	8,80,61,319
	<u>(b) Items not imported in the base year</u>		
732 3102	Lorries and trucks	-	2,87,830
	Total (a + b)	<u>1,53,20,708</u>	<u>8,83,49,149</u>
733	<u>ROAD VEHICLES OTHER THAN MOTOR VEHICLES</u>		
	<u>(b) Items not imported in the base year</u>		
733 1109	Others	217	-
734	<u>AIRCRAFT</u>		
	<u>(b) Items not imported in the base year</u>		
734 1001	Aeroplanes	-	11,78,008
734 1009	Others	-	11,68,801
	<u>(c) Quantity data not available for few years</u>		
734 9201	Parts of aeroplanes	9,00,91,427	16,62,17,221
	Total (b + c)	<u>9,00,91,427</u>	<u>19,45,34,030</u>
735	<u>SHIPS AND BOATS</u>		
	<u>(b) Items not imported in the base year</u>		
735 1000	Warships	-	-
	<u>(c) Quantity data not available for few years</u>		
735 3200	Incomplete ships	57,42,570	-
	Total (b + c)	<u>57,42,570</u>	-

## CHAPTER VI

### GROWTH OF THE MACHINERY AND TRANSPORT EQUIPMENT INDUSTRY, 1960-70

This chapter deals with the growth and changes in the structure of "Machinery and Transport Equipment" industry, particularly during the period 1960-70.

#### 6.1 Nature of the Data

The data for this purpose are mainly obtained from the two publications, viz., (1) Annual Survey of Industries, and (2) Monthly Statistics of Production of Selected Industries in India. Annual Survey of Industries gives data for those units which are covered by Indian Factories Act, 1948. Data for units employing 50 or more workers with the aid of power or 100 or more workers working without the aid of power are completely enumerated. Smaller units are covered on a sample basis.

Data from this source are available upto 1965. To assess the trend in the growth of the industry in the following years the second source has been used. Incidentally the indices of production in Monthly Statistics of Production of Selected Industries compare fairly with the Indices computed on the basis of the data in Annual

## Survey of Industries for the period 1960-65.<sup>1</sup>

These two sources adopt Indian Standard Industrial Classification (ISIC) and Standard Industrial Classification respectively. Annual Survey of Industries gives data in more disaggregative form than does Monthly Statistics of Production of Selected Industries.

The nature of the classifications as adopted in the two sources is discussed in Appendix I. The correspondence between code numbers adopted in the two sources is presented in Table A<sub>6</sub>.1.

Indices of production for each of the industry (2 digit) under the Machinery and Transport Equipment industry are obtained from the Monthly Statistics of Production of Selected Industries in India. To get the index of production for the industry as a whole the indices of industries are aggregated by using the weights in the base year which are given in the Monthly Statistics of Production of Selected Industries in India.

### 6.2 Structure and Growth of the Industry

In the early fifties the industry was producing only simple types of metal products. Most of the domestic requirement was met through imports. It was only from

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<sup>1</sup> Ashok K. Mitra, "Employment in Manufacturing Industry : An Analysis of Growth Rate and Trend 1960-70," Artha Vijnana, June 1974.

April 1956, beginning of the Second Five Year Plan, that the industry started showing rapid growth of output of more sophisticated products.

In 1960 output of Machinery and Transport Equipment totalled to Rs. 459 crores, constituting 12.59 per cent of the output of the entire manufacturing sector. Over the period 1960-70 the output of the industry increased at a much faster rate than that of total manufacturing. A perusal of Table 6.1 reveals that while the index of production (1960 = 100) of manufacturing sector increased to 174.8 in 1970 that of Machinery and Transport industry rose to 238.0, leading to a marked shift in the output composition of the manufacturing sector.

In what follows we study the trend and growth in the output of the Machinery and Transport Equipment industry for a decade. This we propose to do in greater detail, i.e., for each of the industry in the sector, so that we may identify the industries showing steady growth over the period and the nature of such growth.

A closer examination of the Table 6.1 giving indices of industrial production shows that the period of ten years may be broadly divided into two on the basis of the rate of growth, viz., (1) 1960 to 1965 and (2) 1965 to 1970. During the first period the production increased at a fast rate showing an increase of more than 100 per cent. The second

**Table 6.1 : Index of Production of Industries under Machinery and Transport Equipment and of Total Manufacturing (1960-70)**

(1960 = 100)					
Year	Manufacture of machinery except electrical machinery	Manufacture of electrical machinery, appliances apparatus and supplies	Manufacture of Transport equipment	Manufacture of Machinery and Transport Equipment	Total manufacturing
1960	100.0	100.0	100.0	100.0	100.0
1961	121.2	110.0	116.7	116.3	109.2
1962	150.2	130.3	149.9	145.7	119.8
1963	181.3	153.0	156.7	161.7	129.7
1964	213.7	174.2	192.1	193.8	140.8
1965	238.8	204.4	204.3	232.8	153.8
1966	295.5	225.1	156.0	204.0	151.7
1967	299.5	243.4	138.6	200.0	148.2
1968	327.6	277.5	142.9	215.7	156.3
1969	349.1	322.4	135.4	221.4	167.2
1970	365.5	362.7	132.0	238.0	174.8

**Source :** Monthly Statistics of Production of Selected Industries in India, March 1971.

**Table 6.1.1 : Index of Production of Industries under Non-Electrical Machinery (1960-70)**

Year	(1960 = 100)						
	Manufacture of mining, earth moving and construction machinery	Manufacture of prime movers, boilers and steam generating plant	Manufacture of Industrial machinery	Manufacture of machinery components and accessories	Machine tools	Manufacture of commercial office and household machines	Manufacture of machinery except non-electrical machinery
1960	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1961	124.3	130.3	111.0	121.2	127.0	128.4	121.2
1962	143.2	218.4	127.6	144.7	170.4	126.2	150.2
1963	196.0	244.0	146.8	204.5	248.4	121.3	181.3
1964	227.8	353.5	157.3	243.1	326.4	105.5	213.7
1965	224.6	403.0	153.2	282.2	356.1	121.1	238.8
1966	250.9	364.9	146.0	383.0	370.5	152.3	295.5
1967	127.6	377.7	126.3	367.8	321.0	147.6	299.5
1968	44.9	494.5	149.6	337.2	261.0	145.9	327.6
1969	65.9	496.9	130.6	360.9	263.8	125.3	349.1
1970	33.1	496.4	120.6	396.0	327.6	143.6	365.5

**Table 6.1.2 : Index of production of Industries under 'Electrical Machinery, Apparatus and Appliances' (1960-70)**

Year	(1960 = 100)						
	Manufacture of machinery apparatus supplies for generation storage transmission & transformation of energy	Manufacture of electric motors and furnaces	Manufacture of electrical cables and insulated wires	Manufacture of batteries	Manufacture of electrical appliances	Manufacture of communication equipment	Manufacture of electrical appliances n.e.s.
1960	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1961	140.2	119.3	104.2	102.6	108.2	121.6	96.1
1962	180.0	142.0	131.3	113.0	120.6	127.9	113.2
1963	205.1	171.0	151.1	134.3	127.6	155.8	148.7
1964	258.4	189.1	171.8	144.3	123.8	176.2	181.7
1965	336.8	244.9	198.3	145.7	152.5	217.4	190.6
1966	375.9	286.2	195.9	149.7	145.8	265.6	193.9
1967	409.9	298.4	206.7	155.0	154.5	318.3	148.8
1968	376.7	275.2	191.5	183.7	170.6	510.1	130.3
1969	394.0	299.1	201.9	228.4	183.4	646.8	183.5
1970	553.9	402.4	220.1	232.3	190.9	661.1	223.6



**Table 6.1.3 : Index of Production of Industries under Transport Equipment (1960-70)**

Year	(1960 = 100)				
	Manufacture of Rail Road equipment	Manufacture of Motor vehicles	Motor cycles and scooters	Bicycles and Tricycles	Transport Equipment n.e.c.
1960	100.0	100.0	100.0	100.0	100.0
1961	126.2	104.2	144.8	99.9	207.5
1962	184.3	109.2	137.4	106.3	290.9
1963	203.0	98.6	137.6	111.0	357.3
1964	243.2	125.6	201.6	131.4	641.5
1965	255.5	136.1	249.5	146.6	628.7
1966	180.6	136.2	271.5	155.4	389.4
1967	142.8	131.8	321.6	162.3	721.4
1968	130.7	149.5	395.8	182.7	710.9
1969	116.8	145.2	498.0	188.9	886.5
1970	93.6	157.8	603.2	194.9	894.6

**Table 6.2 : Estimates and Percentage Distribution of Output of 'Machinery and Transport Equipment' in 1960**

(In Rs. Lakhs)			
MSPS Code No.	Title	Estimates of output	Percentage distribution
36	Machinery other than electric	82,24	17.92
37	Electrical machinery	1,00,53	21.91
38	Transport equipment	2,33,49	54.94
	Repair of Transport equipment	42,59	5.23
3	Machinery and Transport Equipment	4,58,85	100.00

Source : Annual Survey of Industries.

**Table 6.2.1 : Estimates of Output and Percentage Distribution of 'Machinery Except Electrical Machinery' in 1960**

(In Rs. Lakhs)			
MSPS Code No.	Title	Estimate of output	Percentage distribution
361	Agricultural machinery	4,30	5.23
362	Mining, earth moving and construction machinery	5,34	6.49
363	Prime movers, boilers and steam generating plants	16,38	19.92
364 & 365	Industrial machinery	27,12	32.98
366 & 367 -3677	Machinery components and accessories	10,05	12.22
3677	Machine tools	6,35	7.72
368	Commercial and household machines	12,70	15.44
36	Machinery except electrical machinery	82,24	100.00

**Table 6.2.2: Estimates of Output and Percentage Distribution of 'Electrical Machinery' in 1960**

(In Rs. Lakhs)			
MSPS Code No.	Title	Estimate of output	Percentage distribution
371	Machinery, apparatus and supplies for generation, storage, transmission and transformation of electric energy	13,11	13.04
372	Electric motors and furnace	9,45	9.40
373	Electric cables and insulated wires	28,74	28.59
374	Batteries	9,84	9.79
375	Electrical appliances	16,64	16.55
376	Communication equipment	16,52	16.44
379	Electrical appliances n.e.s.	6,23	6.19
37	Electrical Machinery	1,06,53	100.00

**Table 6.2.3 : Estimates of Output and Percentage Distribution of 'Transport Equipment' in 1960**

(In Rs. Lakhs)			
ASI Code No.	Title	Estimate of output	Percentage distribution
382	Rail road equipment	90,69	38.83
383	Motor vehicles	1,18,85	50.89
385	Motor cycles and scooters	4,07	1.74
386	Bicycles	17,84	7.65
387	Transport equipment n.e.c.	2,04	0.89
38	Transport Equipment	2,33,49	100.00

period is characterized by almost zero growth in output. In two years, 1966 and 1967, the growth in the production was actually negative. Index of industrial production showed a fall of 29 points and 4 points over that of previous years. Hence it will be useful to analyse the trend in the output of different industries for the two periods separately so as to identify the industries which contributed to the sharp increase in the earlier period and to an equally sharp decline in the second half of the period.

(a) Growth during 1960-65

Amongst the three industries, non-electrical machinery shows the highest increase over the period of five years. As observed in Table 6.1 index of production in 1965 was as high as 238.8 as against 232.8 for the entire Machinery and Transport Equipment industry (1960 = 100). Amongst the various industries under non-electrical machinery the increase in output is highest in prime movers, boilers and steam generation plant, and lowest in the commercial, office and household machines. Production of machinery tools and components and accessories also increased considerably (Table 6.1.1).

The production of electrical machinery and transport equipment also increased, though at a lower rate than that of the Machinery and Transport Equipment industry as a whole.

In the case of electrical machinery the highest increase of 226.8 was recorded by machinery, apparatus and supplies of generation, storage, transmission and transformation of electrical energy. The production of power transformers increased almost threefold from 1,282 thousand K.V.A. in 1960 to 4,792 thousand K.V.A. in 1965. Manufacture of electric motors and communication equipment registered more than 100 per cent increase (Table 6.1.2). Expansion in the production of electrical machinery was marked by an expansion of the manufacture of producer goods such as electric motors, power transformers, electric cables and wires as also of consumer goods like radio sets, domestic refrigerators, electric fans, dry batteries etc.

There occurred considerable expansion of output of many goods under transport equipment such as bicycles, motor cycles, automobiles, locomotives and aeroplanes over the years. A large part of the products of industry are consumer durables.

The industries under non-electrical machinery, electrical machinery and transport equipment where index of production stood at a higher level than the corresponding index of production of Machinery and Transport Equipment at the end of the period are as in the following :

1. Non-Electrical Machinery : (238.8)

- a) Prime movers, boilers and steam generating plant (353.5)

- b) Machine tools (350.1)
- c) Machinery components and accessories (282.2)

2. Electrical Machinery : (204.4)

- a) Machinery apparatus and supplies for generation, storage and transmission and transformation of energy (336.8)
- b) Electric motors and furnace (244.9)
- c) Communication equipment (217.4)

3. Transport Equipment : (204.3)

- a) Rail road equipment (255.5)
- b) Motor cycles and scooters (249.5)
- c) Transport equipment n.e.c. (628.7)

(b) Growth during 1965-70

The increase in the production during 1960-65 received a setback in the year 1966. The index of production of Machinery and Transport Equipment industry dropped from 232.8 in 1965 to 204.0 in 1966 and further to 200.0 in 1967.

Amongst the three industries, transport equipment suffered worst. In 1965-66, the production declined by about 20 per cent. The decline persisted till the end of the period so that the production in 1970 was considerably below that in 1965. The poor performance of rail road equipment explains largely the steep fall in the production of transport equipment. The production of rail road equipment in 1970 was not only lower than that in 1965 but



also lower than in 1960. The output of two important products of rail road equipment, viz., locomotives and wagons, declined sharply after 1965.

The production in the other two industries, viz., non-electrical machinery and electrical machinery, increased but at a lower rate during 1965-70 than during the earlier period. But it did not register a fall in production.

Some of the industries specially under non-electrical machinery, however, were affected adversely during this period. Production of mining, earth moving and construction machinery, industrial machinery machine tools registered a sharp fall in 1966. Production of mining, earth moving and construction machinery was reduced to one-third of its level a decade ago. On the other hand, spectacular rise was recorded in the production under tractors, which increased almost three-fold during the later half of sixties.

Production in most of the industries under electrical machinery expanded at a somewhat stable rate. A sharp rise in the production of communication equipment occurred. The production in 1970 was more than three times the corresponding level in 1965.

The industries where the index of production was lower than the production index of the group are listed below :

1. Non-Electrical Machinery : (365.5)
  - a) Mining, earth moving and construction machinery (33.1)
  - b) Industrial machinery (120.6)
  - c) Commercial, office and household machines (143.6)
  - d) Machine tools (327.6)
2. Electrical Machinery : (362.7)
  - a) Electrical cables and insulated wires (220.1)
  - b) Batteries (232.3)
  - c) Electrical appliances (190.9)
3. Transport Equipment : (132.0)
  - a) Rail road equipment (93.6)

As a consequence of differential growth rates the structure of industry underwent significant changes. The share of transport equipment which was about 50 per cent in the production of Machinery and Transport Equipment industry in 1960 declined markedly since 1965 onwards.

### 6.3 Capacity Expansion and Utilization

It may be mentioned here that the shortage of capacity was not a factor responsible for retarding the growth of the industry during the second half of sixties. A. G. Mujumdar<sup>1</sup> has made an attempt to estimate the capacity and

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<sup>1</sup> A. G. Mujumdar. The Indian Engineering Industry Trends and Prospects. 1971, pp. 66-83.

**Table 6.3 : Indices of Capacity and Capacity Utilization Ratio for Industries under Machinery and Transport Equipment (1960-70)**

(1960 = 100)

Year	Machinery other than electric		Electrical Machinery		Transport Equipment	
	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio
1960	100.0	69.1	100.0	81.8	100.0	79.4
1961	124.6	70.9	106.7	86.8	109.2	84.3
1962	132.5	78.1	130.6	82.7	135.5	86.1
1963	161.9	76.1	143.4	87.7	150.2	79.7
1964	177.2	80.6	177.6	79.4	173.8	84.8
1965	243.1	83.0	201.8	83.7	186.3	85.2
1966	243.5	75.6	238.5	77.8	197.4	66.4
1967	243.5	71.9	247.3	80.7	197.7	59.3
1968	266.1	67.8	302.2	76.7	200.3	60.5
1969	266.1	65.6	320.7	82.4	201.3	59.2
1970	288.6	67.5	344.7	86.1	202.7	57.4

**Table 6.3.1 : Indices of Capacity and Capacity Utilization Ratio for Industries under Non-Electrical Machinery (1960-70)**

(1960 = 100)

Year	Mining, earth moving and construction machinery		Prime movers, boilers and steam generating plants		Industrial machinery		Machinery components and accessories		Commercial, office and household machinery	
	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio
1960	100.0	88.8	100.0	48.2	100.0	65.8	100.0	77.5	100.0	76.7
1961	143.0	77.2	180.8	34.7	100.0	73.0	107.1	87.7	135.9	72.5
1962	175.8	72.4	180.8	58.2	100.0	83.9	127.4	88.1	135.9	71.3
1963	215.9	80.6	180.8	65.0	118.1	81.8	196.8	80.5	135.9	68.5
1964	259.7	77.9	207.0	82.3	118.1	87.6	223.7	84.2	135.9	59.6
1965	268.3	81.6	257.8	82.0	118.1	85.6	395.3	84.1	135.9	77.7
1966	279.1	79.8	257.8	68.1	118.1	75.6	395.3	74.2	135.9	85.7
1967	279.1	40.6	257.8	70.6	118.1	70.0	395.3	72.1	135.9	83.1
1968	279.1	14.3	341.7	69.6	141.8	69.3	395.3	65.9	138.8	79.1
1969	279.1	21.0	341.7	70.0	141.8	60.6	395.3	70.8	138.8	69.3
1970	279.1	10.5	341.7	68.4	220.0	55.9	395.3	77.7	138.8	79.4

Table 6.3.2 : Indices of Capacity and Capacity Utilization Ratio for Industries under Electrical Machinery, Apparatus and Appliances (1960-70)

Year	Machinery, apparatus and supplies for the generation, storage, transformation of electrical energy		Electrical motors and furnaces		Electrical cables and insulated wires		Batteries		Electrical appliances		Communication equipment		Electrical machinery apparatus, appliances and supplies, n.e.c.	
	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio
1960	100.0	77.6	100.0	85.8	100.0	82.4	100.0	87.3	100.0	84.1	100.0	75.0	100.0	85.6
1961	128.9	84.5	119.2	85.8	100.0	85.8	100.0	89.6	101.2	89.9	105.9	86.1	100.0	83.1
1962	167.7	83.3	153.2	79.5	127.7	84.7	116.6	84.6	116.2	87.3	126.9	75.6	115.3	83.8
1963	183.9	86.6	168.0	87.3	132.0	94.3	125.8	93.3	125.1	85.8	143.4	81.5	158.4	70.3
1964	263.0	76.3	197.8	82.0	165.0	85.8	149.0	84.6	153.2	83.7	168.1	78.6	183.3	80.3
1965	305.8	85.5	247.1	84.9	184.8	88.4	149.0	85.3	153.2	83.7	214.9	75.9	195.7	79.3
1966	343.1	84.7	321.0	76.5	197.5	81.7	153.2	85.3	153.2	80.1	325.4	61.2	198.0	68.9
1967	413.4	77.0	321.0	79.7	197.7	86.1	153.2	88.4	153.2	84.8	325.4	73.4	198.0	66.7
1968	413.4	70.7	321.0	73.5	197.7	79.8	183.7	87.4	163.2	87.8	571.6	66.9	198.0	75.7
1969	423.1	72.3	322.3	79.6	197.7	84.1	217.9	91.5	173.6	88.9	624.8	77.7	205.1	73.5
1970	504.3	85.3	437.2	78.9	197.7	91.7	226.9	89.4	179.0	89.7	624.8	79.4	233.8	79.9

**Table 6.3.3 : Indices of Capacity and Capacity Utilization Ratio for Industries under Transport Equipment (1960-70)**

Year	Railboard Equipment		Motor Vehicles		Motor Cycle and Bicycles		Transport Equipment n.e.c.	
	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio	Index of capacity	Capacity utilization ratio
1960	100.0	74.7	100.0	85.6	100.0	82.8	100.0	48.3
1961	111.5	84.6	107.4	83.1	101.1	88.3	149.9	66.9
1962	157.0	87.8	111.6	83.8	106.6	86.8	207.1	67.9
1963	176.5	70.3	120.1	70.3	115.0	84.5	284.1	60.8
1964	204.0	80.3	134.0	80.3	150.4	79.1	392.1	79.1
1965	217.5	79.3	146.9	79.3	154.5	88.3	425.2	71.5
1966	217.5	68.9	169.2	68.9	183.4	79.3	425.2	44.3
1967	217.5	66.7	169.2	66.7	183.4	85.9	474.0	73.6
1968	217.5	75.7	169.2	75.7	209.8	86.9	503.9	68.2
1969	217.5	73.5	169.2	73.5	218.8	92.0	531.5	80.6
1970	217.5	79.9	169.2	79.9	231.3	95.4	565.6	76.4

its utilization in various groups of Machinery and Transport Equipment industry over the period 1960-70, and observed that the industry did not face any shortage of capacity at any time during the period 1960-70. Even in 1965, when the industry reached its peak level of utilization, 15.6 per cent of its capacity remained unutilized.

The rate of capacity expansion was the highest in electrical machinery during the decade 1960-70. Capacity in communication equipment recorded the highest increase. The capacity in non-electrical machinery and transport equipment did not register significant increase after 1965.

Capacity utilization in various industries followed more or less the pattern of capacity expansion over the years. In electrical machinery the capacity utilization ratio remained relatively stable over the period. However, it registered sharp decline in the non-electrical machinery and transport equipment since 1965. In transport equipment only 57.4 per cent of the capacity was utilized in 1970. But in motor cycles and bicycles capacity utilization in 1970 was as high as 95.4 per cent. The utilization of capacity in rail road equipment was as low as 34.3 per cent in 1970. It reached the lowest level in one of the industry under non-electrical machinery, viz., mining, earth moving and construction machinery, when the capacity utilization was as low as 10.5 per cent in 1970.

#### 6.4 Recession

The salient features of the growth of the industry can be broadly summarized as (1) sharp rise in the production and capacity of the industry till 1965, (2) steep fall in the production and capacity utilization after 1965, (3) very poor performance of heavy transport equipment after 1965, (4) relatively better performance of industries producing consumer durables etc.

The military conflicts with China and Pakistan in 1962 and 1965 also brought about an expansion in the country's defence industry giving impetus to the capital goods industry. But demand for capital goods could not be sustained for a long period as recession followed.

The fall in production has been mainly due to the fall in the capacity utilization. There are a number of factors which contributed to the sudden reversal of trend after 1965.

The expansion of capital goods industry was largely brought about by the growth of public investment, with a view to step up the rate of capital formation. It resulted in increase in the demand for producer goods. The gap between demand for the capital goods and their domestic supply in the early stages contributed to the spectacular expansion of the capital goods industry outstripping the growth of other industries, which is evident from Table 6.4.



**Table 6.4 : Index of Industrial Production**

Industry	(1960 = 100)	
	1965	1970
1. Basic Industries	164.3	221.7
2. Capital Goods Industries	244.0	224.6
3. Intermediate Goods	140.2	158.8
4. Consumer goods	127.5	154.7
a) Non-durables	120.5	137.6
b) Durables	166.5	249.5
General Index	153.8	180.8

Source : Report on Currency and Finance, R.B.I.

In comparison electrical machinery which has a large component of consumer durables remained almost unhurt during this period. The production of other consumer durables such as commercial, office and household machines, domestic electric appliances, motor cycles and bicycles also increased considerably. This shows the importance of demand for industrial growth.

The economy failed to absorb the growth in the productive potential which had occurred upto 1965 as the remaining sectors did not keep pace with the growth in the sector producing machinery and transport equipment. There occurred considerable expansion of exports of many

**Table 6.5 : Exports of 'Machinery and Transport Equipment' in 1970-71**

		(Rupees in Thousands)
No.	Title	Value of exports
1.	Power generating machinery other than electric	5,43,01
2.	Agricultural machinery and implements	50,86
3.	Office machines	1,95,74
4.	Metal working machinery	2,51,22
5.	Textile and leather machinery	7,67,95
6.	Machines for special industries	1,57,50
7.	Machinery and appliances and machine parts n.e.s.	8,41,49
	<b>Machinery other than electric</b>	<b>28,07,77</b>
8.	Electrical power machinery & switchgear	4,46,78
9.	Equipment for distributing electricity	3,56,53
10.	Telecommunication apparatus	2,70,21
11.	Domestic electric equipment	1,55,91
12.	Electric apparatus for medical purpose and radiological apparatus	5,29
13.	Other electrical machinery & apparatus	3,73,35
	<b>Electrical machinery, apparatus and appliances</b>	<b>16,08,07</b>
14.	Railway vehicles	2,81,73
15.	Road motor vehicles	20,90,27
16.	Road vehicles other than motor vehicles	7,09,88
17.	Aircraft	7,83
18.	Ships and boats	5,42
	<b>Transport Equipment</b>	<b>30,95,08</b>
	<b>Machinery and Transport Equipment</b>	<b>75,10,92</b>

goods under Machinery and Transport Equipment e.g., wagons, diesel engines, sewing machines, bicycles etc. Table 6.5 gives the exports of Machinery and Transport equipment in 1970-71.

### 6.5 Role of Foreign Capital in the Growth of Industry

Foreign investment played an important role in the growth of industry. Import Control Policy during the period had emphasized the role of import-substitution. In practice the influx of external resources, both financial and technological, made a significant contribution to the progress in import-substitution. These resources came on both private and official account. However, the dominant position has been taken by official transfers. Since the Government of India was mostly interested in the establishment of industries which had not previously existed, all enterprises in the public sector up to the 1965 were built with foreign assistance. Table 6.6 gives the available information on the actual pattern of aid utilization during each period. It is clear from the Table 6.6 that an overwhelming proportion of aid went into overheads (railway, power) and industrial projects (including iron and steel projects) which took a sizable share of total aid for industries.

In private sector the policy of liberalization for inflow of foreign capital and technical know-how stayed in

**Table 6.6 : Distribution of Foreign Loans Utilized by Purpose**

Purpose	(In Rs. Crores)							
	First Plan		Second Plan		Third Plan		1966 to 1971	
1. Power Projects	12.1	(9.57)	29.3	(4.11)	152.9	(8.30)	218.2	(6.08)
2. Iron and Steel Projects	2.7	(2.14)	254.1	(35.61)	104.9	(5.70)	206.7	(6.76)
3. Transport and Communication	15.6	(12.34)	159.0	(22.28)	278.9	(15.20)	252.3	(7.03)
4. Industrial development	2.3	(1.82)	255.4	(35.80)	1283.6	(69.60)	2592.7	(72.20)
5. Agricultural development	3.4	(2.69)	-		22.5	(1.20)	104.3	(2.90)
6. Wheat loans	90.3	(71.44)	15.7	(2.20)	-		216.7	(6.03)
<b>Total</b>	<b>126.4</b>	<b>(100.00)</b>	<b>713.5</b>	<b>(100.00)</b>	<b>1842.8</b>	<b>(100.00)</b>	<b>3590.9</b>	<b>(100.00)</b>

**Note :** Figures in brackets show percentage distribution.

**Source :** Report on Currency and Finance : 1965-66, 1972-73.

the early years of planning. This policy was reinforced by the foreign exchange crisis in 1956-57. With the initiation of Second Five Year Plan, the shortage of foreign exchange and the continued reliance on exchange and import controls compelled Government of India to encourage inflow of private capital from abroad.

A survey on "Foreign Collaboration in Indian Industry"<sup>1</sup> carried out by the Reserve Bank of India provides useful information. Between January 1948 to March 1964 the Government accorded approval for about 2200 foreign collaboration agreements of which those upto end of 1955 totalled less than 300. There was accordingly an upsurge in the number of approvals during 1959-65; the average number of annual approvals exceeded 300. Further approvals totalling about 900 were granted between April 1964 and end of 1967. The survey covered 827 companies, of these 587 companies had technical collaboration arrangements. These arrangements were designed to secure access to patented and unpatented know-how to specialized technical services and additional capital.

An industrywise classification of agreements shows that machinery and machine tools, transport equipment - electrical goods accounted for about 50 per cent of the

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<sup>1</sup> "Foreign Collaboration in Indian Industry," Reserve Bank of India, 1968.

total collaboration agreements. Pure technical collaboration was relatively more important in machinery and machine tools while subsidiaries and minority participation companies predominated in transport equipment and electrical goods. Technical collaboration involves transmission in the form of patents, designs, provision of technical assistance and training facilities connected herewith. Most of the agreements contained restrictive clauses relating to exports, sources of supply etc. During the period of the seven years from 1960-61 to 1966-67 the amount of dividend remittances abroad, royalty remittances and technical fees amounted to Rs. 122.01, Rs. 28.42 and Rs. 27.18 crores respectively. Royalty remittances of machinery and transport equipment accounted for about 60 per cent of total remittances. Transport equipment alone accounted for 25 per cent of total remittances. Industry manufacturing electrical goods remitted technical fee worth Rs. 3.1 crores while transport equipment and machinery and machine tools remitted technical fee worth Rs. 1.28 and Rs. 1.87 crores respectively.

It is evident that foreign capital and technical know-how contributed a great deal to the growth of Machinery and Transport equipment industry during the period.

#### 6.6 Role of Import Control Policy in the Growth of Industry

The growth of industries took place under protected

markets. Import Control Policy was, therefore, the most important instrument of the industrial development in India. New industries which tended to have high production cost, would have otherwise been ruined by foreign competition. Pattern of import licensing and import duties was governed by the criterion of 'Domestic availability' throughout the period. The protection led to high production costs in many industries. Import restrictions on consumer articles led foreign firms to start manufacture of finished products in India. The result has been the growth in the production of a number of 'consumer durables' especially electrical goods, brought about by the collaboration with foreign concerns as well as sheltered market.

Import Control Policy during post-devaluation period accorded priority to 'maintenance imports' and favoured those industries which produced exportables. The policy played a key role in giving a stimulus to the industry which had suffered because of lack of domestic demand.

## APPENDIX I

### EXPLANATORY NOTE ON INDUSTRY CLASSIFICATIONS: (A) INTERNATIONAL STANDARD INDUSTRIAL CLASSI- FICATION, AND (B) STANDARD INDUSTRIAL CLASSIFICATION

The two important sources of data on production in various big industries are : (1) Annual Survey of Industries (ASI) and (2) Monthly Statistics of Production of Selected Industries in India (MSPS). These two sources adopt different classifications viz. International Standard Industrial Classifications (ISIC) and Standard Industrial Classification (SIC) respectively. ISIC is a classification of all economic activities (or industries) which was recommended by the Statistical Commission of the United Nations and later on revised in 1958. SIC classification is the result of a draft on Standard Industrial Classification prepared by Central Statistical Organisation on the basis of suggestions and recommendations of different organizations viz. Planning Commission, National Sample Survey, Indian Statistical Institute and also the statistical office of the United Nations.<sup>1</sup> It follows the ISIC in its entirety at the first digit level. It deviates slightly

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<sup>1</sup> Introduction, The Standard Industrial and Occupational Classification. Central Statistical Organisation, New Delhi, 1962.



at the second digit level and markedly at the subsequent levels (second digit in SIC broadly corresponds with the three digit group in ISIC). ASI classification is just similar to the ISIC upto three digit level because ISIC stops at three digit level only. However ASI gives data in a more disaggregative form i.e. at four digit and five digit and both can be termed as sub-groups.

In the present exercise the unit that is chosen is the group in Standard Industrial Classification so the various sub-groups in ASI are to be regrouped or corresponded with the Group (three digit) in the Standard Industrial Classification. Machine tools although appears at four digit in SIC is treated separately considering the important role it plays in the economy.

**Table A<sub>6.1</sub> : Statement showing Correspondence between Code Numbers as Adopted in MSPS and ASI**

	MSPS (SIC)	ASI (ISIC)
Agricultural Machinery	361	360-8.1, 360-8.2
Mining, earth moving and construction machinery	362	360-4.6, .9, .10, 4.12
Prime movers, boilers and steam generating plant	363	360-1, -2, -3, 360-13
Industrial Machinery	364 -365	360-4.1, 4.4, 5.1, 4.2, 4.5, 4.7, 4.8, 4.9, 4.10, 4.11, 4.13, 4.14, 5.8 and 5.10
Components and accessories	366 & 367 3677	360-5.2, 5.11, 6.1, 5.12, 5.6, 5.4, 5.13
Machine Tools	3677	360.7
Commercial, office and household machines	368	360.12, 360-11.5, 360-11.1, 11.3, 11.2, 11.6
Machinery for generation, storage, transmission and transformation of energy	371	370-1.1
Electrical motors and furnace	372	370-1.2
Electric cables and insulated wires	373	370-1.6
Batteries	374	370-1.10, 370-1.11
Electrical appliances	375	370-1.4, 370-1.3

(continued)

Table A<sub>6.1</sub> : (continued)

	MSPS (SIC)	ASI (ISIC)
Communication equipment	376	370-2.3, 2.4 370-2.1, 2.2
Electrical machinery, apparatus appliances n.e.s.	379	370-1.5, 1.7, .4, 1.9
Rail road equipment	382	282.1, 382.2, 360-5.4
Road motor vehicles	383	383
Motor cycles	385	385
Bicycles	386	386
Transport equipment n.e.c.	389	389

MSPS = Monthly Statistics of Production of Selected Industries in India.

ASI = Annual Survey of Industries.

## CHAPTER VII

### IMPORT SUBSTITUTION IN MACHINERY AND TRANSPORT EQUIPMENT INDUSTRY 1960-70

#### 7.1 Concept of Import Substitution

We examined in the preceding chapter the growth of various industries producing Machinery and Transport Equipment during the decade 1960-70. An attempt is made in this chapter to relate these developments to the pattern of imports over the same period. Such an analysis would enable us to identify the industries and periods showing import substitution.

The phenomenon of import substitution is commonly understood as the substitution of imports by domestic production. There are a number of studies<sup>1</sup> attempting measurement of import substitution. The important study which seeks the measurement of import substitution in various industries in India over the period 1951-63 is

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1 (a) Hollis B. Chenery, "Pattern of Growth," American Economic Review, 1960.

(b) Lewis and Soligo, "Industrialization in Pakistan," Pakistan Development Review, July 1965.

(c) P. G. Clark, "Planning for Import Substitution," O.E.C.D., July 1970.

(d) Bhagwati and Desai. Indian Planning for Industrialization. New York : O.E.C.D., 1970.

one by Padma Desai, viz., 'Import Substitution in the Indian Economy 1951-63'. Import substitution is measured in that study by choosing four years i.e. 1951, 1957, 1961 and 1963 for three important groups of commodities, namely, consumer goods, intermediate and investment goods.

Padma Desai ranks industries according to the degree of import substitution on the basis of measures described below :

- (1) Change in the proportion of imports to supply -

$$\frac{M_1}{S_1} - \frac{M_2}{S_2}$$

- (2) Per cent change in the proportion of imports to supply -

$$\left( \frac{\frac{M_1}{S_1} - \frac{M_2}{S_2}}{\frac{M_1}{S_1}} \right)$$

(3) The third measure which was originally devised by Hollis B. Chenery,<sup>1</sup> and subsequently adopted by a number of authors, including Padma Desai, defines import substitution as the difference between the growth in output with no change in import ratio and actual growth in output. The growth in domestic production is thereby attempted to be attributed either to import substitution or change in the domestic demand. The basic identity is :

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1 Hollis B. Chenery, op.cit.

$$P + M = R + D + E = S \quad \dots (I)$$

where P = Production

M = Imports

R = Intermediate demand

D = Final demand

E = Exports

S = Supply (production + imports)

1, 2 = Period 1 and 2

$$\Delta P + \Delta M = \Delta R + \Delta D + \Delta E = \Delta S \quad \dots (II)$$

$$\Delta S = S_2 - S_1 \quad \dots (III)$$

$$\text{Let } U_1 = \frac{P_1}{S_1}, \quad U_2 = \frac{P_2}{S_2} \quad \dots (IV)$$

$$\text{Then } \Delta P = S_2 U_2 - S_1 U_1 \quad \dots (V)$$

Substituting  $S_1$  by  $S_2 - \Delta S$  from equation (III) in equation (V) we get

$$\Delta P = S_2 U_2 - U_1 (S_2 - \Delta S) \quad \dots (VI)$$

$$\Delta P = S_2 U_2 - U_1 S_2 + U_1 \Delta S \quad \dots (VII)$$

$$\Delta P = S_2 (U_2 - U_1) + U_1 (\Delta S) \quad \dots (VIII)$$

Substituting  $\Delta S$  by  $\Delta R + \Delta D + \Delta E$  from equation (II) in equation (VIII) we get :

$$\Delta P = S_2 (U_2 - U_1) + U_1 (\Delta R + \Delta D + \Delta E) \quad \dots (IX)$$

This identity parcels out the change in output into two parts:

1)  $(U_2 - U_1) S_2$  = Change in the import/supply into causing the change in output. This is taken as the measure of import substitution.

2)  $U_1 (\Delta R + \Delta D + \Delta E)$  = Change in demand condition causing change in output.

To express it in relative term it is divided by  $P - \frac{(U_2 - U_1)S_2}{P}$

The magnitude of this ratio  $\frac{(U_2 - U_1)S_2}{\Delta P}$  is used for the purpose of ranking of various industries according to the degree of import substitution. This ratio can be computed in two ways firstly by taking the values for the broad industry as a whole and secondly by computing for each of the industry separately and later on adding them up thus:

$$a) \quad \frac{\left( \sum_{i=1}^n U_{2i} - \sum_{i=1}^n U_{1i} \right) \sum_{i=1}^n S_{2i}}{\Delta P_i}$$

$$b) \quad \sum_{i=1}^n \frac{(U_{2i} - U_{1i}) S_{2i}}{\Delta P_i}$$

The first two ratios seeking measurement of change in import/availability ratio over the period can be taken as indicators of import dependence rather than import substitution. This is particularly so when total supply or availability of a given industry registers fall over the years.

The last measure also can be empirically applied only when the total production over a period does not fall. In our case since supply and production in a number of industries registered a fall between 1965-70 we have not attempted any of the measures described above. Instead we have tried simply to identify the industries and periods showing import substitution.

We regard import substitution to have occurred if (i) the total supply (i.e. domestic production + imports) does not decrease over the years and (ii) if the proportion of imports to supply registers a fall during the same period.

Taking the fulfilment of these two conditions as the basis we attempt to identify the industries and periods showing import substitution. In such cases where the decrease in the proportion of import to supply is accompanied by a corresponding decrease in the supply over the years and also in the cases where irrespective of the behaviour of supply the proportion of imports to supply increases there could be no import substitution. The former where the decrease in the proportion of imports to supply is accompanied by fall in the supply is a case of fall in demand, whereas the latter where the proportion of import to supply increases is the case of increase in import dependence.

Thus subsequently we shall present the results of our exercise in three statements (i) industries showing import substitution, (ii) industries affected by decline in demand and (iii) industries with increase in import dependence. We shall treat these periods (1) 1960-70, (2) 1960-65, (3) 1965-70 separately.



## 7.2 Estimation of Comparable Set of Production and Import Data

For attempting such an analysis empirically a comparable set of production and import data is the first requirement. The estimation procedure that is adopted to get such data is as follows.

The data used for the computations relate to the three years i.e. 1960, 1965 and 1970. 1960 is the initial year and 1970 is the last year of the period chosen for the present study and the year 1965 is the turning point in the period when the trends in production and imports altered radically.

The nature of import data and method employed for constructing quantity index of imports is discussed in Chapter V. For the estimation of value of production at constant prices two sources viz. Annual Survey of Industries and Monthly Statistics of Production of Selected Industries in India, are used. The first source gives data on the gross output while the second one gives indices of output for various industries. Annual Survey of Industries adopt International Standard Industrial Classification (ISIC) while Monthly Statistics of Production of Selected Industries in India gives indices of production for the industries classified according to Standard Industrial Classification. The value or output for the year 1965 and 1970 at 1960 prices are estimated by applying

the index of production obtained from Monthly Statistics of Production of Selected Industries in India to the value of gross output in the year 1960. Thus symbolically:

$$V_{ij} = \frac{V_i 1960 \times I_{ij}}{100}$$

where  $V_{ij}$  = Value of gross output of industry  $i$  in year  $j$   
 $I_{ij}$  = Index of production of industry  $i$  in year  $j$ .

It may be mentioned here that the indices of production computed on the basis of data given in Annual Survey of Industries for the period 1960 to 1965 are broadly in agreement with those in Monthly Statistics of Production of Selected Industries in India.<sup>1</sup> This procedure facilitated the estimation of gross output at 1960 prices for year 1970 as data from Annual Survey of Industries are available only upto 1965.<sup>2</sup>

The values of imports at 1960 prices are regrouped to correspond with the industries as per Standard Industrial Classification. This required the establishment of correspondence between Standard Industrial Classification and Revised Indian Trade Classification which is given in Table A7.1

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1 Ashok K. Mitra, "Growth of Employment in the Manufacturing Sector 1960-70," Artha Vijnana, June 1974.

2 Monthly Statistics of Production of Selected Industries in India does not give indices of output for Aircraft and Ships and boats. As such estimation of output at 1960 prices could not be attempted for these industries.

In the study referred to earlier (Padma Desai's) the data on production and imports are taken at market prices. Indirect taxes which include union and excise duties and sales taxes were added to the ex-factory value of production and c.i.f. (cost insurance and freight) values of imports at current prices to obtain values at market prices. In the present study the values of production and imports are ex-factory and c.i.f. respectively. Thus both are exclusive of internal taxes and transport cost. There is advantage in taking ex-factory value of production and c.i.f. values of imports vis-a-vis market prices as any change in imports and production over the period would not then contain the effect of change in the respective prices as well as internal taxes on production and import duties.

Lastly the production data is recorded on the basis of calendar year while import data are recorded on the financial year basis. Since the study extends over the ten year period no adjustment was thought necessary for this difference.

### 7.3 Results

Table 7.1 gives the ex-factory value of production and c.i.f. value of imports and supply, as also the proportions of production and imports in the supply for various industries producing Machinery and Transport Equipment in

**Table 7.1 : Estimates of Production (Ex-factory), Imports (c.i.f.) and Supply of Different Industries under Machinery and Transport Equipment in Year 1960, 1965 and 1970 (At 1960 Prices)**

		(Rs. Crores)								
Sr. No.	Title	1960			1965			1970		
		P	I	S	P	I	S	P	I	S
1.	Non-electrical machinery	78.02 (27.41)	206.58 (72.59)	284.60 (100.00)	186.48 (37.43)	311.66 (62.57)	498.14 (100.00)	197.06 (58.41)	140.29 (41.59)	337.35 (100.00)
2.	Electrical machinery	100.54 (65.88)	52.06 (34.12)	152.60 (100.00)	211.79 (67.05)	104.05 (32.95)	315.84 (100.00)	351.66 (78.89)	94.05 (21.11)	445.71 (100.00)
3.	Transport equipment	233.49 (79.28)	61.01 (20.72)	294.50 (100.00)	442.59 (90.67)	45.64 (9.33)	488.23 (100.00)	350.00 (94.89)	18.71 (5.11)	368.71 (100.00)
Machinery and Transport Equipment (1 + 2 + 3)		412.05 (56.31)	319.65 (43.69)	731.70 (100.00)	840.86 (64.57)	461.35 (35.43)	1302.21 (100.00)	898.72 (78.03)	253.05 (21.97)	1151.77 (100.00)

**Table 7.1.1 : Estimates of Production (Ex-factory), Imports (c.i.f.) and Supply of Different Industries under Non-Electrical Machinery in Year 1960, 1965 and 1970 (at 1960 Prices)**

		(Rs. Crores)								
Sr. No.	Title	1960			1965			1970		
		P	I	S	P	I	S	P	I	S
1.	Agricultural machinery	0.08 (1.81)	4.25 (98.19)	4.33 (100.00)	0.57 (12.43)	4.04 (87.53)	4.61 (100.00)	2.48 (14.74)	14.31 (85.26)	16.79 (100.00)
2.	Mining, earth moving and construction machinery	5.34 (38.95)	8.36 (61.05)	13.70 (100.00)	11.98 (63.61)	6.85 (36.39)	18.83 (100.00)	1.77 (23.88)	5.63 (76.12)	7.40 (100.00)
3.	Prime movers, boilers and steam generating plant	16.38 (39.50)	25.09 (60.50)	41.47 (100.00)	66.02 (62.16)	40.19 (37.84)	106.21 (100.00)	81.26 (89.00)	10.04 (11.00)	91.30 (100.00)
4.	Industrial machinery	27.12 (30.73)	61.14 (69.27)	88.26 (100.00)	41.55 (31.79)	89.09 (68.21)	130.64 (100.00)	32.71 (32.13)	69.12 (67.87)	101.83 (100.00)
5.	Components and accessories	10.05 (10.03)	90.16 (89.97)	100.21 (100.00)	28.36 (15.78)	151.31 (84.22)	179.67 (100.00)	39.79 (51.67)	37.21 (48.33)	77.00 (100.00)
6.	Machine tools	6.35 (29.59)	15.17 (70.49)	21.52 (100.00)	22.62 (58.40)	16.11 (41.60)	38.73 (100.00)	20.81 (91.01)	2.05 (8.99)	22.86 (100.00)
7.	Commercial, Office and household machines	12.70 (84.07)	2.41 (15.93)	15.11 (100.00)	15.38 (79.05)	4.07 (20.95)	19.45 (100.00)	18.24 (90.41)	1.93 (9.59)	20.17 (100.00)
Non-Electrical machinery Total (1 to 7)		78.02	206.58	284.60	186.48	311.66	498.14	197.06	140.29	337.35

**Table 7.1.2 : Estimates of Production (Ex-factory), Imports (c.i.f.) and Supply of Different Industries under Electrical Machinery in Year 1960, 1965 and 1970 (At 1960 Prices)**

		(Rs. Crores)								
Sr. No.	Title	1960			1965			1970		
		P	I	S	P	I	S	P	I	S
1.	Machinery for generation, storage, transmission and transformation of energy	13.11 (36.23)	23.06 (63.77)	36.17 (100.00)	44.14 (38.91)	69.30 (61.19)	113.44 (100.00)	72.60 (54.35)	61.10 (45.64)	133.70 (100.00)
2.	Electric motors and furnace	9.45 (64.52)	5.19 (35.48)	14.64 (100.00)	23.14 (89.21)	2.80 (10.79)	25.94 (100.00)	38.02 (95.84)	1.65 (4.16)	39.67 (100.00)
3.	Electric cables and insulated wires	28.74 (77.42)	8.38 (22.58)	37.12 (100.00)	57.00 (86.62)	8.80 (13.38)	65.80 (100.00)	63.26 (97.48)	1.63 (2.52)	64.89 (100.00)
4.	Batteries	9.84 (95.66)	0.45 (4.34)	10.29 (100.00)	14.34 (97.17)	0.42 (2.83)	14.76 (100.00)	22.86 (89.34)	2.73 (10.66)	25.59 (100.00)
5.	Electrical appliances	16.64 (93.96)	1.07 (0.04)	17.71 (100.00)	25.37 (97.36)	0.69 (2.64)	26.06 (100.00)	31.76 (96.00)	1.32 (4.00)	33.08 (100.00)
6.	Communication equipment	16.53 (80.21)	4.08 (19.79)	20.61 (100.00)	35.93 (86.31)	5.70 (13.69)	41.63 (100.00)	109.24 (92.57)	8.85 (7.43)	118.09 (100.00)
7.	Electrical machinery, apparatus, appliances and supplies n.e.c.	6.23 (38.78)	9.83 (61.22)	16.06 (100.00)	11.87 (42.07)	16.34 (57.93)	28.21 (100.00)	13.92 (45.35)	16.77 (54.65)	30.69 (100.00)
Electrical Machinery Total (1 to 7)		100.54	52.06	152.60	211.79	104.05	315.84	351.66	94.05	445.71

**Table 7.1.3 : Estimates of Production (Ex-factory), Imports (c.i.f.) and Supply of Different Industries under Transport Equipment in Year 1960, 1965 and 1970 (at 1960 Prices)**

		(Rs. Crores)								
Sr. No.	Title	1960			1965			1970		
		P	I	S	P	I	S	P	I	S
1.	Rail road equipment	90.69 (79.07)	24.00 (20.93)	114.69 (100.00)	231.71 (92.55)	18.64 (7.45)	250.35 (100.00)	84.90 (90.10)	9.33 (9.90)	94.23 (100.00)
2.	Motor Vehicles	118.85 (78.03)	33.46 (21.97)	152.31 (100.00)	161.76 (86.52)	25.20 (13.48)	186.96 (100.00)	187.55 (95.60)	8.63 (4.40)	196.18 (100.00)
3.	Motor cycles and scooters	4.07 (65.99)	2.10 (34.01)	6.17 (100.00)	10.16 (86.03)	1.65 (13.97)	11.81 (100.00)	24.56 (97.22)	0.70 (2.78)	25.26 (100.00)
4.	Bicycles and tricycles	17.84 (94.17)	1.10 (5.83)	18.94 (100.00)	26.15 (99.68)	0.08 (0.32)	26.23 (100.00)	34.77 (99.91)	0.03 (0.09)	34.80 (100.00)
5.	Transport equipment n.e.c.	2.04 (85.24)	0.35 (14.76)	2.39 (100.00)	12.81 (99.44)	0.07 (0.56)	12.88 (100.00)	18.22 (99.87)	0.02 (0.13)	18.24 (100.00)
Transport equipment Total (1 to 5)		233.49	61.01	294.50	442.59	45.64	488.23	350.00	18.71	368.71

the year 1960, 1965 and 1970. The supply of Machinery and Transport equipment industry amounting to Rs. 732 crores in 1960 increased to Rs. 1302 crores in 1965 and declined subsequently to Rs. 1152 crores in 1970. The supply therefore in 1970 was lower than in 1965 but higher than in 1960. The proportion of imports to supply declined steadily from 43.69 per cent in 1960 to 35.43 per cent in 1965 and further to 21.97 per cent in 1970. Thus if we consider the whole period between 1960 and 1970 then there is the indication of import-substitution in Machinery and Transport equipment industry in as much as the total supply between 1960 and 1970 increased and the proportion of imports in the total supply registered a decline. However, if we consider the periods between 1960 and 1965 and again between 1965 and 1970, a different picture emerges. Between 1960 and 1965 the industry shows import-substitution but between 1965 and 1970, the fall in the proportion of imports to supply or import dependence was not due to import-substitution but due to the fall in the total supply.

Two of the three industries, viz., non-electrical machinery and transport equipment together account for more than 75 per cent of the supply under Machinery and Transport equipment as a whole in 1960, also show a similar trend of import substitution between three periods. Electrical machinery is the only industry where import



substitution is observed to have occurred in all the three periods i.e., (1) between 1960 and 1970, (2) between 1960 and 1965, (3) between 1965 and 1970.

To corroborate these findings it will be useful to recall our observations in the preceding chapter. Non-electrical machinery and transport equipment which show fall in demand over the period 1965-70 also register a fall in the utilization of capacity during the same period. The utilization ratio in these two industries declined from 83 and 85 per cent in 1965 to 67.5 and 57.4 per cent in 1970 respectively. On the other hand under electrical machinery which shows import substitution under both the periods the capacity utilization ratio increased from 83.7 per cent in 1965 to 86.1 per cent in 1970.

The various industries producing non-electrical machinery, electrical machinery and transport equipment are classified under the three categories, viz., (a) import substitution (b) increase in import dependence (c) decline in import dependence due to fall in the demand for each of the three periods in the Statements 7.1 to 7.3.

It is observed that in 15 out of 19 industries indicate import substitution over the period 1960-70 (Statement 7.1). The first half of the period i.e. between 1960 and 1965, is characterized by import substitution in most of these industries (Statement 7.2). In the following

**Statement 7.1 : The Statement of Industries showing (a) Import-Substitution (b) Increase in Import Dependence (c) Decline in Import Dependence due to Fall in Demand over the Period 1960-70**

S.No.	Title
<b>(a) <u>Import Substitution</u></b>	
1.	Agricultural Machinery (98.19, 85.26)
2.	Prime movers, boilers and steam generating plant (60.50, 11.00)
3.	Industrial machinery (69.27, 67.87)
4.	Machine tools (70.49, 8.99)
5.	Commercial and office household machines (15.93, 9.59)
6.	Machinery for generation, storage, transmission and transformation of energy (63.77, 45.64)
7.	Electric motors and furnace (35.48, 4.16)
8.	Electric cables and insulated wires (22.58, 2.52)
9.	Electrical appliances (6.04, 4.00)
10.	Communication equipment (19.79, 7.43)
11.	Electrical machinery, apparatus and appliances, n.e.s. (61.22, 45.35)
12.	Motor vehicles (21.97, 4.40)
13.	Motor cycles and scooters (34.01, 2.70)
14.	Bicycles and tricycles (5.83, 0.09)
15.	Transport equipment n.e.c. (14.76, 0.13)
<b>(b) <u>Increase in Import Dependence</u></b>	
16.	Mining, earth moving and construction machinery (61.05, 76.12)
17.	Batteries (4.34, 10.66)
<b>(c) <u>Decline in Import Dependence due to Fall in Demand</u></b>	
18.	Components and accessories (89.97, 48.33)
19.	Rail road equipment (20.93, 9.90)

Figures in parentheses indicate percentage ratio of imports to total supply in year 1960 and 1970 respectively.



Statement 7.3: The Statement of Industries showing (a) Import Substitution, (b) Increase in Import Dependence, (c) Decline in Import Dependence due to Fall in Demand over the Period 1965-70

-----  
 S.No. Title  
 -----

(a) Import Substitution

1. Agricultural machinery (87.53, 85.26)
2. Commercial, office and household machines (20.95, 9.59)
3. Machinery for generation, storage, transmission and transformation of energy (61.19, 45.64)
4. Electric motors and furnace (10.79, 4.16)
5. Communication equipment (13.69, 7.43)
6. Electrical machinery, apparatus, appliances and supplies n.e.c. (57.93, 54.65)
7. Motor vehicles (13.48, 4.40)
8. Motor cycles and scooters (13.97, 2.78)
9. Bicycles and tricycles (0.32, 0.09)
10. Transport equipment n.e.c. (0.56, 0.13)

(b) Increase in Import Dependence

11. Mining, earth moving and construction machinery (36.39, 76.12)
12. Batteries (2.83, 10.66)
13. Electrical appliances (2.64, 4.00)
14. Rail road equipment (7.45, 9.90)

(c) Decline in Import Dependence due to Fall in Demand

15. Prime movers, boilers and steam generating plant (37.84, 11.00)
  16. Industrial machinery (68.21, 67.87)
  17. Components and accessories (84.22, 48.33)
  18. Machine tools (41.60, 8.99)
  19. Electric cables and insulated wires (13.38, 2.52)
- 

Figures in parentheses indicate percentage ratio of Imports to total supply in year 1965 and 1970 respectively.

period i.e. between 1965-70 only 10 out of 19 industries show import substitution and these account for a small per cent of the supply under Machinery and Transport equipment industry (Statement 7.3). Out of the remaining nine industries four turned out to be more dependent on imports and five industries indicated fall in demand. Behaviour of these five industries influenced a great deal the trend in the Machinery and Transport equipment industry during the period.

**Table A<sub>7.1</sub> : Statement showing Correspondence between Code Numbers as Adopted in MSPS and RITC**

	MSPS (SIC)	RITC
Agricultural Machinery	361	712
Mining, earth moving and construction machinery	362	718.4
Prime movers, boilers and steam generating plant	363	711
Industrial machinery	364 -365	715, 2101, 2102, 717, 718, 719 (Finished Products)
Components and accessories	366 and 367 3677	715, 2111, 2203, 717, 718 and 719 (Parts)
Machine Tools	3677	(715-715.2) 719.5
Commercial, office and household machines	368	719.63, 717.31, 719.42, 43, 714
Machinery for generation, storage, transmission and transformation of energy	371	722-722.12
Electrical motors and furnace	372	722.12, 729.92
Electric cables and insulated wires	373	723
Batteries	374	729.1

(continued)

Table A<sub>7.1</sub> : (continued)

	MSPS (SIC)	RITC
Electrical appliances	375	729.2, 725.03
Communication equipment	376	724
Electrical machinery, apparatus appliances n.e.s.	379	729.5, 729.9, 4105 726, 725-725.05
Rail, road equipment	382	731
Road motor vehicles	383	(732-732.9)
Motor cycles	385	732.1
Bicycles	386	733.1
Transport equipment n.e.c.	389	733.3, .4

MSPS = Monthly Statistics of Production of Selected  
Industries in India.

RITC = Revised Indian Trade Classification.

## CHAPTER VIII

### SUMMARY AND CONCLUSION

In the foregoing chapters we discussed the trends in India's imports in general and under Machinery and Transport Equipment in particular and also the other two aspects, namely, import control policy and import substitution. We are now in a position to summarize briefly the whole discussion on these aspects as follows.

1. Import Control Policy was the most important instrument of the development strategy during the post-independence period in India. Import policy prior to planning aimed at restricting and postponing import demand due to restrictions imposed by U.K. on the release of sterling reserves. During the second phase, between 1952 and 1957 import policy was more liberal due to comfortable foreign exchange position. During the first year of Second Five Year Plan foreign balances reached a critical stage and that led to radical revision of import policy. Developmental approach to imports started from this period. Since then import policy has been subject to stringent controls for conserving foreign exchange. Since 1966 with the devaluation of rupee there has been change in the order of priorities in favour of raw



material and intermediates. Policy of import for export was formulated during this period.

2. The important factors which determined the pattern of imports over the years are (1) Export earnings, (2) External aid/loan. Within these constraints there was very little scope for the manipulation of the instrument effectively.

3. The important considerations that governed the import control policy has been domestic availability and export promotion prospects. The main endeavour of the development strategy during the plan periods has been the growth of manufacturing sector through import substitution. The most important consequence of this approach has been that of absolute protection to import substitution projects by means of quantitative restrictions on imports. This might have resulted in inflating the cost structure of these industries.

4. Against this background the general pattern of India's imports has been examined with a view to study its association with the shifts in import control policy. It appears that foreign trade has not been the motive force behind India's economic growth. This is deduced from the fact that India's share in the world imports declined from 2.04 per cent in 1951 to 0.74 per cent in 1971. Its share in country's national income registered

a steady fall since 1957-58 onwards. It is seen that although total imports account for a small proportion of national income, the proportion of the non-food imports in the net output of mining, manufacturing and small enterprises account for a fairly large proportion over the years. The imports during the period could never be fully financed through export earnings. However, in the last four years of the period from 1967-68 to 1970-71 the percentage ratio of exports to imports has been continually increasing. Prior to that the ratio has declined almost steadily through the years.

5. The composition of imports also changed radically during these years. Marked fluctuations are observed under food imports. The range has been from 6.76 per cent in 1956-57 to 35.49 per cent in 1967-68. In terms of economic categories it is evident that during the last five years of the period i.e. 1966-67 to 1970-71, the imports under consumer and raw material and intermediate goods increased while those under capital goods declined. The increase in consumer goods has been largely due to increase under cereal imports while under raw material and intermediates it can be by and large attributed to increase under fertilizers, mineral fuels, metals, crude fertilizers, etc.

6. Imports under Machinery and Transport Equipment

which amounted to Rs. 133 crores in 1950-51 constitute 20.37 per cent of total imports. There has been almost steady increase till 1965-66 except in 1958-59 in imports under Machinery and Transport Equipment when its proportion in total imports rose to 35 per cent. The year 1965-66 marks the end of the period as since then a sharp decline in imports under Machinery and Transport Equipment is observed and towards the end of the period its share in total imports declined to 24 per cent. Non-electrical machinery normally accounted for more than half of total imports under Machinery and Transport Equipment. Hence changes in imports under non-electrical machinery by and large explain the changes in imports under capital goods.

7. To assess the behaviour of imports in real terms it is the quantities of imports that are relevant. For this purpose quantity index of imports is constructed and presented in Chapter V. It is observed that the general trend in import under Machinery and Transport Equipment is that of a steady increase upto 1965-66 and a gradual but continuous decrease thereafter and as expected a similar trend is observed under non-electrical machinery too.

8. Among the other two industries imports of electrical machinery increased particularly during the first half of the decade 1960-61 to 1970-71. Imports

under Transport equipment declined very sharply and finally attained a level 1970-71 which was one-third of the level a decade ago. A note-worthy feature is that quantity index of imports under each of the industry i.e. non-electrical machinery, electrical machinery and transport equipment reached its peak in 1965-66.

9. On its own the import series has very little to convey. To associate these trends with the trends in domestic production it was thought necessary to have a look at the performance of the industry during the period. Over the period the production of Machinery and Transport Equipment shows higher increase than under total manufacturing. The growth has however not been smooth but has been marked by definite breaks: The first phase which lasted till 1965 is characterized by steady increase in production, while in the following almost zero growth in the output is observed under this industry. In two years 1966 and 1967 production in fact shows absolute decline.

10. During the first phase a more than 100 per cent increase is observed in the production under each of the industry. During the following period when recessionary trend prevailed the worst affected among the three industries was Transport equipment. The index of production declined from 204.3 in 1965 to 132.3 in 1970. The production of other two industries, viz., non-

electrical machinery and electrical machinery was higher in 1970 than in 1965. Public investment, foreign collaboration and import control Policy played great role in the growth of the industry. After 1965 there was a decline in the capacity utilization due to shortage of demand for its products. Another point that is to be noted is that the production and imports moved almost in same direction over the years.

11. Having a comparable set of production and import series we proceed to identify industries showing import substitution. This is done for three periods: (1) 1960-70, (2) 1960-65 and (3) 1965-70 separately. We regard import substitution to have occurred if (i) the total supply (i.e. domestic production + imports) does not decrease over the years and (ii) if the proportion of imports to total supply registers a fall over the period. Taking the fulfilment of these two conditions as the basis an attempt is made to identify industries and periods showing import substitution. In such cases where the decrease in the proportion of imports to supply is accompanied by a corresponding increase in the supply over the years and also in cases where irrespective of behaviour of supply the proportion of imports to supply increases there could be no import substitution. The former, where the decrease in the proportion of imports to supply is accompanied by fall in the supply, is a case

of fall in demand, whereas the latter, where the proportion of imports to supply increases, is the case of increase in import dependence.

12. The results of the exercise are presented in three statements: (i) industries showing import substitution, (ii) industries affected by decline in demand, (iii) industries with increase in import dependence as stated earlier for three periods: (i) 1960-70, (ii) 1960-65, (iii) 1965-70 separately.

13. The supply of Machinery and Transport Equipment industry amounting to Rs. 732 crores in 1960 increased to Rs. 1302 crores in 1965. The proportion of imports to supply declined steadily from 43.69 per cent in 1960 to 35.43 per cent in 1965. Thus the industry clearly shows the incidence of import substitution during the period 1960-65. But in the following period there has been a fall in the supply as well as proportion of imports to supply from Rs. 1302 crores in 1960 to Rs. 1152 crores and 35.43 per cent to 21.97 per cent in 1970 respectively. This is a case of fall in demand. But if the entire period from 1960-70 is considered as a whole then there is indication of import substitution in Machinery and Transport Equipment industry.

Two of the three industries, viz., non-electrical machinery and transport equipment also show a similar

trend during these periods. Electrical machinery is the only industry where import substitution is observed to have occurred through all the periods.

It is believed that import substitution has been a major motive force behind the growth of the manufacturing sector in India. From the foregoing exercise it becomes clear that upto 1965 there is clear indication of import substitution in the industry. During the second half of the period i.e. 1965-70, the industry passed through a critical phase and was affected by the recessionary trend. Lack of demand was the main problem faced by the industry. Therefore import substitution in terms of decline in import/supply ratio with an increase in supply does not seem to have occurred consistently through the period. It became thus possible through this study to trace the evolving pattern of import substitution in the light of development of Machinery and Transport Equipment industry over the period under review.

## BIBLIOGRAPHY

### BOOKS

- Behari, Bepin. Imports in a Development Economy. Bombay Vora & Co., 1965.
- Bhagwati, Jagdish and Desai, Padma. Indian Planning for Industrialization : Industrialization and Trade Policies Since 1951. Paris : O.E.C.D., 1970.
- Clark, P. B. Planning Import Substitution. Amsterdam : North-Holland Publishing Company, 1970.
- Desai, Padma. Import Substitution in Indian Economy, 1951-63. London : Oxford Economic Press, 1971.
- Economic and Scientific Research Foundation. Structure of Indian Imports 1957-64. New Delhi : The Foundation, 1966.
- Hazari, R. K. (ed.). Foreign Collaboration : Report and Proceedings of a Seminar. Bombay: Bombay University, 1965.
- Hirschman, Albert. The Strategy of Economic Development. New York : Yale University Press, 1968.
- Kindleberger, Charles P. Foreign Trade and the National Economy. London : Yale University Press, 1962.
- Kinellon, M. Foreign Investments in India. London : Oxford University Press, 1965.
- Lewis, Stephen R. Pakistan : Industrialization and Trade Policies. O.E.C.D. Oxford University Press, 1968.



- Little, Jan, Tibor, Scitovsky and Scott, Maurice. Industry and Trade in Some Developing Countries. O.E.C.D. Oxford Economic Press, 1970.
- Maizels, Alfred. Industrial Growth and World Trade. New York : Cambridge University Press, 1963.
- Majumdar, A. G. The Indian Engineering Industry : Trends and Prospects. New Delhi : Cambridge Printing Works, 1972.
- Maitra, Priyatosh. Import Substitution Potential in East Africa. London : Oxford University Press, 1967.
- Medhore, P. B. Industrial Growth Since 1950: An Assessment. Bombay : University of Bombay, 1968.
- National Council of Applied Economic Research. Maintenance Imports. New Delhi : The Council, 1964.
- Newman, Peter. Studies in the Import Structure of Ceylon. Ceylon : Planning Secretariat, 1958.
- Nurkse, Rangar. Patterns of Trade and Development. Stockholm : Almqvist & Wiksells Boktryckeri AB Uppasala, 1959.
- Nurul, Islam. Imports of Pakistan : Growth and Structure - A Statistical Study. Karachi : Pakistan Institute of Development Economics, 1967.
- Singh, Manmohan. India's Export Trends. Oxford : Clarendon Press, 1964.
- Subramanian, K. K. Import of Capital and Technology : A Study of Foreign Collaboration in Indian Industry. Bombay : Peoples Publishing House, 1972.

- Thanawala, Kishor H. Statistics Relating to India's Foreign Trade 1948-49 to 1959-60. Bombay: Popular Prakashan, 1967.
- United Nations. A Study of Industrial Growth. New York: United Nations, 1963.
- Vartikar, V. S. Commercial Policy and Economic Development in India. New York : Fredrick A. Praegar, 1969.
- Verghese, S. K. India's Foreign Trade Organizational and Financial Aspects. Bombay : Allied Publishers, 1964.

#### ARTICLES

- Acharya, Shankar N., and Hazari, Bharat R., "Linkages and Imports : A Comparative Study of India and Pakistan," Journal of Development Studies, October 1971, pp. 107-17.
- Adams, Nassan A., "Import Structure and Economic Growth : A Comparison of Cross Section and Time Series Data," Economic Development and Cultural Change, 1967, pp. 143-62.
- Ajwani, M. B., "Import Substitution in Electrical Industry - Problems and Prospects," Electrical India, Vol. VIII, May 1968.
- Ball, R. J., "Capital Imports and Economic Development : Paradox or Orthodoxy," Kyklos, 1962, pp. 610-21.
- Berry, Albert, "A Note on Luxury Imports, the Saving Rate and Welfare," Indian Economic Journal, 1970, pp.563-96.
- Bhagawati, J., "On How to Decide What to Import and What to Produce," Oxford Economic Papers, February 1962, pp.114-16.

- Charles, K. J., "Exports, Imports Capacity and Growth,"  
Southern Economist, January 1970, pp. 19-22.
- Chenery, Hollis B., "Patterns of Industrial Growth,"  
American Economic Review, September 1960, pp. 624-54.
- Cohen, B., "The Stagnation of Indian Exports, 1951-66,"  
Quarterly Journal of Economics, 1964, pp. 604-45.
- Das Gupta, M., "Planning of Foreign Trade in India,"  
Southern Economist, January 1973.
- Datas-Panero, Jose A., "Import Substitution : Its Limited  
Role in Achieving Self-Reliance," Southern Economist,  
May 1972, pp. 57-63.
- Desai, Ashok V., "Effects of Import Control: Two Industrial  
Studies," Margin, January 1970, pp. 38-51.
- , "Evolution of Import Control," Economic and Political  
Weekly, July 1970.
- , "Neglect of Implication of Self-Sufficiency Goal,"  
Economic and Political Weekly, July 1971, pp. 1683-86.
- , "Imports of Technology and Capital : A Second Look,"  
Margin, January 1972, pp. 51-62.
- Desai, Padma, "The Development of Indian Economy : An  
Experience in Economic Planning," Oxford Economic  
Papers, November 1963, pp. 308-17.
- , "Alternative Measures of Import Substitution,"  
Oxford Economic Papers, November 1969, pp. 312-24.
- , "Growth and Structural Change in the Indian Manufac-  
turing Sector, 1951-66," Indian Economic Journal,  
October-December 1969, pp. 205-33.

- Desai, V. V., "Import Substitution and Growth of Consumer Industries," Economic and Political Weekly, March 15, 1969.
- Ghosh, A. K., "Export Trends and Import Substitution vis-a-vis India's Economic Growth," Foreign Trade Review, 1970, pp. 8-22.
- Khan, A. R., "Import Substitution, Export Expansion and Consumption Liberalization," Pakistan Development Review, 1963, pp. 208-31.
- Kuznets, S., "Qualitative Aspects of the Economic Growth of Nations: IX-Level and Structure of Foreign Trade: Comparisons for Recent Years," Economic Development and Cultural Change, October 1964.
- Lewis, S. R., and Soligo, R., "Growth and Structural Change in Pakistan Manufacturing Industry, 1954-64," Pakistan Development Review, Spring 1965, pp. 94-114.
- Lim, Youngil, "Trade and Growth : The Case of Ceylon," Economic Development and Cultural Change, January 1968, pp. 261-74.
- Marwah, Kanta, "Measurement of Devaluation Impact : Indian Case Study," Indian Economic Journal, Vol. XVII, No. 6, 1970, pp. 737-48.
- Menezes, William, "Foreign Trade in India : An Application of Kindleberger's Model," Asian Economic Review, December 1970, pp. 402-13.
- Menon, V. P.S., "India's Heavy and Light Electrical Industries," The Journal of Industries and Trade, Vol. XVI, No. 9, September 1966.

- Mitra, Ashok K., "Employment in the Manufacturing Industry - An Analysis of Growth Rate and Trend (1960-71)," Artha Vijnana, March 1974, pp. 1-49.
- Paul, Samuel, and Rao, N. V., "Demand for Electric Motors," Artha Vijnana, Vol. 9, No. 2, June 1967.
- Power, John H., "Industrialization in Pakistan : A Case of Frustrated Take-off," The Pakistan Development Review, Summer 1963, pp. 191-207.
- Raj, K. N., and Sen, A. K., "Alternative Patterns of Growth under Conditions of Stagnant Export Earnings," Oxford Economic Papers, February 1961, pp. 43-52.
- Rele, Subhash J., "Import Substitution Demands Priority," Yojana, March 1970.
- Singh, Sheo Kumar, "India's Foreign Trade under the Plans : An Appraisal," Southern Economist, June 1971, pp.8-17.
- Steur, M. D., and Voinodas, C., "Import Substitution and Chenery's Pattern of Industrial Growth : A Further Study," Economic Internazionale, November 1965, pp. 47-196.
- Suryanarayana, K., "Structural Imbalances in the Pattern of India's Foreign Trade," Southern Economist, May 1970, pp. 39-43.
- Swayambhu, S., "Heavy Power Equipment Industry," The Journal of Industry and Trade, Vol.XVII, No.2, February 1968.
- Wali, B. H., "Import Policy and Economic Growth in India," Southern Economist, April 1972, pp. 7-17.

GUIDES, REPORTS AND SOURCES OF DATA

Arora, R. S. A Practical Guide to the Foreign Trade of India. New Delhi : National Publishing House, 1967.

Central Statistical Organisation. Monthly Statistics of the Production of Selected Industries in India. (for 1960 to 1970). Calcutta : December 1967.

-----, The Standard Industrial and Occupational Classifications. New Delhi : 1962.

-----, Department of Statistics. Annual Survey of Industries, Vol. I, VIII and IX. 1960.

-----, -----, Estimates of National Income, 1948-49 to 1960-61. New Delhi : 1964.

-----, -----, Estimates of National Income 1960-61 to 1972. New Delhi : 1964.

The Chief Controller of Imports and Exports, New Delhi. Annual Administration Report of the Import and Export Trade Control Organisation 1957 to 1970-71.

Engineering Export Promotion Council. Engineering Industries of India. Calcutta : The Council, 1962-63.

Government of India. Industrial Policy Resolution. New Delhi : 1956.

-----, Department of Commercial Intelligence and Statistics. Annual Statement of the Foreign Trade of India from and to Commonwealth and Foreign Countries, Vol. I. Calcutta : (Issues for the fiscal year ending 31st March 1950 to 1956.)

-----, -----, A Guide to the Official Statistics of Trade, Shipping and Customs Revenue of India. Calcutta : 1963 and Revised edition in 1965.

- Government of India, Department of Commercial Intelligence and Statistics. Monthly Statistics of Foreign Trade of India. Calcutta : (Issues for the fiscal year ending 31st March 1960-61 to 1970-71.)
- , Department of Industries and Supplies. Report of the Electrical Machinery and Equipment Panel on the Development of Electrical Industries. New Delhi: 1947.
- , Ministry of Commerce. Report of the Import Control Committee 1950. New Delhi.
- , -----. Revised Indian Trade Classification. 1965.
- , -----. Import Trade Control : Handbook of Rules and Procedure. New Delhi : 1967.
- , Ministry of Commerce and Industry. Development of Machinery Manufacturing Industry including Machine Tools. New Delhi : 1959.
- , -----. Production and Programmes of Manufacture of Machinery and Equipment in 1960 and in the Third Five Year Plan of India. New Delhi : 1961.
- , -----. Report of the Import and Export Policy Committee. New Delhi : 1962.
- , Ministry of Industrial Development, Internal Trade and Company Affairs (Department of Industrial Development). Import Substitution and Its Impacts : A Review by the Directorate General of Technical Development for 1960-67. 1969.
- , Ministry of Industry and Supply. Industrial Development of India. November 1965.
- , Planning Commission. Second Five Year Plan. New Delhi : 1956.

Government of India, Planning Commission. First Five Year Plan. New Delhi : 1963.

-----, -----. Report of the Technical Committee to Study the Requirement of Major Electrical Equipment. New Delhi : 1965.

-----, -----. Report of the Working Group on Electrical Power Equipment. New Delhi : 1965.

-----, -----. Third Five Year Plan. New Delhi : 1966.

-----, -----. Annual Plans. New Delhi : 1966.

-----, -----. Fourth Five Year Plan. New Delhi : 1969.

Indian Electrical Manufactures Association. Demand Survey of Electrical Equipment, 1965-66 to 1970-71. Calcutta : The Association, December 1965.

The Indian Institute of Foreign Trade. Commodity Study Report on Electric Fans. New Delhi : The Institute, 1967.

Indian Standard Institute. Indian Standard Conversion Factors and Conversion Tables. Delhi : The Institute, 1957.

Rao, V. V. L. A Guide to the Metric System. Bombay : Asia Publishing House, 1961.

Reserve Bank of India. Report on Currency and Finance. New Delhi : The Bank (for 1950-51 to 1970-71).

Tariff Commission. Report on the Continuance of Protection to the Power and Distribution Transformers Industry. Bombay : The Commission, 1963-65.



Tariff Commission. Reports on the Continuance of Protection to Electric Motor Industry. Bombay : The Commission, 1963-65.

United Nations. Commodity Indexes for the Standard International Trade Classification, Series M, No.10, Indexed Edition, Preliminary Issue, April 1953 and Revised Issue, Statistical Papers, Series M, No. 38, Vol. I, 1953. New York : The United Nations.

----- . Indexes to the International Standard Industrial Classification, Statistical Papers, Series M, No.4, Rev. 1, Add 1, Indexed Edition. New York : The United Nations, 1959.

----- . International Financial Statistics. New York : The United Nations (Issues relating to calendar year 1951 to 1971).