

**A STRUCTURAL STUDY OF INDIA'S  
TRADE-DEPENDENCE  
(1956-1975)**

**PHASE - I (IMPORT SIDE)**

**S. V. BOKIL  
RANGANATH MURTHY  
VIDYA PITRE**

**GOKHALE INSTITUTE OF POLITICS AND ECONOMICS  
PUNE - 411 004**

**A STRUCTURAL STUDY OF INDIA'S  
TRADE-DEPENDENCE (1956-1975)**

**PHASE - I  
(IMPORT SIDE)**

**S. V. BOKIL  
RANGARATH MURTHY  
VIDYA PITRE**

**GOHALE INSTITUTE OF POLITICS AND ECONOMICS  
PUNE 411004**

**APRIL, 1979**

## FOREWORD

The present study is a Phase-I report on India's Trade Dependence where the authors analyse the case of imports. Their main contention is that the overall indicator of trade-dependence in the form of Export/GNP and Import/GNP ratios conceals the closer interdependence that exists between imports on one hand and the manufacturing sector on the other. Since input relations from imports to industrial output are not known, because imports are not classified according to use, the authors thought it best to study the pattern of imports vis-a-vis the pattern of industrial output. But they discovered the lack of comparability in the data on imports and the data on industrial output because of the different schemes of classification followed by the respective agencies collecting these data. A scheme of correspondence was devised to overcome the difficulties of comparability in the data and it thus became possible to reclassify the data on imports in line with the ASI's 2-digit and 3-digit industry classification. Since such a correspondence is being used for the first time, it seems that the results obtained are not only new but also useful. Thus armed with comparable series of industrial imports and industrial output for 1960-75 the authors proceed to study systematically a number of questions.

First, they take up the question of structural change in industrial production and industrial imports and succeed in showing the vast structural changes

that have swept the manufacturing sector and the import sector in India over 1960-75. The authors next take up the question of inter-dependence between industrial production and industrial imports and establish how import/availability ratios and other measures of import substitution, including those furnished by Chenery, throw light on this inter-dependence. Their results show that the process of import substitution provided a major stimulus behind industrial growth during 1960-70 and that it turned to be a negative factor during 1970-75. In the remaining part of the study the authors gather further evidence in support of these findings. Thus they obtain estimates of structural parameters in the form of production and import elasticities by two different methods. The real GNP per capita and the volume of industrial output are used alternatively as independent activity variables. To capture the policy impact of import control measures the capacity to import, properly defined, is used as a proxy variable. The notable result in these exercises is that the trade policy variable did not indicate any significant impact on imports and industrial production.

Thus, the study supports the well known finding of Chenery and his associates relating to structural change and industrialisation—namely, that size and the resource base and not trade policy are the major factors that determine the pattern of industrial growth.

The study received generous financial support from the Indian Council of Social Science Research, New Delhi and we are grateful to them for this assistance.

Gokhale Institute of  
Politics & Economics  
Pune 411004

V. M. Dandekar  
Director

April 12, 1979

PREFACE

This study presents our findings and analysis relating to Phase-I of our project on India's trade dependence.

This is a study based on the research proposal "A Structural Study of India's Trade Dependence" accepted for generous financial assistance by the Indian Council of Social Science Research, New Delhi. On the advice of the Council the study was divided into two phases: the imports phase and the exports phase. The following pages present our findings and analysis of the import dependence of India during 1956-75.

The central motivating factor behind the present study was the need for an inquiry into trade and industry inter-dependence in India during the last 25 years when both the manufacturing and the foreign trade sectors have undergone vast structural change. A number of studies on the interdependence between industry and trade within a multi-country framework have appeared in the course of the last few years. India has figured as one of the countries in cross-sectional studies carried out by A. Vaisels and by Chenery and his associates. Simon Kuznets too furnished massive evidence on the patterns of industrial growth and foreign trade of different countries. From these studies we concluded that a time-serial enquiry on India alone was necessary to know the depth and width of structural change in industry and trade and that such a study would throw light on the possible ways in which industry and trade interact. It was also felt that such a study

would be able to locate a subset of trade and industry where the strategic role of foreign trade would be very much greater than as reflected by the low ratios of total exports and total imports to Gross National Product. It was further expected that a detailed and disaggregated study like this would indicate the causal links between trade and industry.

We are happy to report that Phase-I of this study abundantly fulfils our expectations. The reclassification of import data in accordance with the Annual Survey of Industry (ASI) classification enables us to observe the structural changes in industrial production and imports juxtaposed to one another. The progress of import substitution in the Indian manufacturing sector was examined and we found that there was little further scope for import substitution. Elasticity parameters derived from rates of growth helped us further probe into structural change and also gave us measures of import dependence. The multiple regression exercises confirmed the position taken by us (as also by Chenery and his associates) that size and endogenous growth mainly determine the patterns of industrial growth and imports policies, at best, only marginally affect the outcome.

We are aware that this study is not without its limitations. We would like to stress the main limitations here at the very beginning.

A study on import dependence should ideally be carried out in an input-output framework. However, such a study is not possible in our context since import data are not classified by use. We had thus to

fall back upon devising a correspondence between trade and industrial classifications in terms of the ASI manufacturing sector. Since crude materials such as crude oil and raw materials fall in the mining and not in the manufacturing sector they are not covered in our study. To the extent that these materials go as inputs in the manufacturing sector our measures of import dependence are under-statements. In our multiple regression exercise, however, we have attempted to correct this defect. Import categories used in this chapter correspond to the wider trade classification, the Revised Indian Trade Classification (R.I.T.C.).

The measures of import substitution suffer from well known drawbacks and we have noted them in our exercise. This particularly applies to the descriptive measures suggested by Chenary. The results obtained with the help of these measures must be treated with caution.

In the preparation of this study we received cooperation and help from a number of individuals. Firstly, this study would not have been possible but for the constant encouragement and advice we received from the senior members of the staff of Gokhale Institute of Politics and Economics, particularly its Director Prof. V.M.Dandekar. Besides, some of the exercises contained in this study were presented at the staff seminars of Gokhale Institute and we immensely benefited from the penetrating comments of our colleagues. We are grateful to all of them. We are equally grateful to the staff of the Statistical Section of Gokhale Institute for computational

assistance. In particular our thanks are due to Miss Vidya Gurjar and Miss Vinita Mahajan who spared no effort to collect and tabulate data in the form in which we wanted. Further we are thankful to Shri S.K. Athale who typed the manuscript of this study with his usual efficiency. Last but not least we must express our deepest gratitude to the Indian Council of Social Science Research, New Delhi and its anonymous consultants who supported our research proposal with generous financial assistance.



CONTENTS

(vii)

	<u>Page</u>
FOREWORD	(i)
PREFACE	(iii)
LIST OF TABLES	<del>(viii)</del> (x)

Chapter

<b>I</b>	<b>INTRODUCTION</b>	<b>1-4</b>
	i) The Nature	
	ii) The Scope	
	iii) Method	
<b>II</b>	<b>THE TRADE DEVELOPMENT NEXUS - AN ANALYSIS OF INTERDEPENDENCE BETWEEN TRADE AND DEVELOPMENT</b>	<b>5-12</b>
<b>III</b>	<b>DEVELOPMENTS IN INDIAN INDUSTRY AND TRADE</b>	<b>13-27</b>
	i) structure of the Indian Economy, 1950-51, 1960-61, 1974-75	
	ii) Plan Allocations	
	iii) India and World Trade	
	iv) India and the Law of Declining Trade	
	v) Pattern of India's Imports	
	vi) Pattern of India's Exports	
	vii) Determinants of the Pattern of Industrial Growth	
	viii) The Typical Pattern of Industrial Growth	
	ix) The Pattern of Indus- trial Growth in India	
<b>IV</b>	<b>AN ANALYSIS OF STRUCTURAL CHANGE IN INDUSTRIAL PRODUCTION AND INDUSTRIAL IMPORTS</b>	<b>28-77</b>
	i) The Correspondence between Trade and Indus- trial Classifications	

ChapterPage

	ii) On Data Used	
	iii) On the Non-adjustment for the 1966 Devaluation	
	iv) An Overview	
	v) The Hoffman Ratio	
	vi) The Gini-Hirschman Co- efficients of Concentration	
	vii) Leading and Lagging Groups in Industrial Pro- duction and Industrial Imports	
	viii) Structural Shifts in Industrial Production (at current and constant prices)	
	ix) Structural Shifts in Industrial Imports (at current and constant prices)	
	x) Overlaps	
	a) Overlap of Leading In- dustries and Leading Industrial Imports	
	b) Overlap of Lagging In- dustries and Lagging Industrial Imports	
	c) Overlap of Leading In- dustries and Lagging Industrial Imports	
	d) Overlap of Lagging In- dustries and Leading Industrial Imports	
	xi) Conclusion	
V	INDIA'S IMPORT SUBSTITUTION 1960-75	78-197
	i) The Concept of Import Substitution	
	ii) The Choice of Measures	
	iii) Data and Coverage	

<u>Chapter</u>		<u>Page</u>
	iv) An Analysis of Production/Availability and Import/Availability Ratios	
	v) Analysis of Results Based on the Chenery Measure	
	vi) Impact of Devaluation	
	vii) Import Substitution and Ranking of Industries	
	viii) Comments on Results	
	ix) Import Substitution at Constant (1960) Prices	
<b>VI</b>	<b>IMPORT AND PRODUCTION ELASTICITIES-I</b>	<b>198-214</b>
	i) Results	
	ii) Import Elasticity Parameters	
	a) At the Two-digit Level of the ASI Classification	
	b) At the Three-digit Level of the ASI Classification	
	iii) Production Elasticity Parameters	
	a) At the Two-digit Level of the ASI Classification	
	b) At the Three-digit Level of the ASI Classification	
<b>VII</b>	<b>IMPORT AND PRODUCTION ELASTICITIES-II</b>	<b>215-237</b>
	i) An Analysis of Multiple Regression Results	
	ii) Production Elasticities	
	iii) Trade Elasticities	
<b>VIII</b>	<b>CONCLUSION</b>	<b>236-237</b>

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
III.1	Gross domestic product at factor cost by industry of origin (at 1960-61 prices)	21
III.2	Plan expenditure (actual) by heads of development	22
III.3	World imports (c.i.f.)	23
III.4	World exports (f.o.b.)	24
III.5	Composition of India's imports	25
III.6	Composition of India's exports	26
III.7	Overall trade dependence ratios: 1950-51 to 1974-75	27
IV.1	Industrial production	45
IV.2	Industrial imports	46
IV.3	Leading, lagging and constant industries - Industrial production at current prices (at the two-digit level of the ASI classification)	47
IV.4	Leading, lagging and constant industries - Industrial imports - Industrial imports at current prices (at the two-digit level of the ASI classification)	49
IV.5	Overlap between (1) Tables IV.3a & IV.4a and (2) Tables IV.3b & IV.4c.	51
IV.6	Leading, lagging and constant industries - Industrial production at constant (1960) prices (at the two-digit level of the ASI classification)	53
IV.7	Leading, lagging and constant industries - Industrial imports - Industrial imports at constant prices (at the two-digit level of the ASI classification)	55
IV.8	Overlap between (1) Tables IV.6a & IV.7a and (2) Tables IV.6b & IV.7c	57

<u>Table No.</u>		<u>Page</u>
IV.9	Overlap of those groups that are leading in production and lagging in imports (current price data) i.e. overlap of tables IV.3a and IV.4a	59
IV.10	Overlap of those groups that are leading in production and lagging in imports (constant price data) i.e. overlap of tables IV.6a and IV.7a	60
IV.11	Shares of leading and lagging industries in total industrial production in 1960 and in 1975 (at current prices)	61
IV.12	Shares of leading and lagging industries in total industrial production in 1960 and in 1975 (at constant prices)	61
IV.13	Shares of leading, lagging and constant industrial imports in total industrial imports in 1960 and in 1975 (at current prices)	62
IV.14	Shares of leading, constant and lagging industrial imports in total industrial imports in 1960 and in 1975 (at constant prices)	62
IV.15	Leading, declining and constant industries	64
IV.16	Leading, declining and constant industrial imports	68
IV.17	Overlap of Tables IV.15 and IV.16	72
IV.18	Shares of leading, declining and constant industrial imports in total industrial imports	74
IV.19	Share of leading, declining and constant industries in total industrial production	75
IV.20	Table IV.17 quantified	76
IV.21	Overlap of those goods that are leading in production and declining in imports	77
V.1	Value of production in Indian manufacturing sector (1960-1975)	97

<u>Table</u> <u>No.</u>		<u>Page</u>
V.2	Value of India's industrial imports (1960-1975)	98
V.3	Value of supply by major manufacturing sectors in India (1960-75)	99
V.4	Share of production in supply of major manufacturing sectors in India (1960-75)	100
V.5	Change in the production/availability ratio in the major manufacturing sectors in India (1960-75)	101
V.6	Changes in production (at the 2-digit level of the ASI classification)	102
V.7	The Chenery measure of import substitution (at the two-digit level of the ASI classification)	103
V.8	Contribution of expansion in demand to the change in production	104
V.9	Share of import substitution in change in production	105
V.10	Import/availability ratios (at the 2-digit level of the ASI classification)	106
V.11	Change in the import/availability ratio (at the 2-digit level of the ASI classification)	107
V.12	Changes in imports (at the 2-digit level of the ASI classification)	108
V.13	The Keizels' measure of import-substitution	109
V.14	Contribution of the expansion in demand to the change in imports	110
V.15	Rank order of different manufacturing sectors in India according to various measures of import substitution (1960-75)	111
V.16	Rank correlation between import substitution (x) and compound growth rates (y) of production	115

<u>Table</u> <u>No.</u>		<u>Page</u>
V.17	Imports, production, supply, import/availability ratios and production/availability ratios in 1965 after making adjustment for the 1966 devaluation	116
V.18	Import substitution between 1965 and 1970 after taking account of the 1966 devaluation	117
V.19	Resolution of change in production into "Import substitution" and "Demand expansion" effects for the period 1965-70 after taking into account the 1966 devaluation	118
V.20	Resolution of change in imports into "Import substitution" and "Demand expansion" effects after taking into account the 1966 devaluation	119
V.21	Industrial production at constant (1960) prices (at the 2-digit level of the ASI classification)	120
V.22	Value of imports at constant (1960) prices (at the 2-digit level of the ASI classification)	121
V.23	Supply at constant (1960) prices (at the 2 digit level of the ASI classification)	122
V.24	Production/availability ratios (at the 2-digit level of the ASI classification) with production and supply at constant (1960) prices	123
V.25	Change in the production/availability ratio (at the 2-digit level of the ASI classification) at constant (1960) prices	124
V.26	The Chenery measure of import substitution (at the two-digit level of the ASI classification) at constant (1960) prices	125
V.27	Changes in production - at the 2-digit level of the ASI classification - at constant (1960) prices	126
V.28	Contribution of expansion in demand to change in imports - at the 2-digit level of the ASI classification - at constant (1960) prices	127

<u>Table</u> <u>No.</u>		<u>Page</u>
V.29	Share of import substitution in change in production at the 2-digit level of the ASI classification - constant (1960) price data	128
V.30	The Maizels' measure of import substitution at the 2-digit level of the ASI classification - at constant (1960) prices	129
V.31	Changes in imports - at the 2-digit level of the ASI classification - at constant (1960) prices	130
V.32	Contribution of expansion in demand to change in production - at the 2-digit level of the ASI classification - at constant (1960) prices	131
V.33	Value of production in Indian manufacturing sector (1960-75)	132
V.34	Value of India's industrial imports 1960-75	135
V.35	Value of supply (production + imports) in Indian manufacturing sector (1960-75)	138
V.36	Production/availability ratios 1960-1975	141
V.37	Change in the production availability ratio 1960-1975	144
V.38	Change in production in different industries of the Indian manufacturing sector (1960-75)	148
V.39	Chenery measure of import-substitution (at the 3-digit level of the ASI classification)	150
V.40	Share of import substitution in the change in production (at the 3-digit level of the ASI classification)	153
V.41	Contribution of expansion in demand to growth in industrial production at the 3-digit level of the ASI classification	156



<u>Table No.</u>		<u>Page</u>
V.42	Import/availability ratios (at the 3-digit level of the ASI classification)	158
V.43	Change in the import availability ratio	161
V.44	Change in imports (at the 3-digit level of the ASI classification)	164
V.45	The Maizels' measure of import substitution (at the 3-digit level of the ASI classification)	167
V.46	Contribution of expansion in demand to change in imports (at the 3-digit level of the ASI classification)	170
V.47	Imports, production, supply, import/availability ratios and production/availability ratios for 1965 after making allowance for the 1966 devaluation	173
V.48	Import substitution between 1965 and 1970 after taking account of 1966 devaluation	176
V.49	Resolution of change in production into "import substitution" and "demand expansion" effects for the period 1965-70 after taking into account the 1966 devaluation	179
V.50	Resolution of change in imports into "import substitution" and "demand expansion" effects for the period 1965-70 after taking into account the 1966 devaluation	182
V.51	Import substitution (at constant prices) - year to year data	184
VI.1	Import-elasticities (at the two-digit level of the ASI classification)	209
VI.2	Production-elasticities (at the two-digit level of the ASI classification)	210
VI.3	Import-elasticities (at the 3-digit level of the ASI classification)	211

<u>Table</u> <u>No.</u>		<u>Page</u>
VI.4	Production-elasticities (at the 3-digit level of the ASI classification)	213
VII.1	Import coefficients (linear case) with respect to total industrial production	222
VII.2	Regression results (import coefficients)	224
VII.3	Import-elasticities (log-linear case) with respect to total industrial production	226
VII.4	Regression results (import elasticities)	228
VII.5	Production coefficients (linear case) with respect to real GNP per capita	230
VII.6	Regression results (production coefficients)	231
VII.7	Production elasticities (log-linear case) with respect to real GNP per capita	233
VII.8	Regression results (production elasticities)	234

**CHAPTER I****INTRODUCTION****The Nature**

Large countries depend only to a small extent on foreign trade. They generally have a diversified resource base and a deep and wide market. This allows their growth to be more inward-oriented and consequently less dependent on foreign trade. This low trade-dependence of large countries is reflected in the low ratios of their imports and exports to their gross national product (GNP).

India, a large country, is no exception to this rule. The percentages of imports and exports to GNP are small. Further, over the period 1951-72 they have declined from around 10 per cent to about 4 per cent. During the mid-1970s, however, these percentages have increased slightly.

This period was a crucial one in India's post-war economic history. It saw a popularly elected government going in for a massive developmental effort. It saw the beginning of the era of planning and public and private resources were allocated in directions that accorded with overall, national priorities. In the course of these momentous happenings foreign trade appears, on an aggregate basis, to have played a declining role, both in relation to GNP and in relation to global exports or imports. This leads many people to believe that foreign trade is an unimportant factor in India's economic development. Whether this is a correct view for one to take can only be tested by means of a disaggregative analysis at industry level. There are reasons to believe that such a study may not support the view based on the

aggregative indicators of trade-dependence for at least two reasons. Firstly, such a study can isolate those sectors of domestic activity and foreign trade which closely interact with each other, and thus show that trade after all is not that unimportant a factor in relation to economic development. Secondly, India is a small open economy having no monopoly or monopsony in world trade, except perhaps in tea and jute, so the shape of its trade performance (i.e. its trade flows) will be governed more by the nature of economic development at home. An enquiry into these interrelations may reveal the strategic importance of some imports and exports which figure either as a cause or as a consequence of the domestic investment effort. Primarily, the autonomous investment allocations of the public sector and the induced investment allocations of the private sector are the central factors in this process. Once economic growth is initiated in this way, it exercises a differential impact on various product groups. This secondary impact is partly due to demand and partly due to supply forces. On the demand side, the effect of growing incomes, and their distribution are important factors. On the supply side the size of the market, the potential availability of inputs, technical change, and factor substitutability are all important. For intermediate goods, the inter-industry demand is an important factor. The changing profile of domestic supply and demand over time will impinge upon foreign trade. It is important to find out how growth-on-trade and trade-on-growth links evolve over time. This structural study on India's trade dependence aims precisely at finding out how an internally generated developmental effort impinges on the structure

aggregative indicators of trade-dependence for at least two reasons. Firstly, such a study can isolate those sectors of domestic activity and foreign trade which closely interact with each other, and thus show that trade after all is not that unimportant a factor in relation to economic development. Secondly, India is a small open economy having no monopoly or monopsony in world trade, except perhaps in tea and jute, so the shape of its trade performance (i.e. its trade flows) will be governed more by the nature of economic development at home. An enquiry into these interrelations may reveal the strategic importance of some imports and exports which figure either as a cause or as a consequence of the domestic investment effort. Primarily, the autonomous investment allocations of the public sector and the induced investment allocations of the private sector are the central factors in this process. Once economic growth is initiated in this way, it exercises a differential impact on various product groups. This secondary impact is partly due to demand and partly due to supply forces. On the demand side, the effect of growing incomes, and their distribution are important factors. On the supply side the size of the market, the potential availability of inputs, technical change, and factor substitutability are all important. For intermediate goods, the inter-industry demand is an important factor. The changing profile of domestic supply and demand over time will impinge upon foreign trade. It is important to find out how growth-on-trade and trade-on-growth links evolve over time. This structural study on India's trade dependence aims precisely at finding out how an internally generated developmental effort impinges on the structure

of trade. We were tempted to undertake this study because of the increasing number of such cross sectional studies in the '60s on structural interrelations between trade and growth. Though India did figure as one of the countries in such studies there exists no time-serial enquiry into the inter-relations between India's trade and industrial patterns. This study attempts to fill this important gap.

### The Scope

In the course of this study, we try to assess the impact of growth on trade flows. The relationship runs from growth to trade. It is quite likely that the opposite relationship from trade to growth may exist in some cases. We do not take this into account because in our belief economic growth imparts initial and continuing stimuli to the shifts in trade flows. This is not to say that trade does not affect growth. As a matter of fact, it is of common knowledge that the foreign exchange constraint can and does set an upper limit to attainable rates of growth. ~~But this is an overall constraint affecting all sectors in more or less equal measure.~~ Moreover, the macro-studies have taken care of this factor. We thus feel that emphasising the primacy of growth in growth-trade relationship is not a one-sided view.

We divide this study into two phases. In phase I, we carry out a detailed disaggregative enquiry into India's import patterns in relation its patterns industrial output. In Phase II we study India's export patterns in relation to its industrial growth.

### Method

This study aims at getting statistical measures that

can throw light on the interdependence between India's industry and trade. To get at these relations we study the Indian manufacturing sector covered by the Annual Survey of Industry at two and three digit levels; we use the trade data available in the Monthly Statistics of Foreign Trade and reclassify it to bring it into line with the industry data. For this, the scheme of correspondence devised by L.Argade and V.Pitre has been adopted. These comparable series of industrial and trade are then used to study the intersectoral shifts between industry and trade (Chapter IV) and to measure import substitution (Chapter V). In Chapter VI we present industrywise the elasticity coefficients for production and imports by means of comparing individual growth rates with the overall growth-rate in industry as a whole. We then use in Chapter VII the method of multiple regression to know the relative importance of the main explanatory factors that probably lie behind these interrelations. We undertake two exercises. First, we try to see the dependence of imports on industrial production and the capacity to import. Second, we express individual industrial production values as functions of real GNP per capita and the capacity to import.

## CHAPTER II

### THE TRADE DEVELOPMENT NEXUS

The questions as to how trade changes in the course of economic growth and how growth reacts under the impact of trade have received insufficient attention compared to the advances in the pure theory of trade and tariffs. As a matter of fact, the standard trade theory has ignored economic development except under the narrowly restricted domain of arguments for infant industry protection<sup>1</sup> and the theory of economic development has neglected international trade as an integral part of its approach.<sup>2</sup> This neglect is surprising in view of the recognition foreign trade has received as an important stimulating factor behind economic development by all the leading economists of the past like the Mercantilists, Adam Smith, Ricardo, Mill and Marshall.<sup>3</sup>

Despite this neglect, there are some key contributions of a theoretical nature which throw light on the trade-development nexus. The effects of capital accumulation, population growth and technical change on the volume and terms of trade have been analysed by Hicks<sup>4</sup> (1953), Johnson<sup>5</sup> (1955), Rybczynski<sup>6</sup> (1955) and Findlay and Grubert<sup>7</sup> (1959). As an offshoot of these attempts, Bhagwati<sup>8</sup> (1958) highlighted the possibility of immiserising growth arising out of "high values of the output elasticity of supply and low values of domestic income elasticity and foreign price-elasticity of demand".<sup>9</sup>



However, these neoclassical, off-the-track incursions in the vast terrain of trade and development are of limited importance.

Likewise, the development theorists recognised the scope and limitations of foreign trade as an instrument of economic growth. Myrdal (1957)<sup>10</sup> has considered trade relations between the centre and the periphery as a crucial aspect of the problem of underdevelopment of the latter. He admitted that foreign trade has "spread effects" in the form of growing markets, new products and new technology but at the same time it yielded backwash effects, in the form of diversion of capital and skilled labour from the periphery to the centre. Nurkse<sup>11</sup> (1959) asserted that trade has ceased to be 'an engine of economic growth' which it was during the 19th century but even in the 19th century, as Kravis<sup>12</sup> (1970) has recently shown, "trade was a handmaiden rather than an engine of economic growth for the most successful developers." Following Kindleberger, we can call it "an opportunistic handmaiden"; while trade may serve growth, it could serve structures perpetuating underdevelopment.<sup>13</sup> Despite this, the vent-for-surplus or export-led growth models assign a triggering role to foreign trade in relation to economic development. While these models do have a historical basis in the case of the fishmeal industry of Peru, the copper industry of Chile and more recently in the cases of export-led growth (supported by foreign investment and cheap local labour) of Taiwan, Korea and Hong Kong, they lack the power of general application. The colonial history furnished a number of examples of abortive export-led growth experiences because of (a) a narrow domestic market, (b) polarised income distribution and (c) heavy

import leakages. The absence of the viable middle class made for this inevitable outcome because in that case the export-led growth leads only to enclave effects coupled with the strengthening of landlords and princes in these economies. These experiences have shaped the post-independence trade policies of the colonies. When these countries regained their decision-making power, through political independence, they began following inward-oriented trade policies in the form of tariffs, quotas and tight exchange control. The policy makers in these countries have ignored the advice tendered by the professional (neo-classical) mainstream. It highlights the fact that markets do not operate in a political vacuum and that given political independence, markets can be shaped to suit the country's economic interests. Incidentally, this view of the market means that under colonialism, coupled with free trade, markets led to price formations and price-fluctuations whose outcome amounted to a concealed transfer of resources to the centre from the periphery. It also reflects the fear that free trade policies, if pursued again, will lead to a similar outcome.<sup>14</sup>

There are many economists who assign to these policies a triggering role in initiating appropriate resource allocational decisions under the impact of a relative price structure modified by these policies. For this purpose, they group these policies with the other domestic policy tools like industrial licensing, capital issue control, development rebates, tax-holidays and low-interest-rate lending by public lending institutions. Actually, however, the trade policies, per se, play a

secondary role and they are the consequence of autonomous investment decisions taken by the planning and licensing authorities. In other words, tariffs and quotas are adjusted so as to make the chosen projects economically viable at domestic costs and prices.<sup>15</sup> The trade policies, therefore, do not play a causal role in shaping the pattern of industrial development in this type of an economy. <sup>Theirs</sup> ~~There~~ is essentially a permissive function.

Economic research over the last twenty years clearly lends strong support to this view. Trade policies differ in accordance with the size and the resource-base of different economies. Hongkong, Korea and Taiwan follow policies having a strong trade bias unlike India and Brazil. The results on industrial patterns of less developed countries by Chenery and Taylor clearly indicate the crucial role played by the size and the resource-base of nations. The variance in policies "appears to speed or delay a given less developed country along its pre-ordained development path."<sup>16</sup> They cannot such change the structural pattern of production.

A number of leading economists<sup>17</sup> have participated in the marathon debate of the 60s on the cost of these trade policies. In particular Little, Scott and Scitovsky<sup>18</sup> look upon these trade policies as being responsible for adverse income distribution, excess capacity, unemployment, high capital intensities, heavy cost of protection, loss of export opportunities, high incidence of illicit trade practices and administrative delays and corruption. But despite this scathing attack, research on the trade policies in the 1960s indicates that the quantification of the effects of the trade

policies do not furnish large results. The cost of protection as measured by the sum represented by the familiar Marshallian triangles (Johnson<sup>19</sup> (1960), Stern<sup>20</sup> (1964), Basvi<sup>21</sup> (1968), Magee<sup>22</sup> (1972) furnish static estimates. The techniques of calculating effective protective rates and domestic resource costs impart sophistication to the studies on the cost of protection but the results obtained are not clearcut. Effective protective rates<sup>23</sup> have given rise to a number of difficult questions like value-added not having natural units; separability of production functions and biased and unbiased substitution effects arising out of substitution between intermediate and primary inputs. The calculations of domestic resources costs<sup>24</sup> is subject to variation because of arbitrarily chosen shadow prices. Even the comparison between internal and external prices is misleading as the measure of the cost of protection because of an overvalued exchange rate. Measured at corrected exchange rates, the inefficiencies are not extremely alarming.

The rationale behind the trade policies of the less developed countries becomes clear if we take into account the urgency of industrialisation in these countries coupled with export pessimism prevailing everywhere in the 50s and the 60s. In this context the strategy of import substitution becomes sensible. The intellectual underpinning for industrialisation via import substitution was provided by the two-gap models of Chenery and Bruno and Chenery and Strout who rationalised the increasing role for foreign aid. Changes in the trade policies are now likely to take place now not because of the weaknesses of the import-substitution syndrome but because the export pessimism

of the 50s has given way to export optimism in the 70s. With the foreign exchange constraint no longer as binding as before the economies can go ahead on the basis of expanding domestic and external markets without bothering about import substitution. Hirschman's criticism<sup>25</sup> of the 'Exhausting Model of Import Substitution' is also timely it emphasises the principle that the market is a matter of planning and policy; in this strategic importance for common products like steel, power, paper, cement, glass, etc. and that the interdependencies in investment-decision-making in regard to other products are worth noting.

Since this study believes that the impulses of economic growth are mainly internal in origin, its main focus is the investigation of the structural relations between industry and trade in India during 1956-75. In this we were guided by the advice of Alejandro<sup>26</sup> when he says that "fresh insights are most likely to come from disaggregated and sample data than further manipulation of macro-economic aggregates". International economics continues to be slow in adopting the econometric techniques of quantitative estimation compared to other branches. This study attempts to correct this shortcoming in the case of India.

References

1. Findlay, R.E., 'International Trade and Development Theory', N.Y., 1973, p.2.
2. Ibid., p.2.
3. Ibid., p.2.
4. Hicks, J.R., 'An Inaugural Lecture', Oxford Economic Papers, 1953.
5. Johnson, H.G., Economic Expansion and International Trade, Manchester School, May 1955.
6. Rybczynski, T.M., "Factor Endowments and Relative Commodity Prices", *Economica*, 1955.
7. Findlay, R.E., and Grubert, H., 'Factor Intensities, Technological Progress and the Terms of Trade', Oxford Economic Papers, 1959.
8. Bhagwati, J.N., 'Imiserizing Growth: A Geometrical Note', *Review of Economic Studies*, 1958.
9. Findlay, R.E., *op.cit.*, p.6.
10. Myrdal, G., "Economic Theory and the Underdeveloped Regions", London, 1957.
11. Hurkse, R., "Patterns of Trade and Development", Stockholm, 1959.
12. Kravis, I.B., 'Trade as a Handmaiden of Growth: Similarities between the 19th and 20th Centuries' *Economic Journal* (1970).
13. Kindleberger, C.P. "Foreign Trade and the National Economy", New Haven, 1966.
14. Diaz-Alejandro, C.F. "Trade Policies and Economic Development" in P.B. Kenen (Ed.) "International Trade and Finance", New York, 1975.
15. Diaz-Alejandro, C.F., *op.cit.*
16. Chenery, H.B. and L. Taylor, "Development Patterns: Among Countries and Over Time", *Review of Economics and Statistics* (50) 1968.
17. Diaz-Alejandro, C.F., *op.cit.*
18. Little I.M.D., T. Seitovský, and M. Scott, "Industry and Trade in Some Developing Countries", London, 1970.
19. Johnson, H.G. "Gains from Free Trade with Europe: An Estimate", Manchester School of Economics and Social Studies, 1958.

20. Stern, R.M., "The U.S. Tariff and the Efficiency of the U.S. Economy", American Economic Review, Proceedings, May 1964.
21. Basvi, Giorgio, "The Restrictive Effect of the U.S. Tariff and Its Welfare Value", American Economic Review, 1968.
22. Magee, S.P., "The Welfare Effects of Restrictions on U.S. Trade", Brookings Papers on Economic Activity, 3 (1972).
23. Corden, W.M., "The Costs and Consequences of Protection" in Kenen (Ed) International Trade and Finance, New York, 1975.
24. Krueger, A.O., "Evaluating Restrictionist Regimes: Theory and Measurement", Journal of Political Economy (80), 1972.
25. Hirschman, A.O., "Political Economy of Import Substitution", Quarterly Journal of Economics, (82), 1968.
26. Alejandro Diaz, op.cit.p.
27. Kuznets, Simon, Modern Economic Growth, New York, 1967.

CHAPTER IIIDEVELOPMENTS IN INDIAN INDUSTRY AND TRADE

A quick review of the Indian economy during the last 25 years is intended to show that industry got a lion's share of additional resources mobilised during the planned developmental process and that foreign trade played a declining role in relation to G.N.P. The main reason for this kind of outcome was a strong anti-trade bias of industrial growth during the late 50s and the late 60s. However, this bias was getting corrected by the mid 70s. The broad pattern of industrial growth is also examined briefly in this chapter.

Structure of the Indian Economy:  
1950-51, 1960-61, 1974-75

Table III.1 gives the sectoral composition of India's real gross domestic product (GDP) in 1950-51, 1960-61 and 1974-75. As can be seen, the share of the primary sector (and agriculture in particular) has fallen. The primary sector contributed 55.4 per cent of GDP in 1950-51 and 40.3 per cent of GDP in 1974-75. On the other hand GDP shares of the secondary and tertiary sectors have increased. The secondary sector contributed 16.2 per cent of GDP in 1950-51 and 24.1 per cent of GDP in 1974-75. The share of registered manufacturing units in GDP has almost doubled over the entire period.

A summarised version of Table III.1 appears overleaf.

Another indicator of the growing importance of the manufacturing sector is the increasing contribution the



(in per cent)			
Sectors	1950-51	1960-61	1974-75
Primary	55.36	50.83	40.32
Secondary	16.24	19.34	24.07
Transport, Commu- nications and Trade	12.44	14.31	16.59
Finance & Real Estate	5.82	5.47	5.22
Community and Personal Services	10.14	10.05	13.80
Total	100.0	100.0	100.0

sector has been making to GDP growth. Growth in the manufacturing sector accounted for 12.4 per cent of GDP growth in the period 1965-70 and 25.5 per cent of GDP growth in the period 1970-75.<sup>1</sup>

#### Plan Allocations

The first five year plan gave almost the same weight to the "agriculture" and "industry" sectors.<sup>2</sup> The year 1956, which marked the beginning of the second five year plan, was the turning point of India's recent economic history. India opted not only for industrialisation but for industrialisation of a sort that would emphasise the domestic development of heavy industry.

Table III.2 (Plan Expenditures (Actual) by Heads of Development) shows this break with the past. A summarised version of the same table appears overleaf.

The modern "industry" sector has been absorbing an extremely large share of plan expenditures. On the other hand its contribution to GDP has hardly been anywhere near the same magnitude.

	(in per cent)	
	Agriculture sector	Industry sector
First Plan	37.0	36.8
Second Plan	20.9	51.8
Third Plan	20.5	59.3
Annual Plans	23.8	59.5
Fourth Plan	23.3	56.3
Fifth Plan	20.5	61.3*

\*Figures for Village and Small Industries are clubbed with Industry and Minerals. This may account for the slight rise. [see footnote 2.]

#### India and World Trade

As can be seen from Tables III.3 and III.4 world trade has been expanding steadily over the period 1938-75. India's share in both world exports and world imports over the same period has for the most part registered a decline. This seems to have been the fate of developing countries in general. Of late, of course, the share of developing countries in world trade has risen but this increase is due to the rise in oil prices. This is reflected in the rising share of OPEC nations in world trade during the mid-1970s - especially their share in world exports.

India's share in both world exports and world imports during the early 1970s has been extremely small - a fraction of one per cent of the total in both cases. During the last few years, however, exports have registered spectacular increases - this may have increased India's participation in world trade.

### India and the Law of Declining Trade

The German economic historian Werner Sombart hypothesized that after an initial expansion foreign trade tended to decline in relation to total economic activity. The empirical support for the "law" has been weak - there have been numerous exceptions to the rule. Nonetheless, the law exists.

Table III.2 shows the behaviour of India's imports and exports in relation to her GNP during the period 1950-51 to 1974-75. The ratios are slightly erratic but nonetheless they are seen to have declined for the most part. Towards the end both ratios - particularly the imports to GNP ratio - have increased. The marked increase in the imports to GNP ratio may be due to the fact that world prices (and oil prices in particular) have risen much faster than Indian prices.

The ratios of imports and exports to GNP are the conventional measures of trade-dependence of an economy. It is fairly obvious that the trade-dependence of the Indian economy as a whole has been declining over the period under consideration.

### Pattern of India's Imports

Most studies show that with industrial growth the share of consumer goods in total imports generally falls whereas the share of intermediate goods in total imports generally rises. The share of capital goods in total imports does not generally exhibit any clear trend - its behaviour varies from country to country.

Over the period 1950-51 to 1973-74 (See Table III.5) India's imports do not seem to exhibit any particular trend.<sup>3</sup> Imports of capital goods have risen steadily till

the mid-sixties before falling off. Imports of Raw Materials and Metals (Intermediate Goods) have FALLEN till the mid-sixties and since then have risen to a level slightly above that of 1950-51. The shares in total imports of cereals and cereal preparations and manufactured goods except metals and metal manufactures have also been extremely erratic.

#### Pattern of India's Exports

With industrial growth one would expect an increasing degree of industrialization of the export structure - manufactures would form an increasing proportion of exports.

Over the period 1950-51 to 1973-74 (See Table III.6) the proportion of manufactures to total exports has shown no particular trend. As has been pointed out this index - the percentage share of exports of manufactures to total exports - is not a proper indicator of the incidence of industrialization. That is so because in the early stages of industrialization the manufactured goods that are exported are generally in their first stages of processing. The use of this index then would give an exaggerated picture of the extent of industrial transformation. The exports of FINISHED manufactured goods would therefore be a better indicator of the industrialization of the export structure.

#### Determinants of the Pattern of Industrial Growth

The pattern of industrial growth that emerges in any country depends on (i) the pattern of increase in demand with growth in incomes and (ii) the country's resource endowments (both natural and human).

The demand for food, beverages and tobacco and textiles expands at a relatively slow pace with increase in income. Capital goods, chemicals and consumer durables normally have high income elasticities. This imparts uniformity to the patterns of industrial growth of different countries of similar size. The studies <sup>carried</sup> worked out by Kamets,<sup>5</sup> Chenery,<sup>6</sup> Hainzel<sup>7</sup> and Chenery and Taylor<sup>8</sup> support this view.

With growth an economy is in a better position to produce various commodities. This is so because the relative costs of production change - the extent of such changes depend on the resource endowments of the economy and the realization of economies of scale. The influence of natural and human resources can be modified by other factors such as transportation and immigration. Or, as in the Indian case, the pattern of growth may be influenced by planning. But this is only partially true; while the public and private sector decisions govern the output pattern of basic goods like steel, cement, electricity, chemicals and machinery the pattern of final goods is determined by final demand not by the designs of the planning authorities.

Different combinations of these influences operate in most, if not all, countries. Still, the patterns of industrial growth that have emerged have been remarkably similar. The first of the unifying influences is the pattern of demand which tends to change in a similar way in countries at broadly the same level of industrialization. Secondly, various limitations - unavailability of skilled labour, smallness of the market, etc. - operate in the earlier stages of industrialization in most countries causing a similar pattern of growth to emerge.

### The "Typical" Pattern of Industrial Growth

In the earlier stages of industrialisation manufacturing is generally confined to the simple processing of primary products. At a later stage the manufacture of commodities that require comparatively simple technology predominates. The mature phase of industrialisation begins with the production of capital equipment using advanced, machine technology.

The transformation from a low-income economy to a high-income one involves an enormous shift from food-processing and textile industries to the manufacture of chemicals, metals and metal products.

### The Pattern of Industrial Growth in India

Over the century preceding independence India experienced considerable industrial growth. Much of this growth had taken place as a result of the world wars and the Great Depression. Independence found India with an industrial sector that was large by absolute standards - only on a per capita basis was it small. The basic infrastructure and most sorts of industries were already in existence. The major industries were cotton textiles, jute textiles, vegetable oils, sugar, iron and steel and general engineering. However the technology involved was relatively simple.

The Second Five Year Plan saw India opting for heavy industrialisation. Then onwards industrialisation has been taking place on a broad front with traditional and non-traditional industries existing along side one another. The pattern of industrialisation in India has followed the "typical pattern of industrialisation outlined in the preceding section. A detailed discussion of the pattern of industrial growth in India is taken up in the chapters that follow.

**Footnotes**

1. These figures are from "Economic and Social Survey of Asia and the Pacific, 1976" - Table 10, p.15.
2. The "agriculture" sector is defined as Agriculture and Allied Sectors and Irrigation and Flood Control. The "industry" sector is defined as Power, Industry and Minerals and Transport and Communications.
3. The structure of India's industrial imports is discussed in detail in Chapter 2.
4. An analysis of the pattern of exports will have to wait till the second phase of our project which deals with exports.
5. Kuznets, Simon, Modern Economic Growth, New Haven, 1966.
6. Chenery, H.B. 'Patterns of Industrial Growth' American Economic Review, 1960.
7. Maizels, A. 'Industrial Growth and the World Trade', N.I.E.S.R., London, 1963.
8. Chenery, H.B. and Lance Taylor. 'Development Patterns...', Review of Economics and Statistics (50), 1968.

Table III.2: Plan expenditure (actual) by heads of development

(Rs. Crores)

Heads of Development	First Plan 1951-1956		Second Plan 1956-1961		Third Plan 1961-1966		Annual Plan 1966-67 to 1968-69		Fourth Plan 1969-1974		Fifth Plan 1974-1979	
	1	2	1	2	1	2	1	2	1	2	1*	2
	Agriculture and allied sectors	290.0	14.8	549.0	11.7	1088.9	12.7	1107.1*	16.7	2320.4*	14.7	4643.6
Irrigation and flood control	434.0	22.2	430.0	9.2	664.7	7.8	471.0	7.1	1354.1	8.6	3434.0	8.7
Power	149.0	7.6	452.0	9.7	1252.3	14.6	1212.5	18.3	2931.1	18.6	7015.9	17.8
Village and small industries	48.0	2.1	187.0	4.0	240.8	2.8	126.1	1.9	242.6	1.5	10200.6	26.0
Industry and minerals	55.0	2.8	938.0	20.1	1726.3	20.1	1510.4	22.8	2864.4	18.2		
Transport and Communications	518.0	26.4	1261.0	22.0	2111.7	24.6	1222.4	18.4	3080.4	19.5	6881.4	17.5
Education	149.0	7.6	273.0	5.9	588.7	6.9	306.8	4.6	774.3	4.9	1284.3	3.3
Scientific Research					71.6	0.8	47.1	0.7	130.8	0.8	445.3 <sup>⊙</sup>	1.1
Health	98.0	5.0	228.0	4.8	225.9	2.6	140.2	2.1	335.5	2.1	681.7	1.7
Family Planning					24.9	0.3	70.4	1.1	278.0	1.8	497.4	1.3
Water supply and sanitation	33.0	1.7	85.0	1.8	105.7	1.2	102.7	1.5	458.9	2.9	930.2	2.4
Housing, urban and regional development					127.6	1.5	73.3	1.1	270.2	1.7	1106.9	2.8
Welfare of backward classes	32.0	1.6	83.0	1.8	99.1	1.2	73.6	1.1	164.6	1.1	687.0**	1.8
Social welfare					19.4	0.2	11.2	0.2	64.4	0.4	86.2	0.2
Labour welfare and craftsman Training					55.8	0.7	34.8	0.5	31.1	0.2	50.1	0.1
Other programmes	160.0	8.2	186.0	4.0	173.1	2.0	115.8	1.7	179.8	1.1	1358.6 <sup>⊙</sup>	3.5
<b>Special schemes</b>												
Special welfare programmes	-	-	-	-	-	-	-	-	123.6	0.8	-	-
Crash												
Cash scheme for educated unemployed	-	-	-	-	-	-	-	-	54.0	0.3	-	-
Advance actions for fifth plan	-	-	-	-	-	-	-	-	120.0	0.8	-	-
<b>Total</b>	<b>1960.0</b>	<b>100.0</b>	<b>4672.0</b>	<b>100.0</b>	<b>8576.5</b>	<b>100.0</b>	<b>6625.4</b>	<b>100.0</b>	<b>15788.8<sup>⊙</sup></b>	<b>100.0</b>	<b>39303.2</b>	<b>100.0</b>

**Notes :** \* Includes Buffer Stock: Rs. 140 crores for 1968-69 and Rs. 124 crores on Fourth Plan against the original plan provision of Rs. 225 crores  
 \*\* Includes provision for Hill and Tribal Areas.  
 ⊙ Includes provision for Nutrition.  
 ⊙⊙ Excludes expenditure on Nutritions (Rs. 3.7 crores).  
 ⊙ Relates to Science and Technology.

**Key :** 1 = Expenditure; 2 = percentage to total; 1\* = Outlay.

**Source :** Basic Statistics Relating to the Indian Economy 1950-51 to 1975-76, Central Statistical Organisation.



**Table III.1 : Gross domestic product at factor cost by industry of origin (at 1960-61 prices)**

(Rs. Crores)

Industry	1950-51		1960-61		1974-75*	
	Actual figures	% to the total	Actual figures	% to the total	Actual figures	% to the total
Agriculture	5042	52.57	6751	47.98	8044	37.12
Forestry and logging	140	1.46	176	1.25	295	1.36
Fishing	48	0.50	82	0.58	131	0.61
Mining and quarrying	80	0.83	144	1.02	267	1.23
<b>Sub-total : Primary</b>	<b>5310</b>	<b>55.36</b>	<b>7193</b>	<b>50.83</b>	<b>8737</b>	<b>40.32</b>
Manufacturing	1112	11.59	1994	14.17	3810	17.58
Registered	611	6.37	1189	8.45	2548	11.76
Unregistered	501	5.22	805	5.72	1262	5.82
Construction	416	4.34	641	4.56	1119	5.16
Electricity, gas and water supply	30	0.31	86	0.61	288	1.33
<b>Sub-total : Secondary</b>	<b>1558</b>	<b>16.24</b>	<b>2721</b>	<b>19.34</b>	<b>5217</b>	<b>24.07</b>
Transport, storage and communication	398	4.15	687	4.88	1285	5.93
Railways	187	1.95	302	2.15	472	2.18
Transport by other means & storage	177	1.85	320	2.27	656	3.03
Communication	34	0.35	65	0.46	157	0.72
Trade, hotels and restaurants	795	8.29	1327	9.43	2309	10.66
<b>Sub-total : Transport, communication and trade</b>	<b>1193</b>	<b>12.44</b>	<b>2014</b>	<b>14.31</b>	<b>3594</b>	<b>16.59</b>
Banking and insurance	78	0.82	163	1.16	354	1.63
Real estate, ownership of dwelling and business services	480	5.00	606	4.31	778	3.59
<b>Sub-total : Finance and real estate</b>	<b>558</b>	<b>5.82</b>	<b>769</b>	<b>5.47</b>	<b>1132</b>	<b>5.22</b>
Public administration and defence	332	3.47	538	3.82	1592	7.35
Other services	640	6.67	876	6.23	1398	6.45
Education and research	102	1.06	212	1.51	476	2.20
Medical and health	43	0.45	68	0.48	143	0.66
Services n.e.c.	495	5.16	596	4.24	779	3.59
<b>Sub-total : Community and personal services</b>	<b>972</b>	<b>10.14</b>	<b>1414</b>	<b>10.05</b>	<b>2990</b>	<b>13.80</b>
<b>Total : Gross domestic product at a factor cost</b>	<b>9591</b>	<b>100.00</b>	<b>14071</b>	<b>100.00</b>	<b>21670</b>	<b>100.00</b>

\* Provisional estimates

Table III.3: world imports (c.i.f.)

(Values in U.S. million dollars)

(Figures in brackets are percentages to world total imports)

Region, Country or Area	1938	1948	1958	1963	1968	1969	1970	1971	1972	1973	1974	1975
1 <del>World</del> <sup>1,2</sup>	25400 (100.00)	63500 (100.00)	114500 (100.00)	162900 (100.00)	252500 (100.00)	286800 (100.00)	328900 (100.00)	365700 (100.00)	430300 (100.00)	591100 (100.00)	853100 (100.00)	903200 (100.00)
2 Developed Market Economies <sup>2</sup>	17900 (70.47)	41200 (64.88)	74100 (64.72)	111100 (68.20)	179400 (71.05)	206300 (71.93)	237800 (72.30)	264700 (72.38)	312600 (72.65)	430400 (72.81)	612100 (71.75)	614300 (68.01)
3 Developing Market Economies	5800 (22.83)	18600 (29.29)	27600 (24.10)	32700 (20.07)	45400 (17.98)	50100 (17.47)	56400 (17.15)	63500 (17.36)	71800 (16.69)	98700 (16.70)	163200 (19.13)	189300 (20.96)
4 Of which OPEC <sup>3</sup>	800 (3.15)	2600 (4.09)	5400 (4.72)	4700 (2.89)	7800 (3.09)	8900 (3.10)	9900 (3.01)	11500 (3.14)	14100 (3.28)	20500 (3.47)	34500 (4.04)	54800 (6.07)
5 Centrally Planned Economies	1700 (6.69)	3700 (5.83)	12800 (11.18)	19100 (11.72)	27700 (10.97)	30400 (10.60)	34700 (10.55)	37500 (10.25)	45900 (10.67)	62000 (10.49)	77800 (9.12)	99600 (11.03)
6 India <sup>4</sup>	576 (2.27)	1725 (2.72)	1844 (1.61)	2477 (1.52)	2571 (1.02)	2217 (0.77)	2124 (0.65)	2421 (0.66)	2226 (0.52)	3210 (0.54)	5175 (0.61)	6362 (0.70)

**Notes :** 1 Excluding trade among each of the following countries: China, Mongolia, Democratic Peoples' Republic of Korea, and former Democratic Republic of Vietnam.

2 Including trade between the Federal Republic of Germany and German Democratic Republic.

3 Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libyan Arab Republic, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela.

4 In 1938 data for Bangladesh and Pakistan are included with India.

**Source :** Statistical Yearbook 1976, United Nations.

Table III.4: World exports (f.o.b.)

(Values in U.S. million dollars)

(Figures in brackets are percentages to world total)

Region, Country or Area	1938	1948	1958	1963	1968	1969	1970	1971	1972	1973	1974	1975
1 World <sup>1,2</sup>	22700 (100.00)	57500 (100.00)	108600 (100.00)	154500 (100.00)	239700 (100.00)	273600 (100.00)	313200 (100.00)	350600 (100.00)	416100 (100.00)	576800 (100.00)	835800 (100.00)	871300 (100.00)
2 Developed Market Economics <sup>2</sup>	15100 (66.52)	36600 (63.65)	71400 (65.75)	104100 (67.38)	168800 (70.22)	194700 (71.16)	224900 (71.81)	252100 (71.91)	298700 (71.79)	408500 (70.82)	543600 (65.04) 65.04	578600 (66.41)
3 Developing Market Economics	6000 (26.43)	17200 (29.91)	24900 (22.93)	31500 (20.39)	43600 (18.19)	48800 (17.84)	54900 (17.53)	62100 (17.71)	74200 (17.83)	110500 (19.36)	220300 (26.36)	207200 (23.78)
4 Of which OPEC <sup>3</sup>	1000 (4.41)	3100 (5.39)	7400 (6.81)	9400 (6.08)	14000 (5.84)	15200 (5.56)	17500 (5.59)	23100 (6.59)	27400 (6.58)	42200 (7.32)	121000 (14.48)	112100 (12.87)
5 Centrally Planned Economics <sup>1</sup>	1600 (7.05)	3700 (6.43)	12300 (11.33)	18900 (12.23)	27300 (11.39)	30100 (11.00)	33400 (10.66)	36400 (10.38)	43200 (10.38)	57800 (10.02)	71900 (8.60)	85500 (9.81)
6 India <sup>4</sup>	614 (2.70)	1387 (2.41)	1222 (1.13)	1626 (1.05)	1761 (0.73)	1835 (0.67)	2026 (0.64)	2034 (0.58)	2433 (0.58)	2933 (0.51)	3930 (0.47)	4371 (0.50)

Notes : 1 Excluding trade among each of the following countries : China, Mongolia, Democratic People's Republic of Korea, and former Democratic Republic of Viet-Nam.

2 Including trade between the Federal Republic of Germany and German Democratic Republic.

3 Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libyan Arab Republic, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela.

4 In 1938, data for Bangladesh and Pakistan are included with India.

Source : Statistical Yearbook 1976, United Nations.

Table III.5: Composition of India's imports

A - Amount in Rs. Crores - Post Devaluation

B - Percent share in total

Sr. No.	Group	1950-51		1955-56		1960-61		1965-66		1968-69		1973-74	
		A	B	A	B	A	B	A	B	A	B	A	B
1	Cereals and cereal preparations	149.4	14.6	27.0	2.5	285.9	16.2	487.2	22.3	336.6	17.6	352.6	12.1
2	Industrial raw materials	431.5	42.0	380.7	35.8	496.7	28.0	488.7	22.4	625.9	32.8	1060.9	36.4
3	Metals	65.5	6.4	95.8	12.8	267.8	15.1	262.2	11.9	175.2	9.1	380.5	13.0
4	Capital goods	225.4	22.0	327.8	30.8	560.9	31.8	799.9	36.7	527.9	27.7	650.5	22.3
5	Manufactured goods except metals and metal manufactures	56.1	5.4	75.6	7.0	65.2	3.7	49.4	2.3	61.7	3.3	128.7	4.4
6	Others	98.3	9.6	117.1	11.1	91.2	5.2	106.4	4.4	181.3	9.5	343.2	11.8
Total Imports (1-6)		1026.2	100.0	1064.1	100.0	1767.7	100.0	2193.8	100.0	1908.6	100.0	2916.6	100.0

Source : Economic Times Annual, 1975, pp. 149.

Table III-6: Composition of India's exports

A - Amount in Rs. Crores - Post Devaluation

B - Percent share in total

Sr. No.	Group	1950-51		1955-56		1960-61		1965-66		1968-69		1973-74	
		A	B	A	B	A	B	A	B	A	B	A	B
1	Food and live animals	193.7	20.6	251.7	27.0	312.5	31.3	379.6	30.0	364.1	26.8	666.4	26.8
2	Beverages and tobacco	29.1	3.1	18.8	2.0	24.7	2.5	34.4	2.7	33.8	2.5	71.0	2.8
3	Crude Grawe materials, inedible	152.1	16.2	189.5	20.3	176.3	17.7	212.7	16.8	212.0	15.6	356.5	14.4
4	Minerals, fuels, etc.	9.2	1.0	12.9	1.4	11.7	1.2	14.7	1.2	12.1	0.9	15.3	0.6
5	Animal and vegetable oils and fats	39.9	4.2	57.1	6.1	15.4	1.6	7.2	0.6	11.9	0.9	31.3	1.3
6	Chemicals	9.3	1.0	10.9	1.2	11.2	1.1	17.5	1.4	23.7	1.7	57.0	2.3
7	Manufactured goods	475.8	50.5	378.6	41.3	439.8	44.1	591.4	46.8	694.3	51.2	986.3	39.8
8	Others	32.2	3.4	11.8	1.3	5.1	0.5	6.6	0.5	5.5	0.4	297.4	12.0
9	Total Exports (1-8)	941.3	100.0	931.3	100.0	996.7	100.0	1264.1	100.0	1357.4	100.0	2483.2	100.0

Source : Economic Times Annual, 1975, pp. 149.

**Table III.7: Overall trade-dependence ratios  
1950-51 to 1974-75**

Year	Imports as percentage of GNP	Exports as percentage of GNP
1950-51	10.8	10.0
1951-52	13.7	11.0
1952-53	10.2	8.9
1953-54	8.1	7.7
1954-55	10.2	9.4
1955-56	11.8	8.9
1956-57	7.7	5.3
1957-58	8.6	5.3
1958-59	6.8	4.3
1959-60	7.0	4.6
1960-61	7.5	4.3
1961-62	6.9	4.2
1962-63	6.6	4.0
1963-64	6.2	4.0
1964-65	5.9	3.4
1965-66	5.9	3.4
1966-67	7.6	4.2
1967-68	6.2	3.7
1968-69	5.8	4.1
1969-70	4.7	4.2
1970-71	4.4	4.2
1971-72	4.7	4.1
1972-73	4.4	4.7
1973-74	5.7	4.8
1974-75	7.1	5.3

**Source :** Economic Times Annual 1977, pp. 159.

**CHAPTER IV****AN ANALYSIS OF STRUCTURAL CHANGE IN INDUSTRIAL PRODUCTION AND INDUSTRIAL IMPORTS**

The bulk of India's developmental effort during the last twenty-five years has been directed towards the achievement of industrial transformation. The industrial sector is still small in relation to the size of the Indian economy. However, we have seen in Chapter III that in terms of allocation of resources, both from public and private sources, this sector has received and continues to receive, a disproportionately<sup>1</sup> large amount of attention. This sector is the focal point of major economic policies.

The pattern of industrial growth in India, as in other industrialised countries, has shown a strong bias in favour of the production of chemicals, metals and metal products, machinery and transport equipment. Beyond this, little is known as no detailed study of structural change in industrial production has been carried out. No detailed study on the structural change in India's industrial imports exists either. So, nothing such is known about the import-dependence<sup>2</sup> of India's manufacturing sector. Indeed, nothing is known about the import-dependence of the Indian economy beyond the conventional summary measure, i.e., the ratio of imports to national income.

Ideally, such a study ought to have been carried out in an input-output framework. This kind of a study,

however, is not possible in the Indian context as our imports are not classified by use. It is true that the "Technical Note on the Approach to the Fifth Plan" gives two import-coefficient matrices. However, the authors of the Plan have been so reticent about how they obtained the matrices that it is difficult to place very much of confidence in their coefficients.

#### The Correspondence between Trade and Industrial Classifications

As mentioned earlier we have employed the correspondence between industrial and trade classifications worked out by Argade and Pitre.<sup>3</sup> Imports have been reclassified according to the categories of the ASI manufacturing sector which covers groups 20-39 and 51. This means that the imports of crude materials, like crude petroleum and metal ores, fall outside the limits of this exercise. Since such materials are used as inputs in the manufacturing sector their omission results in an underestimation of the import-dependence of the manufacturing sector.

#### On Data Used

Production values pertain to the Census sector of the ASI (Annual Survey of Industry) and are at producers', ex-factory, current prices. Import values are current, c.i.f. values. Quantity indices of industrial production (obtained from "The Monthly Statistics of the Production of Selected Industries of India") and of industrial imports (constructed by V. Pitre) were used to convert current production and import values into corresponding constant values.



### On the (Non-Adjustment for the 1966 Revaluation)

Strictly speaking pre- and post-devaluation values of imports are not comparable. Converting import-values into another currency (say, dollars) is one way of assuring comparability. However, most of our analysis in this chapter is concerned with percentage shares of imports of particular groups in total imports. The suggested adjustment for comparability would imply dividing both numerator and denominator by the same factor. The whole exercise would be quite superfluous and so we have not carried it out.

### An Overview

Industrial production has grown at a faster rate than industrial imports. Over the period 1960-75 industrial production registered a real increase of 112 per cent whereas industrial imports increased in real terms by just 22 per cent.<sup>4</sup> This suggests a decline in import-dependence.

### The Hoffman Ratio

W. G. Hoffman has defined four <sup>distinct</sup> stages of industrialisation in terms of the ratio of the net output of consumer goods industries to that of capital goods industries.<sup>5</sup> In the first stage of industrialisation the consumer goods industries are dominant and the Hoffman ratio is around five. In the second stage the ratio is in the range of 2.5 to 1, while in the third stage the net outputs of the two groups are approximately equal. In the fourth stage the capital goods industries spurt ahead rapidly leaving the consumer goods industries far behind.

The Hoffman ratio for India fell from 15.47 in 1946<sup>6</sup> to 7.97 in 1955,<sup>6</sup> to 2.52 in 1965 and to 2.08 in 1975. Thus, according to Hoffman, India would be in her second stage of industrialisation. Between 1965 and 1975 India seems to have undergone little industrial transformation.

Despite its many limitations the Hoffman ratio is a useful summary measure that reflects the growing importance of capital goods industries with the growing industrialisation of a country.

#### The Gini-Hirschman Co-efficient of Concentration

The Gini-Hirschman coefficient of concentration<sup>7</sup> is a DIRECT function of the relative inequality of distribution or dispersion and an INVERSE function of the number of elements in the series.

If  $a_1, a_2, \dots, a_k, \dots, a_n$  are the elements of an ungrouped statistical series, and if we have

$\sum_{k=1}^n a_k = A$  then the index is

$$C = \sqrt{\sum_{k=1}^n \left(\frac{a_k}{A} \cdot 100\right)^2} = \frac{100}{A} \sqrt{\sum_{k=1}^n a_k^2}$$

The index can take values ranging from  $100/\sqrt{n}$  at its lowest to 100 at its highest.

At the two digit level of the ASI classification the concentration coefficient for industrial production at current prices declined from 38.90 in 1960 to 32.02 in 1975. The coefficient of concentration for industrial imports increased from 38.06 to 42.57.<sup>8</sup>

At the three digit level of the ASI classification, again at current prices, the same pattern is revealed - the coefficient of concentration in production fell from 32.32 in 1960 to 25.36 in 1975; that for industrial imports rose from 35.86 in 1960 to 36.11 in 1975.<sup>9</sup>

At constant (1960) prices and at the two-digit level of the ASI classification again the same pattern is revealed - the coefficient of concentration for industrial production fell from 38.50 in 1960 to 32.16 in 1975; that for industrial imports rose from 39.51 in 1960 to 45.85 in 1975.<sup>10</sup>

Thus, over the period 1960-75 industrial production has diversified whereas industrial imports have grown more concentrated.

An examination of the degree of concentration within traditional (groups 20-30 of the ASI classification) and non-traditional (groups 31-39 and 51 of the ASI classification) industries also revealed the same pattern. Further, we found that the concentration of both industrial production and industrial imports in the traditional sector was greater than in the non-traditional sector.

#### Leading and Lagging Groups in Industrial Production and Industrial Imports

Single measures, which is what we have used in the preceding two sections, cannot possibly capture the varied movements of the various groups within the manufacturing sector. So, we have taken a disaggregated look at the various groups in industrial production and industrial imports. The industries were classified under the following groups - leading, lagging and constant. An industry (industrial import) is a leading one if it has

increased its share in total industrial production (total industrial imports) over the period 1960-75. Lagging and constant industries (industrial imports) are defined similarly, statistisk svikt. This exercise was carried out at both current and constant (1960) prices.

### Structural Shifts in Industrial Production

#### i) At Current Prices (Table IV.3)

There are eight leading industries and ten lagging ones. The share of the leading industries in total industrial production increased from 29.05 per cent in 1960 to 52.42 per cent in 1975. The share of the lagging industries in total industrial production fell from 70.95 per cent to 47.58 per cent over the same period. The leading groups have grown so rapidly as to overtake the lagging industries - in that the former now contribute more than half of total industrial production. This transformation has come about mainly because some groups - Chemicals and Chemical Products (31), Petroleum and Coal Products (32), Non-electrical Machinery (36), Electrical Machinery (37) and Electricity (51)<sup>11</sup> - have more than doubled their shares in total production. Another major group - Basic Metal Industries (34) - recorded a slight increase in its share from 9.74 per cent to 10.57 per cent of total industrial production. Among the groups which suffered sharp declines in their shares in total industrial production were Food and Beverages (20-21) Textiles (23) and Transport Equipment (38). All this change - except for the behaviour of Transport Equipment (38) - is in line with the general experience of industrialised countries.

#### ii) At Constant Prices (Table IV.6)

The picture changes substantially when the price

effect is eliminated. The number of leading industries increases to eleven and that of lagging industries falls to six. Wood and Cork (25), Rubber Products (30), Non-metallic Mineral Products (33) and Metal Products except Machinery and Transport Equipment (35) are the additions to the set of leading industries. On the other hand, Footwear and Apparel (24) moves to the group of lagging industries. This shift is due to relative prices having moved against the former group of industries since their "value-share" is lower than their "volume-share". One possible cause for such a movement could be technological progress with its consequent (and well-known) effects on unit costs and production. On the other hand relative prices have moved in favour of Footwear and Apparel (24) resulting in a higher value-and lower volume-share. These "movers" made additional contributions of 8.06 per cent in 1960 and 9.9% per cent in 1975 to the real share of the leading groups in total industrial production.

The real share of the leading group in total industrial production increased from 37.11 per cent to 58.11 per cent over the period 1960-75. Most of this change, as is obvious from above, came not from the "movers" but from the industries that were leading at BOTH current and constant prices. These were Chemicals and Chemical Products, (31), Petroleum and Coal Products (32), Basic Metal Industries (34), Non-electrical Machinery (37) and Electricity (51) and these constituted the "core sector" wherein more-than-average growth was concentrated.

There is another useful way of looking at the shares at constant and current prices. If we compare only the

1975 nominal and real shares of different industries we find some industries whose real shares are greater than their corresponding nominal shares and vice versa. This comparison can be attempted separately for the leading and the lagging groups of industries. If the real share of an industry is greater than its nominal share at the same point of time it indicates that the relative price for that industry has fallen and vice versa in the other case.

In the group of industries leading at BOTH current and constant prices only three - Basic Metal Industries (34), Electrical Machinery (36) and Non-electrical Machinery (37) - had real shares that were greater than their nominal shares in 1975. The real shares of other industries were lower than their nominal shares. Together however, the real share of ALL industries leading at BOTH current and constant prices was lower (48.08 per cent) than their nominal share (52.20 per cent). If we include in this group industries which grew at constant prices but not current prices we find that the 1975 share of ALL leading industries at constant prices (58.11 per cent) is greater than the 1975 share of ALL leading industries at current prices (52.42) because of the real contribution of the "movers". However, the 1975 share of ALL leading industries at constant prices was still lower, if only slightly, than their own 1975 nominal share of 59.03 per cent. Thus, there seems to have been a slight rise in relative prices for this category as a whole.

The lagging industries at current prices suffered a decline from 70.95 per cent in 1960 to 47.58 per cent in 1975. At constant prices this change has been reinforced, as noted above, by a shift of a few industries

moving over to the leading group. Their share thus, fell from 62.89 per cent in 1960 to 40.89 per cent. The most important of the lagging industries are Food and Beverages (20-21), Textiles (23) and Transport Equipment (38). On comparing the nominal and real shares of the various lagging industries one finds that Food and Beverages (20-21) and Tobacco (22) had higher real than nominal shares in 1975. Relative prices have moved against these industries. On the other hand the real shares of Textiles (23) and Transport Equipment (38) were lower than their nominal shares, reflecting a rise in relative prices.

#### Structural Shifts in Industrial Imports

##### 1) At Current Prices (Table IV.4)

There were only four leading industrial imports as opposed to eleven lagging ones. The share of the leading group in total imports rose from 36.22 per cent in 1960 to 59.28 per cent in 1975. Two of the leading groups - Chemicals and Chemical Products (31) and Basic Metals (34) - accounted for 32.39 per cent of total industrial imports in 1960 and 53.06 per cent of total industrial imports in 1975. The share of the lagging industrial imports in total industrial imports declined from 63.78 per cent to 40.72 per cent. The prominent ones among the lagging industrial imports are Food and Beverages (20-21), Textiles (23), Petroleum and Coal Products (32), Metal Products except Machinery and Transport Equipment (35), Electrical Machinery (37), Non-electrical Machinery (36) and Transport Equipment (38). The sharpest of declines, of more than half in some cases, have been recorded by Textiles (23), Metal Products except Machinery and

Transport Equipment (36) and Transport Equipment (38). This pattern is again a familiar one - the earlier phases of industrialisation have generally been characterised by a drastic contraction in the imports of textiles and other consumer goods and an increase in the imports of intermediate and capital goods.

#### ii) At Constant Prices (Table IV.7)

The picture changes when viewed at constant prices. The number of leading industrial imports increases to five and that of lagging industrial imports declines to ten. Again we have some "movers" - Food and Beverages (20-21), Petroleum and Coal Products (32) and Electrical Machinery (37) move over to the leading category; Basic Metals (34) and Miscellaneous Manufacturing Industries (39) move to the lagging category. The share of the leading industrial imports in total industrial imports increased from 34.98 per cent in 1960 to 73.34 per cent in 1975. The share of the lagging industrial imports declines from 65.02 per cent in 1960 to 26.66 per cent in 1975. Among the leading industrial imports Chemicals and Chemical Products (31), Food and Beverages (20-21), Petroleum and Coal Products (32) and Electrical Machinery (37) are important. Among the lagging industrial imports Non-electrical Machinery (36), Transport Equipment (38) and Basic Metals (34) play a decisive role.

Comparing the nominal and real import shares of different groups in 1975 we find that Food and Beverages (20-21), Textiles (23), Chemicals and Chemical Products (31), Petroleum and Coal Products (32) and Electrical Machinery (37) have larger real than nominal shares in total industrial imports. On the other hand, Paper and



Paper Products (27), Basic Metals (34), Non-electrical Machinery (36), Transport Equipment (38) and Miscellaneous Manufacturing Industries (39) contributed less in real than in nominal terms.

### Overlaps

A study of the overlaps among some of the groups defined above helps us find some interrelations among them.

#### 1) Overlap of Leading Industries and Leading Industrial Imports

On the current price (Table IV.5) basis this set consists of Paper and Paper Products (27), Chemicals and Chemical Products (31) and Basic Metals (34). Of total industrial imports they contributed 4.88 per cent in 1960 and 55.76 per cent in 1975; of total industrial production they contributed 19.27 per cent in 1960 and 29.08 per cent in 1975.

On the constant price (Table IV.8) basis this set consists of Paper and Paper Products (27), Chemicals and Chemical Products (31), Petroleum and Coal Products (32) and Electrical Machinery (37). Of total industrial imports they contributed 29.27 per cent in 1960 and 66.98 per cent in 1975; of total industrial production they contributed 14.24 per cent in 1960 and 23.27 per cent in 1975.

It is likely that the relation between imports and production in these industries is that of an input-output nature - imports are probably a necessary input in the process of production. Otherwise it is possible that the demand for these goods may be expanding so rapidly that even an expanding domestic production is unable to satisfy it.

**ii) Overlay of Logging Industries  
and Logging Industrial Imports**

On the current price (Table IV.5) basis this set was a fairly large one. It consisted of Food and Beverages (20-21), Textiles (23), Wood and Cork (25), Leather and Leather Products (29), Rubber Products (30), Non-metallic Mineral Products (33), Metal Products except Machinery and Transport Equipment (35) and Transport Equipment (38). The share of this group in total industrial production was 67.55 per cent in 1960 and 45.57 per cent in 1975; their share in total industrial imports was 23.22 per cent in 1960 and 11.44 per cent in 1975.

On the constant price (Table IV.8) basis the set consists of only four groups - Textiles (23), Leather and Leather Products (29), Transport Equipment (38) and Miscellaneous Manufacturing Industries (39). Their share in total industrial production was 38.99 per cent in 1960 and 22.46 per cent in 1975; their share in total industrial imports was 14.53 per cent in 1960 and 5.15 per cent in 1975.

The demand for these goods has grown at a less-than-average rate which is why their shares in total industrial production and total industrial imports have actually fallen.

**iii) Overlay of Leading Industries and  
Logging Industrial Imports**

On the current price (Table IV.9) basis there were three industries in this set - Petroleum and Coal Products (32), Non-electrical Machinery (36) and Electrical Machinery (37). Their share in production went up from 7.28 per cent in 1960 to 17.17 per cent in 1975 while

their share in imports declined from 40.53 per cent in 1960 to 29.26 per cent in 1975. On ranking industries by the ratio of import-substitution to change in production (in descending order) we find that it is these very groups that top the list.

On the constant price (Table IV.10) basis we have six industries in this set - Wood and Cork (25), Rubber Products (30), Non-metallic Mineral Products (33), Basic Metals (34), Metal Products except Machinery and Transport Equipment (35) and Non-electrical Machinery (36). The last three of the above set have high ratios of import-substitution to change in production - the former three are comparatively unimportant industries. The share of the entire set in industrial production rose from 20.51 per cent in 1960 to 29.39 per cent in 1975 while the share in total industrial imports fell from 50.49 per cent in 1960 to 21.51 per cent in 1975.

iv) Overlap of Logging Industries  
and Leading Industrial Imports

On the current price basis the set consists of just one member - Miscellaneous Manufacturing Industries (39) - whose share in total industrial production falls from 0.82 per cent in 1960 to 0.53 per cent in 1975 and whose share in total industrial imports rises from 1.54 per cent in 1960 to 3.52 per cent in 1975.

On the constant price basis the set again consisted of one member - Food and Beverages (20-21). This group's share in total industrial production fell from 21.18 per cent in 1960 to 16.97 per cent in 1975 while its share in total industrial imports rose from 5.68 per cent in 1960 to 6.36 per cent in 1975.

**Conclusion**

It is clear from our exercise that rapid and dramatic changes have occurred in the structures of industrial production and industrial imports during the period 1960-75. Our simple study of these changes at a disaggregated level reveal patterns of change that are for the most part in line with general experience.

Footnotes

1. The word "disproportionately" is used in a purely statistical sense - the proportional contribution of the industrial sector to GNP is far less than the proportion of Plan expenditure allocated to it. No value-judgement is to be read into the word "disproportionately".
2. The notion of import-dependence examined here is narrow in scope and refers exclusively to annual industrial import flows and industrial production.
3. L. Argade and V. Pitre, "A Note on Industrial and Trade Classifications," *Artha Vijnana*, Vol. XX, No. 3, September 1978, pp. 306-317.
4. Both rates of growth are obtained from quantity indices.
5. W.G. Hoffman, *The Growth of Industrial Economies*, Manchester University Press, 1958.
6. The Census of Manufactures India (C.M.I.) reports only on 29 of 63 industry groups. This may partly account for the unusually high Hoffman ratios in 1946 and 1955.
7. A.O. Hirschman, *National Power and the Structure of Foreign Trade*, University of California Press, 1945; Appendix A, pp. 157-160.
8. There are 21 elements (groups) in this series - so the minimum value of the concentration coefficient is  $100/\sqrt{21} = 21.83$ .
9. There are 57 elements in this series - so the minimum value of the concentration coefficient is  $100/\sqrt{57} = 13.26$ .
10. There are 18 elements in this series - so the minimum value of the concentration coefficient is  $100/\sqrt{18} = 23.58$ .
11. The numbers in brackets are the ASI Code Numbers (at the two-digit level of classification).

NOTE A

An Analysis of Leading, Lagging and Constant Industries and Industrial Imports - with both Industrial Production and Industrial Imports measured at Current Prices. The analysis is at the two digit level of the ASI classification.

	<u>Total Industrial Production (in Rs.cr.)</u>	<u>Total Industrial Imports (in Rs.cr.)</u>
1960	3210.3713	806.5848
1975	21110.3100	2547.4904

An industry or industrial import is defined as "insignificant" if it contributes less than 0.5 per cent of the value of total industrial production or total industrial imports respectively in both 1960 and 1975. The actual values (in Rs. Cr.) for this proportion are given below.

	<u>Industrial Production (in Rs. cr.)</u>	<u>Industrial Imports (in Rs.cr.)</u>
1960	16.0519	4.0329
1975	105.5516	12.7375

The ASI code numbers of the "insignificant" groups in industrial production and industrial imports are underlined in the following tables. The figure of 0.5 percent is no doubt arbitrary but one has to draw the line somewhere. If 0.1 percent were taken as the relevant figure one would be left with no "insignificant" group - as it is we are left with precious few.

The actual percentages are given below the ASI code numbers - the first being for 1960 and the second for 1975.

Since the entire analysis is in terms of shares one need not correct for the effect of the 1966 Devaluation.

NOTE B

An Analysis of Leading, Lagging and Constant Industries and Industrial Imports - with both Industrial Production and Industrial Imports measured at Constant (1960) Prices. The analysis is at the 2-digit level of the ASI Classification.

	<u>Total Industrial Production (in Rs.Cr.) at 1960 Prices</u>	<u>Total Industrial Imports (in Rs.Cr.) at 1960 Prices</u>
1960	3210.3713	806.5848
1975	6829.3391	991.9059

An industry or industrial import is defined as "insignificant" if it contributes less than 0.5 percent of the value of total industrial production or total industrial imports respectively in both 1960 and 1975. The actual values (in Rs. Cr.) for this proportion are given below.

	<u>Industrial Production (in Rs.Cr.) at 1960 Prices</u>	<u>Industrial Imports (in Rs. Cr.) at 1960 Prices</u>
1960	16.0519	4.0329
1975	34.1467	4.9595

The ASI code numbers of the "insignificant" groups in industrial production and industrial imports are underlined in the following tables. The figure of 0.5 percent is no doubt arbitrary but one has to draw the line somewhere. If 0.1 percent were taken as the relevant figure one would be left with no "insignificant" group - as it is we are left with precious few.

The actual percentages are given below the ASI code numbers - the first being for 1960 and the second for 1975.

Since the entire analysis is in terms of shares one need not correct for the effect of the 1966 Devaluation.

**Table IV.1 : Industrial Production**

(All figures below are percentage shares in total industrial production)

ASI Code No.	Name of industry group	Share in 1960	Share in 1975	
			At current prices	At constant prices
<b>(A) Leading industries BOTH at current and constant prices</b>				
27	Paper & Paper Products	2.01	2.32	2.24
31	Chemicals & Chemical Products	7.52	16.19	11.97
32	Petroleum & Coal Products	1.59	5.73	2.66
34	Basic Metals	9.74	10.57	11.88
36	Non-electrical Machinery	2.57	5.73	7.48
37	Electrical Machinery	3.12	5.71	6.40
51	Electricity	2.36	5.95	5.45
<b>(B) Leading industries at constant prices; lagging at current prices</b>				
25	Wood & Cork except furniture	0.37	0.35	0.40
30	Rubber Products	2.07	1.79	2.52
33	Non-metallic Mineral Products except Petroleum & coal products	3.63	2.86	3.98
35	Metal Products except Machinery & Transport Equipment	2.13	1.83	3.13
<b>(C) Lagging industries BOTH at current and Constant Prices</b>				
20-	Food & Beverages	21.18	14.38	16.97
21				
22	Tobacco	2.58	1.48	2.37
23	Textiles	29.07	17.11	16.25
29	Leather & Fur Products except Footwear & other Wearing Apparel	0.52	0.46	0.17
38	Transport Equipment	8.58	6.79	5.71
39	Miscellaneous industries	0.82	0.53	0.33
<b>(D) Lagging industries at constant prices; leading at current prices</b>				
24	Manufacture of footwear other wearing apparel & made-up textile goods	0.14	0.22	0.09



**Table IV.2 : Industrial Imports \***

(All figures below are percentage share  
in total industrial imports)

ASI Code No.	Name of the industry group	Share in 1965	Share in 1975	
			At current prices	At constant prices
<b>(A) Leading industrial imports BOTH at current and constant prices</b>				
27	Paper & Paper Products	2.29	2.70	2.48
31	Chemical & Chemical Products	11.41	29.60	38.42
<b>(B) Leading industrial imports at constant prices; lagging at current prices</b>				
20- 21	Food & Beverages	5.68	3.92	6.36
32	Petroleum & coal products	8.61	7.80	10.23
37	Electrical Machinery	6.96	5.89	15.85
<b>(C) Lagging industrial imports BOTH at current and constant prices</b>				
23	Textiles	4.37	0.92	1.85
25	Wood & cork except manu- facture of furniture	0.39	0.05	0.08
29	Leather & fur products except footwear & other wearing apparel	0.04	0.00	0.01
30	Rubber products	0.45	0.25	0.34
33	Non-metallic Mineral Products except Petroleum & Coal	0.77	0.36	0.49
35	Metal Products except Machinery & transport equipment	2.94	1.12	1.00
36	Non-electrical Machinery	24.96	15.57	6.49
38	Transport Equipment	8.58	4.82	2.09
<b>(D) Lagging industrial imports at constant prices; leading at current prices</b>				
34	Basic Metals	20.98	23.46	13.11
39	Miscellaneous industries	1.54	3.52	1.20

\* Industry groups 24 (Footwear, Other Wearing Apparel and Made-up Textile Goods) and 22 (Tobacco) are imported in so small a quantity that their percentage shares are zero. Electricity (51) is a non-traded good - except for a negligible amount of Rs.0.0002 crores in 1965. We have omitted these groups in this exercise.

**Table IV-3: Leading, Lagging and Constant Industries - on the basis of two-point comparisons of the percentage distribution of production in the Indian manufacturing sector (1960-1975). Production is at Current Prices. The analysis is at the 2-digit level of the ASI Classification.**

**a. LEADING INDUSTRIES**

ASI Code No.	Name of the Industry Group
24 (0.14; 0.22)	Manufacture of footwear, other wearing apparel and made-up textile goods
27 (2.01; 2.32)	Manufacture of paper and paper products
31 (7.52; 16.19)	Manufacture of chemicals and chemical products
32 (1.59; 5.73)	Manufacture of products of petroleum and coal
34 (9.74; 10.57)	Basic Metal Industries
36 (2.57; 5.73)	Manufacture of machinery except electrical machinery
37 (3.12; 5.71)	Manufacture of electrical machinery, apparatus, appliances and supplies
51 (2.36; 5.95)	Electricity

**b. LAGGING INDUSTRIES**

ASI Code No.	Name of the Industry Group
20-21 (21.18; 14.38)	Manufacture of Food and Beverages
22 (2.58; 1.48)	Manufacture of tobacco
23 (29.07; 17.11)	Manufacture of textiles

(Contd.)

**IV, 3 Logging Industries (Contd.)**  
Contd.

ASI Code No.	Name of the Industry Group
25 (0.37; 0.35)	Manufactures of wood and cork except manufacture of furniture
29 (0.53; 0.46) 0.52	Manufacture of leather and fur products except footwear and other wearing apparel
30 (2.07; 1.79)	Manufacture of rubber products
33 (3.63; 2.86)	Manufacture of non-metallis mineral products except products of petroleum and coal
35 (2.13; 1.83)	Manufacture of metal products except machinery and transport equipment
38 (8.58; 6.79)	Manufacture of transport equipment
39 (0.83; 0.53) 0.82	Miscellaneous manufacturing Industries

**Notes :** 1 There are no "constant" industries.

2 The figures in brackets, below the ASI Code Numbers, show the percentage shares of these groups in total industrial production in the years 1960 and 1975 respectively.

3 Groups 24 and 25 are "insignificant" in that they contribute less than 0.5 percent of total industrial production in both 1960 and 1975.

**Table IV.4: Leading, Lagging and Constant Industrial Imports - on the basis of two-point comparisons of the percentage distribution of Industrial Imports in the Indian Manufacturing Sector (1950-1975). Imports are as measured at Current Prices. The analysis is at the 2-digit level of the ASI Classification.**

**a. LEADING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
27 (2.29; 2.70)	Manufacture of paper and paper products
31 (11.41; 29.60)	Manufacture of chemicals and chemical products
34 (20.98; 23.46)	Basic Metal Industries
39 (1.54; 3.52)	Miscellaneous manufacturing industries

**b. CONSTANT INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
24 (0.00; 0.00)	Manufacture of footwear, other wearing apparel and made-up textile goods
22 (0.00; 0.00)	Manufacture of tobacco
51	Electricity

(Contd.)

Table : IV.4  
contd

C. LAGGING INDUSTRIAL IMPORTS

ASI Code No.	Name of the Industry Group
<u>20-21</u> (5.68; 3.92)	Manufacture of food and beverages
<u>23</u> (4.37; 0.92)	Manufacture of textiles
<u>25</u> (0.39; 0.05)	Manufacture of wood and cork except manufacture of furniture
<u>29</u> (0.04; 0.00)	Manufacture of leather and fur products except footwear and other wearing apparel
<u>30</u> (0.45; 0.25)	Manufacture of rubber products
<u>32</u> (8.61; 7.80)	Manufacture of products of petroleum and coal
<u>33</u> (0.77; 0.36)	Manufacture of non-metallic mineral products except products of petroleum and coal
<u>35</u> (2.94; 1.12)	Manufacture of metal products except machinery and transport equipment
<u>36</u> (24.96; 15.57)	Manufacture of machinery except electri- cal machinery
<u>37</u> (6.96; 5.89)	Manufacture of electrical machinery, apparatus, appliances and supplies
<u>38</u> (8.58; 4.82)	Manufacture of transport equipment

Notes : 1 The figures in brackets, below the ASI code numbers, show the percentage shares of these groups in total industrial imports in the years 1960 and 1975 respectively

2 Groups 22,24,25,29 and 30 (which are underlined) are "insignificant" in that they contribute less than 0.5 per cent of total industrial imports in both 1960 and 1975.

Table IV.5 : Overlap of Tables IV.3.a and IV.4.a  
 [Current Price Data.]

**LEADING INDUSTRIES AND  
 LEADING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
27	Manufacture of paper and paper products
31	Manufacture of chemicals and chemical products
34	Basic Metal Industries

(in percent)

	1960	1975
Share of Groups 27, 31 and 34 in Total Industrial Imports	34.68	55.76
Share of Groups 27, 31 and 34 in Total Industrial Production	19.27	29.08

*Overlap of Tables IV.3.b and IV.4.c.*

**LAGGING INDUSTRIES AND  
 LAGGING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
20-21	Manufacture of food and beverages
23	Manufacture of textiles
25	Manufactures of wood and cork except manufacture of furniture
29*	Manufacture of leather and fur products footwear and other wearing apparel

(Contd.)

**LAGGING INDUSTRIES AND  
LAGGING INDUSTRIAL IMPORTS : (Contd.)**

ASI Code No.	Name of the Industry Group		
30*	Manufacture of rubber products		
33	Manufacture of non-metallic mineral products except products of petroleum and coal		
35	Manufacture of metal products except machinery and transport equipment		
38	Manufacture of transport equipment		
		(in percent)	
		1960	1975
Share of Groups 20-21, 23, 25, 29, 30, 33, 35 and 38 in Total Industrial Imports		23.22	11.44
Share of Groups 20-21, 23, 25, 29, 30, 33, 35 and 38 in Total Industrial Production		67.55	45.57

**Notes :** 1 Group 25 is "insignificant" in both production AND industrial import categories

2 Groups 29 and 30 (marked with a \*) are "insignificant" as industrial imports while significant in the industrial production category.

**Table IV.6: Leading, Lagging and Constant Industries - on the basis of two point comparisons of the percentage distribution of production in the Indian Manufacturing Sector (1960-1975). Production is as measured at Constant (1960) Prices. The analysis is at the 2-digit level of the ASI Classification**

**G. LEADING INDUSTRIES**

ASI Code No.	Name of the Industry Group
25 (0.37; 0.40)	Manufacture of wood, cork except manufacture of furniture
27 (2.01; 2.24)	Manufacture of paper and paper products
30 (2.07; 2.52)	Manufacture of rubber products
31 (7.52; 11.97)	Manufacture of chemicals and chemical products
32 (1.59; 2.66)	Manufacture of products of petroleum and coal
33 (3.63; 3.98)	Manufacture of non-metallic mineral products except products of petroleum and coal
34 (9.74; 11.88)	Basic Metal Industries
35 (2.13; 3.13)	Manufacture of metal products except machinery and transport equipment
36 (2.57; 7.48)	Manufacture of machinery except electrical machinery
37 (3.12; 6.40)	Manufacture of electrical machinery, apparatus, appliances and supplies
51 (2.36; 5.45)	Electricity

(Contd.)



Table: IV.6  
contd

b. DECLINING INDUSTRIES

ASI Code No.	Name of the Industry Group
20-21 (21.18; 16.97)	Manufacture of food and beverages
22 (2.58; 2.37)	Manufacture of tobacco
23 (29.07; 16.25)	Manufacture of textiles
24 (0.14; 0.09)	Manufacture of footwear, other wearing apparel and made-up textile goods
29 (0.52; 0.17)	Manufacture of leather and fur products except foot-wear and other wearing apparel
38 (8.58; 5.71)	Manufacture of transport equipment
39 (0.62; 0.33)	Miscellaneous manufacturing industries

Notes : 1 There are no "constant" industries.

2 The figures in brackets below the ASI Code Numbers show the percentage shares of these groups in total industrial production in the years 1960 and 1975 respectively.

3 Groups 24 and 25 are "insignificant", in that they contribute less than 0.5 per cent of total industrial production in both 1960 and 1975.

**Table IV.7: Leading, Lagging and Constant Industrial Imports**  
 - on the basis of two point comparisons of the percentage distribution of Industrial Imports in the Indian Manufacturing Sector (1960-1975). Imports are as measured at Constant (1960) Prices. The analysis is at the 2-digit level of the ASI Classification.

**a. LEADING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
20-21 (5.68; 6.36)	Manufacture of food and beverages
27 (2.29; 2.48)	Manufacture of paper and paper products
31 (11.41; 38.42)	Manufacture of chemicals and chemical products
32 (8.61; 10.23)	Manufacture of products of petroleum and coal
37 (6.96; 15.85)	Manufacture of electrical machinery, apparatus, appliances and supplies

**b. CONSTANT INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry
22 (0.00; 0.00)	Manufacture of tobacco
24 (0.00; 0.00)	Manufacture of footwear, other wearing apparel and made-up textile goods

(Contd.)

Table : IV.7  
contd

C. LAGGING INDUSTRIAL IMPORTS

ASI Code No.	Name of the Industry Group
<u>23</u> (4.37; 1.85)	Manufacture of textiles
<u>25</u> (0.39; 0.08)	Manufacture of wood, cork except manufacture of furniture
<u>29</u> (0.04; 0.01)	Manufacture of leather and fur products except footwear and other wearing apparel
<u>30</u> (0.45; 0.34)	Manufacture of rubber products
<u>33</u> (0.77; 0.49)	Manufacture of non-metallic mineral products except products of petroleum and coal
<u>34</u> (20.98; 13.11)	Basic Metal Industries
<u>35</u> (2.94; 1.00)	Manufacture of metal products except machinery and transport equipment
<u>36</u> (24.96; 6.49)	Manufacture of machinery except electrical machinery
<u>38</u> (8.58; 2.09)	Manufacture of transport equipment
<u>39</u> (1.54; 1.20)	Miscellaneous manufacturing industries

**Notes :** 1 The figures in brackets below the ASI Code numbers show the percentage shares of these groups in total industrial imports in the years 1960 and 1975 respectively.

2 Groups 22, 24, 25, 29 and 30 (which are underlined) are "insignificant" in that they contribute less than 0.5 per cent of total industrial imports in both 1960 and 1975.

**Table IV.8: Overlap of Tables IV.6.a and IV.7.a [Constant Price Data]**

**LEADING INDUSTRIES AND  
LEADING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
27	Manufacture of paper and paper products
31	Manufacture of chemicals and chemical products
32	Manufacture of products of petroleum and coal
37	Manufacture of electrical machinery, apparatus, appliances and supplies

(in percent)

	1960	1975
Share of Groups 27, 31, 32 and 37 in Total Industrial Imports	29.27	66.98
Share of Groups 27, 31, 32 and 37 in Total Industrial Production	14.24	23.27

Overlap of Tables IV.6.b and IV.7.C

**LAGGING INDUSTRIES AND  
LAGGING INDUSTRIAL IMPORTS**

ASI Code No.	Name of the Industry Group
23	Manufacture of textiles
29*	Manufacture of leather and fur products except footwear and other wearing apparel
38	Manufacture of transport equipment
39	Miscellaneous manufacturing industries

(Contd.)

Table ; IV. 8  
contd

	(in percent)	
	1960	1975
Share of Groups 23, 29, 38 and 39 in Total Industrial Imports	14.53	5.15
Share of Groups 23, 29, 38 and 39 in Total Industrial Production	38.99	22.46

Note : \* Group 29 which is marked with a star (\*) is "insignificant" as an industrial import while "significant" in the industrial production category

**Table IV.9: Overlap of those groups that are leading in Production and Lagging in Imports (Current Price Data) i.e. overlap of Tables IV.3.a and IV.4.c**

(in percent)\*

ASI Code No.	Name of the Industry Group	Increase in Production		Decline in Imports	
		1960	1975	1960	1975
32	Manufacture of products of petroleum and coal	1.59	5.73	8.61	7.80
36	Manufacture of machinery except electrical machinery	2.57	5.73	24.96	15.57
37	Manufacture of electrical machinery, apparatus, appliances and supplies	3.12	5.71	6.96	5.89
Total of above groups		7.28	17.17	40.53	29.26

**Note 1(1) \*** Production percentages are in relation to total Industrial Production whereas Import percentages are in relation to Total Industrial Imports

**Table IV.10: Overlap of those groups that are Leading in Production and Lagging in Imports (Constant Price Data) i.e. overlap of tables IV. 6.a and IV. 7. C**

(in percent)\*

ASI Code No.	Name of the Industry	Increase in Production		Decline in Imports	
		1960	1975	1960	1975
25	Manufacture of wood, cork except manufacture of fur- niture	0.37	0.40	0.39	0.08
30*	Manufacture of rubber products	2.07	2.52	0.45	0.34
33	Manufacture of non-metallic mineral products except products of petroleum and coal	3.63	3.98	0.77	0.49
34	Basic Metal Industries	9.74	11.88	20.98	13.11
35	Manufacture of Metal Produ- cts except machinery and transport equipment	2.13	3.13	2.94	1.00
36	Manufacture of machinery except electrical machin- ery	2.57	7.48	24.96	6.49
Total of Above Groups		20.51	29.39	50.49	21.51

**Notes :** 1 \* Production percentages are in relation to Total Industrial Production whereas Import percentages are in relation to Total Industrial Imports

2 Group 25 is "insignificant" in both production and industrial import categories since it contributes less than 0.5 percent to the respective totals in both 1960 and 1975.

3\* Group 30 is "insignificant" only in the Industrial Imports category.

**Table IV. (1) Shares of Leading and Lagging Industries in Total Industrial Production\* in 1960 and in 1975.**

(in percent)		
	1960	1975
1 Share of Leading Industries in Total Industrial Production	29.05	52.42
2 Share of Lagging Industries in Total Industrial Production	70.95	47.58
	100.00	100.00

\* Industrial Production is as measured at Current Prices.

**Table IV. (2) Shares of Leading and Lagging Industries in Total Industrial Production\* in 1960 and in 1975**

(in percent)		
	1960	1975
1 Share of Leading Industries in Total Industrial Production	37.11	58.11
2 Share of Lagging Industries in Total Industrial Production	62.89	41.89
Total	100.00	100.00

\* Industrial Production is as measured at Constant (1960) Prices.



**Table IV.13: Shares of Leading, Lagging and Constant Industrial Imports in Total Industrial Imports\* in 1960 and in 1975**

	(in percent)	
	1960	1975
1 Share of Leading Industrial Imports in Total Industrial Imports	36.22	59.28
2 Share of Constant Industrial Imports in Total Industrial Imports	0.00	0.00
3 Share of Lagging Industrial Imports in Total Industrial Imports	63.75	40.70
	99.97	99.98

\* Industrial Imports are measured at Current Prices.

**Table IV.14: Shares of Leading, Constant and Lagging Industrial Imports in Total Industrial Imports\* in 1960 and in 1975**

	(in percent)	
	1960	1975
1 Share of Leading Industrial Imports in Total Industrial Imports	34.95	73.34
2 Share of Constant Industrial Imports in Total Industrial Imports	0.00	0.00
3 Share of Lagging Industrial Imports in Total Industrial Imports	65.02	26.66
	99.97	100.00

\* Industrial Imports are measured at Constant (1960) Prices.

NOTE C

All data used are at current prices as no price deflators are available at this level of disaggregation

	<u>Total Industrial Production (in Rs.Cr.)</u>	<u>Total Industrial Imports (in Rs.Cr.)</u>
1960	3274.2048	809.5140
1975	21391.7100	2556.6335

An industry or industrial import is defined as "significant" if it contributes more than 0.5 percent of the value of total industrial production or total industrial imports respectively in either 1960 or 1975 or both 1960 and 1975. The actual values (in Rs.Cr.) for this proportion are given below.

	<u>Production (in Rs.Cr.)</u>	<u>Imports (in Rs.Cr.)</u>
1960	16.371024	4.047570
1975	106.958550	12.7831675

The ASI code numbers of the significant industries in industrial production and industrial imports are underlined in the following tables. The actual percentages are given in brackets just below the ASI code number - the first for the year 1960 and the second for the year 1975.

The figure of 0.5 percent of total industrial production or total industrial imports is no doubt arbitrary but one has to draw the line somewhere. If we were to fix 0.1 percent of total industrial production or total industrial imports as the relevant figure we would be left with hardly any "insignificant" industry. Also, the figures quoted above for production and imports are at current prices - some allowance has thus to be made for the rise in prices over the period.

Since the analysis is in terms of percentage shares no adjustments have been made for the 1966 Devaluation.

**Table IV.15 :** Leading, Declining and Constant Industries - on the basis of two point comparisons of the percentage distribution of production\* in the Indian manufacturing sector (1960-1975) (at Current prices)

**LEADING INDUSTRIES**

ASI Code No.	Name of the Industry
202 (0.27; 1.44)	Manufacture of dairy products
203	Canning and preservation of fruits and vegetables
204	Canning and preserving of fish and other seafoods
206	Manufacture of bakery products
208	Manufacture of cocoa, chocolate and sugar confectionery
211	Distilling, rectifying and blending of spirits
212	Wine industries
213	Breweries and manufacturing of malt
214	Soft drinks and carbonated water industries
232	Knitting mills
233	Cordage, rope and twine industries
241	Manufacture of footwear
271 (1.96; 2.29)	Manufacture of paper and paper-products (board) and pulp
311 (2.85; 9.23)	Basic industrial chemicals including fertilisers
312 (0.15; 0.75)	Vegetable and animal oils and fats (except edible oils)
313 (0.42; 1.26)	Manufacture of paints, varnishes and lacquers
319 (3.93; 4.72)	Manufacture of miscellaneous chemical products
321 (1.43; 4.53)	Petroleum refineries

(Contd.)

Table IV.15 : (contd.)

ASI Code No.	Name of the Industry
329 (0.11, 1.12)	Manufacture of miscellaneous products of petroleum and coal
332 (0.48, 0.50)	Manufacture of glass and glass products
341 (8.11, 9.08)	Iron and steel basic industries
350 (2.51, 5.65)	Manufacture of machinery except electrical machinery
370 (3.05, 5.63)	Manufacture of electrical machinery, apparatus, appliances and supplies
384 (0.51, 0.70)	Repair of motor vehicles
391	Manufacture of professional and scientific measuring and controlling instruments
393	Manufacture of watches and clocks
511 (2.31, 5.87)	Electric light and power
----- DECLINING INDUSTRIES -----	
205 (2.87, 0.98)	Manufacture of grain mill products
207 (5.96, 4.06)	Sugar factories and refineries
209 (11.09, 6.25)	Manufacture of miscellaneous food preparations
220 (2.53, 1.46)	Tobacco Manufacturing
231 (26.75, 15.42)	Spinning, weaving and finishing of textiles
239 (1.61, 1.07)	Manufacture of textiles n.e.c.
-----	

(Contd.)

Table IV.15 : (Contd.)

ASI Code No.	Name of the Industry
243	Manufacture of wearing apparel (except footwear)
280	Printing, publishing and allied industries
291 (0.50, 0.45)	Tanneries and leather finishing plants
300 (2.03, 1.78)	Manufacture of rubber products
331	Manufacture of structural clay products
333	Manufacture of pottery, china and earthenware
334 (1.63, 1.17)	Manufacture of cement (hydraulic)
339 (0.78, 0.63)	Manufacture of non-metallic mineral products n.e.c.
342 (1.43, 1.36)	Non-ferrous basic metal industries
350 (2.08, 1.80)	Manufacture of metal products except machinery and transport equipment
382 (2.76, 1.31)	Manufacture of rail road equipment
383 (3.61, 3.34)	Manufacture of motor vehicles
385 (0.73, 0.71)	Manufacture of motor cycles and bicycles
386	Manufacture of aircraft
394	Manufacture of jewellery and related articles
399 (0.53, 0.16)	Manufacture of industries n.e.c.

\*  $\frac{\text{Subcategory Production}}{\text{Total Industrial Production}} \times 100$

(Contd.)

Table IV.15 : (Contd.)

## CONSTANT INDUSTRIES

ASI Code No.	Name of the Industry
251	Saw mills, planing and other wood mills
252	Wooden and cane containers and cane small ware
259	Manufacture of cork and wood products B.O.C.
260	Manufacture of furniture and fixtures
293	Manufacture of leather products except footwear and other wearing apparel
381 (0.56, 0.55)	Shipbuilding and repairing
392	Manufacture of photographic and optical goods.

**Table IV.16 : Leading, Declining and Constant Industrial Imports - on the basis of two point comparisons of the percentage distribution of imports\* in the Indian Manufacturing Sector (1960-1975)**

(at Current Prices)

**LEADING INDUSTRIAL IMPORTS**

ASICode No.	Name of the Industry
202 (0.70, 0.97)	Manufacture of dairy products
207	Sugar factories and refineries
260	Manufacture of furnitures and fixtures
271 (2.28, 2.69)	Manufacture of paper and paper products (board) and pulp
311 (6.70, 24.73)	Basic industrial chemicals including fertilisers
312	Vegetable and animal oils and fats (except edible oils)
319 (2.61, 2.99)	Manufacture of miscellaneous chemical products
341 (0.23, 16.44)	Iron and steel basic industries
386 (1.12, 1.84)	Manufacture of aircraft
391 (0.70, 0.79)	Manufacture of professional and scientific measuring and controlling instruments
394 (0.00, 2.09)	Manufacture of jewellery and related articles

\*  $\frac{\text{Subcategory imports}}{\text{Total industrial imports}} \times 100$

(Contd.)

Table IV.16 : (Contd.)

## DECLINING INDUSTRIAL IMPORTS

ASI Code No.	Name of the Industry
203 (0.64, 0.52)	Canning and preservation of fruits and vegetables
205 (2.28, 0.61)	Manufacture of grainmill products
209 (1.94, 1.71)	Manufacture of miscellaneous food preparations
211	Distilling, rectifying and blending of spirits
231 (3.21, 0.72)	Spinning, weaving and finishing of textiles
233	Cordage, rope and twine industries
239 (1.11, 0.18)	Manufacture of textiles n.e.c.
251	Saw mills, planing and other wood mills
259	Manufacture of cork and wood products n.e.c.
280	Printing, publishing and allied industries
293	Manufacture of leather products except footwear and other wearing apparel
300	Manufacture of rubber products
313 (1.59, 0.44)	Manufacture of paints, varnishes and lacquers
321 (8.58, 7.77)	Petroleum refineries
331	Manufacture of structural <sup>clay</sup> products
332	Manufacture of glass and glass products
339	Manufacture of non-metallic mineral products n.e.c.

(Contd.)



**Table IV.16 : (Contd.)**

ASI Code No.	Name of the Industry
342 (20.67, 6.97)	Non-ferrous basic metal industries
350 (2.93, 1.11)	Manufacture of metal products except machinery and transport equipment
360 (24.87, 15.52)	Manufacture of machinery except electrical machinery
370 (6.94, 5.87)	Manufacture of electrical machinery, apparatus, appliances and supplies
381	Shipbuilding and repairing
382 (2.97, 0.99)	Manufacture of railroad equipment
383 (4.20, 1.91)	Manufacture of motor vehicles
385	Manufacture of motor cycles and bicycles
392	Manufacture of photographic and optical goods
393	Manufacture of watches and clocks
399	Manufacture of industries n.e.c.

-----

**CONSTANT INDUSTRIAL IMPORTS**

-----

204	Canning and preserving of fish and other seafoods
206	Manufacture of bakery products
208	Manufacture of cocoa, chocolate and sugar confectionery
212	Wine industries
213	Breweries and manufacturing of malt

-----

(Contd.)

Table IV.16 : (Contd.)

ASI Code No.	Name of the Industry
214	Soft drinks and carbonated water industries
220	Tobacco manufacturing
232	Knitting mills
241	Manufacture of footwear
243	Manufacture of wearing apparel (except footwear)
252	Wooden and cane containers and cane small ware
291	Tanneries and leather finishing plants
329	Manufacture of miscellaneous products of petroleum and coal
333	Manufacture of pottery, china and earthenware
334	Manufacture of cement (hydraulic)
384	Repair of motor vehicles
395	Manufacture of musical instruments
511	Electric light and power

**Table IV.17 : Overlap of Tables IV.15 and IV.16  
(at current prices)**

**LEADING INDUSTRIES**

ASI Code No.	Name of the Industry
202	Manufacture of dairy products
271	Manufacture of paper and paper-products (board) and pulp
311	Basic industrial chemicals including fertilisers
312	Vegetable and animal oils and fats (except edible oils)
319	Manufacture of miscellaneous chemical products
341	Iron and steel basic industries
391*	Manufacture of professional and scientific measuring and controlling instruments

\* Significant in imports but not in production

**DECLINING INDUSTRIES**

ASI Code No.	Name of the Industry
205	Manufacture of grain mill products
209	Manufacture of miscellaneous food preparations
231	Spinning, weaving and finishing of textiles
239	Manufacture of textiles n.e.c.
280*#	Printing, publishing and allied industries
300*#	Manufacture of rubber products

(Contd.)

Table IV.17 : (Contd.)

ASI Code No.	Name of the Industry
331	Manufacture of structural clay products
339*	Manufacture of non-metallic mineral products n.e.c.
342	Non-ferrous basic metal industries
350	Manufacture of metal products except machinery and transport equipment
362	Manufacture of railroad equipment
383	Manufacture of motor vehicles
385**	Manufacture of motor cycles and bicycles
399**	Manufacture of industries n.e.c.

\* \* Significant in production but not in imports

#### CONSTANT INDUSTRIES

ASI Code No.	Name of the Industry
252	Wooden and cane containers and cane small ware

**Table IV.18 : Shares of Leading, Declining and Constant Industrial Imports in Total Industrial Imports**

(At current prices)

	(in percent)	
	1960	1975
<b>1 Share of Leading Industrial Imports in Total Industrial Imports</b>	<b>14.82</b>	<b>53.95</b>
<b>a) Share of Significant Leading Industrial Imports in Total Industrial Imports</b>	<b>14.81</b>	<b>53.87</b>
<b>b) Share of Other Leading Industrial Imports in Total Industrial Imports</b>	<b>0.01</b>	<b>0.08</b>
<b>2 Share of Declining<sup>ing</sup> Industrial Imports in Total Industrial Imports</b>	<b>85.13</b>	<b>46.01</b>
<b>a) Share of Significant Declining Industrial Imports in Total Industrial Imports</b>	<b>82.49</b>	<b>44.76</b>
<b>b) Share of Other Declining Industrial Imports in Total Industrial Imports</b>	<b>2.64</b>	<b>1.25</b>
<b>3 Share of Constant Industrial Imports in Total Industrial Imports</b>	<b>0.06</b>	<b>0.04</b>
	<b>100.01</b>	<b>100.00</b>

**Table IV.19 : Share of Leading, Declining and Constant Industries in Total Industrial Production**

(at current prices)

	(in percent)	
	1960	1975
<b>1 Share of Leading Industries in Total Industrial Production</b>	28.88	55.11
a) Share of Significant Leading Industries in Total Industrial Production	28.09	52.77
b) Share of Other Leading Industries in Total Industrial Production	0.79	2.34
<b>2 Share of Declining Industries in Total Industrial Production</b>	69.63	43.68
a) Share of Significant Declining Industries in Total Industrial Production	68.55	42.94
b) Share of Other Declining Industries in Total Industrial Production	1.08	0.74
<b>3 Share of Constant Industries in Total Industrial Production</b>	1.20	1.20
a) Share of Significant Constant Industries in Total Industrial Production	0.56	0.55
b) Share of Other Constant Industries in Total Industrial Production	0.64	0.65
<b>Total,</b>	<b>99.71</b>	<b>99.99</b>

**Table IV.20 : Table IV.17 quantified****(at current prices)**

	1960	1975
<b>1</b> <b>Overlap of Leading Industries in Industrial Production and Leading Industrial Imports</b>		
a) Share of (1) in Total Industrial Imports	13.69	49.94
b) Share of (1) in Total Industrial Production	17.38	27.68
<b>2</b> <b>Overlap of Declining Industries in Industrial Production and Declining Industrial Imports</b>		
a) Share of (2) in Total Industrial Imports	41.09	15.13
b) Share of (2) in Total Industrial Production	58.41	36.22
<b>3</b> <b>Overlap of Constant Industries in Industrial Production and Constant Industrial Imports</b>		
a) Share of (3) in Total Industrial Imports	0.00	0.00
b) Share of (3) in Total Industrial Production	0.02	0.02

**Table IV.21 : Overlap of those goods that are  
Leading in Production and Declin-  
ing in Imports**

(at current prices)

ASI Code No.	Name of the Industry	Increase in Production		Decline in Imports	
		1960	1975	1960	1975
203	Canning and preservation of fruits and vegetables	0.04	0.06	0.64	0.52
211	Distilling, rectifying and blending of spirits	0.11	0.47	0.06	0.02
233	Cordage, rope and twine industries	0.08	0.27	0.03	0.00
313	Manufacture of paints, varnishes and lacquers	0.42	1.26	1.59	0.44
321	Petroleum refineries	1.43	4.53	8.58	7.77
332	Manufacture of glass and glass products	0.48	0.50	0.17	0.13
360	Manufacture of mach- inery except electrical machinery	2.51	5.65	24.87	15.52
370	Manufacture of electri- cal machinery, apparatus, appliances and supplies	3.05	5.63	6.94	5.87
393	Manufacture of watches and clocks	0.00	0.09	0.10	0.05



CHAPTER VINDIA'S IMPORT SUBSTITUTION 1960-75

This chapter has been divided into two sections; the first section explains the concept of import substitution. It also examines the rationale behind import substitution as a strategy of economic development. The second section uses the usual formulas to measure the size of import substitution and presents the results.

## I

Import substitution is a phrase used in a multiple sense. It has been used in the recent years to denote the process of industrialisation initiated by many less developed countries where import-competing industries take a lead over export-oriented ones. The developmental effort in the form of massive investments by the public and the private sectors aims at a departure from traditional investments in plantations and extractive industries and at accelerating the pace of development by encouraging the growth of non-traditional industries like metals based engineering electrical and non-electrical machinery and chemicals. This is accomplished through autonomous investment decisions carried out with consequent readjustment of trade and other economic policies, not through free play of market forces. This pattern of development is characterised by a strong anti-trade bias and the phrase "import substitution" describes this process as a whole.

This deliberate effort designed to accelerate

growth by the forced transformation of the productive capacity of a country must be distinguished from the natural replacement of imports that takes place on account of unplanned economic growth induced by free play of market forces. History furnishes a number of examples where unplanned growth process shows an imbalance between foreign exchange earnings and import supply requirements, because import coefficients of import replacement lines in terms of machinery and intermediate imports are higher than the value of imports they replace. The ratio of intermediate imports to goods domestically produced, therefore, likely to go up some cases. Import replacement becomes profitable at some stage and enables to redress this imbalance.<sup>1</sup>

Import substitution as a strategy of growth becomes a natural and attractive choice when export prospects before an economy are extremely pessimistic. It also becomes attractive when, as shown by Chenery and Strout,<sup>2</sup> the economy in question suffers from the trade constraint i.e. the capacity to import is limited by the inability to convert additional physical export surpluses into additional desired imports because of stagnant external demand at going prices. Given this exogenous level of foreign exchange earnings any target rate of growth which requires higher level of ex-ante imports is associated with a trade gap. As we go along higher and higher target growth rates the trade-gap is accompanied by ex-ante savings gap as well too. This calls for foreign aid policy ensuring a dose of foreign aid big enough to meet the bigger of these two-ex ante gaps. If however, aid prospects are dim and if the

available aid falls short of the ex ante trade gap, then the economy gets characterised by the trade-constrained phase of growth. Thus, this two-gap structural model of growth for a less developed country provides an intellectual underpinning behind the strategy of import-substitution.<sup>3</sup>

The phrase 'import substitution' has also been used to denote import substitutions at industry or sector level. Here it takes the form of replacement of existing and potential imports by output of import-competing industries. This replacement is never possible in all industries at one and the same time, because of technical and financial constraints. It, therefore, calls a discriminating choice in favour of some industries and against others. Given the level of technical competence and the size of domestic market, it is possible to rank industries according to their potential for import substitution. Given this situation, it is further possible to find over time some industries accomplishing vigorous import substitution and others not so vigorous.

The commonly heard remark that import substitution has stopped in less developed countries because they are unable to reduce their aggregate ratio of imports to supplies can hide two conflicting tendencies: (i) across-the-board decrease in imports-to-supplies ratio and (ii) an increase in the weights of the more import intensive industries which may benefit from high income elasticities of demand.<sup>4</sup>

This possibility that the scope for import substitution has exhausted does not mean that the economies

have to face economic stagnation. This, according to Hirschman, is a naive and a semi-naive view of economic development.<sup>5</sup> Actually, infinite scope exists for economic expansion where outputs like <sup>electricity</sup> elasticity, cement, plastics, glass, paper etc. can be used as inputs in a wide range of industries. In the case of specific inputs, the scale of production can be made viable by choosing inter-linked investments. So, the results on import-substitution which tend to indicate the exhaustion of the potential of import substitution must not be taken too seriously in an economy of moderate size.<sup>6</sup>

## II

For an in depth study of import substitution it is necessary to develop measures to quantify the size of import substitution. Some simple measures can at once be cited. The behaviour of M/S ratio over time can be looked into to find out the changes in relative import dependence. If it is declining over time, it is an evidence of import-substitution.

If the rate of growth of imports is slower than the rate of growth of corresponding output this too can be related as an evidence of import substitution. For this purpose, the ratio of these growth rates is a useful index.

Besides we have in the literature the descriptive measures furnished by Chenery.<sup>7</sup> Desai<sup>8</sup> carried out her study on India's Import Substitution (1951-63), which was based on the Chenery's formula. The Chenery's descriptive measure is a useful indicator of import substitution at sectoral or industry level rather than for

the economy as a whole. Chenery defines import substitution as the product of the change over time in domestic production/availability ratios of different industries and the total supply of the end year. Under this formulation, the change in the value of output is split into two components: one is the import substitution effect as defined above and the other is the residual effect measuring the hypothetical output component backed by the demand expansion effect originating in the domestic and the export sectors: hypothetical because it is one that would ~~which would~~ prevail if there had been no change in production-availability ratios. Symbolically, the Chenery formula looks as follows,

$$\Delta Q = \left( \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right) S_2 + (S_2 - S_1) \frac{Q_1}{S_1}$$

(Change in the value  
of output)

(import substitu-  
tion effect)

(Residual  
effect)

The same measure can be arrived at in an alternative way. One can look upon import-substitution as the change in import-availability ratios over time multiplied by the total supply of the end-year. Defined this way, growth of imports over two points of time can be divided as:

$\Delta M$  (change in the  
value of imports) =

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

(Import subati-  
tution effect)

+ (Residual effect)

where  $M_1, M_2$  are values of imports and  $S_1$  and  $S_2$  are values of total supplies like in the earlier formulation. The residual effect gives the hypothetical level of demand for imports that would prevail if the import content of supplies had remained constant over the same period. This formulation has been given by A. Haisels?

### The Choice of Measure

Between these two measures one can use any one to do the computations of import substitution, because both furnish identical results. There is, however, an advantage in using both of them because in the case of first measure, we get, in the form of residual effect, estimates of domestic demand that would prevail under constant production-availability ratio and in the second we get in the same way estimates of import demand under constant import-availability ratio. This reason has prompted us to use both of them.

These measures are known as absolute measures and if related to some base, can be converted into relative measures. Depending upon the base to which it is related each relative measure will furnish results that are different in magnitude but identical in direction. So, besides the absolute measures, we have used the following as relative measures:

$$(1) \left( \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right) / \frac{Q_1}{S_1} \quad (2) \left( \frac{M_2}{S_2} - \frac{M_1}{S_1} \right) / \frac{M_1}{S_1}$$

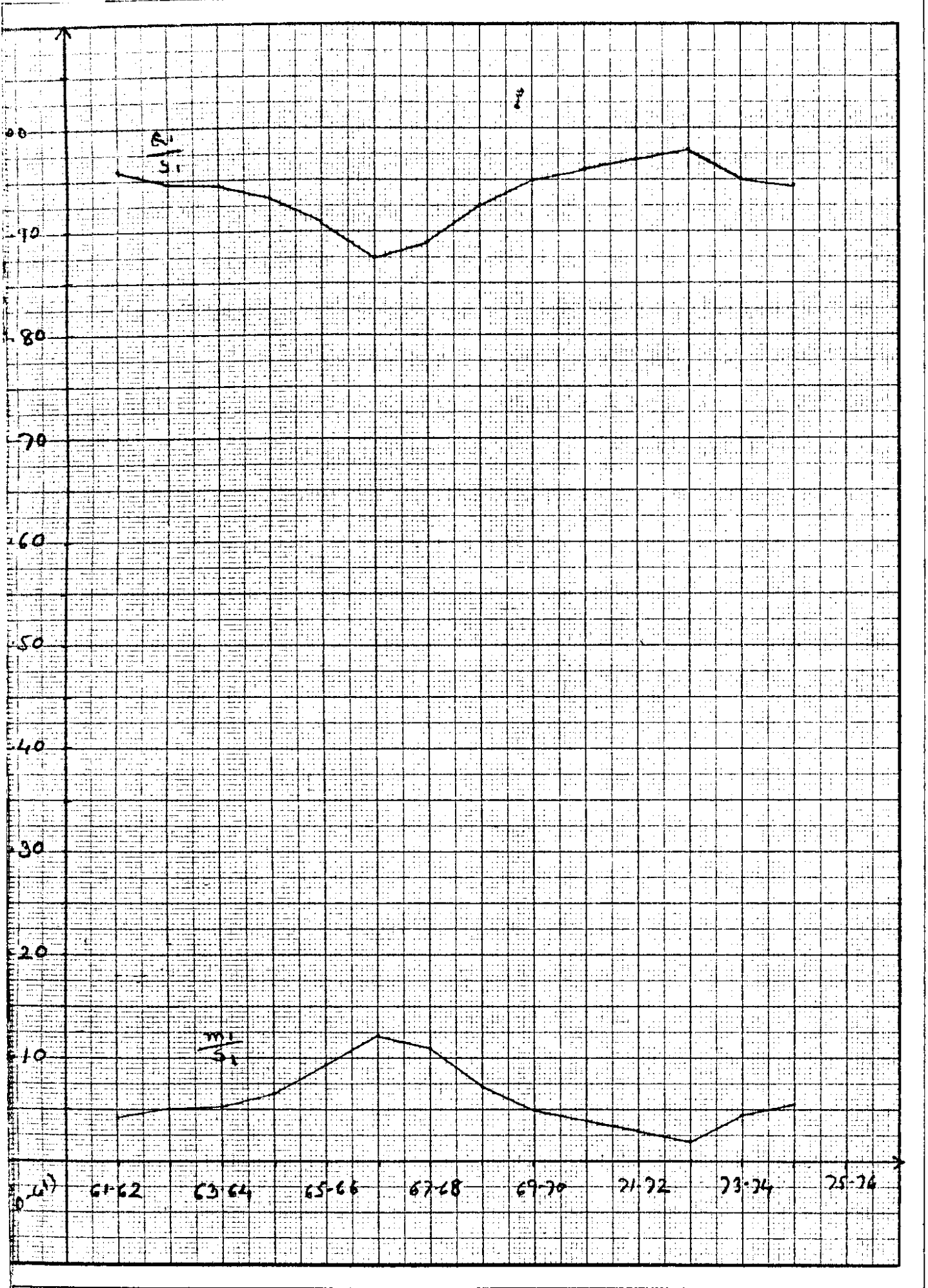
$$\text{AND (3) } \left( \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right) \left( \frac{S_1 + S_2}{2} \right) / \Delta Q$$

Where  $Q$  = Production,  $S$  = Supply,  $M$  = Import,  
 $1$  = Base Year,  $2$  = End Year

All the formulas given above are over-simplified. These just indicate relative behaviour of imports as against domestic goods. The consequences of import substitution like effects on economic growth, consumption, factor productivity, employment, income distribution, factory intensity, balance of payments and the direct and indirect imports used for domestic output added on account of import substitution are other legitimate and important factors that must be taken into account in analysing the success or otherwise of the import substitution strategy. These formulas throw no light on these aspects. If the planners concentrate only on the most productive use of available resources, which results in smaller production/availability ratios, then the import substitution results given <sup>here</sup> ~~above~~, should not be looked upon as the only criterion for the success of the import substitution effort.

We have used these measures whatever worth they are. The results obtained are subject to variation according to (a) the degree of aggregation (b) the choice of period (c) treatment of intermediate inputs. As can be seen from our results, the size of import substitution differs according to the level of aggregation chosen. Our results at 2 digit level are not the same as those at 3 digit level for the obvious reason that production/availability ratios are different for the components at 3 digit level from those at 2 digit level. Similarly, for the same reason the results added on year-to-year basis are not identical with those obtained for the time-interval as a whole. Moreover, the results obtained underestimate the degree of import-substitution

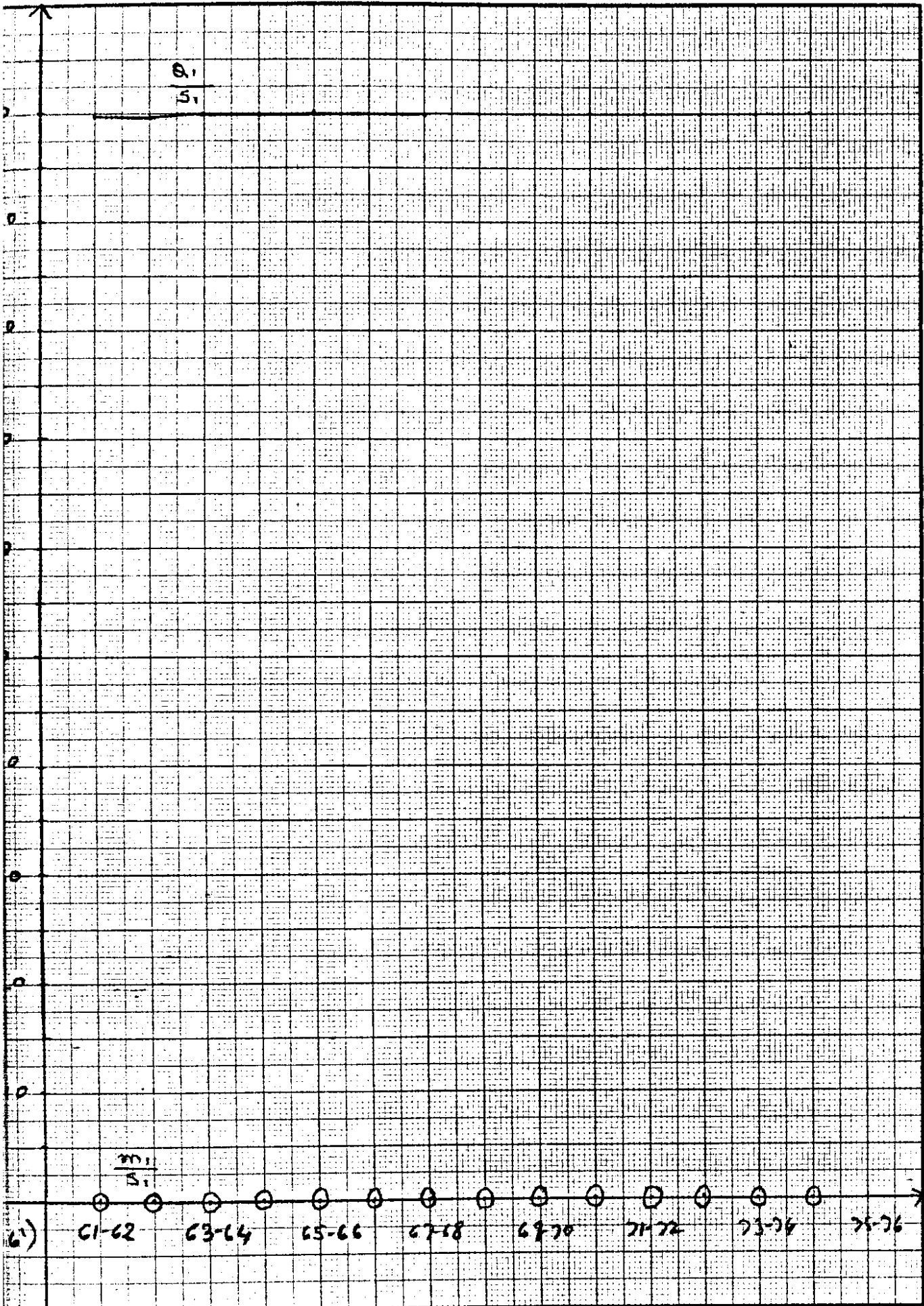
20-21 Food and Beverages



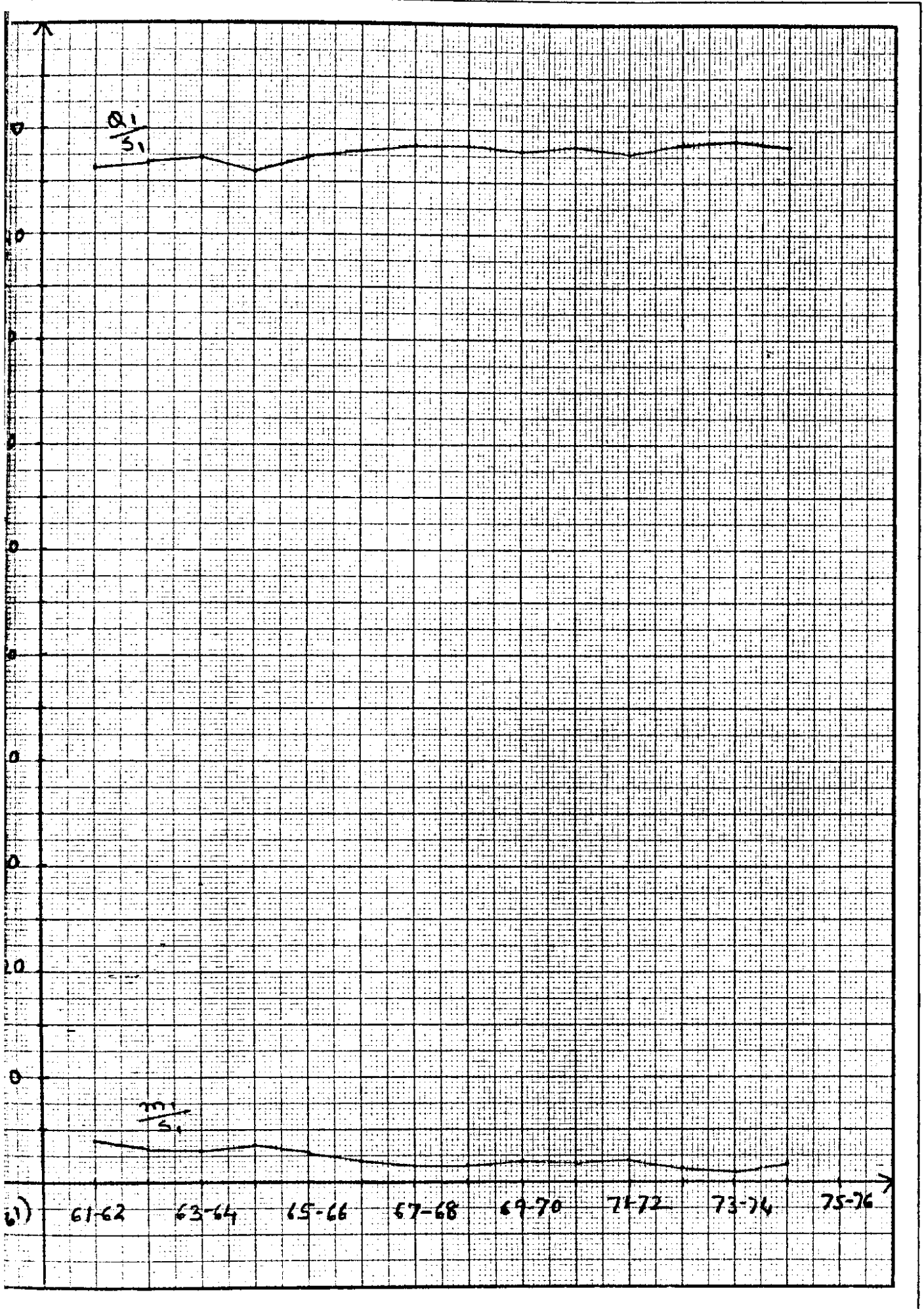
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.



22 Tobacco

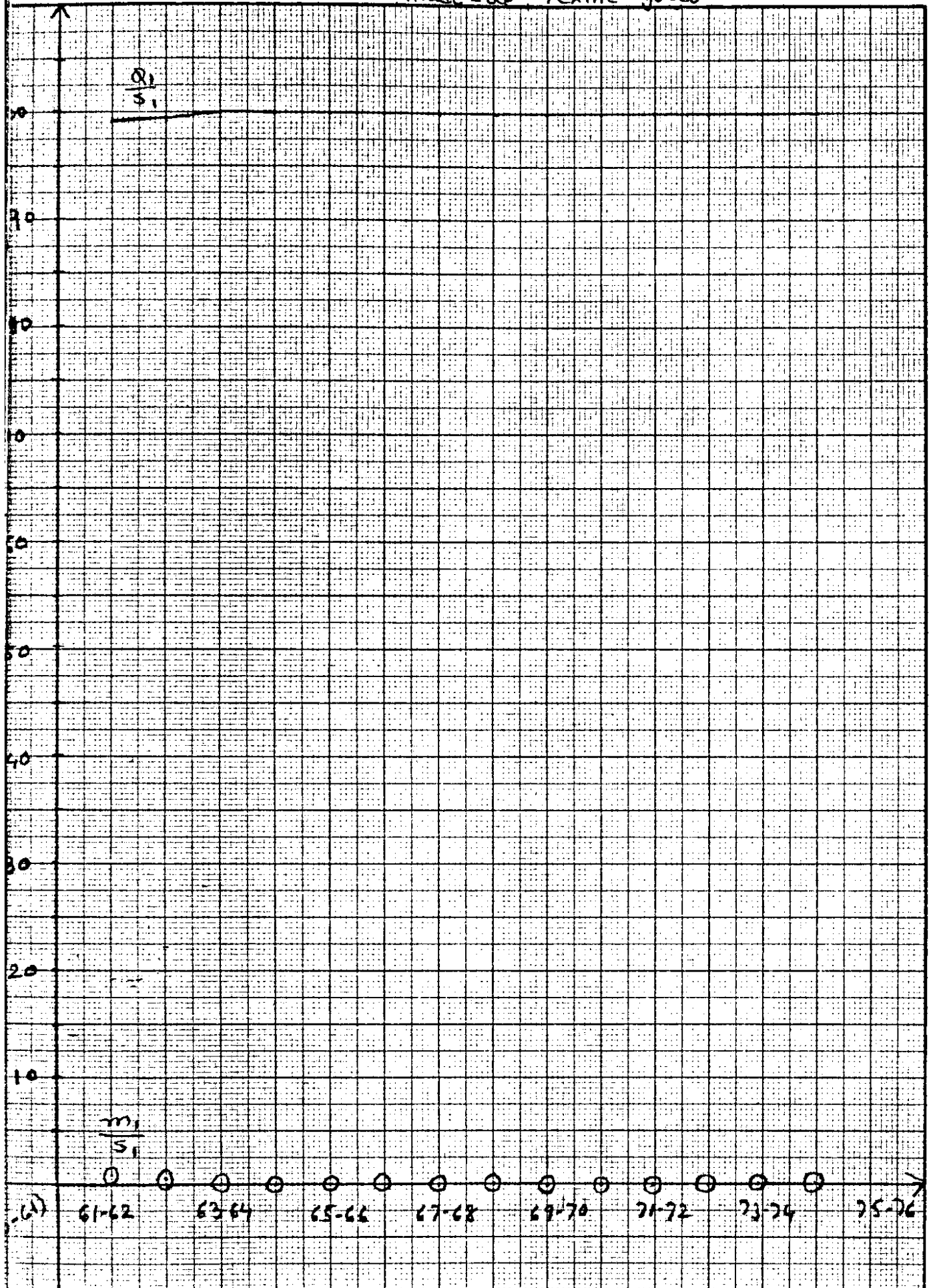


availability ratios (confining our attention to this ratio) we classify industry groups into four categories.



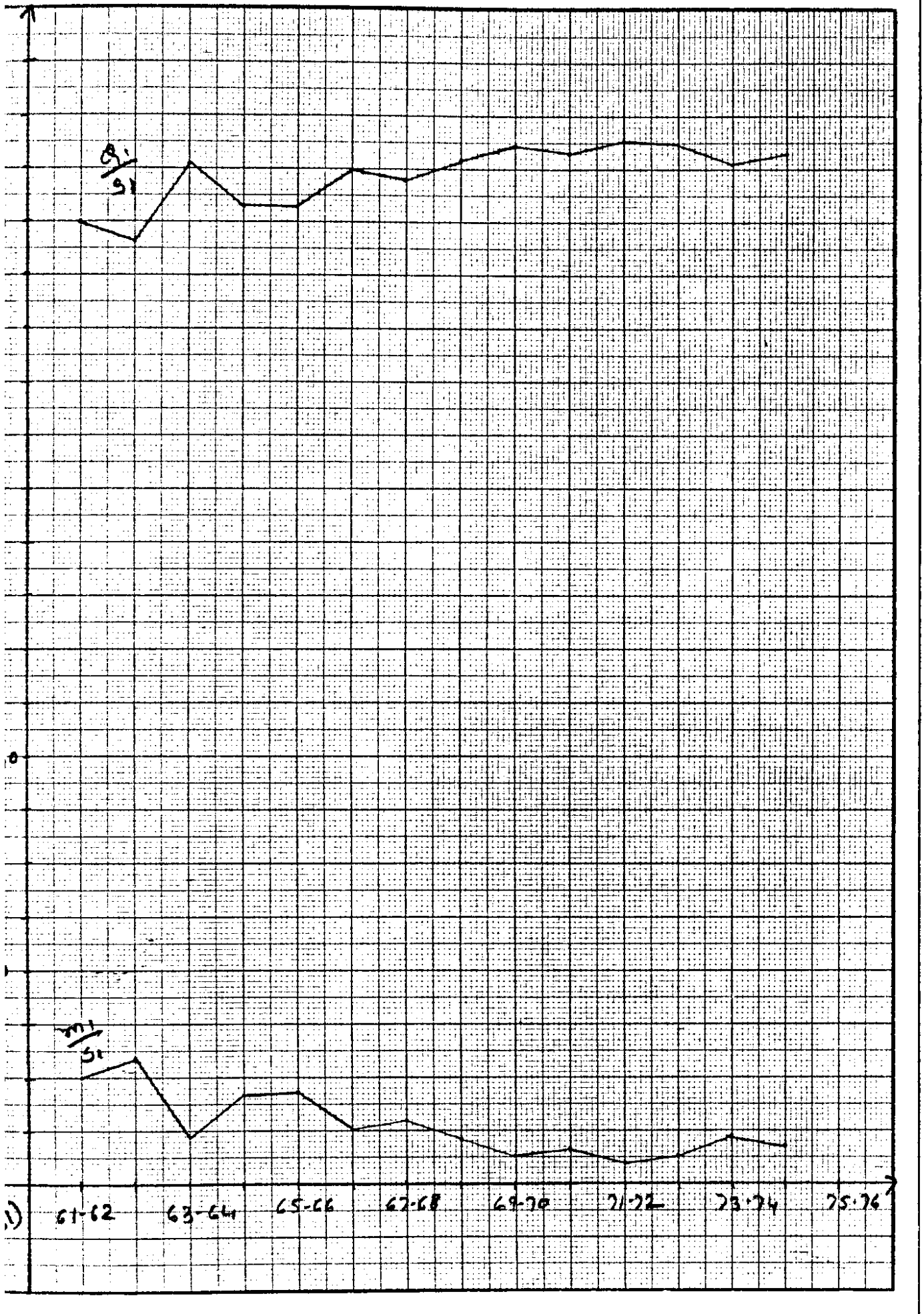
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

24 Footwear, other wearing apparel and  
made-up textile goods



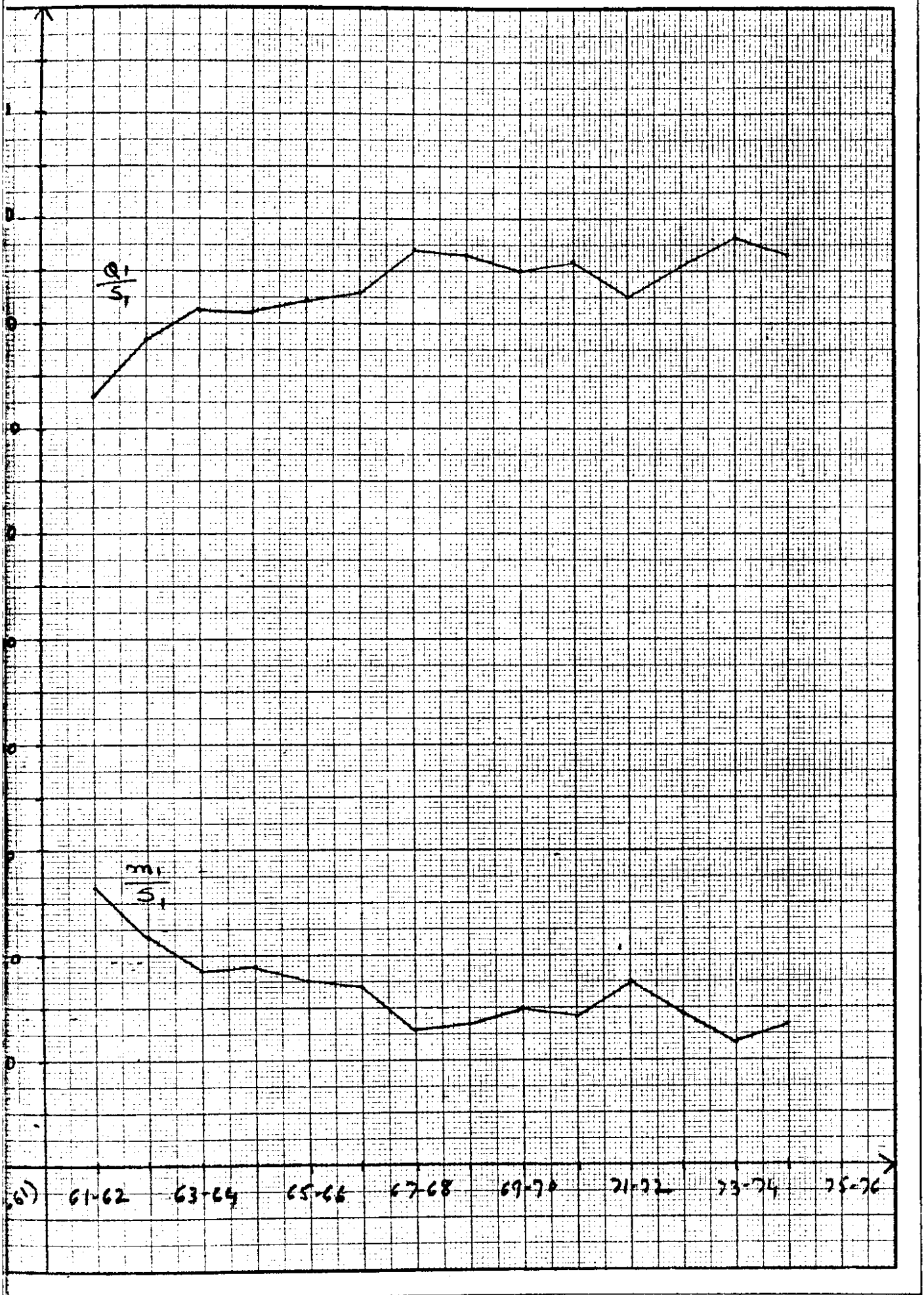
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

25 Wood and Cork (except furniture)



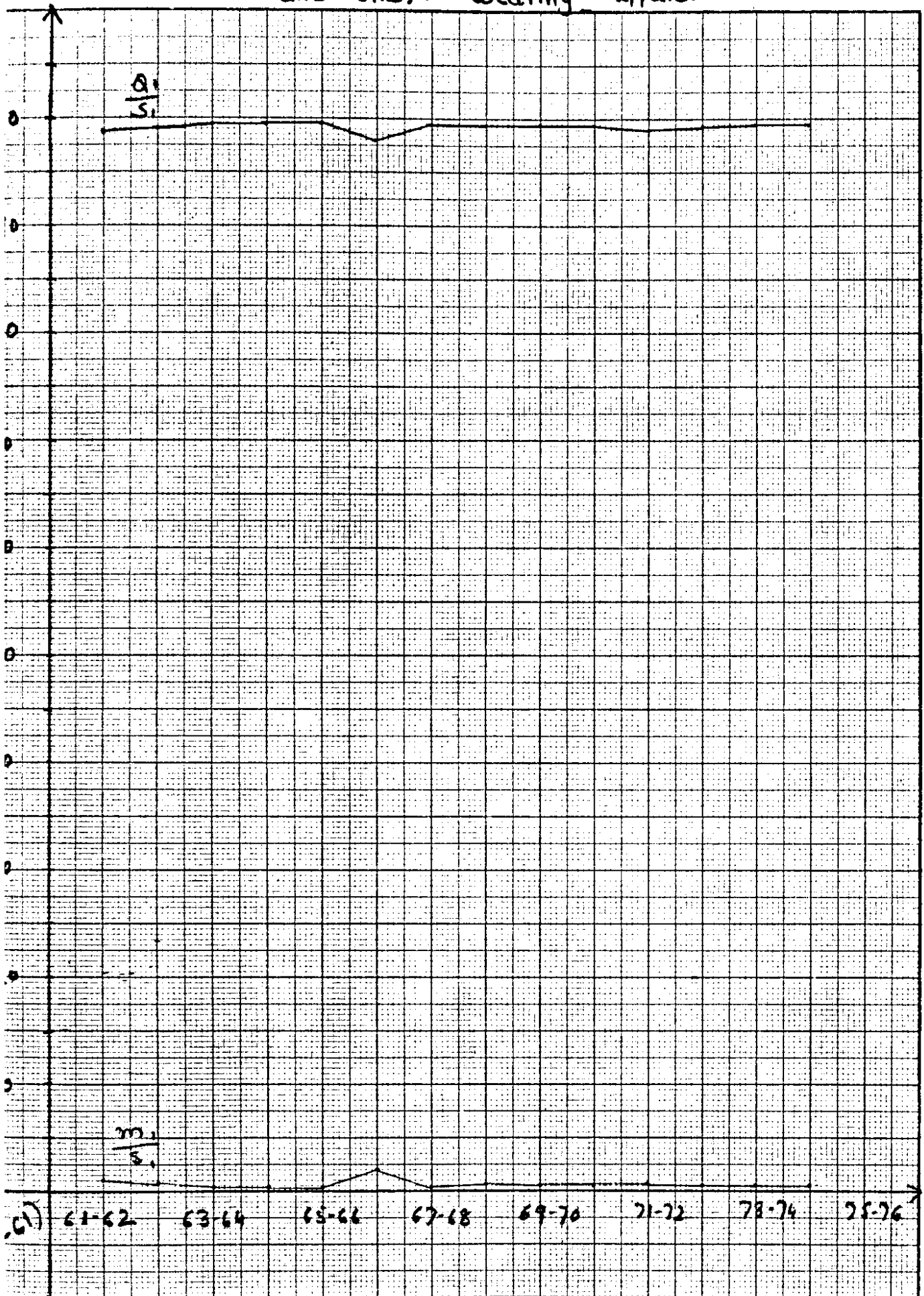
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

27. Paper and paper-products



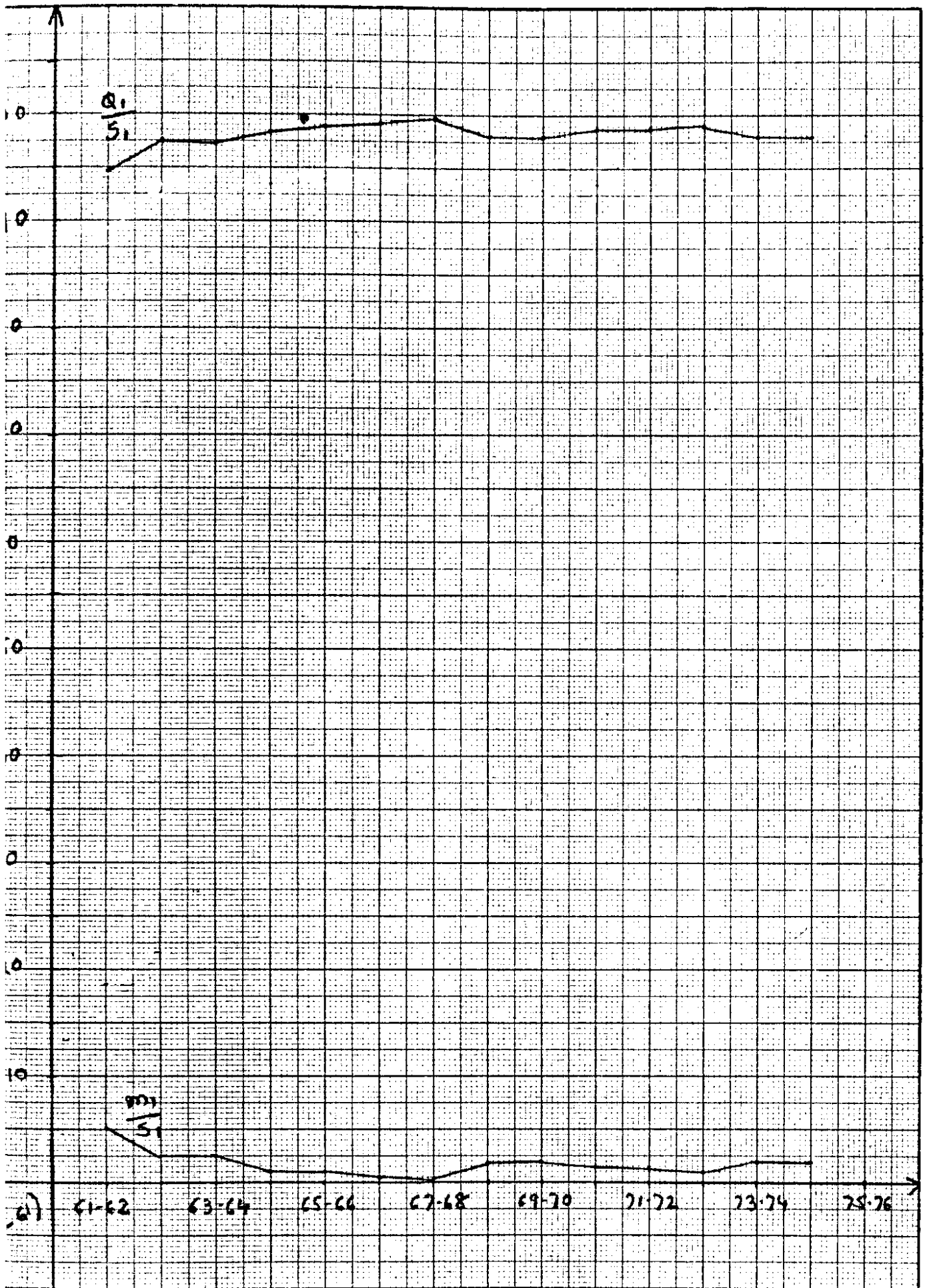
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

29. Leather and fur products except footwear and other wearing apparel



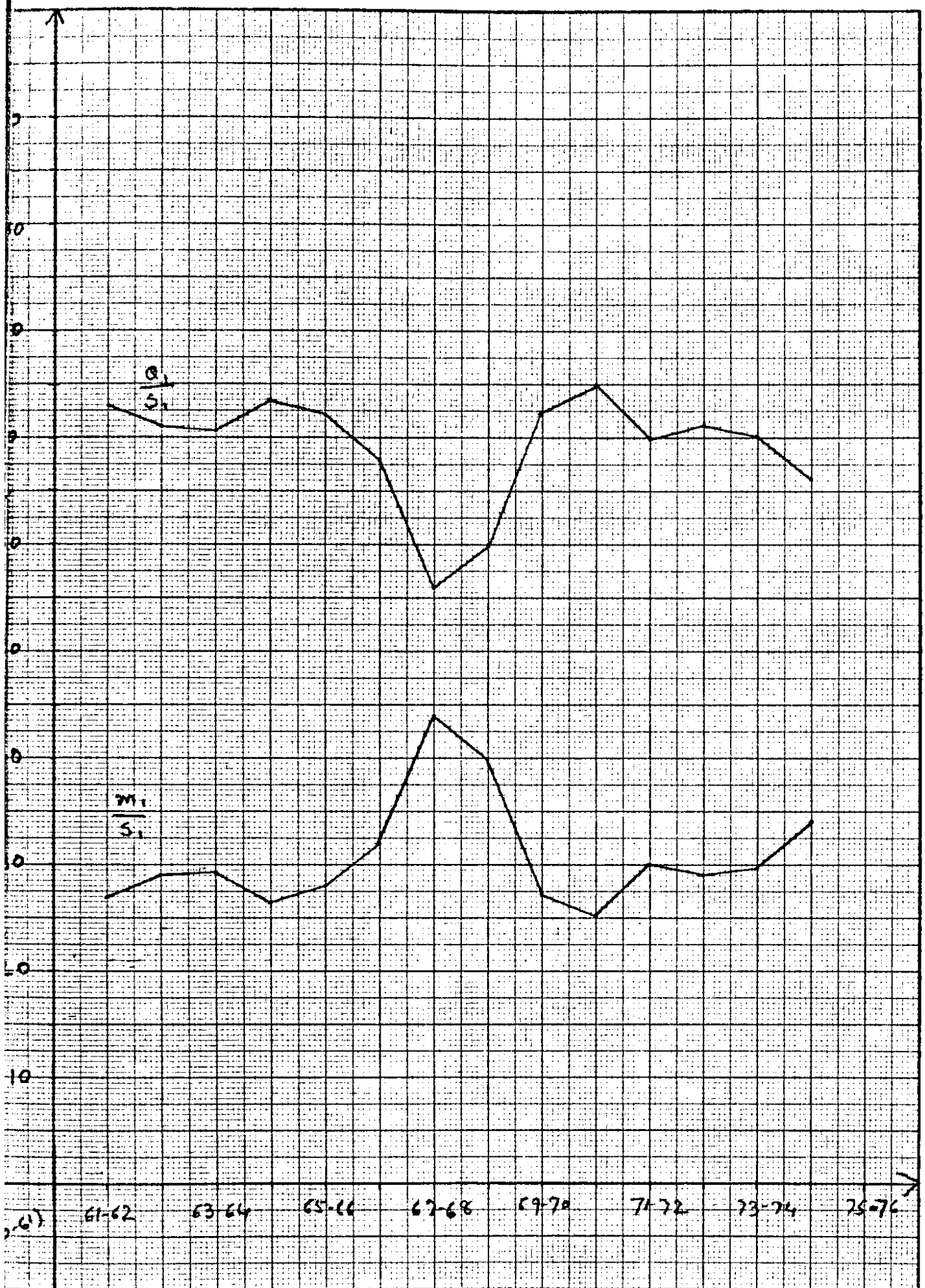
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

30 Rubber products



availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

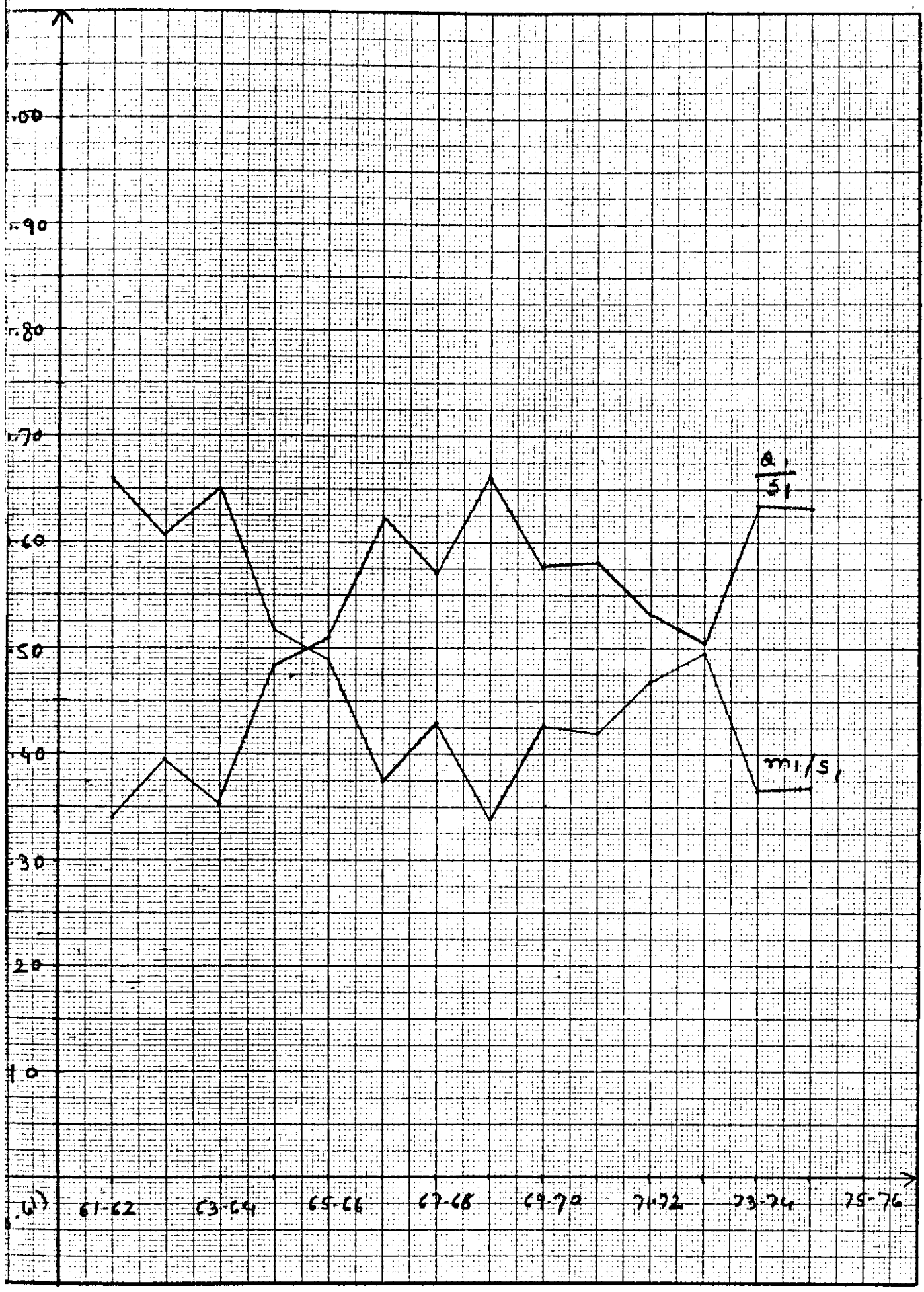
### 31 Chemicals and chemical products



availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

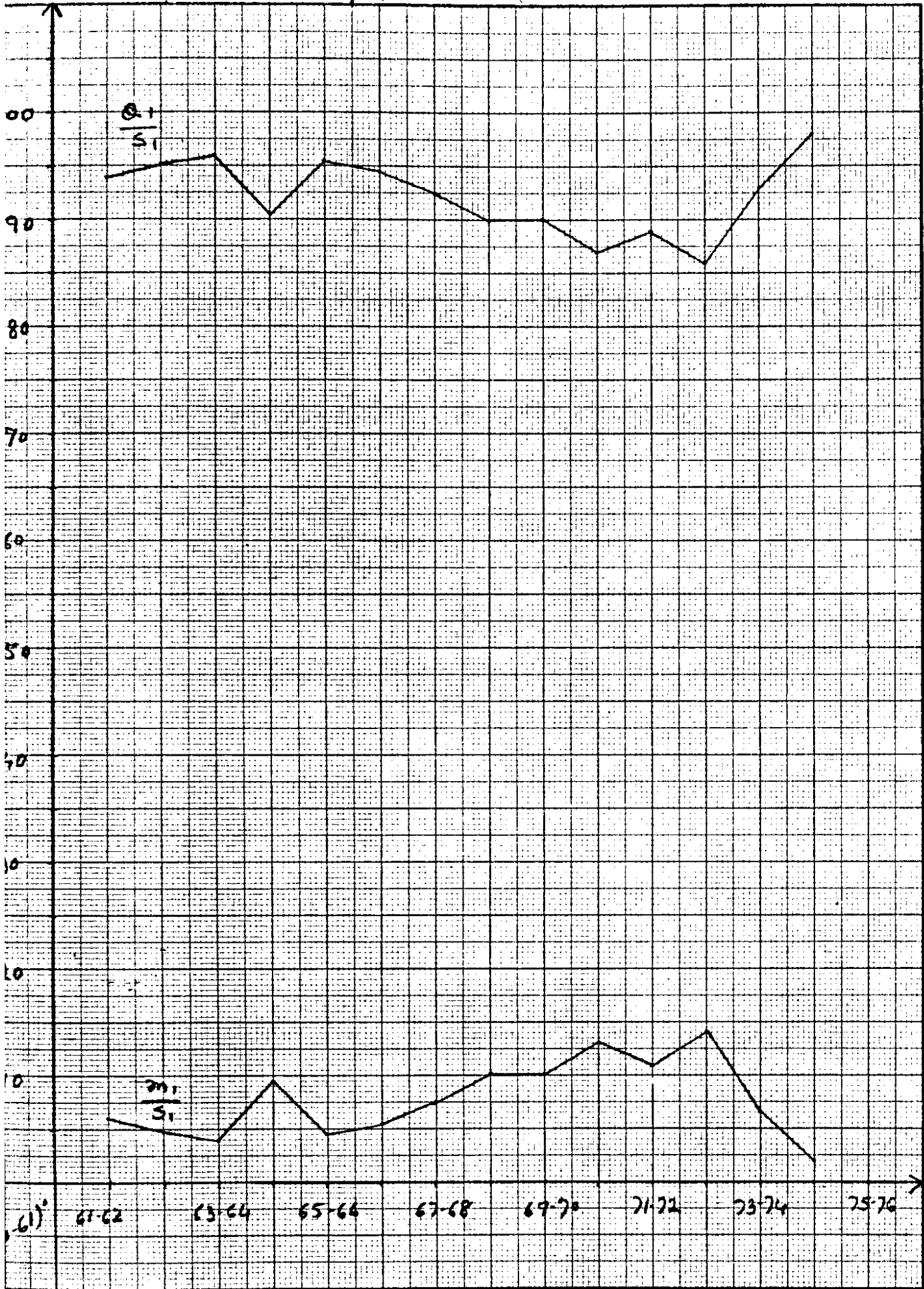


32. Petroleum and coal products



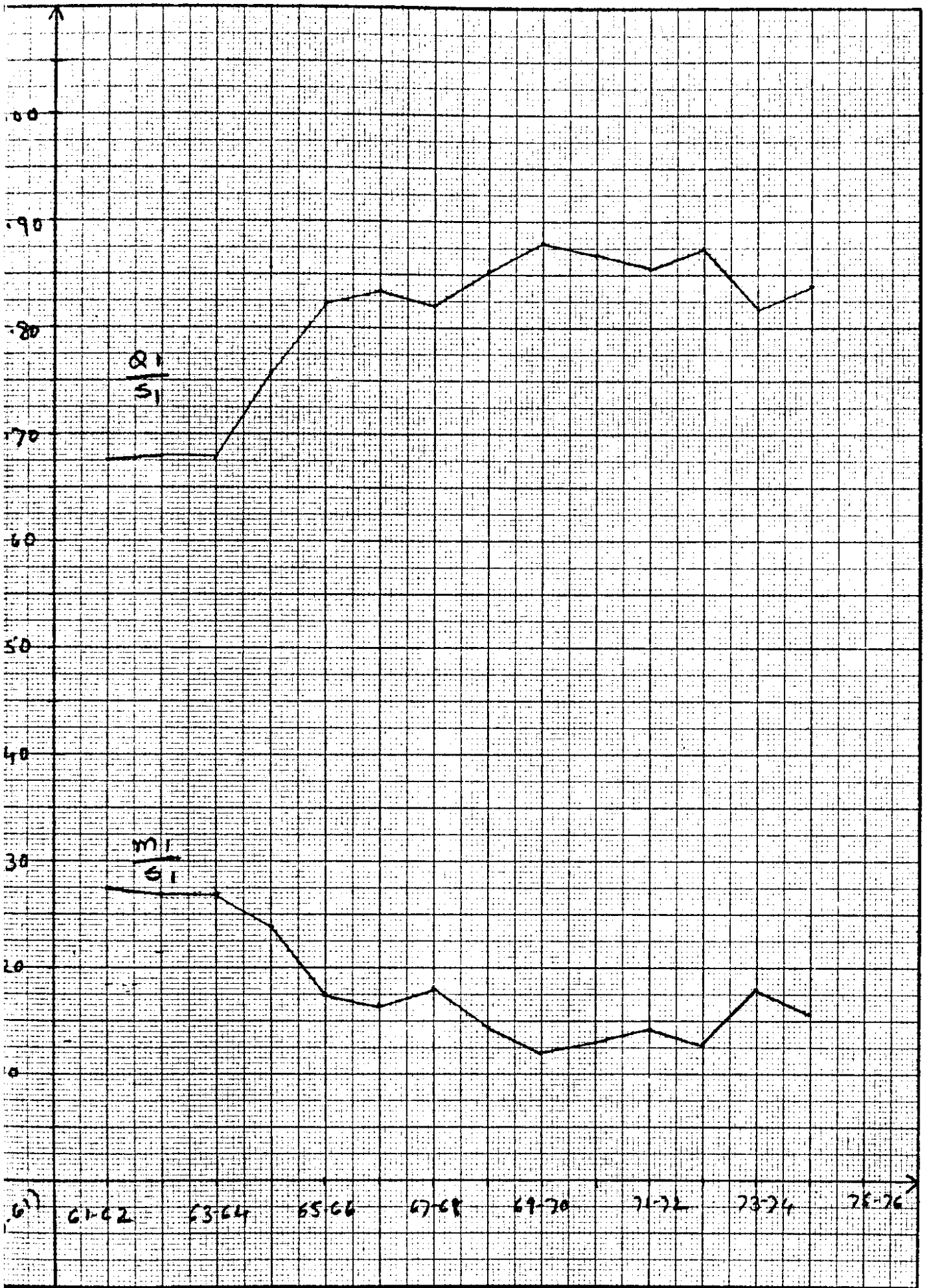
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

33 Non-metallic mineral products except products of petroleum and coal



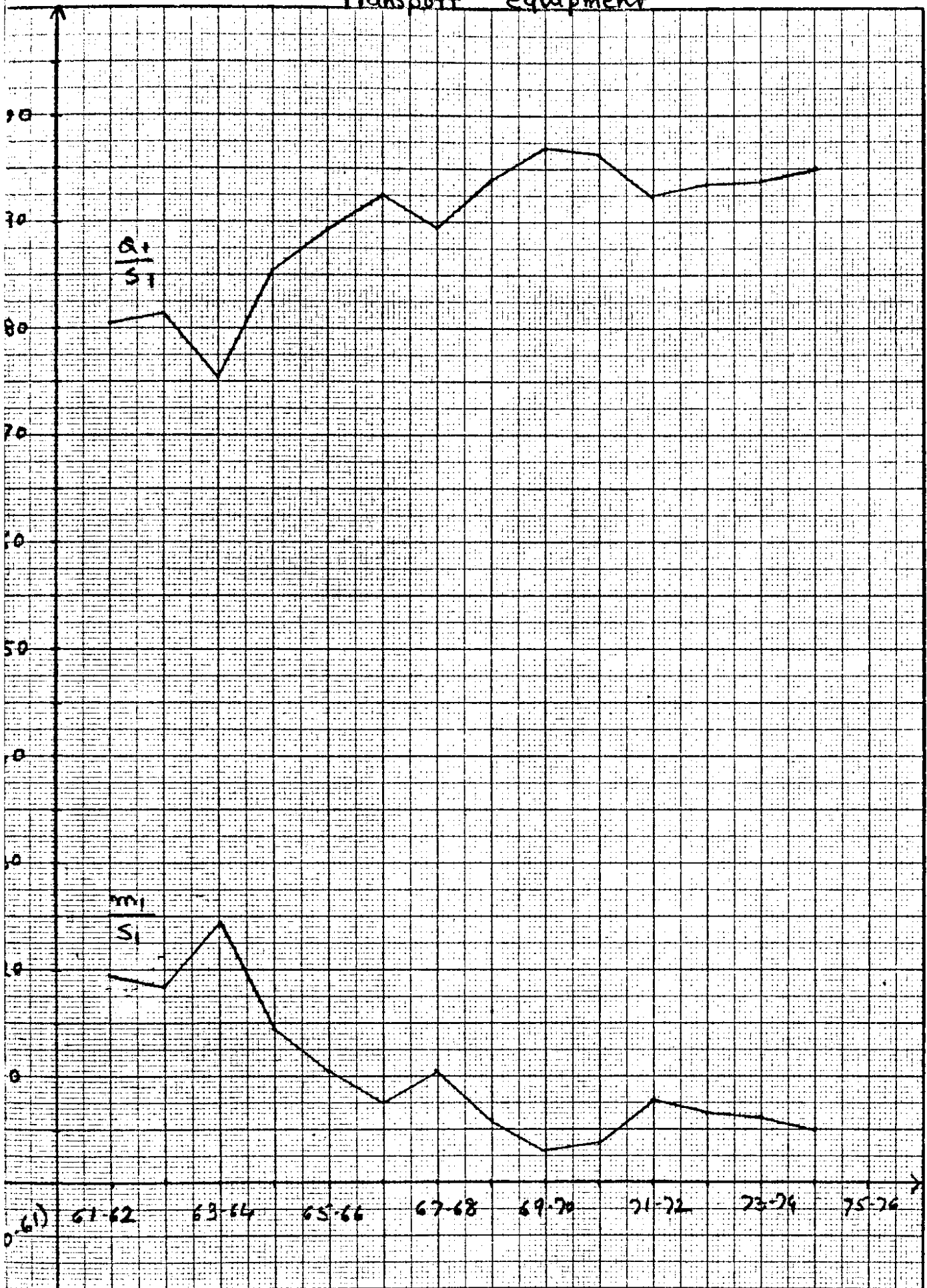
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

### 34. Basic Metals



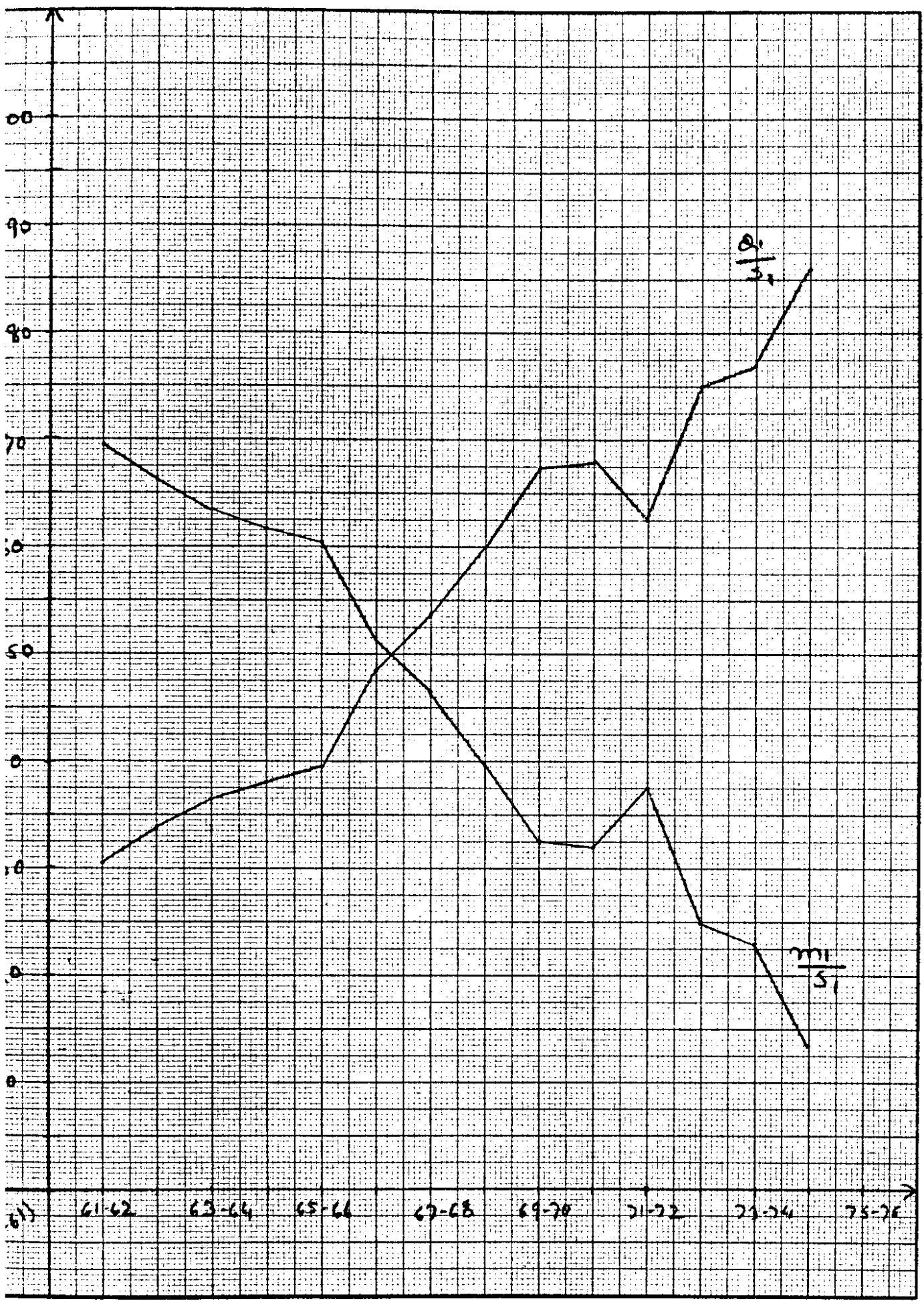
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

35. Metal products except machinery and transport equipment



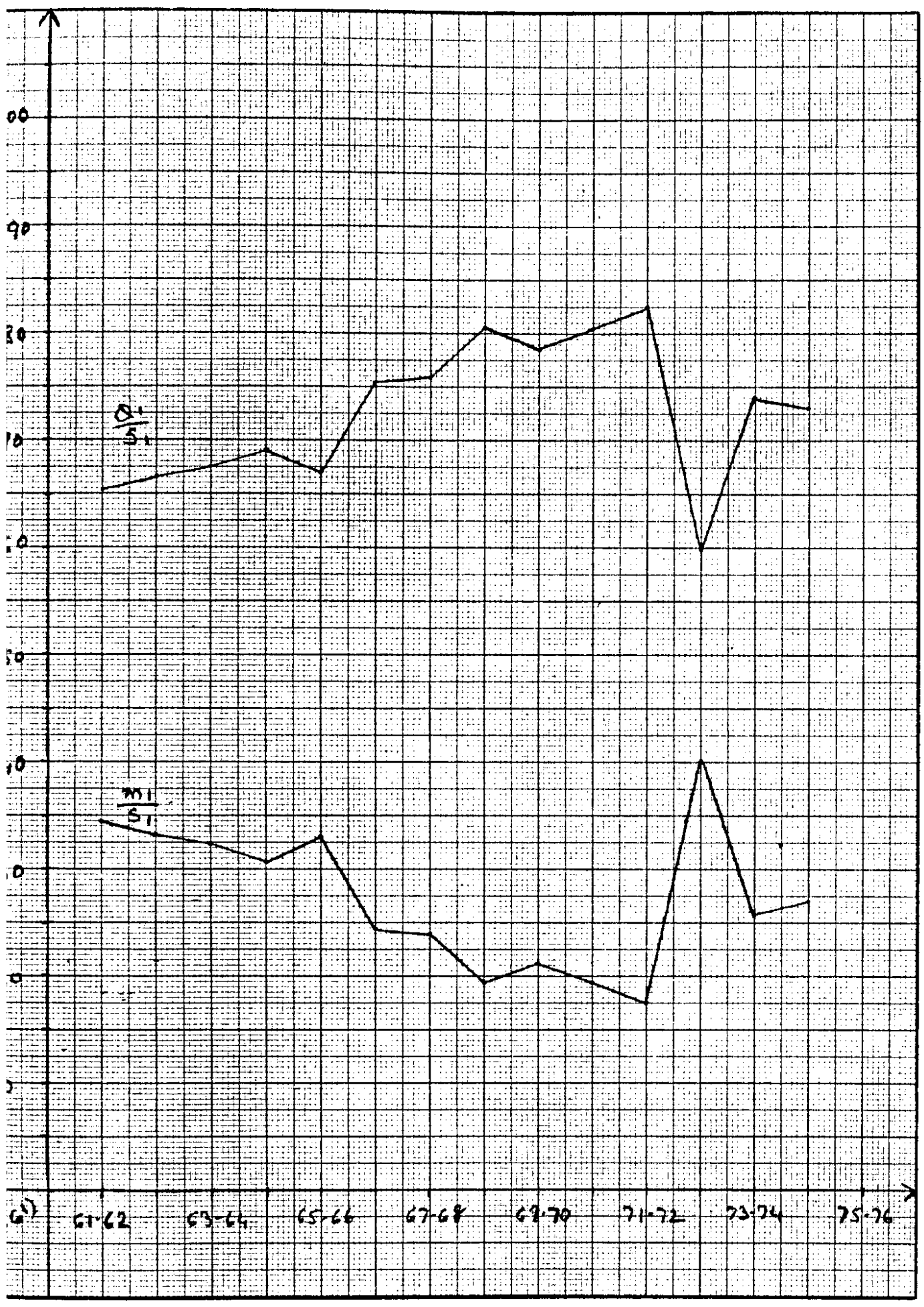
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

36. Non-electrical machinery



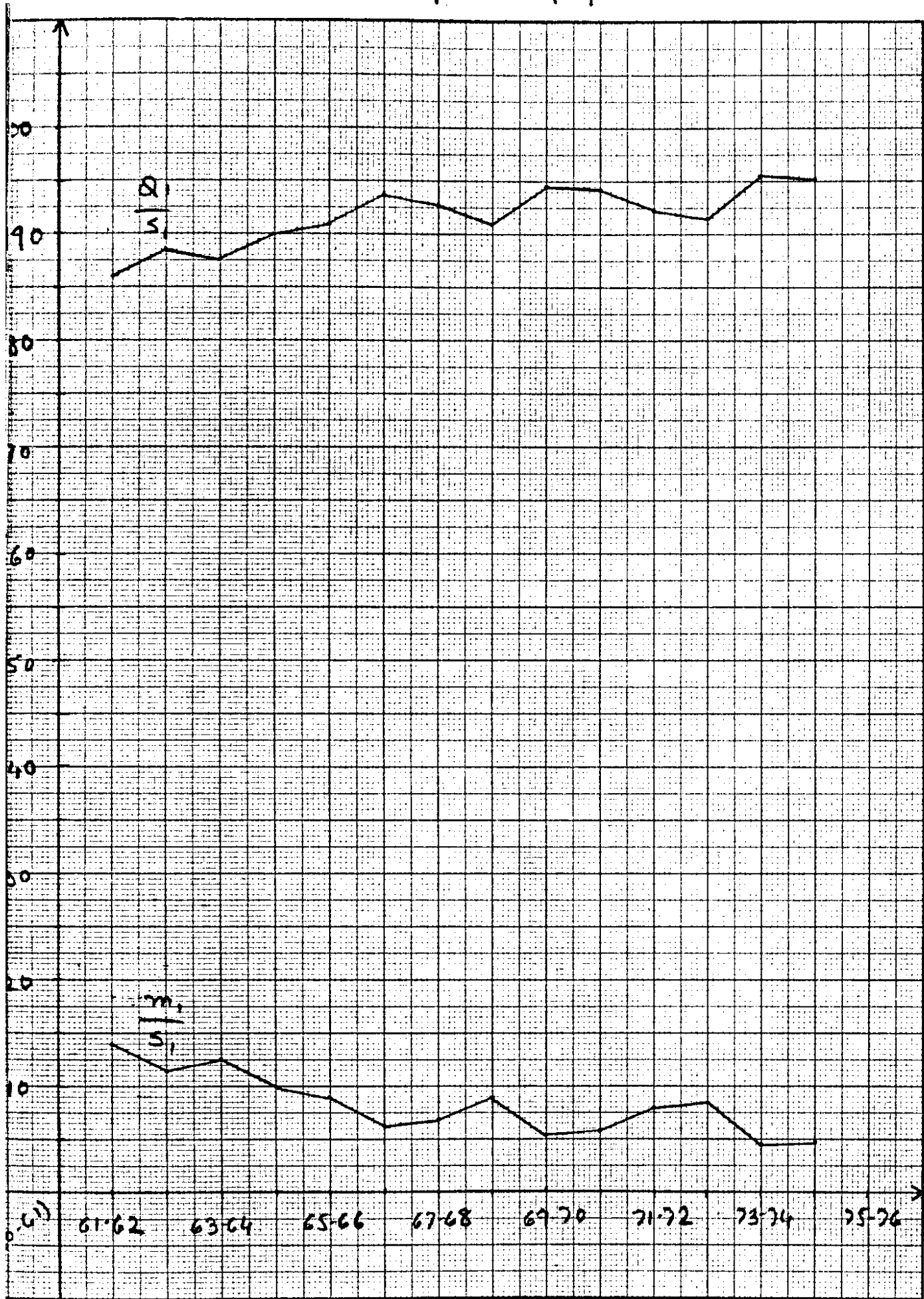
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

37. Electrical machinery



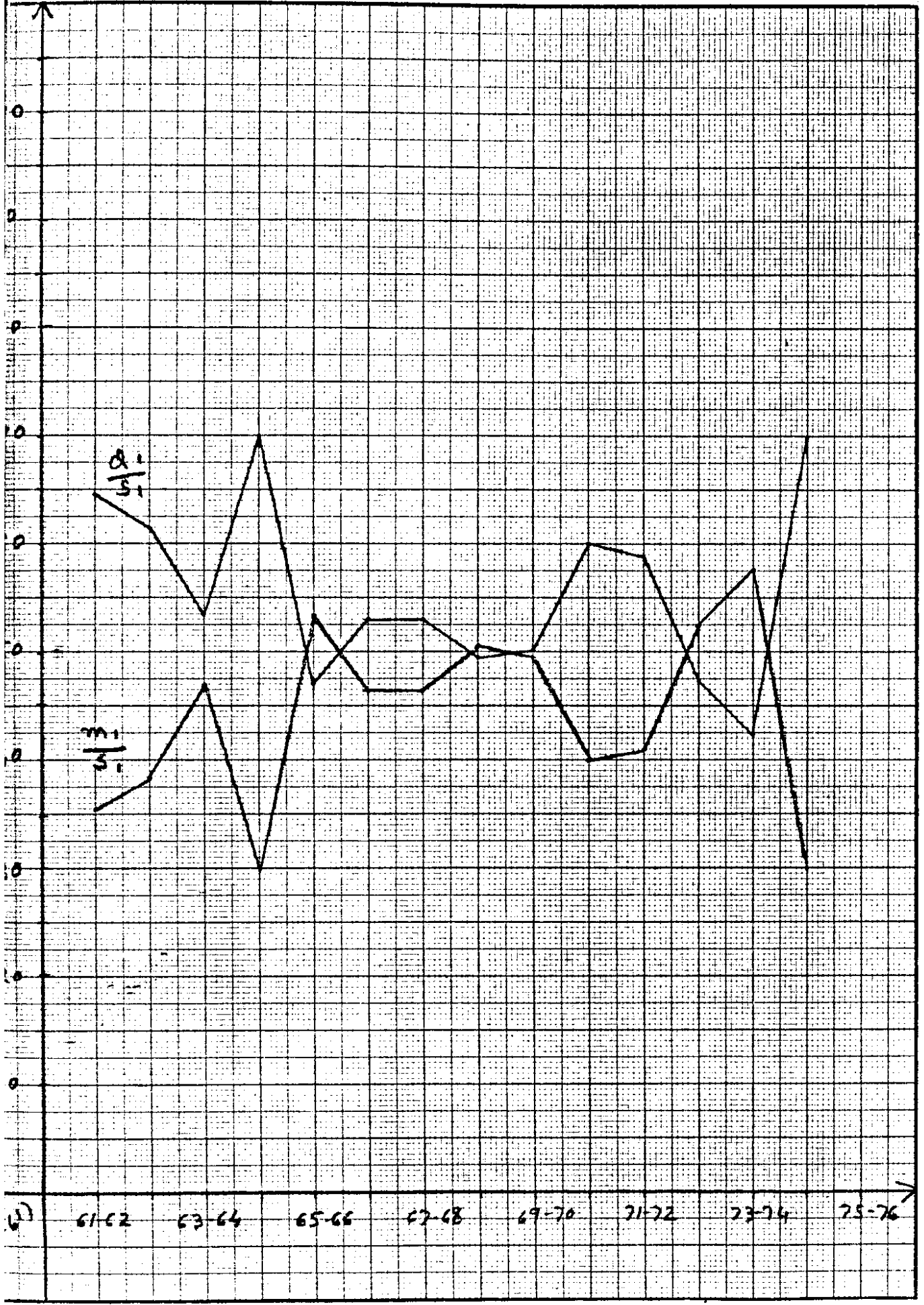
availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

### 39. Transport Equipment



availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

### 39. Miscellaneous Industries



availability ratios (confining our attention to this ratio) we classify industry groups into four categories.



because the indirect import substitution that appears on account of the use of domestic intermediate inputs in place of imported ones is not caught by the standard measures of import substitution.

#### Data and Coverage

Since import substitution is more likely to influence large industrial establishments as against small ones, we have used production data only from the census sector of the ASI. It means, we exclude establishments with 10 to 49 workers operating with power and 20-99 workers operating without power. The data on imports has been taken from the Monthly Statistics of Foreign Trade and was re-classified, as said before, according to ASI industry classification. The comparable data was used to make computations for 2 and 3 digit level industries giving us the estimates of output growth due to demand expansion and import substitution for 1960, 1965, 1970 and 1975. The data used was in current prices but because of the use of ratios in computations, the price effect is reduced. It is, however, present in the form of the use of  $S_1$  and  $S_2$ . We have corrected this bias in results at constant prices.

#### An Analysis of Production/Availability and Import/Availability Ratios

We have graphed both production/availability and import/availability ratios over the period 1960-1975 on a year-to-year basis. Since the sum of these ratios is definitionally unity the graph of one of them is simply the mirror-reflection of the other.

On the basis of the movements of the import/availability ratios (confining our attention to this ratio) we classify industry groups into four categories.

Category 1

This category consists of those industry groups where the import/availability ratio was low to start with and remained so for most of the period. The scope for import-substitution in such groups is thus small.

There are eight industry groups within this category - Food and Beverages (20-21); Tobacco (22); Textiles (23); Footwear, other Wearing Apparel and Made-up Textile Goods (24); Wood and Cork except Furniture (25); Leather and Fur Products except Footwear and other Wearing Apparel (29); Rubber Products (30), and Non-metallic Mineral Products except Petroleum and Coal Products (33).

Of these groups Food and Beverages (20-21), wood and Cork except Furniture (25), and Non-metallic Mineral Products (33) behaved slightly erratically - a reflection perhaps of policy changes. Still the fluctuations were not large and in 1974-75 the import/availability ratios were again close to zero.

Category 2

This category consists of groups where the import/availability ratio has fallen appreciably.

There are three industry groups which fall in this category - Metals Products except Machinery and Transport Equipment (35); Non-electrical Machinery (36), and Transport Equipment (38). Non-electrical Machinery (36) is easily the most dramatic case - with the graphs of the production/availability and import/availability ratios actually crossing one another. The import/availability ratio fell from 0.70 in 1961-62 to 0.14 in 1974-75. Import-substitution has apparently been

exceptionally strong in this industry group - a <sup>fact</sup> ~~fact~~ borne out by our measures.

### Category 3

This category consists of groups where the import/availability ratio was high to begin with and continued to remain so throughout the period under study. It is likely that such groups face technical or economic constraints that do not allow a lowering of the import/availability ratio. (e.g. Resources, both human and non-human, may not be available; the market may not be large enough for production to be viable). The scope for import-substitution is thus limited by exogenous factors which may turn favourable with the passage of time.

There are five industry groups in this category - Paper and Paper Products (27); Chemicals and Chemical Products (31); Petroleum and Coal Products (32); Basic Metals (34), and Electrical Machinery (37).

Petroleum and Coal Products (32) behaves rather peculiarly. The production/availability and import/availability graphs cross one another TWICE. The import/availability ratio rises from 0.34 to a peak of 0.66 only to decline again to 0.37. Perhaps the aforementioned constraints were in force till the peak in 1968-69 and later domestic production was able to replace imports.

Chemicals and Chemical Products (31) and Electrical Machinery (37) also have humps but they are not so pronounced as in the case of Petroleum and Coal Products (32).

### Category 4

This category consists of only one group - Miscellaneous Industries (39) - whose import availability

ratio fluctuates wildly. The graphs of the import/availability and production/availability ratios cross one another as many as SIX times. These fluctuations probably reflect the alternate liberalization and tightening of import policy.

Analysis of Result Based on  
The Chenery Measure

By using the measures outlined above, we get results for import substitution and residual effects. First we comment on our results at 2-digit level. At 2-digit level, we find the bulk of imports (i.e. almost 90%) are on account of chemicals and chemical products (31), Petroleum Products and Coal (32), Basic Metals (34), Machinery (36) and (37) and transport equipment (38). Imports of the traditional products are relatively small but concentrated in manufactured Foods (20), Textiles (23), Paper Products (18), Printed Materials (28) and Rubber Products (30). These traditional industries make a sizable contribution to the total output. Because of this, these industries have very low import-availability ratios, showing a high degree of self-reliance in the matter of serving the domestic market. It is only wood and cork (25) and paper and paper products (27) which had in 1960 high import-availability ratios around 22% each. These also sharply declined in the subsequent period. Because of very low import-availability ratios of traditional industries their contribution to import-substitution is really negligible. Together it comes to Rs.43 crores in 1965 over 1960 Rs.63 crores in 1970 over 1965 and Rs.95 crores in 1975 over 1970. The growth stimulus to these industries has

largely been provided by domestic and external demand. On the other hand, the performance of non-traditional industries listed above presents a contrasting picture. Import-availability ratios for these industries were very high in 1960 in the range of 25%-75% though in 1975 the range narrowed down to 7%-24%. This sector's total contribution to import substitution comes to Rs.545 crores in 1965 over 1960 and Rs.400 crores in 1970 over 1965. However, in 1975 compared to 1970 this group of non-traditional industries made a negative contribution of Rs.98.85 crores. This is a surprising result which is supported at the 3-digit level. As against this, the magnitude of the residual effect of the growth of output for this group of industries also is quite large indicating that the import substitution turned to be a smaller impulse in sustaining the growth performance.

As pointed out above, our 3-digit level results are affected by disaggregation. (A separate study on the structural analysis of production and imports <sup>has been</sup> presented in detail in Chapter 4.) ~~under way.~~ Here, we note that trends in imports, production and import substitution differ distinctly between the established industries and the non-traditional industries. Imports of traditional industrial products are concentrated in Dairy Products (202), Fruits and Vegetables (203), Grain Mill Products (205), Miscellaneous Food Preparations (209), Spinning, Weaving (231), Textiles (239), Saw Mills (251), Paper and Paper Products, Printing, etc. (280), Rubber Products (300). Among the non-traditional products, Basic Chemicals including Fertilizers (311), Paints and Varnishes (313), Miscellaneous Chemicals (319), Petroleum Refineries (321), Glass and Glass Products (332), Clay Products (333),

Iron and Steel (341), Non-Ferrous Metals (342), Metal Products (350), Non-Electrical Machinery (360), Electrical Machinery (370), Rail road Equipment (382), Motor Vehicles (384), Jewellery and related Products (394), Photographic and Optical Goods (392), Professional and Scientific Instruments (391), Aircraft (386) are major imports. Among the traditional industries, Dairy Products (202), Grain Mill Products (205), Bakery Products, Sugar Products (207), Miscellaneous Food (209), Distilling (291), Tobacco (220), Spinning, Weaving, etc. (231), Rope Industries (233), Textiles n.e.c. (239), Footwear (241), Saw Mills (251), Paper and Paper Products (271), Printing etc. (280), Tanneries (291) and Rubber Products (300) are important in production. Among the non-traditional industries Basic Chemicals including Fertilizers (311), Vegetable and Animal Oils and Fats (312), Paints, Varnishes and Lacquers (313), Petroleum Refineries (321), Miscellaneous Products of Petroleum and Coal (329), Glass and Glass Products (332), Non-Metallic Mineral Products n.e.c. (339), Hydraulic Cement (334), Iron and Steel Basic Industries (341), Non-Ferrous Basic Metals (342), Metal Products except Machinery and Transport Equipment (350), Non-Electrical Machinery (360), Electrical Machinery (370), Shipbuilding and Repairing (381), Railroad Equipment (382), Manufacture of Motor Vehicles (383), Repair of Motor Vehicles (384), Motorcycles and Bicycles (385) are all prominent in production. Aircraft, Scientific instruments, Photographic and optical goods, watches and clocks, jewellery and related products are important in imports but not important in production. Import-availability ratios are

very high in 1960 and remain so throughout for these products but their weight in the total is small. Among large non-traditional industries, import-availability ratios are quite high in 1960 for Basic Metals (342) 78%, Metal Products (350) 25%, Non-Electrical Machinery (370) 70%, Motor Vehicles (383) 22%, Railroad Equipment (382) 20%, Petroleum Refineries (321) 59%, Paints and Varnishes (313) 47%, Vegetable Oils and Fats (312) 42%, and Basic Chemicals (311) 36%. Among the traditional industries import-availability ratios are high in 1960 only in the case of Fruits and Vegetables 79%, Dairy Products (202) 38%, Grain Mill Products (205) 16%, Wine Industries (212) 17%, Saw Mills (251) 21%, Cork and Wood Products n.e.c. (259) 26%, Paper and Paper Products (271) 22%, and Leather Products (293) 53%. Only (202), (205) and (251) are prominent in production. Moreover, these ratios sharply decline during the subsequent period except for fruits and vegetables. In the case of non-traditional industries, these ratios decline substantially in all cases and all these groups are prominent in production. So we find that at 3-digit level, import substitution was substantial in these industries. Our results are as follows:

		(Crores of Rs.)			
		Total import substi- tution	Import substitu- tion in traditional industries	Total residual effect	Residual effect in tradi- tional in- dustries
1965	over 1960	+405.65	+55.34	+3008.00	+1256.89
1970	over 1965	+491.86	+51.42	+4511.12	+1857.60
1975	over 1970	+204.70	+48.28	+9905.56	+3148.03
1970	over 1960	+1223.36	+155.09	+7193.27	+3068.17
1975	over 1960	+2542.87	+362.12	+15574.62	+6040.14

### Impact of Devaluation

The results obtained above took no account of the 1966 devaluation. This can be justified on the ground that because of the continuance of internal inflationary policies during the post-development period, the effects of devaluation were completely neutralised. Moreover, because of the withdrawal of export subsidies and imposition of export taxes after the devaluation, the actual quantum of devaluation was much less than the declared quantum. Even then, we thought of taking account of this change. We decided to inflate 1965 import values rather than deflate 1970 values by the amount of the devaluation to bring comparability between them and we found that the value of import substitution increased to Rs.1064 crores from Rs.491.86 crores.

### Import Substitution and Ranking of Industries

With the help of relative measures mentioned before different industries at 2-digit level were ranked according to the value of import substitution. We found the ranking to be almost identical. This shows our methods and results are quite reliable.

### Comments on Results

1. We see that import substitution is relatively and absolutely more prominent in the new non-traditional industries. Even here the share of import substitution in the growth of output is smaller than the share due to domestic and external demand. However, this latter influence is less prominent in the non-traditional industries than the traditional ones.
2. In many traditional as well as non-traditional industries, the import substitution as a stimulus to growth is nearing saturation because import-availability ratios are nearing zero.



3. Some industries in 1975 over 1970 experience negative import substitution e.g. Iron and Steel (341) (Rs.=122 crores), Petroleum Refineries (321) (Rs.=82 crores), Basic Chemicals (311) (Rs.=171 crores). It is only Non-Electrical Machinery (360) which made a substantial contribution to import substitution during 1975 over 1970. Import substitution was on the whole negative. It shows that an impulse of import-substitution cannot be sustained for a long time. It is worth noting that in addition to industries mentioned above there are many industries which show a negative, though small, contribution to import substitution in 1975 over 1970. In this category we have industries like canning and preservation of fruits and vegetables (203), sugar factories and refineries (207), tobacco manufacturing (220), spinning, weaving and finishing of textiles (231), textiles, n.e.c. (239), furniture and fixtures (260), rubber products (300), non-ferrous basic metal industries (342), metal products except machinery and transport equipment (350), electrical machinery (370), railroad equipment (382), motor vehicles (383), aircraft (386), professional and scientific instruments (391), manufacture of industries, n.e.c. (399).

This evidence strengthens the view that the import substitution bias in our trade and industrial policies must be changed. Internally generated demand push can lead to further industrial expansion but will call for complementary imports. This can now be allowed, in view of mounting exchange reserves.

Import Substitution at Constant  
(1960) Prices

The above results (except for the section on graphs) are all at current prices. Our results on import substitution at constant prices appear along with the other data on import substitution at the end of the chapter. Constant price values were obtained by scaling 1960 values with the help of quantity indices of imports and production.

$$\text{Constant price value of group X in year y} = \text{1960 value of Group X} \left( \frac{\text{Quantity index of group X in year y}}{100} \right)$$

*Q<sub>y</sub> / Q<sub>0</sub> = quantity index  
⇒ QI/100*

Expectedly, the measures at constant prices are lower than those at current prices. However, the measures at constant prices reveal the same trends as those at current prices. So we stand by the conclusions of our analysis at current prices.

The measures for the period 1975 over 1970 highlight the problem of the choice of the level of aggregation. Summing over the two-digit level of the ASI classification, industry by industry, gives a positive import substitution of Rs.31,2883 crores. If we were to use the industry wide (i.e. for industry as a whole) measure of import substitution we have negative import substitution to the tune of Rs.11,7319 crores.

## Appendix 1: Broad dimensions of production and imports

	(In per cent)			
	1960	1965	1970	1975
Ratio of Total Imports to GNP	7.16	4.82	4.05	7.39
Ratio of Industrial Imports to GNP	5.41	4.12	2.86	3.52
Coverage of Imports: Ratio of Industrial Imports to Total Imports	75.64	70.59	70.60	57.22
Coverage of Production: Ratio of Census Sector Production to Factory Sector Production	81.64	86.27	83.15	72.45
Ratio of Industrial Imports to Value Added by Factory Sector	77.13	51.03	34.91	40.49
Ratio of Industrial Imports to Value Added by Census Sector	89.73	57.81	38.85	55.89
Ratio of Industrial Imports to Factory Sector Production	20.13	12.73	8.16	8.66
Ratio of Industrial Imports to Census Sector Production	24.72	14.76	9.81	11.95
Ratio of Industrial Imports to Value of Intermediate Goods in Factory Sector	27.34	16.91	10.65	11.02
Ratio of Industrial Imports to Value of Intermediate Goods in Census Sector	34.13	19.76	13.13	15.20

Footnotes

1. P.B.Clark. "Planning Import Substitution", Amsterdam, 1970.
2. H.B.Chenery and Strout. "Foreign Assistance and Economic Development", American Economic Review (56), 1966.
3. C.F.Dias Alejandro. "Trade Policies and Economic Development" in P.B.Kenen (Ed.) "International Trade and Finance", New York, 1975.
4. P.B.Clark, op.cit.
5. A.O.Hirschman. "The Political Economy of Import Substituting Industrialisation in Latin America", Quarterly Journal of Economics (59) 1969.
6. Economic Bulletin of Asia and Far East. "Review of Progress in the Second Development Decade of the United Nations in the Asia and Far East", December 1977.
7. H.B.Chenery. "Patterns of Industrial Growth", American Economic Review, 1960.
8. Padma Desai. "Import Substitution in Indian Economy 1951-63", New Delhi, 1972.
9. A.Maizels. "Industrial Growth and World Trade", London, 1963.

**Table V1: Value of Production in Indian Manufacturing Sector  
(1960-1975)**

		(at current prices) (Rs. Crores)			
SI Code	Name of the industry group	1960	1965	1970	1975
0	Food	673.0362	1088.3482	1801.3570	2842.6700
1	Beverages	6.9578	22.4322	56.8364	192.3500
2	Tobacco	82.9009	150.9401	249.4395	311.7700
3	Textiles	933.3810	1541.5369	2286.7279	3611.3900
4	Footwear, other wearing apparel & made-up textile goods	4.4802	15.7502	26.9538	47.4900
5	Wood, cork except manufac- ture of furniture	11.8436	26.8598	32.8263	74.1600
6	Furniture & fixtures	9.4134	22.0063	35.2865	61.4000
7	Paper & paper products	64.4428	114.5267	231.9560	490.1400
8	Printing, publishing & allied industries	54.4201	95.1072	145.0768	220.0000
9	Leather & fur products except footwear & other wearing apparel	16.8513	25.5024	48.2366	97.2400
0	Rubber Products	66.5598	133.5150	232.8596	377.9400
1	Chemicals & chemical products	241.3498	590.5086	1354.1315	3417.9200
2	Products of petroleum & coal	50.9485	120.2987	341.6764	1210.0500
3	Non-metallic mineral pro- ducts except product of petroleum & coal	116.6948	231.3924	363.2017	603.6100
4	Basic metal industries	312.5820	746.9694	1264.5292	2231.0200
5	Metal products except machi- nery & transport equipment	68.2950	163.6401	251.3737	386.2600
6	Machinery except electri- cal machinery	82.3650	287.2221	551.0239	1209.8800
7	Electrical machinery, appa- ratus, appliances & supplies	100.0436	289.1442	618.9019 618.0919	1204.8400
8	Transport equipment	275.2816	579.9415	845.7570	1433.2000
9	Miscellaneous manufactur- ing industries	26.4744	74.0005	129.7120	112.2100
0	Electricity	75.8830	368.2180	822.9837	1256.1700
<b>Total</b>		<b>3274.2048</b>	<b>6687.8605</b>	<b>11690.8474</b>	<b>21391.7100</b>

## ble V 2 : Value of India's Industrial Imports (1960-1975)

I Name of the Industry group	(at current prices) (Rs. Crores)			
	1960	1965	1970	1975
Food	45.2807	69.2736	92.7203	99.1493
Beverages	0.5696	0.3673	0.2897	0.6749
Tobacco	0.0146	0.1685	0.0189	0.1546
Textiles	35.2246	34.6433	13.5396	23.3786
Footwear, other wearing apparel & made-up textile goods	0.0061	0.0309	0.2057	0.0987
Wood & cork except manufacture of furniture	3.1839	1.3849	0.8417	1.5247
Furniture & fixtures	0.1125	0.1132	0.1518	0.9125
Paper & paper-products	18.4597	19.2589	37.2866	68.6616
Printing, publishing & allied industries	2.8167	3.2142	5.9719	8.2306
Leather & fur products except footwear & other wearing apparel	0.3430	0.0835	0.0715	0.1376
Rubber products	3.6420	1.1598	2.5641	6.2643
Chemicals & chemical products	92.0558	123.1911	240.1146	754.0820
Products of petroleum & coal	69.4741	33.6921	30.8625	198.7538
Non-metallic mineral products except product of petroleum & coal	6.2481	4.8325	8.7049	9.1842
Basic industries <sup>metal</sup>	169.2527	166.9048	267.4810	597.5505
Metal products except machinery & transport equipment	23.7065	19.4037	11.0610	28.4989
Machinery except electrical machinery	201.3122	332.4429	256.9323	396.7540
Electrical machinery, apparatus, appliances & supplies	56.1451	87.1284	69.3045	150.1269
Transport equipment	69.2412	69.8966	58.2630	122.8970
Miscellaneous manufacturing industries	12.4249	16.8796	51.0254	89.5988
Electricity	-	0.0002	-	-
<b>Total</b>	<b>809.5140</b>	<b>984.0700</b>	<b>1147.4110</b>	<b>2556.6335</b>

**Table X3 : Value of Supply by Major Manufacturing Sectors in India  
(1960-75)** ↓  
(P+1)

		(at current prices) (Rs. Crores)			
Sl No	Name of the industry group	1960	1965	1970	1975
1	Food	718.3169	1157.6218	1894.0773	2941.8193
1	Beverages	7.5274	22.7995	57.1261	193.0249
2	Tobacco	82.9155	151.1086	249.4584	311.9246
3	Textiles	968.6056	1576.1802	2300.2675	3634.7686
4	Footwear, other wearing apparel & made-up textile goods	4.4863	15.7811	27.1595	47.5887
5	Wood & cork except manu- facture of furniture	15.0275	28.2447	33.6680	75.6847
6	Furniture & fixtures	9.5259	22.1195	35.4383	62.3125
7	Paper & paper-products	82.9025	133.7856	269.2426	558.8016
8	Printing, publishing & allied industries	57.2368	98.3214	151.0487	228.2306
9	Leather & fur products except footwear & other wearing apparel	17.1943	25.5859	48.3081	97.3776
0	Rubber products	70.2018	134.6748	235.4237	384.2043
1	Chemicals & chemical products	333.4056	713.6997	1594.2461	4172.0020
2	Products of petroleum & coal	120.4226	153.9908	372.5387 371.9989	1408.8658 1406.8631
3	Non-metallic mineral pro- ducts except product of petroleum & coal	122.9429	236.2249	371.9066	612.7942
4	Basic industries	481.8347	913.8742	1532.0102	2828.5705
5	Metal products except machi- nery & transport equipment	92.0015	183.0438	262.4347	414.7589
6	Machinery except electri- cal machinery	283.6772	619.6650	807.9562	1606.6340
7	Electrical machinery, appa- ratus, appliances & supplies	156.1887	376.2726	688.2064	1354.9669
8	Transport equipment	344.5228	649.8381	904.0200	1556.0970
9	Miscellaneous manufac- turing industries	38.8993	90.8801	180.7374	201.8088
1	Electricity	75.8830	368.2182	822.9837	1256.1700
<b>Total</b>		<b>4083.7188</b>	<b>7671.9305</b>	<b>12838.2584</b>	<b>23948.3435</b>

**Table V 4: Share of Production in Supply of Major Manufacturing Sectors in India (1960-75)**

(at current prices)				
Name of the industry group	1960	1965	1970	1975
Food	0.9370	0.9402	0.9510	0.9663
Beverages	0.9243	0.9839	0.9949	0.9965
Tobacco	0.9998	0.9989	0.9999	0.9995
Textiles	0.9636	0.9780	0.9941	0.9936
Footwear, other wearing apparel & made up textile goods	0.9986	0.9980	0.9924	0.9979
Wood, cork except manufacture of furniture	0.7881	0.9510	0.9750	0.9799
Furniture & fixtures	0.9882	0.9949	0.9957	0.9854
Paper & paper products	0.7773	0.8560	0.8615	0.8771
Printing, publishing & allied industries	0.9508	0.9673	0.9605	0.9639
Leather & fur products except footwear & other wearing apparel	0.9801	0.9967	0.9985	0.9986
Rubber products	0.9481	0.9914	0.9891	0.9837
Chemicals & chemical products	0.7239	0.8274	0.8494	0.8193
Products of petroleum & coal	0.4231	0.7817	0.9170	0.8589
Non-metallic mineral products except product of petroleum & coal	0.9492	0.9795	0.9766	0.9850
Basic metal industries	0.6487	0.8174	0.8254	0.7887
Metal products except machinery & transport equipment	0.7423	0.8940	0.9579	0.9313
Machinery except electrical machinery	0.2903	0.4635	0.6820	0.7531
Electrical machinery, apparatus, appliances & supplies	0.6405	0.7684	0.8993	0.8892
Transport equipment	0.7990	0.8924	0.9355	0.9210
Miscellaneous manufacturing industries	0.6806	0.8143	0.7029	0.5560
Electricity	1.0000	1.0000	1.0000	1.0000
<b>Total *</b>	<b>0.8018</b>	<b>0.8717</b>	<b>0.9106</b>	<b>0.8932</b>
<p>* <math>\frac{\text{Total Production}}{\text{Total Supply}} = \frac{\sum Q_i}{\sum S_i}</math></p>				



**Table V 5 : Change in the Production/Availability Ratio  
in the Major Manufacturing Sectors in India  
(1960-75)**

(at current prices)					
ASI Code No.	1975-60	1970-60	1975-70	1970-65	1965-60
20	0.0293	0.0140	0.0153	0.1108	0.0032
21	0.0722	0.0706	0.0016	0.0110	0.0596
22	-0.0003	0.0001	-0.0004	0.0010	-0.0009
23	0.0300	0.0305	-0.0005	0.0161	0.0144
24	-0.0007	-0.0062	0.0055	-0.0056	-0.0006
25	0.1918	0.1869	0.0049	0.0240	0.1629
26	-0.0028	0.0075	-0.0103	0.0008	0.0067
27	0.0998	0.0842	0.0156	0.0055	0.0787
28	0.0131	0.0097	0.0034	-0.0068	0.0165
29	0.0085	0.0184	0.0001	0.0018	0.0166
30	0.0356	0.0410	-0.0054	-0.0023	0.0433
31	0.0954	0.1255	-0.0001	0.0220	0.1035
32	0.4358	0.4939	-0.0581	0.1353	0.3586
33	0.0358	0.0274	0.0084	-0.0029	0.0303
34	0.1400	0.1767	-0.0367	0.0080	0.1687
35	0.1890	0.2156	-0.0266	0.0639	0.1517
36	0.4628	0.3917	0.0711	0.2185	0.1732
37	0.2487	0.2588	-0.0101	0.1309	0.1279
38	0.2220	0.1365	0.0144	0.0431	0.0934
39	-0.1246	0.0223	-0.1469	-0.1114	0.1337
51	0.0000	-	0.0000	-	-
<b>Total*</b>	<b>+0.0914</b>	<b>+0.1088</b>	<b>-0.0174</b>	<b>+0.0389</b>	<b>+0.0699</b>

$$\frac{\sum Q_2}{\sum S_2} - \frac{\sum Q_1}{\sum S_1}, \text{ i.e.}$$

Total production in  
current year  
Total supply in  
current year

Total production  
in base year  
Total supply in  
base year

**Table V 6 : Changes in Production\***  
(at the 2-digit level of the ASI classification)

ASI Code No.	(In Rs. Crores) (at current prices)					
	1965 less 1960	1970 less 1965	1975 less 1970	1970 less 1960	1975 less 1960	
20	415.3120	713.0088	1041.3130	1128.3208	2169.6338	
21	15.4744	34.4042	135.5136	49.8786	185.3922	
22	68.0392	98.4994	62.3305	166.5386	228.8691	
23	608.1559	745.1910	1324.6621	1353.3469	2678.0090	
24	11.2700	11.2036	20.5362	22.4736	43.0098	
25	15.0162	5.9665	41.3337	20.9827	62.3164	
26	12.5929	13.2802	26.1135	25.8731	51.9866	
27	50.0839	117.4293	258.1840	167.5132	425.6972	
28	40.6871	49.9696	74.9232	90.6567	165.5799	
29	8.6511	22.7342	49.0034	31.3853	80.3887	
30	66.9552	99.3446	145.0804	166.2998	311.3802	
31	349.1588	763.6229	2063.7885	1112.7817	3176.5702	
32	69.3502	221.3777	868.3736	290.7279	1159.1015	
33	114.6976	131.8093	240.4083	246.5069	486.9152	
34	434.3874	517.5598	966.4908	951.9472	1918.4380	
35	95.3451	87.7336	134.8863	183.0787	317.9650	
36	204.8571	263.8018	658.8561	468.6589	1127.5150	
37	189.1006	329.7577	585.9381	518.8583	1104.7964	
38	304.6599	265.8155	587.4430	570.4754	1157.9184	
39	47.5261	55.7115	-17.5020	103.2376	85.7356	
51	292.3350	454.7657	433.1863	747.1007	1180.2870	
Total	3413.6557	5002.9869	9700.8626	8416.6426	18117.5052	

\*  $Q = Q_2 - Q_1$ , where  $Q$  is the change in production (of current over base year) and  $Q_2$  and  $Q_1$  are the values of production in the current and base year respectively.

**Table V 7: The Chenery measure of import substitution\***  
(at the two-digit level of the ASI classification)

ASI Code No.	(In Rs. Crores) (at current prices)				
	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
20	3.7044	20.4560	45.0098	26.5171	86.1953
21	1.3589	0.6284	0.3088	26.6171	13.9364
22	-0.1360	0.2495	-0.1248	4.0331	-0.0936
23	22.6970	37.0343	-1.8174	0.0249	70.1582
24	-0.0095	-0.1521	0.2617	70.1582	109.0431
25	4.6011	0.8080	0.3709	-0.1684	-0.0333
26	0.1482	0.0284	-0.6418	6.2925	14.5163
27	10.5289	1.4808	8.7173	0.2658	-0.1745
28	1.6223	-1.0271	0.7760	22.6702	55.7684
29	0.4247	0.0870	0.0097	1.4652	2.9898
30	5.8314	-0.5415	-2.0747	0.8889	0.8277
31	73.8679	35.0734	-0.4172	9.6524	13.6777
32	55.2211	50.4045	-81.8515	200.0779	398.0090
33	7.1576	-1.0785	5.1475	183.9970	613.9567
34	154.1706	12.2561	-103.8085	10.1902	21.9380
35	27.7677	16.7696	-11.0326	270.7062	395.9999
36	107.3260	176.5384	114.2317	56.5809	78.3554
37	48.1253	90.0862	-13.6852	316.4764	743.5502
38	54.1965	38.9633	22.4078	178.1078	336.9803
39	12.1507	-20.1341	-29.6457	123.3987	189.8438
51	-	-	-	4.0304	-25.1454
Total**	590.7548	457.9306	-47.8582	1485.3654	3050.1412

\* The Chenery measure of import-substitution is given by  $(U_2 - U_1)S_2$ , where  $U_1$  and  $U_2$  are the production/availability ratios in the base and current years respectively and  $S_2$  is the supply in the current year.

\*\* The total import-substitution measure given above is an aggregative measure obtained by adding up the import substitution in each industry. This measure is different from the measure obtained by multiplying total supply in the current year by the difference in the production/availability ratios (of current over base year) for the industrial sector as a whole. The latter is given below (in Rs. crores):

Year	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
Import substitution (TOTAL)	536.2679	499.4083	-416.7012	1396.8025	2188.8786

**Table V8** : Contribution of expansion in demand to the change in production (assuming that the ratio of domestic output to total supply remains unaltered)\*

ASI Code No.	(in Rs. crores) (at current prices)				
	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
20	411.6076	692.5528	996.3032	1101.8037	2083.4385
21	14.1155	33.7758	135.2048	45.8455	171.4558
22	68.1752	98.2499	62.4553	166.5137	228.9627
23	585.4589	708.1567	<sup>1326.6275</sup> 1326.4795	1283.1887	2568.9659
24	11.2795	11.3557	20.2745	22.6420	43.0431
25	10.4151	5.1585	40.9628	14.6902	47.8001
26	12.4447	13.2518	26.7553	25.6073	52.1611
27	39.5550	115.9485	249.4667	144.8430	369.9288
28	39.0648	50.9967	74.1472	89.1915	162.5901
29	8.2264	22.6472	48.9937	30.4964	79.5610
30	61.1238	99.8861	147.1551	156.6474	297.7025
31	275.2909	728.5495	2064.2057	912.7038	2778.5612
32	14.1291	170.9732	950.2251	106.7309	545.1448
33	107.5400	132.8878	235.2608	236.3167	464.9772
34	280.2168	505.3037	1070.2993	681.2410	1522.4381
35	67.5774	70.9640	145.9189	126.4978	239.6096
36	97.5311	87.2634	544.6244	152.1825	383.9648
37	140.9753	239.6715	599.6233	340.7505	767.8161
38	250.4634	226.8522	565.0352	447.0767	968.0746
39	35.3754	75.8456	12.1437	99.2072	110.8810
51	292.3350	454.7657	433.1863	747.1007	1180.2870
<b>Total**</b>	<b>2822.9009</b>	<b>4545.0563</b>	<b>9748.7208</b>	<b>6931.2772</b>	<b>15067.3640</b>

\* This table is obtained as a residual from the tables "Changes in Production" and "The Chenery measure of import substitution". It is also equal to  $U_1(S_2 - S_1)$  where  $U_1$  is the production/availability ratio in the base year and  $S_2$  and  $S_1$  are the supplies in the current and the base years respectively.

\*\* This total is the aggregate of the above quantities.

**Table VI : Share of import substitution\* in change in production**  
(at current prices)

ASI Code No.	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
20	0.0089	0.0287	0.0432	0.0235	0.0397
21	0.0878	0.0182	0.0023	0.0809	0.0752
22	-0.0020	0.0025	-0.0020	0.0001	-0.0004
23	0.0373	0.0497	-0.0014	0.0518	0.0041
24	-0.0008	-0.0136	0.0127	-0.0075	-0.0008
25	0.3064	0.1354	0.0090	0.2999	0.2329
26	0.0118	0.0021	-0.0246	0.0103	-0.0034
27	0.2102	0.0126	0.0338	0.1353	0.1310
28	0.0399	-0.0206	0.0104	0.0162	0.0181
29	0.0491	0.0038	0.0002	0.0283	0.0103
30	0.0871	-0.0055	-0.0143	0.0580	0.0439
31	0.2116	0.0459	-0.0002	0.1798	0.1253
32	0.7963	0.2277	-0.0943	0.6329	0.5297
33	0.0624	-0.0082	0.0214	0.0413	0.0451
34	0.3549	0.0237	-0.1074	0.2844	0.2064
35	0.2912	0.1911	-0.0818	0.3091	0.2464
36	0.5239	0.6692	0.1734	0.6753	0.6595
37	0.2545	0.2732	-0.0234	0.3433	0.3050
38	0.1779	0.1466	0.0381	0.2163	0.1640
39	0.2557	-0.3614	**	0.0390	-0.2933
51	-	-	-	-	-
Total	0.1731	0.0915	-0.0049	0.1765	0.1684

\* The measure of import substitution used here is the "Chenery measure".

\*\* For this group, in the period 1970-1975, both the change in production and the measure of import substitution were negative (Rs. -17.5020 crores and Rs. -29.6457 crores respectively.)

**Table X 10: Import/Availability ratios**  
(at the 2-digit level of the ASI classification)

		(at current prices)			
ASI Code No.	Name of the Industry	1960	1965	1970	1975
20	Food	0.0630	0.0598	0.0490	0.0337
21	Beverages	0.0757	0.0161	0.0051	0.0035
22	Tobacco	0.0002	0.0011	0.0001	0.0005
23	Textiles	0.0364	0.0220	0.0059	0.0064
24	Footwear, other wearing apparel & made up textile goods	0.0014	0.0020	0.0076	0.0021
25	Wood & cork except manufacture of furniture	0.2119	0.0490	0.0250	0.0201
26	Furniture & fixtures	0.0116	0.0051	0.0043	0.0146
27	Paper & paper products	0.2227	0.1440	0.1385	0.1229
28	Printing, publishing & allied industries	0.0492	0.0327	0.0395	0.0361
29	Leather & fur products except footwear & other wearing apparel	0.0199	0.0033	0.0015	0.0014
30	Rubber products	0.0519	0.0086	0.0109	0.0163
31	Chemicals & chemical products	0.2761	0.1726	0.1506	0.1807
32	Products of petroleum & coal	0.5769	0.2183	0.0830	0.1411
33	Non-metallic mineral products except products of petroleum & coal	0.0508	0.0205	0.0234	0.0150
34	Basic metal industries	0.3513	0.1826	0.1746	0.2113
35	Metal products except machinery & transport equipment	0.2577	0.1060	0.0421	0.0687
36	Machinery except electrical machinery	0.7097	0.5365	0.3180	0.2469
37	Electrical machinery, apparatus, appliances & supplies	0.3595	0.2316	0.1007	0.1108
38	Transport equipment	0.2010	0.1076	0.0645	0.0790
39	Miscellaneous manufacturing Industries	0.3194	0.1857	0.2971	0.4440
51	Electricity	-	-	-	-
<b>Total *</b>		<b>0.1982</b>	<b>0.1283</b>	<b>0.0894</b>	<b>0.1068</b>

\* Total Imports  
Total Supply.

**Table V II: Change in the Import/Availability\* ratio**  
(at the 2-digit level of the ASI classification)

ASI Code No.	(at current prices)				
	1965 less 1960	1970 less 1965	1975 less 1970	1970 less 1960	1975 less 1960
20	-0.0032	-0.0108	-0.0153	-0.0140	-0.0293
21	-0.0596	-0.0110	-0.0016	-0.0706	-0.6722
22	+0.0009	-0.0010	+0.0004	-0.0001	+0.0003
23	-0.0144	-0.0161	+0.0005	-0.0305	-0.0300
24	+0.0006	+0.0056	-0.0055	+0.0062	+0.0007
25	-0.1629	-0.0240	-0.0049	-0.1869	-0.1918
26	-0.0067	-0.0008	+0.0103	-0.0075	+0.0028
27	-0.0787	-0.0055	-0.0156	-0.0842	-0.0998
28	-0.0165	+0.0068	-0.0034	-0.0097	-0.0131
29	-0.0166	-0.0018	-0.0001	-0.0184	-0.0085
30	-0.0433	+0.0023	+0.0054	-0.0410	-0.0356
31	-0.1035	-0.0220	+0.0001	-0.1255	-0.0954
32	-0.3586	-0.1353	+0.0581	-0.4939	-0.4358
33	-0.0303	+0.0029	-0.0084	-0.0274	-0.0358
34	-0.1687	-0.0020	+0.0367	-0.1767	-0.1400
35	-0.1517	-0.0639	+0.0266	-0.2156	-0.1890
36	-0.1732	-0.2185	-0.0711	-0.3917	-0.4628
37	-0.1279	-0.1309	+0.0101	-0.2588	-0.2487
38	-0.0934	-0.0431	-0.0144	-0.1365	-0.1220
39	-0.1337	+0.1114	+0.1469	-0.0223	+0.1246
fix	<del>xxxxxxx</del>	<del>xxxxxxx</del>	<del>xxxxxxx</del>	<del>xxxxxxx</del>	<del>xxxxxxx</del>
51	-	-	-	-	-
Total**	-0.0699	-0.0389	+0.0174	-0.1088	-0.0914

\* Derived from the previously calculated Table "Changes in the Production/Availability ratio in the Major Manufacturing Sectors in India (1960-75)".

$$** \frac{\sum M_2}{\sum S_2} - \frac{\sum M_1}{\sum S_1} \text{ i.e. } \frac{\text{Total Imports in current year}}{\text{Total Supply in current year}} - \frac{\text{Total Imports in Base year}}{\text{Total Supply in Base year}}$$

**Table V12: Changes in Imports\***  
(at the 2-digit level of the ASI classification)

ASI Code No.	(in Rs. crores) (at current prices)				
	1965 less 1960	1970 less 1965	1975 less 1970	1970 less 1960	1975 less 1960
20	23.9929	23.4467	6.4290	47.4396	53.8686
21	-0.2023	-0.0776	0.3852	-0.2799	0.1053
22	0.1539	-0.1496	0.1357	0.0043	0.1400
23	-0.5813	-21.1037	9.8390	-21.6850	-11.8460
24	0.0248	0.1748	-0.1070	0.1996	0.0926
25	-1.7990	-0.5432	0.6830	-2.3422	-1.6592
26	0.0007	0.0386	0.7607	0.0393	0.8000
27	0.7992	18.0277	31.3750	18.8269	50.2019
28	0.3975	2.7577	2.2587	3.1552	5.4139
29	-0.2595	-0.0120	0.0661	-0.2715	-0.2054
30	-2.4822	1.4043	3.7002	-1.0779	2.6223
31	31.1353	116.9235	513.9674	148.0588	662.0262
32	-35.7820	-2.8926	167.8913	-38.6746	129.2797
33	-1.4156	3.8724	0.4793	2.4568	2.9361
34	-2.3479	100.5762	330.0695	98.2283	428.2978
35	-4.3028	-8.3427	17.4379	-12.6455	4.7924
36	131.1307	-75.5106	139.8217	55.6201	195.4418
37	30.9833	-17.8239	80.8224	13.1594	93.9818
38	0.6554	-11.6336	64.6340	-10.9782	53.6558
39	4.4547	34.1458	38.5734	38.6005	77.1739
51	0.0002	-0.0002	-	-	-
<b>Total</b>	<b>174.5560</b>	<b>163.2780</b>	<b>1409.2225</b>	<b>337.8340</b>	<b>1747.1195</b>

\*  $\Delta M = M_2 - M_1$ , whereas  $\Delta M$  = Change in imports,  
 $M_2$  = Imports in current year,  $M_1$  = Imports in base year.



Table V 13 : The Maisel's measure of import-substitution\*

ASI Code No.	(at current prices) (in Rs. crores)				
	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
20	-3.7044	-20.4560	-45.0098	-26.5171	-86.1953
21	-1.3589	-0.6284	-0.3088	-4.0331	-13.9364
22	+0.1360	-0.2495	+0.1248	-0.0249	+0.0936
23	-22.6970	-37.0343	+1.8174	-70.1582	-109.0431
24	+0.0095	+0.1521	-0.2617	+0.1684	+0.0333
25	-4.6011	-0.8080	-0.3709	-6.2925	-14.5163
26	-0.1482	-0.0284	+0.6418	-0.2658	+0.1745
27	-10.5289	-1.4808	-8.7173	-22.6702	-55.7684
28	-1.6223	+1.0271	-0.7760	-1.4652	-2.9898
29	-0.4247	-0.0870	-0.0097	-0.6889	-0.8277
30	-5.8314	+0.5415	+2.0747	-9.6524	-13.6777
31	-73.8679	-35.0734	+0.4172	-200.0779	-398.0090
32	-55.2211	-50.4045	+81.8515	-183.9970	-613.9567
33	-7.1576	+1.0785	-5.1475	-10.1902	-21.9380
34	-154.1706	-12.2561	+103.8085	-270.7062	-395.9999
35	-27.7677	-16.7696	+11.0326	-56.5809	-78.3554
36	-107.3260	-176.5384	-114.2317	-316.4764	-743.5502
37	-48.1253	-90.0862	+13.6852	-178.1078	-336.9803
38	-54.1965	-38.9633	-22.4078	-123.3987	-189.8438
39	-12.1507	+20.1341	+29.6457	-4.0304	+25.1454
51	-	-	-	-	-
Total**	-590.7548	-457.9306	+47.8582	-1485.3654	-3050.1412

\* This table has been derived from the table "The Chenery measure of Import substitution" since the Maisel's measure is simply the negative of the Chenery measure.

\*\* The total import substitution measure given above is an aggregative measure obtained by adding up the import substitution in each industry. This measure is different from the measure obtained by multiplying total supply in the current year by the difference in the import/availability ratios (of current over base year) for the industrial sector as a whole. The latter is given below (in Rs. crores):

Year	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
Import Substi- tution (Total)	-536.2679	-499.4083	+416.7012	-1396.8025	-2188.8786

**Table V 14 : Contribution of the expansion in demand to the change in imports (assuming that the ratio of imports to total supply remains unaltered)\***

ASI Code No.	(in Rs. crores) (at current prices)				
	1960-1965	1965-1970	1970-1975	1960-1970	1960-1975
20	27.6973	43.9027	51.4388	73.9567	140.0639
21	1.1566	0.5508	0.6940	3.7532	14.0417
22	0.0179	0.0999	0.0109	0.0292	0.0464
23	22.1157	15.9306	8.0216	48.4732	97.1971
24	0.0153	0.0227	0.1547	0.0312	0.0593
25	2.8021	0.2648	1.0539	3.9503	12.8571
26	0.1489	0.0670	0.1189	0.3051	0.6255
27	11.3281	19.5085	40.0923	41.4871	105.9703
28	2.0198	1.7306	3.0347	4.6204	8.4037
29	0.1652	0.0750	0.0758	0.6174	0.6223
30	3.3492	0.8628	1.6255	8.5745	16.3000
31	105.0032	151.9969	513.5502	348.1367	1060.0352
32	19.4391	47.5119	86.0398	145.3224	743.2364
33	5.7420	2.7939	5.6268	12.6470	24.8741
34	151.8227	112.8323	226.2610	368.9345	824.2977
35	23.4649	8.4269	6.4053	43.9354	83.1478
36	238.4567	101.0278	254.0534	372.0965	938.9920
37	79.1086	72.2623	67.1372	191.2672	430.9621
38	54.8519	27.3297	87.0418	112.4205	243.4996
39	16.6054	14.0117	8.9277	42.6309	52.0285
51	0.0002	-0.0002	-	-	-
<b>Total**</b>	<b>765.3108</b>	<b>621.2086</b>	<b>1361.3643</b>	<b>1823.1994</b>	<b>4797.2607</b>

\* This table was obtained as a residual from the tables "Changes in Imports" and "The Maizel's measure of import substitution".

\*\* This total is the sum of the above quantities.

**Table V 15: Rank Order of Different Manufacturing Sectors in India According to Various Measures of Import Substitution(1960-75)**

$$\text{Ranking } I/\Delta P = (u_2 - u_1) \frac{s_1 + s_2}{2} / \Delta P$$

(at current prices)

ASI Code No.	1975-60	1970-60	1975-70	1970-65	1965-60
20	14	15	3	9	17
21	10	20	9	11	11
22	17	18	14	14	19
23	13	12	13	7	15
24	18	19	6	18	18
25	5	3	8	6	4
26	19	17	16	15	16
27	8	9	5	12	7
28	15	16	7	19	14
29	16	14	10	13	13
30	12	11	15	16	10
31	9	8	11	8	8
32	2	2	17	4	1
33	11	13	1	17	12
34	6	6	19	10	3
35	4	5	18	3	5
36	1	1	2	1	2
37	3	4	12	2	6
38	7	7	4	5	9

contd...

Table Y 15 : (continued)

ASI Code No.	Ranking				
	1975-60	1970-60	$\frac{u_2 - u_1}{u_1}$	1970-65	1965-60
20	13	15	2	9	17
21	10	10	9	10	10
22	17	18	12	14	19
23	14	12	13	8	15
24	18	19	6	18	18
25	5	6	7	7	4
26	19	17	15	15	16
27	9	9	4	12	9
28	15	16	8	19	13
29	16	14	10	13	14
30	12	11	14	16	11
31	8	7	11	6	7
32	2	2	19	2	1
33	11	13	5	17	12
34	6	5	18	11	3
35	4	4	17	4	5
36	1	1	1	1	2
37	3	3	16	3	6
38	7	8	3	5	8

contd...

Table V15: (continued)

Ranking  $u_2 - u_1$ 

ISI Code No.	1975-60	1970-60	1975-70	1970-65	1965-60
20	14	15	3	10	17
21	10	10	9	9	10
22	17	18	12	14	19
23	13	12	13	8	15
24	18	19	6	18	18
25	4	5	7	6	4
26	19	17	16	15	16
27	8	9	2	12	9
28	15	16	8	19	14
29	16	14	10	13	13
30	12	11	14	16	11
31	9	8	11	7	7
32	2	1	19	2	1
33	11	13	5	17	12
34	6	6	18	11	3
35	5	4	17	4	5
36	1	2	1	1	2
37	3	3	15	3	6
38	7	7	4	5	8

contd...

Table V15: (continued)

ASI Code No.	Ranking		I/Δ		
	1975-60	1970-60	1975-70	1970-65	1965-60
20	10	14	2	10	16
21	9	9	5	12	9
22	16	18	11	14	19
23	12	12	10	8	15
24	17	19	9	18	18
25	5	3	7	6	3
26	18	17	14	15	17
27	8	8	3	11	7
28	14	15	6	19	13
29	15	15	8	13	14
30	13	11	12	16	10
31	6	7	16	7	6
32	2	2	17	3	1
33	11	13	4	17	11
34	19	10	19	9	12
35	4	5	18	4	4
36	1	1	1	1	2
37	3	4	13	2	5
38	7	6	15	5	8

**Table V 16: Rank Correlation between Import Substitution (X) and Compound Growth (Y) Rates of Production**

Code No.	1960-65			1965-70			1970-75		
	Rank of X	Rank of Y	d <sub>1</sub>	Rank of X	Rank of Y	d <sub>2</sub>	Rank of X	Rank of Y	d <sub>3</sub>
20	17	18	1	10	11	1	3	12	9
21	10	3	7	9	2	7	9	16	7
22	19	14	5	14	12	2	12	11	1
23	15	17	2	8	17	9	13	15	2
24	18	1	17	18	9	9	6	19	13
25	4	10	6	6	19	13	7	13	6
26	16	9	7	15	13	2	16	14	2
27	9	15	6	12	5	7	2	7	5
28	14	16	2	19	16	3	8	18	10
29	13	19	6	13	7	6	10	9	1
30	11	12	1	16	8	8	14	6	8
31	7	5	2	7	3	4	11	2	9
32	1	8	7	2	1	1	19	1	18
33	12	13	1	17	14	3	5	8	3
34	3	7	4	11	10	1	18	5	13
35	5	6	1	4	15	11	17	17	-
36	2	2	-	1	6	5	1	4	3
37	6	4	2	3	4	1	15	3	12
38	8	11	3	5	18	13	4	10	6

$$\begin{aligned}
 r_1 &= 1 - \frac{\sum d_1^2}{n(n^2-1)} & r_2 &= 1 - \frac{\sum d_2^2}{n(n^2-1)} & r_3 &= 1 - \frac{\sum d_3^2}{n(n^2-1)} \\
 &= 1 - \frac{3684}{6840} & &= 1 - \frac{5340}{6840} & &= 1 - \frac{7836}{6840} \\
 &= 1 - 0.5386 & &= 1 - 0.7807 & &= 1 - 1.1456 \\
 &= \underline{0.4614} & &= \underline{0.2193} & &= \underline{-0.1456}
 \end{aligned}$$

**Table V/17: Imports, Production, Supply, Import/Availability Ratio and Production / Availability Rates in 1965 after making adjustment for the 1966 devaluation**

Code No.	Imports 1965 (in Rs. Cr.)	Production 1965 (Rs. Cr.)	Supply (Rs. Cr.)	I/S	P/S = $\frac{Q_1}{S_1}$
20	109.1475	1088.3482	1197.4957	0.0911	0.9089
21	0.5787	22.4322	23.0109	0.0251	0.9749
22	0.2655	150.9401	151.2056	0.0018	0.9982
23	54.5840	1541.5369	1596.1209	0.0342	0.9658
24	0.0487	15.7502	15.7989	0.0031	0.9969
25	2.1820	26.8598	29.0418	0.0751	0.9249
26	0.1784	22.0063	22.1847	0.0080	0.9920
27	30.3443	114.5267	144.8710	0.2095	0.7905
28	5.0643	95.1072	100.1715	0.0506	0.9494
29	0.1316	25.5024	25.6340	0.0051	0.9949
30	1.8274	133.5150	135.3424	0.0135	0.9865
31	194.0999	590.5086	784.6085	0.2474	0.7526
32	53.0853	120.2987	173.3840	0.3062	0.6938
33	7.6141	231.3924	239.0065	0.0319	0.9681
34	262.9752	746.9694	1009.9446	0.2604	0.7396
35	30.5725	163.6491	194.2126	0.1574	0.8426
36	523.7970	287.2221	811.0191	0.6459	0.3541
37	137.2795	289.1442	426.4237	0.3219	0.6781
38	110.1291	579.9415	690.0706	0.1596	0.8404
39	26.5955	74.0005	100.5960	0.2644	0.7356
51	0.0003	368.2180	368.2183	0.000001	0.999999
<b>Total</b>	<b>1550.5008</b>	<b>6687.8605</b>	<b>8238.3613</b>		



**Table VIII: Import substitution between 1965 and 1970 after taking account of the 1966 devaluation of the Rupee**

Code No.	$Q_1/S_1$ (1965)	$Q_2/S_2$ (1970)	$\frac{Q_2}{S_2} - \frac{Q_1}{S_1}$	Value of Supply (in Rs. Cr.)	Chenray Measure (in Rs. Cr.)	Maisel's Measure (in Rs. Cr.)
20	0.9089	0.9510	0.0421	1894.0773	79.7407	- 79.7407
21	0.9749	0.9949	0.0200	57.1261	1.1427	- 1.1425
22	0.9982	0.9999	0.0017	249.4584	0.4241	- 0.4241
23	0.9658	0.9941	0.0283	2300.2675	65.0976	- 65.0976
24	0.9969	0.9924	-0.0045	27.1585	- 0.1222	+ 0.1222
25	0.9249	0.9750	0.0501	33.6680	1.6868	- 1.6868
26	0.9920	0.9957	0.0037	35.4383	0.1311	- 0.1311
27	0.7905	0.8615	0.0710	269.2426	19.1162	- 19.1162
28	0.9494	0.9605	0.0111	151.0487	1.6766	- 1.6766
29	0.9949	0.9985	0.0036	48.3081	0.1739	- 0.1739
30	0.9865	0.9891	0.0026	235.4237	0.6121	- 0.6121
31	0.7526	0.8494	0.0968	1594.2461	154.3230	-154.3230
32	0.6938	0.9170	0.2232	371.9989	83.0302	- 83.0302
33	0.9681	0.9766	0.0085	371.9066	3.1612	- 3.1612
34	0.7396	0.8254	0.0858	1532.0102	131.4465	-131.4465
35	0.8426	0.9579	0.1153	262.4347	30.2587	- 30.2587
36	<del>0.3541</del>	<del>0.6820</del>	<del>0.3279</del>	<del>807.9562</del>	<del>264.9288</del>	<del>-264.9288</del>
36	0.3541	0.6820	0.3279	807.9562	264.9288	-264.9288
37	0.6781	0.8993	0.2212	688.2064	152.2313	-152.2313
38	0.8404	0.9355	0.0951	904.0200	85.9723	- 85.9723
39	0.7356	0.7029	-0.0327	171.7372	- 5.6158	+ 5.6158
51	0.999999	1.0000	0.000001	822.9837	0.0008	- 0.0008
					1069.4164	-1069.4164

**Table V19: Resolution of change in production into "Import Substitution" and "Demand Expansion" Effects for the period 1965-70 after taking into account the 1966 Devaluation**

(in Rs. Cr.)

ASI Code	Change in Production	Import Substitution (C)*	Demand Expansion
20	713.0088	79.7407	633.2681
21	34.4042	1.1425	33.2617
22	98.4994	0.4241	98.0753
23	745.1910	65.0976	680.0934
24	11.2036	- 0.1222	11.3258
25	5.9665	1.6868	4.2797
26	13.2802	0.1311	13.1491
27	117.4293	19.1162	98.3131
28	49.9696	1.6766	48.2930
29	22.7342	0.1739	22.5603
30	99.3446	0.6121	98.7325
31	763.6229	154.3230	609.2999
32	221.3777	83.0302	138.3475
33	131.8093	3.1612	128.6481
34	517.5598	131.4465	386.1133
35	87.7336	30.2587	57.4749
36	263.8018	264.9288	- 1.1270
37	329.7577	152.2313	177.5264
38	265.8155	85.9723	179.8432
39	55.7115	- 5.6158	61.3273
51	454.7657	0.0008	454.7649
<b>Total</b>	<b>5002.9869</b>	<b>1069.4164</b>	<b>3933.5705</b>

(C)\* = Chenery measure of import-substitution.

Table Y2a:

Resolution of Change in imports into "Import-substitution"  
and "Demand Expansion" effects after taking into account  
the 1966 Devaluation

(in Rs. Cr.)

ASI Code No.	Change in Imports	Import Substitution (M)*	Demand Expansion
20	- 16.4272	- 79.7407	63.3135
21	- 0.2890	- 1.1425	0.8535
22	- 0.2466	- 0.4241	0.1775
23	- 41.0444	- 65.0976	24.0532
24	0.1570	0.1222	0.0348
25	- 1.3403	- 1.6868	0.3465
26	- 0.0266	- 0.1311	0.1045
27	6.9423	- 19.1162	26.0585
28	0.9076	- 1.6766	2.5842
29	- 0.0601	- 0.1739	0.1138
30	0.7367	- 0.6121	1.3488
31	46.0147	-154.3230	200.3377
32	- 22.2228	- 83.0302	60.8074
33	1.0908	- 3.1612	4.2520
34	4.5058	-131.4465	135.9523
35	- 19.5115	- 30.2587	10.7472
36	-266.8647	-264.9288	- 1.9359
37	- 67.9750	-152.2313	84.2563
38	- 51.8661	- 85.9723	34.1062
39	24.4299	5.6158	18.8141
51	- 0.0003	- 0.0008	0.0005
Total	-403.0898	-1069.4164	666.3266

(M)\* = Maisel's measure of Import-substitution.

**Table IV-2/1: Industrial Production at Constant (1960) Prices  
at the 2 digit level of the ASI classification\***

(in Rs. Crores)

ASI Code No.	1960	1965	1970	1975
20-21	679.9940	835.7126	1070.9906	1158.7098
22	82.9009	122.3617	141.0144	161.9884
23	933.3810	1071.5214	1023.9190	1109.7900
24	4.4802	7.5895	7.2266	5.9407
25	11.8436	27.8443	23.5332	27.3469
27	64.4428	94.7954 98.7954	139.3253	153.3094
29	16.8513	20.6765	11.0039	11.5768
30	66.5598	106.0963	143.5695	171.8574
31	241.3498	371.4373	570.7923	817.6931
32	50.9485	79.6325 97.6325	151.4699	181.8352
33	116.6948	174.1086	220.6699	271.8989
34	312.5820	562.6476	642.3560	811.4629
35	68.2950	140.4145	149.5661	213.5585
36	82.3650	196.6876	304.3387	510.9925
37	100.0436	204.4891	362.8581	436.9904
38	275.2816	562.4003	363.3717	389.5235
39	26.4744	35.1845	31.7693	22.5827
51	75.8830	144.8606	253.4492	372.2820
<b>TOTAL</b>	<b>3210.3713</b>	<b>4758.4603</b>	<b>5611.2237</b>	<b>6829.3391</b>

\* Groups 20 & 21 (viz. Manufacture of food & Manufacture of beverages) have been combined. Groups 26 (Manufacture of furniture & fixtures) and 28 (Printing, publishing & allied industries) have been omitted as no price index was available for deflating the two groups. Their values in the four years were as follows (in Rs. Crores):

	1960	1965	1970	1975
Group 26	9.4134	22.0063	35.2865	61.4000
Group 28	54.4201	95.1072	145.0768	220.0000

Their percentage shares in total industrial production in the respective years were as follows:

	1960	1965	1970	1975
Group 26	0.29	0.33	0.30	0.29
Group 28	1.66	1.42	1.24	1.03

**Table V22: Value of Imports at Constant (1960) Prices - at the 2 digit level of the ASI classification**

(in Rs. Crores)

ASI* Code No.	1960	1965	1970	1975
20-21	45.8503	58.4776	50.4012	63.0400
22	0.0146	0.0201	0.0228	0.0061
23	35.2246	42.9740	20.4303	18.3168
24	0.0061	0.0027	0.0085	0.0045
25	3.1839	1.6875	0.8597	0.8278
27	18.4597	21.0441	23.2592	24.5514
29	0.3430	0.0789	0.0652	0.0720
30	3.6420	1.3111	2.8043	3.3871
31	92.0558	127.0370	201.6022	381.1110
32	69.4741	81.2847	108.3796	101.4322
33	6.2481	17.1823	22.4307	4.8735
34	169.2527	175.8379	89.3896	130.0003
35	23.7065	18.7281	4.2672	9.9567
36	201.3122	295.9289	140.9185	64.4199
37	56.1451	80.8489	89.2707	157.2063
38	69.2412	60.2398	21.4648	20.7724
39	12.4249	15.6554	27.9560	11.9279
51	-	-	-	-
<b>TOTAL</b>	<b>806.5848</b>	<b>998.3390</b>	<b>803.5305</b>	<b>991.9059</b>

\* The names of these industry groups appear in previous tables.

**Table V 23: Supply at Constant (1960) Prices at the 2 digit level of the ASI Classification**

(in Rs. Crores)

ASI Code No.	1960	1965	1970	1975
20-21	725.8443	894.1902	1121.3918	1221.7498
22	82.9155	122.3818	141.0372	161.9945
23	968.6056	1114.4954	1044.3493	1128.1068
24	4.4863	7.5922	7.2351	5.9452
25	15.0275	29.5318	24.3929	28.1747
27	82.9025	115.8395	162.5845	177.8608
29	17.1943	20.7554	11.0691	11.6488
30	70.2018	107.4074	146.3738	<del>175.2445</del> 175.2446
31	333.4056	498.4743	772.3945	1198.8041
32	120.4226	160.9172	259.8495	283.2674
33	122.9429	191.2909	243.1006	276.7724
34	481.8347	738.4855	731.7456	941.4632
35	92.0015	159.1426	153.8333	223.5152
36	283.6772	492.6165	445.2572	575.4124
37	156.1887	285.3380	452.1288	594.1967
38	344.5228	622.6401	384.8365	410.2959
39	38.8993	50.8399	59.7253	34.5106
51	75.8830	144.8606	253.4492	372.2820
<b>TOTAL</b>	<b>4016.9561</b>	<b>5756.7993</b>	<b>6414.7542</b>	<b>7821.2450</b>

**Table X 24: Production/Availability Ratios at the 2 digit level of the ASI classification - with Production and Supply at Constant (1960) prices**

ASI Code No.	1960	1965	1970	1975
20-21	0.9368	0.9346	0.9551	0.9484
22	0.9998	0.9998	0.9998	1.0000
23	0.9636	0.9614	0.9804	0.9838
24	0.9966	0.9996	0.9988	0.9992
25	0.7881	0.9429	0.9648	0.9706
27	0.7773	0.8183	0.8569	0.8620
29	0.9801	0.9962	0.9941	0.9938
30	0.9481	0.9878	0.9808	0.9807
31	0.7239	0.7451	0.7390	0.6821
32	0.4231	0.4949	0.5829	0.6419
33	0.9492	0.9102	0.9077	0.9824
34	0.6487	0.7619	0.8778	0.8619
35	0.7423	0.8823	0.9723	0.9555
36	0.2903	0.3993	0.6835	0.8880
37	0.6405	0.7167	0.8026	0.7354
38	0.7990	0.9033	0.9442	0.9494
39	0.6806	0.6921	0.5319	0.6544
51	1.0000	1.0000	1.0000	1.0000
TOTAL	0.7992	0.8266	0.8747	0.8732

**Table V 25: Change in the Production/Availability Ratio**  
 (at the 2-digit level of the ASI classification)  
 Figures are at Constant (1960) Prices

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	-0.0022	0.0205	-0.0067	0.0183	0.0116
22	0.0000	0.0000	0.0002	0.0000	0.0002
23	-0.0022	0.0190	0.0034	0.0168	0.0202
24	0.0010	-0.0008	0.0004	0.0002	0.0006
25	0.1548	0.0219	0.0058	0.1767	0.1825
27	0.0410	0.0386	0.0051	0.0796	0.0847
29	0.0161	-0.0021	-0.0003	0.0140	0.0137
30	0.0397	-0.0070	-0.0001	0.0327	0.0326
31	0.0212	-0.0061	-0.0569	0.0151	-0.0418
32	0.0718	0.0880	0.0590	0.1598	0.2188
33	-0.0390	-0.0025	0.0747	-0.0415	0.0332
34	0.1132	0.1159	-0.0159	0.2291	0.2132
35	0.1400	0.0900	-0.0168	0.2300	0.2132
36	0.1090	0.2842	0.2045	0.3932	0.5977
37	0.0762	0.0859	-0.0672	0.1621	0.0949
38	0.1043	0.0409	0.0052	0.1452	0.1504
39	0.0115	-0.1602	0.1225	-0.1487	-0.0262
51	0.0000	0.0000	0.0000	0.0000	0.0000
<b>TOTAL*</b>	<b>0.0274</b>	<b>0.0481</b>	<b>-0.0015</b>	<b>0.0755</b>	<b>0.0740</b>

\* Total Production/Availability Ratio =  $\frac{\text{Total Production}}{\text{Total Supply}}$



**Table V 26: The Chenery Measure of Import-Substitution**  
 (at the 2 digit level of the ASI classification)  
 The figures are at Constant (1960) Prices.

(in Rs. Crores)

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	-1.9672	22.9885	-8.1857	20.5215	14.1723
22	0.0000	0.0000	0.0324	0.0000	0.0324
23	-2.4519	19.8426	3.8356	17.5451	22.7878
24	0.0076	-0.0065	0.0024	0.0014	0.0036
25	4.5715	0.5342	0.1634	4.3102	5.1419
27	4.7494	6.2758	0.9071	12.9417	15.0648
29	0.3342	-0.0232	-0.0035	0.1550	0.1596
30	4.2641	-1.0246	-0.0175	4.7864	5.7130
31	10.5677	-4.7116	-68.2120	11.6632	-50.1100
32	11.5539	22.8668	16.7128	41.5240	61.9789
33	-7.4603	-0.6078	20.6749	-10.0887	9.1888
34	83.5966	84.8093	-14.9693	167.6429	200.7200
35	27.2800	13.8450	-3.7554	35.3817	47.6534
36	53.6952	126.5421	117.6718	175.0751	343.9240
37	21.7428	38.8379	-39.9300	73.2901	56.3893
38	64.9414	15.7398	2.1335	55.8783	61.7085
39	0.5847	-9.5680	4.2275	-8.8812	-0.9042
51	-	-	-	-	-
<b>Total*</b>	<b>276.0196</b>	<b>336.3403</b>	<b>31.2883</b>	<b>601.7467</b>	<b>793.6241</b>

\* This total is the sum of the above column. The other total measure of import-substitution obtained by multiplying the end year supply with the difference in production/availability ratios of the manufacturing sector as a whole is given below:

(in Rs. Crores)				
1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
157.7363	308.5497	-11.7319	484.3139	578.7721

**Table V.27: Changes in Production - at the 2 digit level of the ASI Classification - All figures are at Constant (1960) Prices**

(Rs. crores)

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	155.7186	235.2780	87.7192	390.9966	478.7158
22	39.4608	18.6527	20.9740	58.1135	79.0875
23	138.1404	-47.6024	85.8710	90.5380	176.4090
24	3.1093	-0.3629	-1.2859	2.7464	1.4605
25	16.0007	-4.3111	3.8137	11.6896	15.5033
27	30.3526	44.5299	13.9841	74.8825	88.8666
29	3.8252	-9.6726	0.5729	-5.8474	-5.2745
30	39.5365	37.4732	28.2879	77.0097	105.2976
31	130.0875	199.3550	246.9008	329.4425	576.3433
32	28.6840	71.8374	30.3653	100.5214	130.8867
33	57.4138	46.5613	51.2290	103.9751	155.2041
34	250.0656	79.7084	169.1069	329.7740	498.8809
35	72.1195	9.1516	63.9924	81.2711	145.8635
36	114.3226	107.6511	206.6538	221.9737	428.6275
37	104.4455	158.3690	74.1323	262.8145	336.9468
38	287.1187	-199.0286	26.1518	88.0901	114.2419
39	8.7101	-3.4152	-9.1866	5.2949	-3.8917
51	68.9776	108.5886	118.8328	177.5662	296.3990
TOTAL	1548.0890	852.7634	1218.1154	2400.8524	3618.9678

**Table V 28** : Contribution of expansion in demand to change in imports - at the 2 digit level of the ASI classification.  
All figures are at Constant (1960) prices.

(Rs. in Crs.)					
ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	10.6601	14.9121	4.4531	25.0724	31.3620
22	0.0055	0.0027	0.0157	0.0082	0.0239
23	5.2975	-2.7011	1.7221	2.7508	5.8800
24	0.0041	-0.0007	-0.0016	0.0038	0.0020
25	3.0751	-0.2936	0.1315	1.9860	2.7858
27	7.3338	8.4909	2.1993	17.7412	21.1565
29	0.0801	-0.0369	0.0033	-0.1228	-0.1114
30	1.9332	0.4686	0.5653	3.9487	5.4581
31	45.5489	69.8536	111.2968	121.2096	238.9452
32	23.3645	49.9617	9.7654	80.4295	93.9370
33	3.4739	4.6406	3.1177	6.0939	7.8142
34	90.1818	-1.6390	25.6414	87.7798	161.4676
35	22.3016	-0.6159	1.9344	15.9424	33.9036
36	148.3119	-28.4683	41.1732	114.6814	207.0317
37	46.4466	47.2597	28.0056	106.4157	157.4505
38	55.9400	-23.0352	1.4411	8.1019	13.2397
39	3.8152	2.7326	-11.8006	6.6499	-1.4012
51	-	-	-	-	-
<b>Total</b>	<b>467.7738</b>	<b>141.5318</b>	<b>219.6637</b>	<b>598.6924</b>	<b>978.9452</b>

If one uses the other total measure of import substitution - the product of end year total supply and the change in the production/availability ratio of the manufacturing sector as a whole - the contribution of expansion in demand to change in imports is as follows :

(Rs. in Cr.)				
1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
349.4905	113.7412	176.6435	461.2596	764.0932
			481.2596	

**Table X29: Share of Import-Substitution in Change in Production**  
 - at the 2 digit level of the ASI classification -  
 Constant (1960) Price data has been used

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	-0.0126	0.0977	0.0933	0.0525	0.0296
22	0.0000	0.0000	0.0015	0.0000	0.0004
23	-0.0177	-0.4168	0.0447	0.1938	0.1292
24	0.0024	0.0179	-0.0019	0.0005	0.0025
25	0.2857	-0.1239	0.0428	0.3687	0.3317
27	0.1565	0.1409	0.0649	0.1728	0.1695
29	0.0874	0.0024	-0.0061	-0.0265	-0.0303
30	0.1079	-0.0273	-0.0006	0.0622	0.0543
31	0.0812	-0.0236	-0.2763	0.0354	-0.0869
32	0.4028	0.3183	0.5504	0.4131	0.4735
33	-0.1299	-0.0131	0.4036	-0.0970	0.0592
34	0.3343	1.0640	-0.0885	0.5084	0.4023
35	0.3783	1.5129	-0.0587	0.4354	0.3280
36	0.4697	1.1755	0.5694	0.7887	0.8024
37	0.2082	0.2452	-0.5386	0.2789	0.1674
38	0.2262	-0.0791	0.0816	0.6343	0.5402
39	0.0671	2.8016	-0.4602	-1.6773	0.2323
51	-	-	-	-	-
<b>TOTAL</b>	<b>0.1783</b>	<b>0.3944</b>	<b>0.0257</b>	<b>0.2506</b>	<b>0.2193</b>

If one uses the other total measure of import substitution - the product of end year total supply and the change in the production/availability ratio of the manufacturing sector as a whole - the share of import substitution in change in production is as below:

<u>1965 over 1960</u>	<u>1970 over 1965</u>	<u>1975 over 1960</u>	<u>1970 over 1960</u>	<u>1975 over 1960</u>
0.1019	0.3618	-0.0096	0.2017	0.1599

The figures that are within ovals are those groups which have experienced a negative change in production during that period.

**Table V 30** : The Maisels' measure of import substitution classification, at the 2 digit level of the ASI, classification. The figures are at constant (1960) prices

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	+1.9672	-22.9885	+8.1857	-20.5215	-14.1723
22	0.0000	0.0000	-0.0324	0.0000	-0.0324
23	+2.4519	-19.8426	-3.8356	-17.5451	-22.7878
24	-0.0075	+0.0065	-0.0024	-0.0014	-0.0036
25	-4.5715	-0.5342	-0.1634	-4.3102	-5.1419
27	-4.7494	-6.2758	-0.9071	-12.9417	-15.0648
29	-0.3442	+0.0232	+0.0035	-0.1550	-0.1596
30	-4.2641	+1.0246	+0.0175	-4.7864	-5.7130
31	-10.5677	+4.7116	+68.2120	-11.6632	+50.1100
32	-11.5539	-22.8668	-16.7128	-41.5240	-61.9789
33	+7.4603	+0.6078	-20.6749	+10.0887	-9.1888
34	-83.5966	-84.8093	+14.9693	-167.6429	-200.7200
35	-27.2800	-13.8450	+3.7551	-35.3817	-47.6534
36	-53.6952	-126.5421	-117.6718	-175.0751	-343.9240
37	-21.7428	-38.8379	+39.9300	-73.2901	-56.3893
38	-64.9414	-15.7398	-2.1335	-55.8783	-61.7085
39	-0.5847	+9.5680	-4.2275	+8.8812	+0.9042
51	-	-	-	-	-
Total*	-276.0196	-336.3403	-31.2883	-601.7467	-793.6241

\* This total is the sum of the above column. The other total measure of import substitution obtained by multiplying the end year supply with the difference in import/availability ratios of the manufacturing sector as a whole is given below.

1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	(in Rs. Cr.) 1975 over 1960
-157.7363	-308.5497	+11.7319	-484.3139	-578.7721

**Table V31: Changes in Imports - at the 2 digit level of the ASI classification. The figures are at Constant (1960) Prices**

(Rs. in Crores)

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	12.6273	-8.0764	12.6388	4.5509	17.1897
22	0.0055	0.0027	-0.0167	0.0082	-0.0085
23	7.7494	-22.5437	-2.1135	-14.7943	-16.9078
24	-0.0034	0.0058	-0.0040	0.0024	-0.0016
25	-1.4964	-0.8278	-0.0319	-2.3242	-2.3561
27	2.5844	2.2151	1.2922	4.7995	6.0917
29	-0.2641	-0.0137	0.0068	-0.2778	-0.2710
30	-2.3309	1.4932	0.5828	-0.8377	-0.2549
31	34.9812	74.5652	179.5088	109.5464	289.0552
32	11.8106	27.0949	-6.9474	34.9055	31.9581
33	10.9342	5.2484	-17.5572	16.1826	-1.3746
34	6.5852	-86.4483	40.6107	-79.8631	-39.2524
35	-4.9784	-14.4609	5.6895	-19.4393	-13.7498
36	94.6167	-155.0104	-76.4986	-60.3937	-136.8923
37	24.7038	8.4218	67.9356	33.1256	101.0612
38	-9.0014	-38.7750	-0.6924	-47.7764	-48.4688
39	3.2305	12.3006	-16.0281	15.5311	-0.4970
51	-	-	-	-	-
<b>TOTAL</b>	<b>191.7542</b>	<b>-194.8085</b>	<b>188.3754</b>	<b>-3.0543</b>	<b>185.3211</b>

**Table V 32: Contribution of Expansion in Demand to Change in Production \* at the 2 digit level of the ASI classification. All figures are at Constant (1960) Prices**

(in Rs. Crores)

ASI Code No.	1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
20-21	157.6858	212.2895	95.9049	370.4751	464.5435
22	39.4608	18.6527	20.9416	58.1135	79.0551
23	140.5923	-67.4450	82.0354	72.9929	153.6212
24	3.1017	-0.3564	-1.2883	2.7450	1.4569
25	11.4292	-4.8453	3.6503	7.3794	10.3614
27	25.6032	38.2541	13.0770	61.9408	73.8018
29	3.4910	-9.6494	0.5764	-6.0024	-5.4341
30	35.2724	38.4978	28.3054	72.2233	99.5846
31	119.5198	204.0666	315.1128	317.7793	626.4533
32	17.1301	48.9706	13.6525	58.9974	68.9078
33	64.8741	47.1691	30.5541	114.0638	146.0153
34	166.4690	*-5.1009	84.0762	162.1311	298.1609
35	44.8395	*-4.6934	67.7475	45.8894	97.6101
36	60.6274	*-18.8910	88.9820	46.8986	84.7035
37	82.7027	119.5311	114.0623	189.5244	280.5575
38	222.1773	-214.7684	24.0183	32.2118	52.5334
39	8.1254	6.1528	-13.4141	14.1761	-2.9875
51	68.9776	108.5886	118.8328	177.5662	296.3990
TOTAL	1272.0694	516.4231	1186.8271	1799.1057	2825.3437

\* If one uses the other total measure of import substitution - the product of end year total supply and the change in the production/availability ratio of the manufacturing sector as whole - the contribution of expansion in demand to change in production is as follows:

(in Rs. Crores)

1965 over 1960	1970 over 1965	1975 over 1970	1970 over 1960	1975 over 1960
1390.3527	544.2137	1229.8473	733.8015	3040.1957

**Table V 13: Value of Production in Indian Manufacturing Sector  
1960-75**

(Rs.Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
202	Dairy products	9.0431	34.0556	119.5900	309.1100
203	Canning & preservation of fruits & vegetables	1.3231	6.3261	6.7500	12.2100
204	Canning & preserving of fish & other seafoods	0.5191	3.1308	11.2700	24.6100
205	Grain mill products	94.1089	124.0566	192.7634	209.1400
206	Bakery products	8.0626	20.9525	42.8089	75.1000
207	Sugar factories & refineries	195.4424	307.9676	564.6935	865.2400
208	Cocoa, chocolate & su- gar confectionery	1.2310	4.0192	3.4210	11.9700
209	Miscellaneous food preparations	363.3060	587.8398	860.0602	1335.2900
211	Distilling, rectifying & blending of spirits	3.6497	5.0139	8.1864	99.8000
212	Wine industries	0.3208	8.4200	19.2100	35.5100
213	Breweries & manufacturing of malt	2.0278	3.0133	9.9900	24.2700
214	Soft drinks & carbonated water industries	0.9595	5.9850	19.4500	32.7700
220	Tobacco manufacturing	82.9009	150.9401	249.4395	311.7700
231	Spinning, weaving & finishing of textiles	875.9611	1438.6934	2144.0699	3301.0398
232	Knitting mills	1.9938	6.3750	11.9400	22.4900
233	Cordage, rope & twine industries	2.7080	4.3800	5.8500	57.9400
239	Textiles n.e.c.	52.7181	92.0885	124.8680	229.9202
241	Footwear	1.2820	6.4463	8.9300	42.7800
243	Wearing apparel (except footwear)	3.1982	9.3039	18.0238	4.7100
251	Saw mills, planning & other wood mills	9.5229	22.0098	26.4375	62.7700

(Contd.)



Table X31: (Contd.)

(Rs.Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
252	Wooden & cane containers & cane small ware	0.8700	1.3500	2.3700	4.1400
259	Cork & wood products n.e.c.	1.4507	3.5000	4.0188	7.2500
260	Furnitures & fixtures	9.4134	22.0063	35.2865	61.4000
271	Paper & paper-products (board) & pulp	64.4428	114.5267	231.9560	490.1400
280	Printing, publishing & allied industries	54.4201	95.1072	145.0768	220.0000
291	Tanneries & leather finishing plants	16.5853	24.7324	47.1266	96.0100
293	Leather products except footwear & other wearing apparel	0.2660	0.7700	1.1100	1.2300
300	Rubber products	66.5598	133.5150	232.8596	377.9400
311	Basic industrial chemicals including fertilizers	93.3216	258.5156	689.3733	1976.7600
312	Vegetable & animal oils & fats (except edible oils)	5.0657	35.6700	84.2482	160.8700
313	Paints, varnishes & lacquers	14.0600	25.8606	43.6629	270.3100
319	Miscellaneous chemical products	128.9025	270.4624	536.8471	1009.9800
321	Petroleum refineries	47.1395	81.7667	279.1364	970.2700
329	Miscellaneous products of petroleum & coal	3.8090	38.5320	62.5400	239.7800
331	Structural clay products	16.0009	27.3315	44.5747	85.1800
332	Glass & glass products	15.8877	31.0337	53.7113	107.0900
333	Pottery, china & earthenware	5.7392	13.1957	18.7680	26.2800
334	Cement (hydraulic)	53.4317	106.8930	174.0900	250.0500
339	Non-metallic mineral products n.e.c.	25.6353	52.9385	72.0577	135.0100
341	Iron & steel basic industries	265.5698	631.3382	1028.9106	1944.3800
342	Non-ferrous basic metal industries	57.0122	115.6312	235.6186	286.6400

Table V 33: (Contd.)

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
350	Metal products except machinery & transport equipment	68.2950	163.6401	251.3737	386.2600
360	Machinery except electrical machinery	82.3650	287.2221	551.0239	1209.8800
370	Electrical machinery, apparatus, appliances & supplies	100.0436	289.1442	618.9019	1204.8400
381	Shipbuilding & repairing	18.5747	20.3582	37.9344	117.5000
382	Rail-road equipment	90.4014	179.6389	219.6047	280.1400
383	Motor vehicles	118.3332	267.8031	385.9478	715.0200
384	Repair of motor vehicles	16.8564	48.7346	79.7734	148.9300
385	Motor cycles & bicycles	23.9777	50.0967	107.0667	149.3200
386	Aircraft	7.1382	13.3100	15.4300	22.2900
391	Professional & scientific measuring & controlling instruments	3.6275	14.4739	32.6845	36.7300
392	Photographic & optical goods	0.5235	2.1300	9.6700	2.8800
393	Watches & clocks	0.2339	4.7270	8.2800	18.5700
394	Jewellery & related articles	4.4200	6.8893	8.6700	19.9200
395	Musical instruments				
399	Industries n.e.c.	17.6695	45.7803	70.4073	34.1100
511	Electric light & power	75.8830	368.2180	822.9837	1256.1700
TOTAL		3274.2048	6687.8605	11690.8472	21391.7100

Table V34: Value of India's Industrial Imports 1960-75

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
202	Dairy products	5.7085	7.1953	10.6137	24.8838
203	Canning & preservation of fruits & vegetables	5.1812	5.0440	7.1349	13.1704
204	Canning & preserving of fish & other seafoods	0.0067	0.0039	0.0052	0.0485
205	Grain mill products	18.4768	38.5661	36.8981	15.6742
206	Bakery products	0.0004	0.0043	0.0121	0.0679
207	Sugar factories & refineries	0.0710	0.2888	0.5151	0.9681 <del>0.9604</del>
208	Cocoa, chocolate & sugar confectionery	0.1509	0.1374	0.4625	0.6104
209	Miscellaneous food preparations	15.6852	18.0338	37.0787	43.7260
211	Distilling, rectifying & blending of spirits	0.4535	0.2896	0.2497	0.5256
212	Wine industries	0.0699	0.0549	0.0302	0.0927
213	Breweries & manufacturing of malt	0.0458	0.0133	0.0098	0.0566
214	Soft drinks & carbonated water industries	0.0004	0.0095	-	-
220	Tobacco manufacturing	0.0146	0.1685	0.0189	0.1546
231	Spinning, weaving & finishing of textiles	26.0034	27.2169	11.3465	18.3832
232	Knitting mills	0.0078	0.0169	0.0305	0.1167
233	Cordage, rope & twine industries	0.2276	0.5062	0.1706	0.1545
239	Textiles n.e.c.	8.9858	6.9033	1.9920	4.7242
241	Footwear	0.0004	0.0010	0.0432	0.0015
243	Wearing apparel (except footwear)	0.0057	0.0299	0.1625	0.0972
251	Saw mills, planing & other wood mills	2.6496	0.5791	0.1552	0.2239

(Contd.)

Table V34: (Contd.)

		(Rs. Crores at Current Prices)			
ASI Code No.	Name of the industry	1960	1965	1970	1975
252	Wooden & cane containers & cane small ware	0.0046	0.0007	0.0038	0.0301
259	Cork & wood products n.e.c.	0.5297	0.8051	0.6827	1.2707
260	Furnitures & fixtures	0.1125	0.1132	0.1518	0.9125
271	Paper & paper-products (board) & pulp	18.4597	19.2589	37.2866	68.6616
280	Printing, publishing & allied industries	2.8167	3.2142	5.9719	8.2306
291	Tanneries & leather finishing plants	0.0324	0.0432	0.0519	0.1183
293	Leather products except footwear & other wearing apparel	0.3106	0.0403	0.0196	0.0193
300	Rubber products	3.6420	1.1598	2.5641	6.2643
311	Basic industrial chemicals including fertilizers	54.2655	84.5563	147.6320	632.1453
312	Vegetable & animal oils & fats (except edible oils)	3.7872	15.2086	38.3981	34.1032
313	Paints, varnishes & lacquers	12.8759	6.5297	9.2466	11.2875
319	Miscellaneous chemical products	21.1272	16.8965	44.8379	76.5460
321	Petroleum refineries	69.4168	33.5067	30.7173	198.5869
329	Miscellaneous products of petroleum & coal	0.0573	0.1854	0.1452	0.1669
331	Structural clay products	2.3353	0.8810	4.2076	1.5646
332	Glass & glass products	1.3648	1.2517	1.8132	3.4093
333	Pottery, china & earthen-ware	0.0359	0.0885	0.0642	0.1258
334	Cement (hydraulic)	0.0575	0.1407	0.0192	-
339	Non-metallic mineral products n.e.c.	2.4546	2.4706	2.6007	4.0845

(Contd.)

Table Y 34: (Contd.)

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
341	Iron & steel basic industries	1.8490	98.2550	147.8446	419.4208
342	Non-ferrous basic metal industries	167.4037	68.6498	119.6364	178.1297
350	Metal products except machinery & transport equipment	23.7065	19.4037	11.0610	28.4989
360	Machinery except electrical machinery	201.3122	332.4429	256.9323	396.7540
370	Electrical machinery, apparatus, appliances & supplies	56.1451	87.1284	69.3045	150.1269
381	Shipbuilding & repairing	0.7062	4.9334	1.9675	1.5876
382	Rail-road equipment	24.0043	24.8745	14.0052	25.2518
383	Motor vehicles	34.0277	32.6190	22.9705	48.8797
384	Repair of motor vehicles				
385	Motor cycles & bicycles	1.4566	0.8378	0.0775	0.2066
386	Aircraft	9.0464	6.6319	<del>9.2423</del> 19.2423	46.9713
391	Professional & scientific measuring & controlling instruments	5.6481	8.7701	13.6788	20.2525
392	Photographic & optical goods	4.2782	4.7682	9.9988	11.2529
393	Watches & clocks	0.7856	0.3773	0.5480	1.3103
394	Jewellery & related articles	-	1.9734	24.9363	53.5431
395	Musical instruments				
399	Industries n.e.c.	1.7130	0.9906	1.8635	3.2400
511	Electric light & power	-	0.0002	-	-
	<b>TOTAL</b>	<b>809.5140</b>	<b>984.0700</b>	<b>1147.4110</b>	<b>2556.6335</b>

**Table V35: Value of Supply (Production + Imports) in Indian Manufacturing Sector (1960-75)**

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
202	Dairy products	14.7516	41.2509	130.2037	333.9938
203	Canning & preservation of fruits & vegetables	6.5043	11.3701	13.8849	25.3804
204	Canning & preserving of fish & other seafoods	0.5258	3.1347	11.2752	24.6585
205	Grain mill products	112.5857	162.6227	229.6615	224.8142
206	Bakery products	8.0630	20.9568	42.8210	75.1679
207	Sugar factories & refineries	195.5134	308.2564	565.2086	866.2081
208	Cocoa, chocolate & sugar confectionery	1.3819	4.1566	3.8835	12.5804
209	Miscellaneous food preparations	378.9912	605.8736	897.1389	1379.0160
211	Distilling, rectifying & blending of spirits	4.1032	5.3035	8.4361	100.3256
212	Wine industries	0.3907	8.4749	19.2402	35.6027
213	Breweries & manufacturing of malt	2.0736	3.0266	9.9998	24.3266
214	Soft drinks & carbonated water industries	0.9599	5.9945	19.4500	32.7700
220	Tobacco manufacturing	82.9155	151.1086	249.4584	311.9246
231	Spinning, weaving & finishing of textiles	901.9645	1465.9103	2155.4164	3319.4230
232	Knitting mills	2.0016	6.3919	11.9705	22.6067
233	Cordage, rope & twine industries	2.9356	4.8862	6.0206	58.0945
239	Textiles n.e.c.	61.7039	98.9918	126.8600	234.6444
241	Footwear	1.2824	6.4473	8.9732	42.7815
243	Wearing apparel (except footwear)	3.2039	9.3338	18.1863	4.8072
251	Saw mills, planing & other wood mills	12.5725	22.5889	26.5927	62.9939

(Contd.)

Table Y 35: (Contd.)

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
252	Wooden & cane containers & cane small ware	0.8746	1.3507	2.3738	4.1701
259	Cork & wood products n.e.c.	1.9804	4.3051	4.7015	8.5207
260	Furnitures & fixtures	9.5259	22.1195	35.4383	62.3125
271	Paper & paper-products (board) & pulp	82.9025	133.7856	269.2426	558.8016
280	Printing, publishing & allied industries	57.2368	98.3214	151.0487	228.2306
291	Tanneries & leather finishing plants	16.6177	24.7756	47.1785	96.1283
293	Leather products except footwear & other wearing apparel	0.5766	0.8103	1.1296	1.2493
300	Rubber products	70.2018	134.6748	235.4237	384.2043
311	Basic industrial chemi- cals including fertili- zers	147.5871	343.0719	837.0053	2608.9053
312	Vegetable & animal oils & fats (except edible oils)	8.8529	50.8786	122.6463	194.9732
313	Paints, varnishes & lacquers	26.9359	32.3903	52.9095	281.5975
319	Miscellaneous chemical products	150.0297	287.3589	581.6850	1086.5260
321	Petroleum refineries	116.5563	115.2734	309.8537	1168.8569
329	Miscellaneous products of petroleum & coal	3.8663	38.7174	62.6852	239.9469
331	Structural clay products	18.3362	28.2125	48.7823	86.7446
332	Glass & glass products	17.2525	32.2854	55.5245	110.4993
333	Pottery, china & earth- en.-ware	5.7751	13.2842	18.8322	26.4058
334	Cement (hydraulic)	53.4892	107.0337	174.1092	250.0500
339	Non-metallic mineral products n.e.c.	28.0899	55.4091	74.6584	139.0945

(Contd.)

Table V 35: (Contd.)

(Rs. Crores at Current Prices)

ASI Code No.	Name of the industry	1960	1965	1970	1975
341	Iron & steel basic industries	267.4188	729.5932	1176.7552	2363.8008
342	Non-ferrous basic metal industries	214.4159	184.2810	355.2550	464.7697
350	Metal products except machinery & transport equipment	92.0015	183.0438	262.4347	414.7589
360	Machinery except electrical machinery	283.6772	619.6650	807.9562	1606.6340
370	Electrical machinery, apparatus, appliances & supplies	156.1887	376.2726	688.2064	1354.9669
381	Shipbuilding & repairing	19.2809	25.2916	39.9019	119.0876
382	Rail-road equipment	114.4057	204.5134	233.6099	305.3918
383	Motor vehicles	152.3609	300.4221	408.9183	763.8997
384	Repair of motor vehicles	16.8564	48.7346	79.7734	148.9300
385	Motor cycles & bicycles	25.4343	50.9345	107.1442	149.5266
386	Aircraft	16.1846	19.9419	34.6723	69.2613
391	Professional & scientific measuring & controlling instruments	9.2756	23.2440	46.3633	56.9825
392	Photographic & optical goods	4.8017	6.8982	19.6688	14.1329
393	Watches & clocks	1.0195	5.1043	8.8280	19.8803
394	Jewellery & related articles	4.4200	8.8627	33.6063	73.4631
395	Musical instruments				
399	Industries n.e.c.	19.3825	46.7709	72.2708	37.3500
511	Electric light & power	75.8830	368.2182	822.9837	1256.1700
	TOTAL	4083.7188	7671.9305	12 838.2584	23948.343



Table V 36: Production/Availability Ratios 1960-1975

(Current Price Data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
202	Manufacture of dairy products	0.6130	0.8256	0.9185	0.9255
203	Canning & preserving of fruits & vegetables	0.2035	0.5564	0.4861	0.4811
204	Canning & preserving of fish & other seafoods	0.9873	0.9988	0.9995	0.9980
205	Grain mill products	0.8359	0.7628	0.8393	0.9303
206	Bakery products	1.0000	0.9998	0.9997	0.9991
207	Sugar factories & refineries	0.9996	0.9991	0.9991	0.9989
208	Cocoa, chocolate & sugar confectionery	0.8908	0.9669	0.8809	0.9515
209	Miscellaneous food preparations	0.9586	0.9702	0.9567	0.9683
211	Distilling, rectifying & blending of spirits	0.8895	0.9454	0.9704	0.9948
212	Wine industries	0.8211	0.9935	0.9984	0.9974
213	Breweries & manufacturing of malt	0.9779	0.9956	0.9990	0.9977
214	Soft drinks & carbonated water industries	0.9996	0.9984	1.0000	1.0000
220	Tobacco manufactures	0.9998	0.9989	0.9999	0.9995
231	Spinning, Weaving & finishing of textile	0.9712	0.9814	0.9947	0.9945
232	Knitting mills	0.9961	0.9974	0.9975	0.9948
233	Cordage, rope & twine industries	0.9225	0.8964	0.9717	0.9973
239	Textiles n.e.c.	0.8544	0.9303	0.9843	0.9799
241	Footwear	0.9997	0.9998	0.9952	1.0000
243	Wearing apparel (except footwear)	0.9982	0.9968	0.9911	0.9798
251	Saw mills, planing & other wood mills	0.7823	0.9744	0.9942	0.9964

Table V 36: (Contd.)

(Current Price Data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
252	Wooden & cane containers & cane small ware	0.9947	0.9995	0.9984	0.9928
259	Cork & wood products n.e.c.	0.7325	0.8130	0.8548	0.8509
260	Furnitures & fixtures	0.9882	0.9949	0.9957	0.9854
271	Paper & paper products (board) & pulp	0.7773	0.8560	0.8615	0.8771
280	Printing, publishing & allied industries	0.9508	0.9673	0.9605	0.9639
291	Tanneries & leather finishing plants	0.9981	0.9983	0.9989	0.9988
293	Leather products except footwear & other wearing apparel	0.4613	0.9503	0.9826	0.9846
300	Rubber products	0.9481	0.9914	0.9891	0.9837
311	Basic industrial chemicals including fertilizers	0.6323	0.7535	0.8236	0.7577
312	Vegetable & animal oils & fats (except edible oils)	0.5722	0.7011	0.6869	0.8251
313	Paints, varnishes & lacquers	0.5220	0.7984	0.8252	0.9599
319	Miscellaneous chemical products	0.8592	0.9412	0.9229	0.9295
321	Petroleum refineries	0.4044	0.7093	0.9007	0.8301
329	Miscellaneous products of petroleum & coal	0.9852	0.9952	0.9977	0.9993
331	Structural clay produ- cts	0.8726	0.9688	0.9137	0.9820
332	Glass & glass products	0.9209	0.9612	0.9673	0.9691

(Contd.)

Table V36: (Contd.)

(Current Price Data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
333	Pottery, china & earthen ware	0.9938	0.9933	0.9966	0.9952
334	Cement (hydraulic)	0.9989	0.9987	0.9999	1.0000
339	Non-metallic mineral products n.e.c.	0.9126	0.9554	0.9652	0.9706
341	Iron & steel basic industries	0.9931	0.8653	0.8744	0.8226
342	Non-ferrous basic metal industries	0.2193	0.6275	0.6632	0.6167
350	Metal products except machinery & transport equipment	0.7423	0.8940	0.9579	0.9313
360	Machinery except electrical machinery	0.2903	0.4635	0.6820	0.7531
370	Electrical machinery, apparatus, appliances & supplies	0.6405	0.7684	0.8993	0.8892
381	Shipbuilding & repairing	0.9634	0.8049	0.9507	0.9867
382	Rail-road equipment	0.7902	0.8588	0.9400	0.9173
383	Motor vehicles	0.7767	0.8914	0.9438	0.9360
384	Repair of motor vehicles	1.0000	1.0000	1.0000	1.0000
385	Motor cycles & bicycles	0.9427	0.9836	0.9993	0.9986
386	Aircraft	0.4410	0.6674	0.4450	0.3218
391	Professional & scientific measuring & controlling instruments	0.3911	0.6227	0.7050	0.6446
392	Photographic & optical goods	0.1090	0.3088	0.0628	0.2038
393	Watches & clocks	0.2294	0.9261	0.9379	0.9341
394	Jewellery & related articles	1.0000	0.7773	0.2580	0.2712
395	Musical instruments	-	-	-	-
399	Industries n.e.c.	0.9116	0.9788	0.9742	0.9133
511	Electric light & power	1.0000	1.0000	1.0000	1.0000

**Table X 37: Absolute Change in the Production Availability Ratio  
1960-1975**

(Current price data)

ASI Code No.	Name of the industry	1975-60	1970-60	1975-70	1970-65	1965-60
202	Dairy products	0.3125	+0.3055	0.0070	+0.0929	+0.2126
203	Canning & preserva- tion of fruits & vegetables	0.2776	+0.2826	-0.0050	-0.0703	+0.3529
204	Canning & preserv- ing of fish & other seafoods	0.0107	+0.0122	-0.0015	+0.0007	+0.0115
205	Grain mill products	0.0944	+0.0034	0.0910	+0.0765	-0.0731
206	Bakery products	-0.0009	-0.0003	-0.0006	-0.0001	-0.0002
207	Sugar factories & refineries	-0.0007	-0.0005	-0.0002	0.0000	-0.0005
208	Cocoa, chocolate & sugar confec- tionery	0.0607	-0.0099	0.0706	-0.0860	+0.0761
209	Miscellaneous food preparations	0.0097	-0.0019	0.0116	-0.0135	+0.0116
211	Distilling, recti- fying & blending of spirits	0.1053	+0.0809	0.0244	+0.0250	+0.0559
212	Wine industries	0.1763	+0.1773	-0.0010	+0.0049	+0.1724
213	Breweries & manufa- cturing of malt	0.0198	+0.0211	-0.0013	+0.0034	+0.0177
214	Soft drinks & car- bonated water industries	0.0006	+0.0004	0.0000	+0.0016	-0.0012
220	Tobacco manufactur- ing	-0.0003	+0.0001	-0.0004	+0.0010	-0.0009
231	Spinning, weaving & finishing of textiles	0.0233	+0.0235	-0.0002	+0.0133	+0.0102
232	Knitting mills	-0.0013	+0.0014	-0.0027	+0.0001	+0.0013
233	Cordage, rope & twine industries	0.0748	+0.0492	0.0256	+0.0753	-0.0261
239	Textiles n.e.c.	0.1255	+0.1299	-0.0044	+0.0540	+0.0759

(Contd.)

Table V 37. (Contd.)

(Current price data)

ASI Code No.	Name of the industry	1975-60	1970-60	1975-70	1970-65	1965-60
241	Footwear	0.0003	-0.0045	0.0048	-0.0046	+0.0001
243	Wearing apparel (except footwear)	-0.0184	-0.0071	-0.0113	-0.0057	-0.0014
251	Saw mills, planing & other wood mills	0.2141	+0.2119	0.0022	+0.0198	+0.1921
252	Wooden & cane con- tainers & cane small ware	-0.0019	+0.0037	-0.0056	-0.0011	+0.0048
259	Cork & wood produ- cts n.e.c.	0.1184	-0.1223	-0.0039	+0.0418	+0.0805
260	Furnitures & fix- tures	-0.0028	+0.0075	-0.0103	+0.0008	+0.0067
271	Paper & paper-pro- ducts (board) & pulp	0.0998	+0.0842	0.0156	+0.0055	+0.0787
280	Printing, publish- ing & allied industries	0.0131	+0.0097	0.0034	-0.0068	+0.0165
291	Tanneries & leather finishing plants	0.0007	+0.0008	-0.0001	+0.0006	+0.0002
293	Leather products except footwear & other wearing apparel	0.5233	+0.5213	0.0020	+0.0323	+0.4890
300	Rubber products	0.0356	+0.0410	-0.0054	-0.0023	+0.0433
311	Basic industrial chemicals including fertilizers	0.1254	+0.1913	-0.0659	<del>0.0701</del> <del>+0.0659</del>	+0.1212
312	Vegetable & animal oils & fats (ex- cept edible oils)	0.2529	+0.1147	0.1382	-0.0142	+0.1289
313	Paints, varnishes & lacquers	0.4379	+0.3032	0.1347	+0.0268	+0.2764
319	Miscellaneous che- mical products	0.0703	+0.0637	0.0066	-0.0183	+0.0820
321	Petroleum refineries	0.4257	+0.4963	-0.0706	+0.1914	+0.3049

(Contd.)

Table V 37 (Contd.)

(Current price data)

ASI Code No.	Name of the industry	1975-60	1970-60	1975-70	1970-65	1965-60
329	Miscellaneous products of petroleum & coal	0.0147	+0.0125	0.0016	+0.0025	+0.0100
331	Structural clay products	0.1094	+0.0411	0.0683	-0.0551	+0.0962
332	Glass & glass products	0.0482	+0.0464	0.0018	+0.0061	+0.0403
333	Pottery, china & earthen-ware	0.0014	+0.0028	-0.0014	+0.0033	-0.0005
334	Cement (hydraulic)	0.0011	+0.0010	0.0001	+0.0012	-0.0002
339	Non-metallic mineral products n.e.c.	0.0580	+0.0526	0.0054	+0.0098	+0.0428
341	Iron & steel basic industries	-0.1705	-0.1187	-0.0518	+0.0091	-0.1278
342	Non-ferrous basic metal industries	0.3974	+0.4439	-0.0465	0.0357	+0.4082
350	Metal products except machinery & transport equipment	0.1890	+0.2156	-0.0266	+0.0639	+0.1517
360	Machinery except electrical machinery	0.4628	+0.3917	0.0711	+0.2185	+0.1732
370	Electrical machinery apparatus, appliances & supplies	0.2487	+0.2588	-0.0101	+0.1309	+0.1279
381	Shipbuilding & repairing	0.0233	-0.0127	0.0360	+0.1458	-0.1585
382	Rail-road equipment	0.1271	+0.1498	-0.0227	+0.0812	+0.0686
383	Motor vehicles	0.1593	+0.1671	-0.0078	+0.0524	+0.1147
384	Repair of motor vehicles	-	-	-	-	-
385	Motor cycles & bicycles	0.0559	+0.0566	-0.0007	+0.0157	+0.0409

(Contd.)

Table V 37: (Contd.)

(Current price data)

ASI Code No.	Name of the industry	1975-60	1970-60	1975-70	1970-65	1965-60
386	Aircraft	-0.1192	+0.0040	-0.1232	-0.2224	+0.2264
391	Professional & sci- entific measuring & controlling instruments	<del>0.2535</del> 0.2525	+0.3139	-0.0604	+0.0823	+0.2316
392	Photographic & optical goods	0.0948	-0.0462	0.1410	-0.2460	0.1998
393	Watches & clocks	0.7047	+0.7085	-0.0038	+0.0118	+0.6967
394	Jewellery & related articles	-0.7288	-0.7420	0.0132	-0.5193	-0.2227
399	Industries n.e.c.	0.0017	0.0626	-0.0609	-0.0046	0.0672
511	Electric light & power	-	-	-	-	-

Table 28: Change in Production in Different Industries of the Indian Manufacturing Sector (1960-75)

(#. Crores at Current Prices)

ASI Code	Name of the Industry	1975-60	1970-60	1975-70	1970-65	1965-60
202	Manufacture of dairy products	300.0669	110.5469	189.5200	85.5344	25.0125
203	Canning & preservation of fruits & vegetables	10.8869	5.4269	5.4600	0.4239	5.0030
204	Canning & preserving of fish & other seafoods	24.0909	10.7509	13.3400	8.1392	2.6117
205	Manufacture of grain mill products	115.0311	98.6545	16.3766	68.7068	29.9477
206	Manufacture of bakery products	67.0374	34.7463	32.2911	21.8564	12.8899
207	Sugar factories & refineries	669.7976	369.2511	300.5465	256.7259	112.5252
208	Manufacture of cocoa, chocolate & sugar confectionery	10.7390	2.1900	8.5490	-0.5982	2.7882
209	Manufacture of miscellaneous food preparations	971.9840	496.7542	475.2298	272.2204	224.5338
211	Distilling, rectifying & blending of spirits	96.1503	4.5367	91.6136	3.1725	1.3642
212	Wine industries	35.1892	18.8892	16.3000	10.7900	8.0992
213	Breweries & manufacturing of malt	22.2422	7.9622	14.2800	6.9767	0.9855
214	Soft drinks & carbonated water industries	31.8105	18.4905	13.3200	13.4650	5.0255
220	Tobacco manufacturing	228.8691	166.5386	62.3305	98.4994	68.0392
231	Spinning, weaving & finishing of textiles	2425.0787	1268.1088	1156.9699	705.3765	562.7323
232	Knitting mills	20.4962	9.9462	10.5500	5.5650	4.3812
233	Cordage, rope & twine industries	55.2320	3.1420	52.0900	1.4700	1.6720
239	Manufacture of textiles n.e.c.	177.2021	72.1499	105.0522	32.7795	39.3704
241	Manufacture of footwear	41.4980	7.6480	33.8500	2.4837	5.1643
243	Manufacture of wearing apparel (except footwear)	1.5118	14.8256	-13.3138	8.7199	6.1057
251	Saw mills, planing & other wood mills	53.2471	16.9146	36.3325	4.4277	12.4869
252	Wooden & cane containers & cane small ware	3.2700	1.5000	1.7700	1.0200	0.4800
259	Manufacture of cork & wood products n.e.c.	5.7993	2.5681	3.2312	0.5188	2.0493
260	Manufacture of furnitures & fixtures	51.9866	25.8731	26.1135	13.2802	12.5929
271	Manufacture of paper & paper-products (board) & pulp	425.6972	167.5132	258.1840	117.4292	50.0889
280	Printing, publishing & allied industries	165.5799	90.6567	74.9232	49.9696	40.6871
291	Tanneries & leather finishing plants	79.4247	30.5113	48.8834	22.3942	8.1471
293	Manufacture of leather products except footwear & other wearing apparel	0.9640	0.8440	0.1200	0.3400	0.5040
300	Manufacture of rubber products	311.3802	166.2998	145.0804	99.3446	66.9552
311	Basic industrial chemicals including fertilizers	1883.4384	596.0517	1287.3867	430.8577	165.1940
312	Vegetable & animal oils & fats (except edible oils)	155.8043	79.1825	76.6218	48.5782	30.6043

(Contd.)



Table V 38: (Contd.)

(Rs. Crores at Current Prices)

ASI Code No.	Name of the Industry	1975-60	1970-60	1975-70	1970-65	1965-60
313	Manufacture of paints, varnishes & lacquers	256.2500	29.6029	226.6471	17.8023	11.8006
319	Manufacture of miscellaneous chemical products	881.0775	407.9446	473.1329	266.3847	141.5599
321	Petroleum refineries	923.1305	231.9969	691.1336	197.3697	34.6272
329	Manufacture of miscellaneous products of petroleum & coal	235.9710	58.7310	177.2400	24.0080	34.7230
331	Manufacture of structural clay products	<del>69.1791</del> 69.1792	28.5738	40.6053	17.2432	11.3306
332	Manufacture of glass & glass products	91.2023	37.8236	53.3787	22.6776	15.1460
333	Manufacture of pottery, china & earthen-ware	20.5408	13.0288	7.5120	5.5723	7.4565
334	Manufacture of cement (hydraulic)	196.6183	120.6583	75.9600	67.1970	53.4613
339	Manufacture of non-metallic mineral products n.e.c.	109.3747	46.4224	62.9523	19.1192	27.3032
341	Iron & steel basic industries	1678.8102	763.3408	915.4694	397.5724	365.7684
342	Non-ferrous basic metal industries	239.6278	188.6064	51.0214	119.9874	68.6190
350	Manufacture of metal products except machinery & transport equipment	<del>317.9650</del>	<del>183.0787</del>	<del>134.8863</del>	<del>87.7336</del>	<del>95.3451</del>
360	Manufacture of machinery except electrical machinery	1127.5150	468.6589	658.8561	263.8018	204.8571
370	Manufacture of electrical machinery, apparatus, appliances & supplies	1104.7964	518.8583	585.9381	329.7577	189.1006
381	Shipbuilding & repairing	98.9253	19.3597	79.5656	17.5762	1.7835
382	Manufacture of rail-road equipment	180.7286	100.0000	160.5000	80.0000	80.0000

**Table V 39: Chenery measure of Import - substitution**  
 (at the 3 digit level of the ASI classification)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	8.7699	12.0959	2.3380	39.7772	104.3731
203	4.0125	-0.9761	-0.1269	3.9239	7.0456
204	0.0360	0.0101	-0.0370	0.1376	0.2638
205	-11.8877	17.5691	20.4580	0.7808	21.2225
206	-0.0042	-0.0043	-0.0451	-0.0128	-0.0677
207	-0.1541	0.0000	-0.1732	-0.2826	-0.6063
208	0.3163	-0.3340	0.8881	-0.0384	0.7636
209	7.0281	-12.1114	15.9966	-1.7046	13.3765
211	0.2965	0.2109	2.4479	0.6825	10.5643
212	1.4611	0.0943	-0.0356	3.4113	6.2768
213	0.0536	0.0340	-0.0316	0.2110	0.4817
214	-0.0072	0.0311	0.0000	0.0078	0.0197
220	-0.1360	0.2495	-0.1248	0.0249	-0.0936
231	14.9523	28.6670	-0.6639	50.6522	77.3426
232	0.0083	0.0012	-0.0610	0.0168	-0.0294
233	-0.1275	0.4534	1.4872	0.2962	4.3455
239	7.5135	6.8504	-1.0324	16.4791	29.4479
241	0.0006	-0.0413	0.2054	-0.0403	0.0128
243	-0.0131	-0.1037	-0.0543	-0.1291	-0.0884
251	4.3393	0.5265	0.1386	5.6350	13.4870
252	0.0065	-0.0026	-0.0234	0.0088	-0.0079
259	0.3466	0.1965	-0.0322	0.5750	1.0089
260	0.1482	0.0284	-0.6418	0.2658	-0.1745
271	10.5289	1.4808	8.7173	22.6702	55.7684

(Contd.)

Table V39: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
280	1.6223	-1.0271	0.7760	1.4652	2.9898
291	0.0050	0.0283	-0.0096	0.0377	0.0673
293	0.3962	0.0365	0.0025	0.5889	0.6538
300	5.8314	-0.5415	-2.0447	9.6524	13.6777
311	41.5803	58.6741	-171.9269	160.1191	327.1567
312	6.5583	-1.7416	26.9453	14.0675	49.3087
313	8.9527	1.4180	37.9312	16.0421	123.3115
319	23.5634	-10.6448	7.1711	37.0533	76.3828
321	35.1469	59.3060	-82.5213	153.7804	497.5824
329	0.3871	0.1567	0.3839	0.7836	3.5272
331	2.7140	-2.6879	5.9246	2.0050	9.4898
332	1.3011	0.3387	0.1989	2.5763	5.3261
333	-0.0066	0.0621	-0.0367	0.0527	0.0367
334	-0.0214	0.2089	0.0250	0.1741	0.2751
339	2.3715	0.7317	0.7511	3.9270	8.0675
341	-93.2420	10.7085	-122.4449	-139.6808	-403.0280
342	75.2235	12.6826	-21.6118	157.6977	184.6995
350	27.7677	16.7696	-11.0326	56.5809	78.3894
360	107.3260	176.5382	111.2317	316.4764	743.5502
370	48.1253	90.0862	-13.6852	178.1078	336.9803
381	-4.0087	5.8177	4.2872	-0.5068	2.7747
382	14.0296	18.9691	-6.9324	34.9948	38.8153
383	34.4584	21.4273	-5.9584	68.3302	121.6892
384	-	-	-	-	-
385	2.0832	1.6822	-0.1047	6.0642	8.3585

(Contd.)

Table V39: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
386	4.5148	-7.7111	-8.5330	0.1387	-8.2559
391	5.3833	3.8157	-3.4417	14.5534	14.4451
392	1.3783	-0.4839	1.9927	-0.9087	1.3398
393	3.5562	0.1042	-0.0755	6.2546	14.0096
394	-1.9737	-17.4518	0.9697	-24.9359	-53.5399
399	3.1430	-0.3324	-2.4968	4.5242	0.0635
511	-	-	-	-	-
TOTAL	405.6555	491.8659	-204.7014	1223.3643	2542.8773

Table V 40: Share of Import Substitution in the Change in  
Production (at 3 digit level of ASI classification)

(Current price data)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	0.3506	0.1414	0.0123	0.3592	0.3478
203	0.8020	-2.3027	-0.2324	0.7230	0.6472
204	0.0138	+0.0012	-0.0028	0.0128	0.0110
205	-0.3969	0.2557	1.2492	0.0079	0.1845
206	-0.0003	-0.0002	-0.0014	-0.0004	-0.0101
207	-0.0014	0.0000	-0.0006	-0.0008	-0.0009
208	0.1134	+0.5583	0.1039	-0.0175	0.0711
209	0.0313	-0.4449	0.0337	-0.0034	0.0138
211	0.2173	0.0665	0.0267	0.1504	0.1099
212	0.1804	0.0087	-0.0022	0.1806	0.1784
213	0.0544	0.0049	-0.0022	0.0265	0.0217
214	-0.0014	0.0023	0.0000	0.0004	0.0006
220	-0.0020	0.0025	-0.0020	0.0001	-0.0004
231	0.0266	0.0406	-0.0006	0.0399	0.0319
232	0.0019	0.0002	-0.0058	0.0017	-0.0014
233	-0.0763	0.3084	0.0286	0.0943	0.0787
239	0.1908	0.2090	-0.0098	0.2284	0.1662
241	0.0001	-0.0166	0.0607	-0.0053	0.0003
243	-0.0021	-0.0119	+0.0040	-0.0871	-0.0585
251	0.3475	0.1189	0.0038	0.3331	0.2532
252	0.0135	-0.0025	-0.0132	0.0587	-0.0024
259	0.1691	0.3788	-0.0100	0.2239	0.1740
260	0.0118	0.0021	-0.0246	0.0103	-0.0034
271	0.2102	0.0126	0.0338	0.1353	0.1310

(Contd.)

Table 1-10: (Contd.)

(Current price data)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
280	0.0399	-0.0206	0.0104	0.0162	0.0181
291	0.0006	0.0013	-0.0002	0.0012	0.0008
293	0.7861	0.1074	0.0208	0.6977	0.6782
300	0.0871	-0.0055	-0.0143	0.0580	0.0439
311	0.2517	0.1362	-0.1335	0.0027	0.1737
312	0.2143	-0.0359	0.3517	0.1777	0.3165
313	0.7587	0.0797	0.1674	0.5419	0.4812
319	0.1665	-0.0400	0.0152	0.0908	0.0867
321	1.0150	0.3005	-0.1194	0.6629	0.5390
329	.0111	0.0065	0.0022	0.0133	0.0149
331	.2395	-0.1559	0.1459	0.0702	0.1372
332	.0859	0.0149	0.0037	0.0681	0.0584
333	-0.0009	0.0111	-0.0049	0.0040	0.0018
334	-.0004	0.0031	0.0003	0.0014	0.0014
339	.0869	0.0383	0.0119	0.0846	0.0738
341	-.2549	0.0269	-0.1338	-0.1830	-0.2401
342	1.0962	0.1057	-0.4236	0.8361	0.7708
350	.2912	0.1911	-0.0818	0.3090	0.2465
360	.5239	0.6692	0.1688	0.6755	0.6595
370	.2545	0.2732	-0.0234	0.3433	0.3050
381	-2.2477	0.3310	0.0539	-0.0262	0.0280
382	.1572	0.4746	-0.1145	0.2709	0.2046
383	.2305	0.1814	-0.0181	0.2553	0.2039
384	-	-	-	-	-
385	.0798	0.0295	-0.0025	0.0730	0.0667

(Contd.)

Table V40: (Contd.)

(Current price data)

ASI Code No.	1965-60	1970-1965	1975-1970	1970-1960	1975-1960
386	.7315	-3.6373	-1.2439	0.0167	-0.5449
391	.4963	0.2095	-0.8507	0.5009	0.4364
392	.8580	-0.0642	-0.2935	-0.0993	0.5686
393	.7915	0.0293	-0.0073	0.7773	0.7640
394	-.7993	-9.8005	0.0862 <del>0</del>	-5.8673	-3.4542
399	.1118	-0.0135	0.0688	0.8579	0.0037
511	-	-	-	-	-

**Table V 41: Contribution of Expansion in Demand to Growth in Industrial production (with Production/Availability Ratio assumed Constant) at 3 digit level of ASI classification**

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	16.2426	73.4385	187.1820	70.7697	<del>194.6938</del> 195.6938
203	0.9905	1.4000	5.5869	1.5030	3.8413
204	2.5757	8.1291	13.3770	10.6133	23.8271
205	41.8354	51.1377	— 4.0814	97.8737	93.8086
206	12.8941	21.8607	32.3362	34.7591	67.1051
207	112.6793	256.7259	300.7197	369.5337	670.4039
208	2.4719	-0.2642	7.6609	2.2284	9.9754
209	217.5057	284.3318	459.2332	498.4588	958.6075
211	1.0677	2.9616	89.1657	3.8542	85.5860
212	6.6381	10.6957	16.3356	15.4779	28.9124
213	0.9319	6.9427	14.3116	7.7512	21.7605
214	5.0327	13.4339	13.3200	18.4827	31.7908
220	68.1752	98.2499	62.4553	166.5137	228.9627
231	547.7800	676.7095	1157.6338	1217.4566	2347.7361
232	4.3729	5.5638	10.6110	9.9294	20.5256
233	1.7995	1.0166	50.6028	2.8458	50.8865
239	31.8569	25.9291	106.0846	55.6708	147.7542
241	5.1637	2.5250	33.6446	7.6883	41.4852
243	6.1188	8.8236	-13.2595	14.9547	1.6002
251	8.1476	3.9012	36.1939	11.2796	39.7601
252	0.4735	1.0226	1.7934	1.4912	3.2779
259	1.7027	0.3223	3.2634	1.9931	4.7904
260	12.4447	13.2518	26.7553	25.6073	52.1611
271	39.5550	115.9485	249.4667	144.8430	369.9288
280	39.0648	50.9967	74.1472	89.1915	162.5901
291	8.1421	22.8659	48.8930	30.5036	79.3574
293	0.1078	0.3035	0.1175	0.2551	0.3102

(Contd.)



Table V41: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
300	61.1238	99.8861	147.1551	156.6474	297.7025
311	123.6137	372.1836	1459.3136	435.9326	1556.2817
312	24.0460	50.3198	49.6765	65.1150	106.4956
313	2.8479	16.3843	188.7159	13.5608	132.9385
319	117.9965	277.0295	465.9618	370.8913	804.6947
321	— 0.5197	138.0637	773.6549	78.2165	425.5481
329	34.3359	23.8513	176.8561	57.9474	232.4438
331	8.6166	19.9311	34.6807	26.5688	59.6893
332	13.8449	22.3389	53.1798	35.2473	85.8762
333	7.4631	5.5102	7.5487	12.9761	20.5041
334	53.4827	66.9881	75.9350	120.4842	196.3432
339	24.9317	18.3875	62.2012	42.4954	101.3072
341	459.0104	386.8639	1037.9143	903.0216	2081.8382
342	— 6.6045	107.3048	72.6332	30.9087	54.9283
350	67.5774	70.9640	145.9189	126.4978	239.5756
360	97.5311	87.2636	547.6244	152.1825	383.9648
370	140.9753	239.6715	599.6233	340.7505	767.8161
381	5.7922	11.7585	75.2784	19.8665	96.1506
382	75.2079	20.9967	67.4677	94.2085	150.9233
383	115.0115	96.7174	335.0306	199.2844	474.9976
384	31.8782	31.0388	69.1566	62.9170	132.0736
385	24.0358	55.2878	42.3580	77.0248	116.9838
386	1.6570	9.8311	15.3930	8.1531	23.4077
391	5.4631	14.3949	7.4872	14.5036	18.6574
392	0.2282	8.0239	— 8.7827	10.0552	1.0167
393	0.9369	3.4488	10.3655	1.7915	4.3265
394	4.4430	19.2325	10.2803	29.1859	69.0399
399	24.9678	24.9594	—33.8005	48.2136	16.3770
511	292.3350	454.7657	433.1863	747.1007	1180.2870
TOTAL	3008.0002	4511.1208	9905.5642	7193.2781	15574.6279

Table X42: Import/Availability Ratios (at the 3-digit level of the ASI classification)

(Current price data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
202	Dairy products	0.3870	0.1744	0.0815	0.0745
203	Canning & preserving of fruits & vegetables	0.7965	0.4436	0.5139	0.5189
204	Canning & preserving of fish & other sea foods	0.0127	0.0012	0.0005	0.0020
205	Grainmill products	0.1641	0.2372	0.1607	0.0697
206	Bakery products	0.0000	0.0002	0.0003	0.0009
207	Sugar factories & refineries	0.0004	0.0009	0.0009	0.0011
208	Cocoa, chocolate & sugar confectionery	0.1092	0.0331	0.1191	0.0485
209	Miscellaneous food preparations	0.0414	0.0298	0.0433	0.0317
211	Distilling, rectifying & blending of spirits	0.1105	0.0546	0.0296	0.0052
212	Wine Industries	0.1789	0.0065	0.0016	0.0026
213	Breweries & manufacturing of malt	0.0221	0.0044	0.0010	0.0023
214	Soft drinks & carbonated water industries	0.0004	0.0016	-	-
220	Tobacco manufacturing	0.0002	0.0011	0.0001	0.0005
231	Spinning, weaving & finishing of textiles	0.0288	0.0186	0.0053	0.0055
232	Knitting mills	0.0039	0.0026	0.0025	0.0052
233	Cordage, rope & twine industries	0.0775	0.1036	0.0283	0.0027
239	Textiles, n.e.c.	0.1456	0.0697	0.0157	0.0201
241	Footwear	0.0003	0.0002	0.0048	0.0000
243	Wearing apparel (except footwear)	0.0018	0.0032	0.0089	0.0202
251	Saw mills, planing & other wood mills	0.2177	0.0256	0.0058	0.0036

(Contd.)

Table V42: (Contd.)

(Current price data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
252	Wooden & cane containers & cane small ware	0.0053	0.0005	0.0016	0.0072
259	Cork & wood products, n.e.c.	0.2675	0.1870	0.1452	0.1491
260	Furnitures & fixtures	0.0118	0.0051	0.0043	0.0146
271	Paper & paper-products (board) & pulp	0.2227	0.1440	0.1385	0.1229
280	Printing, publishing & allied industries	0.0492	0.0327	0.0395	0.0361
291	Tanneries & leather finishing plants	<del>0.0019</del> 0.0019	0.0017	0.0011	0.0012
293	Leather products except footwear & other wearing apparel	0.5387	0.0497	0.0174	0.0154
300	Rubber products	0.0519	0.0086	0.0109	0.0163
311	Basic industrial chemicals including fertilizers	0.3677	0.2465	0.1764	0.2423
312	Vegetable & animal oils & fats (except edible oils)	0.4278	0.2989	0.3131	0.1749
313	Paints, varnishes & lacquers	0.4780	0.2016	0.1748	0.0401
319	Miscellaneous chemical products	0.1408	0.0588	0.0771	0.0705
321	Petroleum refineries	0.5956	0.2907	0.0993	0.1699
329	Miscellaneous products of petroleum & coal	0.0148	0.0048	0.0023	0.0007
331	Structural clay products	0.1274	0.0312	0.0863	0.0180
332	Glass & glass products	0.0791	0.0388	0.0327	0.0309
333	Pottery, china & earthenware	0.0062	0.0067	0.0034	0.0048
334	Cement (hydraulic)	0.0011	0.0013	0.0001	-

(Contd.)

Table V42: (Contd.)

(Current price data)

ASI Code No.	Name of the industry	1960	1965	1970	1975
339	Non-metallic mineral products, n.e.c.	0.0874	0.0446	0.0348	0.0294
341	Iron & steel basic industries	0.0069	0.1347	0.1256	0.1774
342	Non-ferrous basic metal industries	0.7807	0.3725	0.3368	0.3833
350	Metal products except machinery & transport equipment	0.2577	0.1060	0.0421	0.0687
360	Machinery except electrical machinery	0.7097	0.5365	0.3180	0.2469
370	Electrical machinery, apparatus, appliances & supplies	0.3595	0.2316	0.1007	0.1108
381	Shipbuilding & repairing	0.0366	0.1951	0.0493	0.0133
382	Railroad equipment	0.2098	0.1412	0.0600	0.0827
383	Motor vehicles	0.2233	0.1086	0.0562	0.0640
384	Repair of motor vehicles	-	-	-	-
385	Motor cycles & bicycles	0.0573	0.0164	0.0007	0.0014
386	Aircraft	0.5590	0.3326	0.5550	0.6782
391	Professional & scientific measuring & controlling instruments	0.6089	0.3773	0.2950	0.3554
392	Photographic & optical goods	0.8910	0.6912	0.9372	0.7962
393	Watches & clocks	0.7706	0.0739	0.0621	0.0659
394	Jewellery & related articles	-	0.2227	0.7420	0.7288
395	Musical instruments				
399	Industries, n.e.c.	0.0844	0.0212	0.0258	0.0867
511	Electric light & power	-	-	-	-
TOTAL		0.0198	0.0128	0.0090	0.0107

Table V43: Change in the Import-Availability Ratio

(Current price data)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	-0.2126	-0.0929	-0.0070	-0.3055	-0.3125
203	-0.3529	+0.0703	+0.0050	-0.2826	-0.2776
204	-0.0115	-0.0007	+0.0015	-0.0122	-0.0107
205	+0.0731	-0.0765	-0.0910	-0.0034	-0.0944
206	+0.0002	+0.0001	+0.0006	+0.0003	+0.0009
207	+0.0005	0.0000	+0.0002	+0.0005	+0.0007
208	-0.0761	+0.0860	-0.0706	+0.0099	-0.0607
209	-0.0116	+0.0135	-0.0116	+0.0019	-0.0097
211	-0.0559	-0.0250	-0.0244	-0.0809	-0.1053
212	-0.1724	-0.0049	+0.0010	-0.1773	-0.1763
213	-0.0177	-0.0034	+0.0013	-0.0211	-0.0198
214	+0.0012	-0.0016	0.0000	-0.0004	-0.0006
220	+0.0009	-0.0010	+0.0004	-0.0001	+0.0003
231	-0.0102	-0.0133	+0.0002	-0.0253	-0.0233
232	-0.0013	-0.0001	+0.0027	-0.0014	+0.0013
233	+0.0261	-0.0753	-0.0256	-0.0492	-0.0746
239	-0.0759	-0.0540	+0.0044	-0.1299	-0.1255
241	-0.0001	+0.0046	-0.0048	+0.0045	-0.0003
243	+0.0014	+0.0057	+0.0113	+0.0071	+0.0184
251	-0.1921	-0.0198	-0.0022	-0.2119	-0.2141
252	-0.0043	+0.0011	+0.0056	-0.0037	+0.0019
259	-0.0805	-0.0418	+0.0039	-0.1223	-0.1184
260	-0.0067	-0.0008	+0.0103	-0.0075	+0.0028
271	-0.0787	-0.0055	-0.0156	-0.0842	-0.0998

(Contd.)

Table V43: (Contd.)

(Current price data)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
280	-0.0165	+0.0068	-0.0034	-0.0097	-0.0131
291	-0.0002	-0.0006	+0.0001	-0.0008	-0.0007
293	-0.4890	-0.0323	-0.0020	-0.5213	-0.5233
300	-0.0433	+0.0023	+0.0054	-0.0410	-0.0356
311	-0.1212	-0.0701	+0.0659	-0.1913	-0.1254
312	-0.1289	+0.0142	-0.1382	-0.1147	-0.2529
313	-0.2764	-0.0268	-0.1347	-0.3032	-0.4379
319	-0.0820	+0.0183	-0.0066	-0.0637	-0.0703
321	-0.3049	-0.1914	+0.0706	-0.4963	-0.4257
329	-0.0100	-0.0025	-0.0016	-0.0125	-0.0147
331	-0.0962	+0.0551	-0.0683	-0.0411	-0.1094
332	-0.0403	-0.0061	-0.0018	-0.0464	-0.0482
333	+0.0005	-0.0033	+0.0014	-0.0028	-0.0014
334	+0.0002	-0.0012	-0.0001	-0.0010	-0.0011
339	-0.0428	-0.0098	-0.0054	-0.0526	-0.0580
341	+0.1278	-0.0091	+0.0518	+0.1187	+0.1705
342	-0.4082	-0.0357	+0.0465	-0.4439	-0.3974
350	-0.1517	-0.0639	+0.0266	-0.2156	-0.1890
360	-0.1732	-0.2185	-0.0711	-0.3917	-0.4628
370	-0.1279	-0.1309	+0.0101	-0.2588	-0.2487
381	+0.1585	-0.1458	-0.0360	+0.0127	-0.0233
382	-0.0686	-0.0812	+0.0227	-0.1498	-0.1271
383	-0.1147	-0.0524	+0.0078	-0.1671	-0.1593
384	-	-	-	-	-
385	-0.0409	-0.0157	+0.0007	-0.0566	-0.0559

(Contd.)

Table Y43: (Contd.)

(Current price data)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
386	-0.2264	+0.2224	+0.1232	-0.0040	+0.1192
391	-0.2316	-0.0823	+0.0604	-0.3139	-0.2535
392	-0.1998	+0.2460	-0.1410	+0.0462	-0.0948
393	-0.6967	-0.0118	+0.0038	-0.7085	-0.7047
394	+0.2227	+0.5193	-0.0132	+0.7420	+0.7288
399	-0.0672	+0.0046	+0.0609	-0.0626	-0.0017
511	-	-	-	-	-

Table VII: Change in Imports  
(at the 3 digit level of the ASI classification)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	1.4868	3.4184	14.2701	4.9052	19.1753
203	-0.1372	2.0909	6.0355	1.9537	7.9892
204	-0.0028	0.0013	0.0433	-0.0015	0.0418
205	20.0893	-1.6680	-21.2239	18.4213	-2.8026
206	0.0039	0.0078	0.0558	0.0117	0.0675
207	0.2178	0.2263	0.4530	0.4441	0.8971
208	-0.0135	0.3251	0.1479	0.3116	0.4595
209	2.3486	19.0449	6.6473	21.3935	28.0408
211	-0.1639	-0.0399	0.2759	-0.2038	0.0721
212	-0.0150	-0.0247	0.0625	-0.0397	0.0228
213	-0.0325	-0.0035	0.0468	-0.0360	0.0108
214	0.0091	-0.0095	0.0000	-0.0004	-0.0004
220	0.1539	-0.1496	0.1357	0.0043	0.1400
231	1.2135	-15.8704	7.0367	-14.6569	-7.6202
232	0.0091	0.0136	0.0862	0.0227	0.1089
233	0.2786	-0.3356	-0.0161	-0.0570	-0.0731
239	-2.0825	-4.9113	2.7322	-6.9938	-4.2616
241	0.0006	0.0422	-0.0417	0.0428	0.0011
243	0.0242	0.1326	-0.0653	0.1568	0.0915
251	-2.0705	-0.4239	0.0687	-2.4944	-2.4257
252	-0.0039	0.0031	0.0263	-0.0008	0.0255
259	0.2754	-0.1224	0.5880	0.1530	0.7410
260	0.0007	0.0386	0.7607	0.0393	0.8000
271	0.7992	18.0277	31.3750	18.8269	50.2019
280	0.3975	2.7577	2.2587	3.1552	5.4139

(Contd.)



Table V44: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
291	0.0108	0.0087	0.0664	0.0195	0.0859
293	-0.2703	-0.0207	-0.0003	-0.2910	-0.2913
300	-2.4822	1.4043	3.7002	-1.0779	2.6223
311	30.2908	63.0757	484.5133	93.3665	577.8798
312	11.4214	23.1895	-4.2949	34.6109	30.3160
313	-6.3462	2.7169	2.0409	-3.6293	-1.5884
319	-4.2307	27.9414	31.7081	23.7107	55.4188
321	-35.9101	-2.7894	167.8696	-38.6995	129.1701
329	0.1281	-0.0402	0.0217	0.0879	0.1096
331	-1.4543	3.3266	-2.6430	1.8723	-0.7707
332	-0.1131	0.5615	1.5961	0.4484	2.0445
333	0.0526	-0.0243	0.0616	0.0283	0.0899
334	0.0832	-0.1215	-0.0192	-0.0383	-0.0575
339	0.0160	0.1301	1.4838	0.1461	1.6299
341	96.4060	49.5896	271.5762	145.9956	417.5718
342	-98.7539	50.9866	58.4933	-47.7673	10.7260
350	-4.3028	-8.3427	17.4379	-12.6455	4.7924
360	131.1307	-75.5106	139.8217	55.6201	195.4418
370	30.9833	-17.8239	80.8224	13.1594	93.9818
381	4.2272	-2.9659	-0.3799	1.2613	0.8814
382	0.8702	-10.8693	11.2466	-9.9991	1.2475
383	-1.4087	-9.6485	25.9092	-11.0572	14.8520
384	-	-	-	-	-
385	-0.6188	-0.7603	0.1291	-1.3791	-1.2500

(Contd.)

Table V 44: (Contd.)

(Current prices in Rs. Crores)

ASI Code No.	1965-60	1970-1965	1975-1970	1970-1960	1975-1960
386	-2.4145	12.6104	27.7290	10.1959	37.9249
391	3.1220	4.9087	6.5737	8.0307	14.6044
392	0.4900	5.2306	1.2541	5.7206	6.9747
393	-0.4083	0.1707	0.7623	-0.2376	0.5247
394	1.9734	22.9629	28.6068	24.9363	53.5431
395	-	-	-	-	-
399	-0.7224	0.8729	1.3765	0.1505	1.5270
511	0.0002	—	0.0000	0.0000	0.0000
TOTAL	174.5560	163.3410	1409.2225	337.8970	1747.1195

**Table V45: The Maizel's measure of Import Substitution**  
(at the 3 digit level of the ASI classification)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	-8.7699	-12.0959	-2.3380	-39.7772	-104.3731
203	-4.0125	0.9761	0.1269	-3.9239	-7.0456
204	-0.0360	-0.0101	0.0370	-0.1376	-0.2638
205	11.8877	-17.5691	-20.4580	-0.7808	-21.2225
206	0.0042	0.0043	0.0451	0.0128	0.0677
207	0.1541	0.0000	0.1732	0.2826	0.6063
208	-0.3163	0.3340	-0.8881	0.0384	-0.7636
209	-7.0281	12.1114	-15.9966	1.7046	-13.3765
211	-0.2965	-0.2109	-2.4479	-0.6825	-10.5643
212	-1.4611	-0.0943	0.0356	-3.4113	-6.2768
213	-0.0536	-0.0340	0.0316	-0.2110	-0.4817
214	0.0072	-0.0311	0.0000	-0.0078	-0.0197
220	0.1360	-0.2495	0.1248	-0.0249	0.0936
231	-14.9523	-28.6670	0.6639	-50.6522	-77.3426
232	-0.0083	-0.0012	0.0610	-0.0168	0.0294
233	0.1275	-0.4534	-1.4872	-0.2962	-4.3455
239	-7.5135	-6.8504	1.0324	-16.4791	-29.4479
241	-0.0006	+0.0413	-0.2054	0.0403	-0.0128
243	0.0131	+0.1037	0.0543	0.1291	0.0884
251	-4.3393	-0.5265	-0.1386	-5.6350	-13.4870
252	-0.0065	0.0026	0.0234	-0.0088	0.0079
259	-0.3466	-0.1965	0.0322	-0.5750	-1.0089
260	-0.1482	-0.0284	0.6418	-0.2658	0.1745
271	-10.5289	-1.4808	-8.7173	-22.6702	-55.7684

(Contd.)

Table V 45: (Contd.)

(Current prices in Rs. Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
280	-1.6223	1.0271	-0.7760	-1.4652	-2.9898
291	-0.0050	-0.0283	0.0096	-0.0377	-0.0673
293	-0.3962	-0.0365	-0.0025	-0.5889	-0.6538
300	-5.8314	0.5415	2.0747	-9.6524	-13.6777
311	-41.5803	-58.6741	171.9269	-160.1191	-327.1567
312	-6.5583	1.7416	-26.9453	-14.0675	-49.3087
313	-8.9527	-1.4180	-37.9312	-16.0421	-123.3115
319	-23.5634	10.6448	-7.1711	-37.0533	-76.3828
321	-35.1469	-59.3060	82.5213	-153.7804	-497.5824
329	-0.3871	-0.1567	-0.3839	-0.7836	-3.5272
331	-2.7140	2.6879	-5.9246	-2.0050	-9.4898
332	-1.3011	-0.3387	-0.1989	-2.5763	-5.3261
333	0.0066	-0.0621	0.0367	-0.0527	-0.0367
334	0.0214	-0.2089	-0.0250	-0.1741	-0.2751
339	-2.3715	-0.7317	-0.7511	-3.9270	-8.0675
341	93.2420	-10.7085	+122.4449	139.6808	403.0280
342	-75.2235	-12.6826	<del>21.6118</del> 21.6128	-157.6977	-184.6995
350	-27.7677	-16.7696	11.0326	-56.5809	-78.3894
360	-107.3260	-176.5382	-111.2317	-316.4764	-743.5502
370	-48.1253	-90.0862	13.6852	-178.1078	-336.9803
381	4.0087	-5.8177	-4.2872	0.5068	-2.7747
382	-14.0296	-18.9691	6.9324	-34.9948	-38.8153
383	-34.4584	-21.4273	5.9584	-68.3302	-121.6892
384	-	-	-	-	-
385	-2.0832	-1.6822	0.1047	-6.0642	-8.3585

(Contd.)

Table ~~V~~45: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
386	-4.5148	7.7111	8.5330	-0.1387	8.2559
391	-5.3833	-3.8157	3.4417	-14.5534	-14.4451
392	-1.3783	0.4829	-1.9927	0.9087	-1.3398
393	-3.5562	-0.1042	0.0755	-6.2546	-14.0096
394	1.9737	17.4518	-0.9697	24.9359	53.5399
399	-3.1430	0.3324	2.4968	-4.5242	-0.0635
511	-	-	-	-	-
TOTAL	-405.6555	-491.8659	+204.7014	-1223.3643	-2542.8773

**Table V46: Contribution of Expansion in Demand to Change in Imports (at the 3 digit level of the ASI classification)**

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
202	10.2567	15.5143	16.6081	44.6824	123.5484
203	3.8753	1.1148	5.9086	5.8776	15.0348
204	0.0332	0.0114	0.0063	0.1361	0.3056
205	8.2016	15.9011	- 0.7659	19.2021	18.4199
206 *	- 0.0003	0.0035	0.0107	* - 0.0011	* - 0.0002
207	0.0637	0.2263	0.2798	0.1615	0.2908
208	0.3028	- 0.0089	1.0360	0.2732	1.2231
209	9.3767	6.9335	22.6439	19.6889	41.4173
211	0.1326	0.1710	2.7238	0.4787	10.6364
212	1.4461	0.0696	0.0269	3.3716	6.2996
213	0.0211	0.0305	0.0152	0.1750	0.4925
214	0.0019	0.0216	0.0000	0.0074	0.0193
220	0.0179	0.0999	0.0109	0.0292	0.0464
231	16.1658	12.7966	6.3728	35.9953	69.7224
232	0.0174	0.0148	0.0252	0.0395	0.0795
233	0.1511	0.1178	1.4711	0.2392	4.2724
239	5.4310	1.9391	1.6998	9.4853	25.1863
241	0.0012	0.0009	0.1637	0.0025	0.0139
243	0.0111	0.0289	- 0.1196	0.0277	0.0031
251	2.2688	0.1026	0.2073	3.1406	11.0613
252	0.0026	0.0005	0.0029	0.0080	0.0176
259	0.6220	0.0741	0.5558	0.7280	1.7499
260	0.1489	0.0670	0.1189	0.3051	0.6255
271	11.3281	19.5085	40.0923	41.4971	105.9703

Table VI: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
280	2.0198	1.7306	3.0347	4.6204	8.4037
291	0.0158	0.0370	0.0568	0.0572	0.1532
293	0.1259	<del>0.0158</del> 0.0156	0.0022	0.2979	0.3625
300	3.3492	0.8628	1.6255	8.5745	16.3000
311	71.8711	121.7498	312.5864	253.4856	905.0365
312	17.9797	21.4479	22.6504	48.6784	79.6247
313	2.6065	4.1349	39.9721	12.4128	121.7231
319	19.3327	17.2966	38.8792	60.7640	131.8016
321	— 0.7632	56.5166	85.3483	115.0809	626.7525
329	0.5152	0.1165	0.4056	0.8715	3.6368
331	1.2597	0.6387	3.2816	3.8773	8.7191
332	1.1880	0.9002	1.7950	3.0247	7.3706
333	0.0460	0.0378	0.0249	0.0810	0.1266
334	0.0618	0.0874	0.0058	0.1358	0.2176
339	- 2.3875	0.8618	2.2349	4.0731	9.6974
341	3.1640	60.2981	149.1313	6.3148	14.5438
342	— 23.5304	63.6692	36.8815	109.9304	195.4255
350	23.4649	8.4269	6.4053	43.9354	83.1818
360	238.4567	101.0276	251.0534	<del>372.0965</del> 372.0985	938.9920
370	79.1086	72.2623	67.1372	191.2672	430.9621
381	0.2185	2.8518	3.9073	0.7545	3.6561
382	14.8998	8.0998	4.3142	24.9957	40.0628
383	33.0497	11.7788	19.9508	57.2730	136.5412
384	-	-	-	-	-
385	1.4644	0.9219	0.0244	4.6851	7.1085

(Contd.)

Table ~~V~~ 14: (Contd.)

(Current prices in Rs.Crores)

ASI Code No.	1965-1960	1970-1965	1975-1970	1970-1960	1975-1960
386	2.1003	4.8993	19.1960	10.3346	29.6690
391	8.5053	8.7244	3.1320	22.5841	29.0495
392	1.8683	4.7467	3.2468	4.8119	8.3145
393	3.1479	0.2749	0.6868	6.0170	14.5343
394	-* 0.0003	5.5111	29.5765	+* 0.0004	*+ 0.0032
399	2.4206	0.5405	- 1.1203	4.6747	1.5905
511	0.0002	-	-	-	-
TOTAL	580.2115	655.2069	1204.5217	1561.2613	4289.9968

\* The contribution of "Demand Expansion" is zero in these periods as the import/availability ratio in 1960 is zero. However, as this table has been derived as a residual some nonzero element occur in these places.



**Table V47: Imports, production, supply, import/availability ratio and production/availability rates for 1965 after making allowance for the 1966 Devaluation. Ratio**

Code No.	Imports	Production	Supply	I/S	P/S = $\frac{Q_1}{S_1}$
202	11.3369	34.0556	45.3925	0.2498	0.7502
203	7.9473	6.3261	14.2734	0.5568	0.4432
204	0.0061	3.1308	3.1369	0.0019	0.9981
205	60.7547	124.0566	184.8113	0.3287	0.6713
206	0.0068	20.9525	20.9593	0.0003	0.9997
207	0.4550	307.9676	308.4226	0.0015	0.9985
208	0.2164	4.0192	4.2356	0.0511	0.9489
209	28.4141	587.8398	616.2539	0.0461	0.9539
211	0.4563	5.0139	5.4702	0.0834	0.9166
212	0.0865	8.4200	8.5065	0.0102	0.9898
213	0.0210	3.0133	3.0343	0.0069	0.9931
214	0.0150	5.9850	6.0000	0.0025	0.9975
220	0.2655	150.9401	151.2056	0.0018	0.9982
231	42.8829	1438.6934	1481.5763	0.0289	0.9711
232	0.0266	6.3750	6.4016	0.0042	0.9958
233	0.7976	4.3800	5.1776	0.1540	0.8460
239	10.8768	92.0885	102.9653	0.1056	0.8944
241	0.0016	6.4463	6.4479	0.0002	0.9998
243	0.0471	9.3039	9.3510	0.0050	0.9950
251	0.9124	22.0098	22.9222	0.0398	0.9602
252	0.0011	1.3500	1.3511	0.0008	0.9992
259	1.2685	3.5000	4.7685	0.2660	0.7340
260	0.1784	22.0063	22.1847	0.0080	0.9920
271	30.3443	114.5267	144.8710	0.2095	0.7905
280	5.0643	95.1072	100.1715	0.0506	0.9494
291	0.0681	24.7324	24.8005	0.0027	0.9973

contd.

Table V 47 : (contd.)

Code No.	Imports	Production	1 Supply	I/S	$P/S = \frac{Q_1}{S_1}$
293	0.0635	0.7700	0.8335	0.0762	0.9238
300	1.8274	133.5150	135.3424	0.0135	0.9865
311	133.2269	258.5156	391.7425	0.3401	0.6599
312	23.9627	35.6700	59.6327	0.4018	0.5982
313	10.2882	25.8606	36.1488	0.2846	0.7154
319	26.6121	270.4624	297.0745	0.0896	0.9104
321	52.7932	81.7667	134.5599	0.3923	0.6077
329	0.2921	38.5320	38.8241	0.0075	0.9925
331	1.3881	27.3315	28.7196	0.0483	0.9517
332	1.9722	31.0337	33.0059	0.0598	0.9402
333	0.1394	13.1957	13.3351	0.0105	0.9895
334	0.2217	106.8930	107.1147	0.0021	0.9979
339	3.8927	52.9385	56.8312	0.0685	0.9315
341	154.8106	631.3382	786.1488	0.1969	0.8031
342	108.1646	115.6312	223.7958	0.4833	0.5167
350	30.5725	163.6401	194.2126	0.1574	0.8426
360	523.7970	287.2221	811.0191	0.6459	0.3541
370	137.2795	289.1442	426.4237	0.3219	0.6781
381	7.7731	20.3582	28.1313	0.2763	0.7237
382	39.1923	179.6389	218.8312	0.1791	0.8209
383	51.3945	267.8031	319.1976	0.1610	0.8390
384					
385	1.3200	50.0967	51.4167	0.0257	0.9743
386	10.4492	13.3100	23.7592	0.4398	0.5602
391	13.8182	14.4739	28.2921	0.4884	0.5116
392	7.5128	2.1300	9.6428	0.7791	0.2209
393	0.5945	4.7270	5.3215	0.1117	0.8883

contd.

Table V47 : (contd.)

Code No.	Imports	Production	Supply	I/S	$E/s = \frac{Q_1}{S_1}$
394	3.1093	6.8893	9.9986	0.3110	0.6890
395					
399	1.5608	45.7803	47.3411	0.0330	0.9670
511	0.0003	368.2180	368.2183	0.000001	0.999999
	1550.4807	6639.1259	8189.6066		

Table V 48 : Import substitution between 1965 and 1970 after taking account of 1966 devaluation of the rupee.

Code	Q <sub>1</sub> / S <sub>1</sub>	Q <sub>2</sub> / S <sub>2</sub>	$\frac{Q_2}{S_2} - \frac{Q_1}{S_1}$	Value of supply	Chenery measure	Maizels measure
202	0.7502	0.9185	0.1683	130.2037	21.9133	-21.9133
203	0.4432	0.4861	0.0429	13.8849	0.5957	-0.5957
204	0.9981	0.9995	0.0014	11.2752	0.0158	-0.0158
205	0.6713	0.8393	0.1680	229.6615	38.5831	-38.5831
206	0.9997	0.9997	0.0000	42.8210	0.0000	0.0000
207	0.9985	0.9991	0.0006	565.2086	0.3391	-0.3391
208	0.9489	0.8809	-0.0680	3.8835	-0.2641	+0.2641
209	0.9539	0.9567	0.0028	897.1389	2.5120	-2.5120
211	0.9166	0.9704	0.0538	8.4361	0.4539	-0.4539
212	0.9898	0.9984	0.0086	19.2402	0.1655	-0.1655
213	0.9931	0.9990	0.0059	9.9998	0.0590	-0.0590
214	0.9975	1.0000	0.0025	19.4500	0.0486	-0.0486
220	0.9982	0.9999	0.0017	249.4584	0.4241	-0.4241
231	0.9711	0.9947	0.0236	2155.4164	50.8678	-50.8678
232	0.9958	0.9975	0.0017	11.9705	0.0203	-0.0203
233	0.8460	0.9717	0.1257	6.0206	0.7568	-0.7568
239	0.8944	0.9843	0.0899	126.8600	11.4047	-11.4047
241	0.9998	0.9952	-0.0046	8.9722	-0.0413	+0.0413
243	0.9950	0.9911	-0.0039	18.1863	-0.0709	+0.0709
251	0.9602	0.9942	0.0340	26.5927	0.9042	-0.9042
252	0.9992	0.9984	-0.0008	2.3738	-0.0019	+0.0019
259	0.7340	0.8548	0.1208	4.7015	0.5679	-0.5679
260	0.9920	0.9957	0.0037	35.4383	0.1311	-0.1311
271	0.7905	0.8615	0.0710	269.2426	19.1162	-19.1162
280	0.9494	0.9605	0.0111	151.0487	1.6766	-1.6766
291	0.9973	0.9989	0.0016	47.1785	0.0755	-0.0755

contd.

Table V 48 : (contd.)

Code No.	$Q_1/S_1$	$Q_2/S_2$	$\frac{Q_2}{S_2} - \frac{Q_1}{S_1}$	Value of supply	Chenery measure	Maisels measure
293	0.9238	0.9826	0.0588	1.1296	0.0664	-0.0664
300	0.9865	0.9891	0.0026	235.4237	0.6121	-0.6121
311	0.6599	0.8236	0.1637	837.0053	137.0178	-137.0178
312	0.5982	0.6869	0.0887	122.6463	10.8787	-10.8787
313	0.7154	0.8252	0.1098	52.9095	5.8095	-5.8095
319	0.9104	0.9229	0.0125	581.6850	7.2711	-7.2711
321	0.6077	0.9007	0.2930	309.3137	90.6289	-90.6289
329	0.9925	0.9977	0.0052	62.6852	0.3260	-0.3260
331	0.9517	0.9137	-0.0380	48.7823	-1.8537	+1.8537
332	0.9402	0.9673	0.0271	55.5245	1.5047	-1.5047
333	0.9895	0.9966	0.0071	18.8322	0.1337	-0.1337
334	0.9979	0.9999	0.0020	174.1092	0.3482	-0.3482
339	0.9315	0.9652	0.0337	74.6584	2.5160	-2.5160
341	0.8031	0.8744	0.0713	1176.7552	83.9026	-83.9026
342	0.5167	0.6632	0.1465	355.2550	52.0449	-52.0449
350	0.8426	0.9579	0.1153	262.4347	30.2587	-30.2587
360	0.3541	0.6820	0.3279	807.9562	264.9288	-264.9288
370	0.6781	0.8993	0.2212	688.2064	152.2313	-152.2313
381	0.7237	0.9507	0.2270	39.9019	9.0577	-9.0577
382	0.8209	0.9400	0.1191	233.6099	27.8229	-27.8229
383	0.8390	0.9438	0.1048	408.9183	42.8546	-42.8546
384		1.0000				
385	0.9743	0.9993	0.0250	107.1442	2.6786	-2.6786
386	0.5602	0.4450	-0.1152	34.6723	-3.9942	+3.9942
391	0.5116	0.7050	0.1934	46.3633	8.9667	-8.9667
392	0.2209	0.0628	-0.1581	10.6688	-1.6867	+1.6867
393	0.8883	0.9379	0.0496	8.8280	0.4379	-0.4379

contd.

Table V 48 : (contd.)

Code No.	$Q_1/S_1$	$Q_2/S_2$	$\frac{Q_2}{S_2} - \frac{Q_1}{S_1}$	Value of supply	Chenery measure	Maisels measure
394	0.6890	0.2580	-0.4310	33.6063	-14.4843	+14.4843
395						
399	0.9670	0.9742	0.0072	72.2708	0.5203	-0.5203
511	0.999999	1.0000	0.000001	822.9837	0.0008	-0.0008
				12748.9438	1064.7604	-1064.7604

Table V 49 : Resolution of change in production into "Import-Substitution" and "Demand Expansion" effects for the period 1965-70 after taking into account the 1966 Devaluation.

Code No.	Change in production	Import substitution	Demand expansion
202	85.5344	21.9133	63.6211
203	0.4239	0.5957	-0.1718
204	8.1392	0.0158	8.1234
205	68.7068	38.5831	30.1237
206	21.8564	0.0000	21.8564
207	256.7259	0.3391	256.3868
208	-0.5982	-0.2641	-0.3341
209	272.2204	2.5120	269.7084
211	3.1725	0.4539	2.7186
212	10.7900	0.1655	10.6245
213	6.9767	0.0590	6.9177
214	13.4650	0.0486	13.4164
220	98.4994	0.4241	98.0753
231	705.3765	50.8678	654.5087
232	5.5650	0.0203	5.5447
233	1.4700	0.7568	0.7132
239	32.7795	11.4047	21.3748
241	2.4837	-0.0413	2.5250
243	8.7199	-0.0709	8.7908
251	4.4277	0.9042	3.5235
252	1.0200	-0.0019	1.0219
259	0.5188	0.5679	-0.0491
260	13.2802	0.1311	13.1491
271	117.4293	19.1162	98.3131
280	49.9696	1.6766	48.2930
292	22.3942	0.0755	22.3187

contd.

Table **V** 49 : (contd.)

Code No.	Change in production	Import substitution	Demand expansion
293	0.3400	0.0664	0.2736
300	99.3446	0.6121	98.7325
311	430.8577	137.0178	293.8399
312	48.5782	10.8787	37.6995
313	17.8023	5.8095	11.9928
319	266.3847	7.2711	259.1136
321	197.3697	90.6289	106.7408
329	24.0080	0.3260	23.6820
331	17.2432	1.8537	15.3895
332	22.6776	1.5047	21.1729
333	5.5723	0.1337	5.4386
334	67.1970	0.3482	66.8488
339	19.1192	2.5160	16.6032
341	397.5724	83.9026	313.6698
342	119.9874	52.0449	67.9425
350	87.7336	30.2587	57.4749
360	263.8018	264.9288	-1.1270
370	329.7577	152.2313	177.5264
381	17.5762	9.0577	8.5185
382	39.9658	27.8229	12.1429
383	118.1447	42.8546	75.2901
384			
385	56.9700	2.6786	54.2914
386	2.1200	-3.9942	6.1142
391	18.2106	8.9667	9.2439
392	7.5400	-1.6867	9.2267
393	3.5530	0.4379	3.1151
394	1.7807	-14.4843	16.2650

contd.



Table V 49 : (contd.)

Code No.	Change in production	Import substitution	Demand expansion
395			
399	24.6270	0.5203	24.1067
511	454.7657	0.0008	454.7649
	4971.9479	1064.7604	3907.1875

Table V 50 : Resolution of change in imports into  
 "Import Substitution" and "Demand  
 Expansion" effects for the period 1965-70  
 after taking into account the 1966 Devaluation.

Code No.	Change in imports	Import substitution	Demand expansion
202	-0.7232	-21.9133	21.1901
203	-0.8124	-0.5957	-0.2167
204	-0.0009	-0.0158	0.0149
✓205	-23.8566	-38.5831	14.7265
206	+0.0053	0.0000	0.0053
207	+0.0601	-0.3391	0.3992
208	+0.2461	+0.2641	-0.0180
✓209	+8.6646	-2.5120	11.1766
211	-0.2066	-0.4539	0.2473
212	-0.0563	-0.1655	0.1092
213	-0.0112	-0.0590	0.0478
214	-0.0150	-0.0486	<del>0.0336</del> 0.10336
220	-0.2466	-0.4241	0.1775
✓231	-31.5364	-50.8678	19.3314
232	+0.0039	-0.0203	0.0242
233	-0.6270	-0.7568	0.1298
239	-8.8848	-11.4047	2.5199
241	+0.0416	+0.0413	0.0003
243	+0.1154	+0.0709	0.0445
251	-0.7572	-0.9042	0.1470
252	+0.0027	+0.0019	0.0008
259	-0.5858	-0.5679	-0.0179
260	-0.0266	-0.1311	0.1045
✓271	+6.9423	-19.1162	26.0585
280	+0.9076	-1.6766	2.5842
291	-0.0162	-0.0755	0.0593

contd.

Table V 50 : (contd.)

Code No.	Change in imports	Import substitution	Demand expansion
293	-0.0439	-0.0664	0.0225
300	+0.7367	-0.6121	1.3488
✓311	+14.4051	-137.0178	151.4229
✓312	+14.4354	-10.8787	25.3141
313	-1.0416	-5.8095	4.7679
✓319	+18.2258	-7.2711	25.4969
✓321	-22.0759	-90.6289	68.5530
329	-0.1469	-0.3260	0.1791
✓331	+2.8195	-1.8537	4.6732
332	-0.1590	-1.5047	1.3457
333	-0.0752	-0.1337	0.0585
334	-0.2025	-0.3482	0.1457
✓339	-1.2920	-2.5160	1.2240
✓341	-6.9660	-83.9026	76.9366
✓342	+11.4718	-52.0449	63.5167
✓350	-19.5115	-30.2587	10.7472
✓360	-266.8647	-264.9288	-1.9359
✓370	-67.9750	-152.2313	84.2563
✓381	-5.8056	-9.0577	3.2521
✓382	-25.1871	-27.8229	2.6358
✓383	-28.4240	-42.8546	14.4306
384			
385	-1.2425	-2.6786	1.4361
✓386	+8.7931	+3.9942	4.7989
391	-0.1394	-8.9667	8.8273
✓392	+2.4860	◆1.6867	0.7993
393	-0.0465	-0.4379	0.3914
✓394	+21.8270	+14.4843	7.3427
395			
399	+0.3027	-0.5203	0.8230
511	-0.0003	-0.0008	0.0005
	-403.0697	-1064.7604	661.6907

TABLE V 51 (pages 185 to 197)

Import substitution (at constant prices)  $\left\{ \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right\} S_2$

(in Rs. crores)			
ASI Code No.	1961 to 1966*	1965 to 1971**	1970 to 1975***
20-21	-43.1540	46.7173	-16.3054
22	0.0702	0.007791	-0.003075
23	11.0199	11.3932	-0.4713
24	0.057248	0.004927	-0.004419
25	0.0714	1.4269	0.0450
27	8.9180	4.4727	0.9345
29	0.1502	-0.0599	0.0047
30	3.7380	-0.1686	-1.0682
31	-3.5400	25.3323	-87.3420
32	24.8458	6.5310	10.6173
33	2.4017	-18.4084	30.5488
34	104.5409	32.5650	-20.8960
35	12.6160	9.9550	-1.9009
36	39.7625	132.4606	81.4555
37	1.8268	43.6911	-72.3376
38	27.4748	14.0183	4.8554
39	-14.6828	7.3711	2.4140
51	0.0000	0.0000	0.0000
	176.116648	317.310318	-69.453694

\* This is the addition of pages 1 to 4

\*\* This is the addition of pages 5 to 9

\*\*\* This is the addition of pages 10 to 13

1961-62 &amp; 1962-63

(in Rs. crores)				
ASI Code No.	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left\{ \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right\}$	$\left\{ \frac{Q_2}{S_2} - \frac{Q_1}{S_1} \right\} S_2$
20-21	0.9573	0.9484	-0.0089	-7.0065
22	0.9992	0.9993	0.0001	0.0092
23	0.9618	0.9662	0.0044	4.5355
24	0.9908	0.9959	0.0051	0.0302
25	0.8955	0.8839	-0.0116	-0.1750
27	0.7340	0.7828	0.0488	4.6039
29	0.9887	0.9928	0.0041	0.0797
30	0.9469	0.9774	0.0305	2.6010
31	0.7300	0.7095	-0.0205	-8.7059
32	0.3414	0.3931	0.0517	7.9894
33	0.9375	0.9523	0.0148	2.1726
34	0.6755	0.6803	0.0048	3.3122
35	0.8052	0.8157	0.0105	1.0534
36	0.3028	0.3373	0.0345	13.3095
37	0.6550	0.6669	0.0119	2.4272
38	0.8599	0.8867	0.0268	12.6132
39	0.6450	0.6175	-0.0275	-1.3398
51	1.0000	1.0000	0.0000	0.0000
				37.5098

1962-63 &amp; 1963-64

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9484	0.9460	-0.0024	-1.9154
22	0.9993	0.9997	0.0004	0.0376
23	0.9662	0.9707	0.0045	4.8086
24	0.9959	0.9864	-0.0095	-0.0639
25	0.8839	0.9560	0.0721	1.0947
27	0.7828	0.8144	0.0316	3.3000
29	0.9928	0.9968	0.0040	0.0767
30	0.9774	0.9733	-0.0041	-0.3852
31	0.7095	0.7080	-0.0015	-0.7000
32	0.3931	0.3499	-0.0432	-8.5867
33	0.9523	0.9604	0.0081	1.3029
34	0.6803	0.6791	-0.0012	-0.9522
35	0.8157	0.7543	-0.0614	-7.4636
36	0.3373	0.3636	0.0263	11.3141
37	0.6669	0.6763	0.0094	2.2012
38	0.8867	0.8762	-0.0105	-5.4613
39	0.6175	0.5330	-0.0845	-5.0813
51	1.0000	1.0000	0.0000	0.0000
				-6.4738

1963-64 &amp; 1964-65

(in Rs. crores)				
ASI Code No.	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9460	0.9328	-0.0132	-11.4936
22	0.9997	0.9998	0.0001	0.0109
23	0.9707	0.9616	-0.0091	-10.1801
24	0.9864	0.9996	0.0132	0.0907
25	0.9560	0.9159	-0.0401	-0.8042
27	0.8144	0.8106	-0.0038	-0.4222
29	0.9968	0.9962	-0.0006	-0.0124
30	0.9733	0.9868	0.0135	1.3395
31	0.7080	0.7372	0.0292	14.1167
32	0.3499	0.4831	0.1332	20.9456
33	0.9604	0.9056	-0.0548	-9.9744
34	0.6791	0.7576	0.0785	56.9405
35	0.7543	0.8543	0.1000	12.8512
36	0.3636	0.3814	0.0178	8.5146
37	0.6763	0.6922	0.0159	4.1766
38	0.8762	0.8992	0.0230	13.7414
39	0.5330	0.7003	0.1673	8.7380
51	1.0000	1.0000	0.0000	0.0000
				108.5788

1964-65 &amp; 1965-66

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)S_2$
20-21	0.9328	0.9083	-0.0245	-22.7385
22	0.9998	0.9999	0.0001	0.0125
23	0.9616	0.9725	0.0109	11.8559
24	0.999607	0.999639	0.000032	0.000248
25	0.9159	0.9144	-0.0015	-0.0441
27	0.8106	0.8228	0.0122	1.4363
29	0.9962	0.9965	0.0003	0.0062
30	0.9868	0.9885	0.0017	0.1827
31	0.7372	0.7215	-0.0157	-8.2508
32	0.4831	0.5102	0.0271	4.4975
33	0.9056	0.9544	0.0488	8.9006
34	0.7576	0.8232	0.0656	45.2404
35	0.8543	0.8934	0.0391	6.1750
36	0.3814	0.3941	0.0127	6.6243
37	0.6922	0.6699	-0.0223	-6.9782
38	0.8992	0.9104	0.0112	6.5815
39	0.7003	0.4702	-0.2301	-16.9997
51	1.0000	1.0000	0.0000	0.0000
				336.501848



1965-66 &amp; 1966-67

ASI Code No.	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)S_2$
20-21	0.9083	0.8762	-0.0321	-30.7208
22	0.999919	0.999955	0.000036	0.004672
23	0.9725	0.9789	0.0064	6.6256
24	0.9996	0.9909	-0.0087	-0.073400
25	0.9144	0.9480	0.0336	0.8639
27	0.8228	0.8284	0.0056	0.7048
29	0.9965	0.9802	-0.0163	-0.3363
30	0.9885	0.9930	0.0045	0.4917
31	0.7215	0.6804	-0.0411	-24.5040
32	0.5102	0.6231	0.1129	19.5646
33	0.9544	0.9456	-0.0088	-1.6374
34	0.8232	0.8344	0.0112	7.7724
35	0.8934	0.9249	0.0315	4.7734
36	0.3941	0.4857	0.0916	44.4605
37	0.6699	0.7574	0.0875	26.5278
38	0.9104	0.9373	0.0269	12.4842
39	0.4702	0.5323	0.0621	4.0089
51	1.0000	1.0000	0.0000	0.0000
				71.010572

1966-67 &amp; 1967-68

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.8762	0.8899	0.0137	11.6064
22	0.999955	0.999644	-0.000311	-0.039390
23	0.9789	0.9860	0.0071	7.3144
24	0.990915	0.999977	<del>0.009062</del> 0.007062	0.078664
25	0.9480	0.9397	-0.0083	-0.2323
27	<del>0.8284</del> 0.8284	0.8694	0.0410	5.2144
29	0.9802	0.9970	0.0168	0.3231
30	0.9930	0.9900	-0.0030	-0.3612
31	0.6804	0.5618	-0.1186	-90.9440
32	0.6231	0.5703	-0.0528	-11.3531
33	0.9456	0.9247	-0.0209	-3.9702
34	0.8344	0.8202	-0.0142	-9.9988
35	0.9249	0.8935	-0.0314	-4.5449
36	0.4857	0.5373	0.0516	24.2461
37	0.7475	0.7584	0.0010	0.3323
38	0.9373	0.9281	-0.0092	-3.8113
39	0.5323	0.5313	-0.0010	-0.0652
51	1.0000	1.0000	0.0000	0.0000
				-76.205026

1967-68 &amp; 1968-69

(in Rs. crores)				
ASI Code No.	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.8899	0.9265	0.0366	31.0384
22	0.9996	0.9999	0.0003	0.040500
23	0.9860	0.9854	-0.0006	-0.6351
24	0.999977	0.999953	-0.000024	-0.000203
25	0.9397	0.9570	0.0173	0.5129
27	0.8694	0.8650	-0.0044	-0.6198
29	0.9970	0.9941	-0.0029	-0.0490
30	0.9900	0.9817	-0.0083	-1.1562
31	0.5618	0.5999	0.0381	31.0321
32	0.5703	0.6605	0.0902	18.4574
33	0.9247	0.8978	-0.0269	-5.5909
34	0.8202	0.8531	0.0329	23.8316
35	0.8935	0.9423	0.0488	6.6199
36	0.5373	0.6022	0.0649	29.5578
37	0.7584	0.8071	0.0487	17.4302
38	0.9281	0.9107	-0.0174	-7.4176
39	0.5313	0.4949	-0.0364	-3.9879
51	1.0000	1.0000	0.0000	0.0000
				141.064097

1968-69 &amp; 1969-70

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9265	0.9504	0.0239	24.3025
22	0.9999	0.9998	-0.0001	-0.013700
23	0.9854	0.9804	-0.0050	-5.2147
24	0.999953	0.998906	-0.001047	-0.008134
25	0.9570	0.9709	0.0139	0.4106
27	0.8650	0.8504	-0.0146	-2.2693
29	0.9941	0.9954	0.0013	0.0183
30	0.9817	0.9808	-0.0009	-0.1316
31	0.5999	0.7269	0.1270	93.7493
32	0.6605	0.5725	-0.0880	-22.3119
33	0.8978	0.9029	0.0051	1.1778
34	0.8531	0.8795	0.0264	19.5780
35	0.9423	0.9709	0.0286	4.1960
36	0.6022	0.6743	0.0721	31.1944
37	0.8071	0.7884	-0.0187	-7.8894
38	0.9107	0.9452	0.0345	13.5190
39	0.4949	0.5016	0.0067	0.3758
51	1.0000	1.0000	0.0000	0.0000
				150.682966

1969-70 &amp; 1970-71

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9504	0.9598	0.0094	10.4908
22	0.999833	0.999981	0.000148	0.015709
23	0.9804	0.9836	0.0032	3.3030
24	0.9989	1.0000	0.0011	0.008000
25	0.9709	0.9658	-0.0051	-0.1282
27	0.8504	0.8592	0.0088	1.4426
29	0.9954	0.9939	-0.0015	-0.0160
30	0.9808	0.9874	0.0066	0.9887
31	0.7269	0.7475	0.0206	15.9989
32	0.5725	0.5807	0.0082	2.1740
33	0.9029	0.8706	-0.0323	-8.3877
34	0.8795	0.8679	-0.0116	-8.6182
35	0.9709	0.9640	-0.0069	-1.0894
36	0.6743	0.6810	0.0067	3.0018
37	0.7884	0.8041	0.0157	7.2902
38	0.9452	0.9432	-0.0020	-0.7560
39	0.5016	0.5976	0.0960	5.0395
51	1.0000	1.0000	0.0000	0.0000
				30.757709

1970-71 &amp; 1971-72

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9598	0.9685	0.0087	9.7032
22	0.999981	0.999963	-0.000018	-0.002692
23	0.9836	0.9788	-0.0048	-4.9480
24	1.000000	0.999973	-0.000027	-0.000198
25	0.9658	0.9776	0.0118	0.3181
27	0.8592	0.8260	-0.0332	-5.8483
29	0.9939	0.9918	-0.0021	-0.0201
30	0.9874	0.9868	-0.0006	-0.0993
31	0.7475	0.7011	-0.0464	-42.0075
32	0.5807	0.5338	-0.0469	-14.1885
33	0.8706	0.8913	0.0207	5.7457
34	0.8679	0.8572	-0.0107	-8.3024
35	0.9640	0.9240	-0.0400	-6.9910
36	0.6810	0.6235	-0.0575	-28.9014
37	0.8041	0.8249	0.0208	15.1547
38	0.9432	0.9203	-0.0229	-9.4498
39	0.5976	0.5894	-0.0082	-0.3851
51	1.0000	1.0000	0.0000	0.0000
				-90.222590

1971-72 &amp; 1972-73

(in Rs. crores)				
ASI Code No.	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)S_2$
20-21	0.9685	0.9796	0.0111	12.3744
22	0.999963	0.999976	0.000013	0.001891
23	0.9788	0.9873	0.0085	9.1711
24	0.999973	0.999956	-0.000017	-0.000115
25	0.9776	0.9742	-0.0034	-0.0839
27	0.8260	0.8552	0.0292	5.0643
29	0.9918	0.9940	0.0022	0.0239
30	0.9868	0.9896	0.0028	0.4799
31	0.7011	0.7105	0.0094	9.4458
32	0.5338	0.5037	-0.0301	-9.7757
33	0.8913	0.8595	-0.0318	-9.7435
34	0.8572	0.8734	0.0162	12.9321
35	0.9240	0.9358	0.0118	2.0910
36	0.6235	0.7525	0.1290	58.7671
37	0.8249	0.5977	-0.2272	-165.5361
38	0.9203	0.9144	-0.0059	-2.4347
39	0.5894	0.4734	-0.1160	-5.4471
51	1.0000	1.0000	0.0000	0.0000
				-82.669624

1972-73 &amp; 1973-74

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9796	0.9522	-0.0274	-30.3341
22	0.999976	0.999981	0.000005	0.000772
23	0.9873	0.9904	0.0031	3.3013
24	0.999956	1.000000	0.000044	0.000294
25	0.9742	0.9554	-0.0188	-0.3759
27	0.8552	0.8827	0.0275	4.8898
29	0.9940	0.9952	0.0012	0.0153
30	0.9896	0.9800	-0.0096	-1.6645
31	0.7105	0.7019	-0.0086	-8.8971
32	0.5037	0.6348	0.1311	35.1614
33	0.8595	0.9334	0.0739	21.0809
34	0.8734	0.8173	-0.0561	-46.0436
35	0.9358	0.9375	0.0017	0.3097
36	0.7525	0.7686	0.0161	7.8440
37	0.5977	0.7409	0.1432	83.7728
38	0.9144	0.9537	0.0393	17.0494
39	0.4734	0.4285	-0.0449	-2.3525
51	1.0000	1.0000	0.0000	0.0000
				83.757966



1973-74 &amp; 1974-75

ASI Code No.	(in Rs. crores)			
	$\frac{Q_1}{S_1}$	$\frac{Q_2}{S_2}$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right)$	$\left(\frac{Q_2}{S_2} - \frac{Q_1}{S_1}\right) S_2$
20-21	0.9522	0.9452	-0.0070	-8.0489
22	0.999981	0.999963	-0.000018	-0.003046
23	0.9904	0.9830	-0.0074	-7.9957
24	1.0000	0.9993	-0.0007	-0.004400
25	0.9554	0.9636	0.0082	0.1867
27	0.8827	0.8653	-0.0174	-3.1713
29	0.9952	0.9940	-0.0012	-0.0144
30	0.9800	0.9812	0.0012	0.2157
31	0.7019	0.6611	-0.0408	-45.8832
32	0.6348	0.6327	-0.0021	-0.5799
33	0.9334	0.9823	0.0489	13.4657
34	0.8173	0.8422	0.0249	20.5179
35	0.9375	0.9508	0.0133	2.6894
36	0.7686	0.8622	0.0936	43.7458
37	0.7409	0.7311	-0.0098	-5.7290
38	0.9537	0.9530	-0.0007	-0.3095
39	0.4285	0.6974	0.2689	10.5987
51	1.0000	1.0000	0.0000	0.0000
				19.680554

CHAPTER VIIMPORT AND PRODUCTION ELASTICITIES

The growth rates of the various groups of industrial imports and industrial production divided by the growth rate of some overall indicator of economic activity provided us with elasticity parameters.<sup>1</sup> Since we are interested in the relationship between trade and the manufacturing sector we have chosen total industrial production as the economic activity variable.

The elasticity parameters that we have obtained are useful for both descriptive and predictive purposes. They serve, firstly, to describe the structure of imports and production. Secondly, the import-elasticity parameters are indicators of categorywise import dependence. Overtime, they can be said to be a sort of dynamised version of the conventional static import-GNP ratio measure of trade-dependence.

These elasticity parameters can also be used for making projections about future import requirements. Of course, it is possible that the extrapolation of these historical results, however, may not give realistic results if the trends of the past do not continue.

Results

We have calculated import-and production-elasticity parameters at both the two- and three-digit levels of the ASI classification.

Import-Elasticity Parameters

1) At the Two-digit Level of the ASI Classifications:  
During the period 1960-65 all the import-elasticities

were less than one. Some of the groups actually had negative import-elasticities. These groups were Beverages (21), Textiles (23), Wood and Cork (25), Paper and Paper Products (27), Leather and Fur Products (29), Rubber products (30), Petroleum and Coal Products (32), Non-metallic Mineral Products (33) and Metal Products except Machinery and Transport Equipment (35).

During 1965-70 there were just two groups with import-elasticities greater than unity - Footwear, Other Wearing Apparel and Made-up Textile Goods (24) and Rubber Products (30). During this period as many as twelve groups had negative import-elasticities. They were Food (20), Beverages (21), Tobacco (22), Textiles (23), Wood and Cork (25), Leather and Fur Products (29), Petroleum and Coal Products (32), Non-metallic Mineral Products (33), Metal Products except Machinery and Transport Equipment (35), Non-electrical Machinery (36), Electrical Machinery, Apparatus, Appliances and Supplies (37) and Transport Equipment (38). This was the period in which the forces of import substitution were at their strongest.

During the period 1970-75 the groups that had import-elasticities greater than unity were Beverages (21), Tobacco (22), Rubber Products (30), Petroleum and Coal Products, Metal Products except Machinery and Transport Equipment (35), Non-electrical Machinery (36) and Electrical Machinery, Apparatus, Appliances and Supplies (37). During this period not a single import-elasticity was negative. As our results on import-substitution show the period 1970-75 was a period in which the scope for import-substitution was slowly getting exhausted.

Despite the increase in import-bias during the periods 1965-70 and 1970-75 all but one import-elasticity was less than unity for the entire period 1960-75. The lone exception was Footwear (24) - a minor import that not even once during the period 1960-75 reached Rs.1 crore in value.

ii) At the Three-Digit Level of the ASI Classifications

The study of import-elasticities at this level supports our findings at the two-digit level. There have been some stray movements at the three-digit level. At times they are reflected in the movements at the two-digit level - at other times the movements are not strong enough to affect the movements at the two-digit level.

During the period 1960-65 most groups had import-elasticities of less than unity. The exceptions to this were Grain Mill Products (205), Bakery Products (206), Soft Drinks (214), Cordage, Rope and Twine Industries (233), Wearing Apparel (243), Vegetable and Animal Oils and Fats (312), Iron and Steel Basic Industries (341), Ship-building and Repairing (381) and Jewellery and Related Articles (394). These exceptions, however, have not been strong enough to affect import elasticities at the two-digit level where all groups had import-elasticities that were less than unity. During this period as many as twenty-five groups had negative import-elasticities.

During the period 1965-70 only seven groups had import-elasticities that were greater than unity - Canning and Preserving of Fish and Seafoods (204), Cocoa, Chocolate and Sugar Confectioneries (208), Footwear (241), Wearing Apparel (243), Rubber Products (300),

Vegetable and Animal Oils and Fats (312) and Structural Clay Products (331). However, at the two-digit level only groups 24 and 30 had import-elasticities that were greater than unity. During this period as many as twenty-six groups had negative import-elasticities. These results are again consistent with our results on import-substitution - this period, 1965-70, was the period when the forces of import-substitution were at their strongest.

During the period 1970-75 as many as nineteen groups had import-elasticities that were greater than unity. These groups were Canning and Preserving of Fish and Seafoods (204), Bakery Products (206), Distilling, Rectifying and Blending of Spirits (211), Wine industries (212), Breweries and Manufacturing of Malt (213), Tobacco (220), Cordage, Rope and Twine Industries (233), Textiles, n.e.c. (239), Tanneries and Leather Finishing Plants (291), Rubber Products (300), Petroleum Refineries (321), Glass and Glass Products (332), Iron and Steel Basic Industries (341), Metal Products except Machinery and Transport Equipment (350), Non-electrical Machinery (360), Electrical Machinery, Apparatus, Appliances and Supplies (370), Motor-cycle and bicycles (385), Aircraft (386) and Watches and Clocks (393). These results are consistent with the fact that import-substitution was exhausting itself during 1970-75. During this period only seven groups had negative import-elasticities. All this change has been so drastic that it has also affected results at the two-digit level.

Despite the increase in import-bias in 1970-75 there were very few groups that had import-elasticities that were greater than unity for the entire period

1960-75. These groups were Bakery Products (206), Sugar Factories and Refineries (207), Knitting Mills (232), Wearing Apparel (243), Iron and Steel Basic Industries (341) and Jewellery and Related Articles. However, these exceptions have not been so strong as to be reflected at the two-digit level except for Weaving Apparel (243).

#### Production-Elasticity Parameters

1) At the Two-Digit Level of the ASI Classifications  
 During the period 1960-65 most traditional groups had production-elasticities that were less than unity. The exceptions were Beverages (21), Footwear, Other Wearing Apparel and Made-up Textile Goods (24), Wood and Cork (25) and Furniture and Fixtures (26). Among the non-traditional industries the only group that had a production elasticity that was less than one was Non-metallic Mineral Products Other than Petroleum and Coal Products (33).

During the period 1965-70 the traditional industries grew at a slower pace. The only groups among traditional industries that had a production-elasticity greater than unity were Beverages (21), Paper and Paper Products (27) and Leather and Fur Products (29). Among the non-traditional industries growth seems to have slowed down somewhat. The groups that have production-elasticities less than unity among the non-traditional industries are Non-metallic Mineral Products (33), Basic Metal Industries (34), Metal Products except Machinery and Transport Equipment (35) and Transport Equipment (38).

During the period 1970-75 all but two of the traditional industries had production-elasticities that were

less than one. The two exceptions were Paper and Paper Products (27) and Rubber Products (30). Among the non-traditional industries the groups that had production-elasticities greater than unity were Chemicals and Chemical Products (31), Petroleum and Coal Products (32), Basic Metal Industries (34), Non-electrical Machinery (36), and Electrical Machinery, Apparatus, Appliances and Supplies (37).

Over the entire period 1960-75 only three traditional industries had production-elasticities that were greater than unity. They were Beverages (21), Paper and Paper Products (27) and Rubber Products (30). Among the non-traditional industries, for the same period, the following were the groups that had production-elasticities greater than unity : Chemicals and Chemical Products (31), Petroleum and Coal Products (32), Basic Metal Industries (34), Non-electrical Machinery (36), Electrical Machinery, Apparatus, Appliances and Supplies (37) and Electricity (51).

These findings are in line with our earlier results on the changing structure of industrial production.

ii) At the Three-Digit Level of the ASI Classification During the period 1960-65 as many as thirteen of the traditional industries had production-elasticities that were greater than unity. They were Dairy Products (202), Canning and Preserving of Fruits and Vegetables (203), Canning and Preserving of Fish and Other Seafoods (204), Bakery Products (206), Cocoa, Chocolate and Sugar Confectionery (208), Wine Industries (212), Soft Drinks and Carbonated Water Industries (214), Knitting Mills (232), Footwear (241), Wearing Apparel (243), Wood and

Cork Products (251, 252 and 259), Furnitures and Fixtures (260) and Leather Products except Footwear and Other Wearing Apparel (260). During the same period the following were the non-traditional industries that had production-elasticities that were greater than unity. Vegetable and Animal Oils and Fats (312), Miscellaneous Chemical Products (319), Miscellaneous Products of Petroleum and Coal (329), Pottery, China and Earthenware (333), Non-metallic Mineral Products (339), Iron and Steel Basic Industries (341), Non-ferrous Basic Metal Industries (342), Metal Products except Machinery and Transport Equipment (350), Non-electrical Machinery (360), Electrical Machinery, Apparatus, Appliances and Supplies (370), Motor Vehicles (383), Repair of Motor Vehicles (384), Motor Cycles and Bicycles (385), Professional and Scientific Measuring and Controlling Instruments (391), Photographic and Optical Goods (392), Watches and Clocks (393), Industries n.e.c. (399) and Electric Light and Power (511).

During the period 1965-70 there was a slight reduction in the number of groups of traditional industries with less than unit production-elasticities. The following were the groups: Dairy Products (202), Canning and Preservation of Fish and Other Seafoods (204), Bakery Products (206), Sugar Factories and Refineries (207), Wine Industries (212), Breweries and Malt (213), Soft Drinks and Carbonated Water Industries (214), Knitting Mills (232), Wearing Apparel (243), Paper and Paper Products (271) and Tanneries and Leather Finishing Plants (291). During the same period there were also fewer groups within nontraditional industries that had



production-elasticities that were greater than unity. They were Basic Industrial Chemicals including Fertilisers (311), Vegetable and Animal Oils and Fats (312), Miscellaneous Chemical Products (319), Petroleum Refineries (321), Non-ferrous Basic Metal Industries (342), Non-electrical Machinery (360), Electrical Machinery, Apparatus, Appliances and Supplies (370), Shipbuilding and Repairing (381), Motor Cycles and Bicycles (385), Professional and Scientific Measuring and Controlling Instruments (391), Photographic and Optical Goods (392), Watches and Clocks (393) and Electric Light and Power (511).

During the period 1970-75 the following were the traditional industries that had greater than unit production-elasticities: Dairy Products (202), Canning and Preserving of Fruits and Vegetables (203), Canning and Preserving of Fish and Other Seafoods (204), Bakery Products (206), Distilling, Rectifying and Blending of Spirits (211), Knitting Mills (232), Cordage, Rope and Twine Industries (233), Textiles n.e.c. (239), Footwear (241), Paper and Paper Products (271), Leather Products except Footwear and Other Wearing Apparel (293) and Rubber Products (300). Among the non-traditional industries the following industries had production-elasticities that were greater than unity: Basic Industrial Chemicals including Fertilisers (311), Vegetable and Animal Oils and Fats (312), Paints, Varnishes and Lacquers and Miscellaneous Chemical Products (313 and 319), Petroleum Refineries (321), Miscellaneous Petroleum and Coal Products (329), Structural Clay Products (331), Non-metallic Mineral Products, n.e.c. (339), Iron and Steel

Basic Industries (341), Non-electrical Machinery (360), Electrical Machinery, Apparatus, Appliances and Supplies (370), Shipbuilding and Repairing (381), Motor Vehicles (383), Repair of motor vehicles (384) and Watches and Clocks (393).

Over the entire period 1960-75, the following traditional industry groups had production-elasticities that were greater than unity : Dairy Products (202), Canning and Preserving of Fruits and Vegetables (203), Canning and Preserving of Fish and Other Seafoods (204), Bakery Products (206), Distilling, Rectifying and Blending of Spirits (211), Wine Industries (212), Breweries and Malt (213), Soft Drinks and Carbonated Water Industries (214), Knitting Mills (212), Cordage, Rope and Twine Industries (233), Textiles n.e.c. (239), Footwear (241), Paper and Paper Products (271), Leather Products except Footwear and Other Wearing Apparel (293), and Rubber Products (300). The following were the groups among the non-traditional industries that had greater than unit production-elasticities: Basic Industrial Chemicals including Fertilisers (311), Vegetables and Animal Oils and Fats (312), Paints, Varnishes and Lacquers and Miscellaneous Chemical Products (313 and 319), Petroleum Refineries (321), Miscellaneous Petroleum and Coal Products (329), Iron and Steel Basic Industries (341), Non-ferrous Basic Metal Industries (342), Non-electrical Machinery (360), Electrical Machinery, Apparatus, Appliances and Supplies (370), Repair of Motor Vehicles (384), Motor Cycles and Bicycles (385), Professional and Scientific Measuring and Controlling Instruments (391), Photographic and Optical goods (392),

Watches and Clocks (393) and Electric Light and Power (511).

The above four paragraphs give us an idea of the pattern of industrial growth at a more disaggregated level. It can be seen to be quite in keeping with the general lines of industrial growth as experienced elsewhere.<sup>2</sup> It must be noted that most of the groups in the traditional sector that have production-elasticities of greater than unity are actually groups that employ fairly modern techniques of production. Also, in the non-traditional sector there are a fair number of industries that have production elasticities that are very close to unity - although on the wrong side.

**Footnotes**

1. The methodology used in this chapter is based on that used on a study by the Secretariat of the Economic Commission for Europe. The study "Trade-dependence in European Countries" appeared in Economic Bulletin for Europe, Vol.21, No.1, pp.43-65.
2. See Chapter 1.

**Table VI.1: Import-elasticities (at the two-digit level of the ASI classification)**

(current price data used)

Code Nos.	1960-65	1965-70	1970-75	1960-75
20	0.7522	-0.1202	0.2871	0.1918
21	-0.4298	-0.1608	1.7098	-0.2186
22	0.6806	-2.3989	3.5829	-0.1539
23	-0.0990	-2.1315	0.8776	-0.5081
24	0.8909	4.5202	0.0494	1.6739
25	-0.9775	-1.3657	0.2871	-0.5657
26	0.2787	0.2877	0.7017	0.2649
27	-0.0046	0.4975	0.9287	0.2755
28	0.3634	0.5077	0.7448	0.2902
29	-1.6548	-1.0628	0.9318	-0.3661
30	-1.3859	1.5561	1.5403	0.1609
31	0.1537	0.5822	0.6729	0.4230
32	-0.7763	-0.0110	3.0369	-0.0401
33	-0.2957	-0.0990	0.1107	0.0857
34	0.0528	0.0051	0.7498	0.3092
35	-0.4656	-1.5113	1.5779	0.9143
36	0.6916	-0.8969	1.0619	0.0654
37	0.6890	-0.9536	1.1976	0.1279
38	0.1257	-0.7768	0.9925	0.0021
39	0.4122	0.1345	0.6448	0.1174

**Notes :** 1 Import elasticity =  $\frac{\text{Individual Growth Rate of Import}}{\text{Overall Industrial Growth Rate}}$

2 For years 60-65 and 65-70, compound growth rates (by regression) of total industrial production have been used and for years 70-75 and 60-75 compound growth rates (two point) of total industrial production have been used.

**Table VI.2 : Production-elasticities (at the two-digit level of the ASI classification)**

(current price data used)

Code Nos.	1960-65	1965-70	1970-75	1960-75
20	0.6571	0.8972	0.7905	0.8076
21	1.7180	1.7291	0.6560	1.2902
22	0.8292	0.8943	0.8555	0.7519
23	0.6876	0.6946	0.6606	0.6950
24	1.6618	0.9599	0.1513	0.9037
25	1.1589	0.3464	0.7580	0.7505
26	1.2056	0.8380	0.7217	0.8911
27	0.7938	1.2827	1.0546	1.0485
28	0.7693	0.7456	0.5097	0.6566
29	0.5627	1.1504	0.9656	0.6648
30	0.9728	0.9957	1.0807	1.0141
31	1.2762	1.5278	1.5547	1.4462
32	1.2210	1.9645	2.1964	1.7948
33	0.9556	0.7984	0.9869	0.9410
34	1.2395	0.9395	1.1313	1.1307
35	1.2437	0.7586	0.6473	0.9016
36	1.8482	1.1777	1.1789	1.3486
37	1.5401	1.3911	1.1876	1.3753
38	1.0466	0.6632	0.8993	0.8981
39	1.4864	1.0052	-0.1901	0.6908
51	2.4193	1.6767	0.8624	1.4519

**Notes:** 1 Production-elasticity =  $\frac{\text{Individual Growth Rate of Production}}{\text{Overall Industrial Growth Rate}}$

2 For years 60-65 and 65-70, compound growth rates (by regression) of total industrial production have been used and for years 70-75 and 60-75 compound growth rates (two point) of total industrial production have been used.

**Table VI.3 : Import elasticities (at the three-digit level of the ASI classification)**

(current price data are used)

Code No.	1960-65	1965-70	1970-75	1960-75
202	0.2950	0.0228	0.9650	0.3591
203	0.1153	0.4299	0.8593	0.2806
204	-0.8981	1.5519	2.1545	0.3598
205	1.1241	-0.6803	0.2214	-0.2291
206	1.1423	0.1955	1.2996	3.3324
207	-0.0078	0.4256	-0.2564	3.6121
208	0.0000	1.3894	0.8155	0.5720
209	0.5712	0.6380	-0.0457	0.3935
211	-0.3836	-0.0652	1.5754	-0.1989
212	-0.3113	-0.4849	1.9719	-0.0513
213	-1.6965	-2.1586	3.8937	-0.7639
214	4.1075	-5.2014	-0.3515	-1.7920
220	0.6806	-2.3989	3.5829	-0.1539
231	-0.1465	-1.9445	0.7242	-0.5130
232	-0.7932	0.0262	0.5572	1.8616
233	1.5038	-2.9176	1.3458	-0.8911
239	-0.1439	-2.7737	1.3971	-0.5334
241	-0.6298	5.6084	-3.3052	-0.9726
243	1.1254	4.2224	0.2583	1.8742
250	-0.9775	-1.3657	0.2871	-0.5657
260	0.2787	0.2877	0.7017	0.2649
271	-0.0046	0.4975	0.9287	0.2755
280	0.3634	0.5077	0.7448	0.2902
291	-0.0143	-0.6871	1.0344	0.1405
293	-2.3152	-1.6636	0.5353	-0.8939

(Contd.)

Table VI.3 : (Contd.)

Code No.	1960-65	1965-70	1970-75	1960-75
300	-1.3859	1.5561	1.5403	0.1609
311	0.3953	0.3825	0.8437	0.3970
312	1.1045	1.5223	-0.5253	0.8103
319	-0.5256	0.5627	0.7880	0.2270
321	-0.7796	-0.0102	3.0432	-0.0401
329	0.6200	0.1811	0.2289	0.1799
331	-0.9241	1.8396	-1.0788	0.0984
332	-0.1088	-0.4121	1.0544	0.2312
333	0.3419	-1.1017	0.7405	0.1026
334	-0.2950	-2.9777	-4.6760	-3.1061
339	0.0065	-0.7505	0.5741	0.0098
341	12.1616	-0.0762	1.0613	5.2734
342	-0.7294	0.1151	0.1795	-0.3739
350	-0.4656	-1.5113	1.5779	0.9143
360	0.6916	-0.8969	1.0619	0.0654
370	0.6890	-0.9536	1.1976	0.1279
381	2.7099	-0.7776	0.8793	0.0590
382	0.4611	-1.3107	0.8280	-0.1391
383	0.0059	-1.0332	0.8887	-0.1595
385	-1.0042	-2.6426	1.7598	-1.0056
386	-0.3810	0.6930	1.1976	0.5228
391	0.5842	0.0787	0.7942	0.2600
392	0.0853	0.5415	0.2983	0.3268
393	-0.9704	0.1828	1.5335	0.0450
394	23.2317	-2.0266	0.5297	6.8454
399	-0.4409	0.3723	0.9162	-0.4287



**Table VI.4 : Production elasticities (at the three-digit level of the ASI classification)**

(Current Price Data are used)

Code No.	1960-65	1965-70	1970-75	1960-75
202	1.9778	2.4165	1.5578	1.8384
203	2.3930	0.1105	1.0600	1.1096
204	2.8164	2.4706	1.6948	2.1729
205	0.3700	0.7797	0.5197	0.6507
206	<del>1.3707</del> 1.3703	1.2998	1.0113	1.1876
207	0.6201	1.0908	0.9787	0.8911
208	1.7389	-0.2684	0.4296	0.4996
209	0.6579	0.6691	0.6992	0.7442
211	0.4271	0.8717	2.1920	1.1968
212	6.0064	1.5176	-1.4565	1.4371
213	0.5369	2.2975	0.6692	1.2207
214	2.8794	2.2493	0.5547	1.4455
220	0.8292	0.8943	0.8555	0.7519
231	0.6794	0.7029	-0.9450	0.0365
232	1.7044	1.1315	1.1395	1.3823
233	0.6574	0.5042	4.1551	1.8131
239	0.7686	0.5313	4.9581	2.0372
241	2.4832	0.5699	2.0100	1.6142
243	1.5506	1.1964	-1.6467	0.0759
251 } 252 } 259 }	1.1589	0.3464	0.7580	0.7505
260	1.2056	0.8380	0.7217	0.8911
271	0.7938	1.2827	1.0544	1.0485
280	0.7693	0.7456	0.5097	0.6564
291	0.5418	1.1646	0.9250	0.6465
293	1.5426	0.6421	2.8024	1.7175
300	0.9728	0.9957	1.0807	1.0141

(Contd.)

**Table VI.4 : Production elasticities (at the three-digit level of the ASI classification)**

(Current Price Data are used)

Code No.	1960-65	1965-70	1970-75	1960-75
202	1.9778	2.4165	1.5578	1.8384
203	2.3930	0.1105	1.0600	1.1096
204	2.8164	2.4706	1.6948	2.1729
205	0.3700	0.7797	0.5197	0.6507
206	<del>1.3707</del> 1.3707	1.2998	1.0113	1.1876
207	0.6201	1.0908	0.9787	0.8911
208	1.7339	-0.2684	0.4296	0.4996
209	0.6579	0.6691	0.6992	0.7442
211	0.4271	0.8717	2.1920	1.1968
212	6.0064	1.5176	-1.4565	1.4371
213	0.5369	2.2975	0.6692	1.2207
214	2.8794	2.2493	0.5547	1.4455
220	0.8292	0.8943	0.8555	0.7519
231	0.6794	0.7029	-0.9450	0.0365
232	1.7044	1.1315	1.1395	1.3823
233	0.6574	0.5042	4.1551	1.8131
239	0.7686	0.5313	4.9581	2.0372
241	2.4832	0.5699	2.0100	1.6142
243	1.5506	1.1964	-1.6467	0.0759
251 } 252 } 259 }	1.1589	0.3464	0.7580	0.7505
260	1.2056	0.8380	0.7217	0.8911
271	0.7938	1.2827	1.0544	1.0485
280	0.7693	0.7456	0.5097	0.6564
291	0.5418	1.1646	0.9250	0.6465
293	1.5426	0.6421	2.8024	1.7175
300	0.9728	0.9957	1.0807	1.0141

(Contd.)

Table VI.4 : (Contd.)

Code No.	1960-65	1965-70	1970-75	1960-75
311	0.1472	1.8339	1.8405	1.7112
312	3.1099	1.5870	1.2076	1.8566
313	0.8441	0.9345	1.2364 *	1.1673 *
319	1.0405	1.2435		
321	0.7584	2.3553	2.1507	1.7063
329	3.8330	0.8606	2.3784	2.3640
331	0.7361	0.8696	1.0413	0.9023
332	0.9331	0.9812	0.9106	0.9628
333	1.1799	0.6176	0.8437	0.9417
334	0.9688	0.8670	0.9437	0.9487
339	1.0165	0.5382	1.0994	0.9389
341	1.2315	0.8683	1.2020	1.1504
342	1.2844	1.2946	0.7955	1.0302
350	1.2437	0.7586	0.6473	0.9016
350	1.8482	1.7777	1.1789	1.3486
370	1.5401	1.3911	1.1876	1.3753
381	0.1205	1.1216	1.4253	0.8644
382	0.9587	0.3469	0.3696	0.5713
383	1.1556	0.6416	1.0394	0.9768
384	1.5406	0.8765	1.3609	1.2410
385	1.0341	1.3881	0.6986	1.0098
386	0.8663	0.2539	0.0000	0.0000
391	2.0765	1.4971	0.8430	1.3472
392	2.1102	2.9899	-0.4903	1.0358
393	5.3687	1.0039	1.4903	2.2178
394	0.6045	0.3981	-0.8293	-0.0148
399	1.3359	0.7607	0.6992	0.4357
511	2.4193	1.4767	0.8624	1.4519

\* For the years 1960-65 & 1965-70, production growth rates are available separately for Groups 313 & 319. Hence elasticities are reported separately. For the years 1970-75 (and so also for 1960-75) they are not available separately. Hence, only a single elasticity is reported for these periods.

CHAPTER VIIIMPORT AND PRODUCTION ELASTICITIES - II

In this chapter we present the results on production and import elasticities based on multiple regression analysis. This analysis makes use of the time-series data for 1960-74 on the indices of real GNP per capita, the quantum indices of imports upto the two-digit level, the volume indices of production upto the two-digit level, the volume indices of the total industrial production and the capacity <sup>to</sup> of imports. The capacity to import is defined as the sum of gross export earnings (in post-devaluation rupees), net aid inflows and changes in foreign exchange reserves. This sum was deflated by the unit value index of imports of the relevant year. With the help of this data, we tackled two multiple regression models. In one case, we specified that <sup>the</sup> import index of each category as a function of the index of that year's industrial production and the capacity to import with one-year's lag. In the other case, we specified that the quantum index of industrial production of each category as a function of the index of the real GNP per capita of the same year and the capacity to import with one year's lag. We chose the first specification because we believed that the total industrial production and the capacity to import ought to exercise the pull on imports rather than the conventional variables like relative prices<sup>1</sup> and real per capita income. Our interest was mainly to discover how the principal import categories behave in the face of the changing volume of

the total industrial production and the capacity to import. The capacity to imports could be looked upon as the policy variable subsuming the impact of the shifts in the import control policy. The justification behind our second specification is based on the belief that the industry-wise industrial output ought to depend upon the real GNP per capita and the policy variable, the capacity to import. On the face of it it may seem that the capacity to import acts simply as an overall constraint and may fail to influence the levels of category-wise imports. But we do not think so. A change in the capacity to import would affect not only total imports but also the individual categories of imports through the differential impact of liberalisation (or tightening) of import controls. It is well known that an increase in the capacity to import leads to a liberalisation of imports of particular categories to a greater extent than others. A decrease in the capacity to import would have the opposite effect. It is for this reason that we chose the capacity to import as one of the explanatory variables. In other words, this variable, through its impact on category-wise imports, does take account of the differential impact of policy changes that occur from time to time. In this way one can verify the role that trade policy plays in the determination of the patterns of industrial output and imports.

For both the specifications we attempted linear and log-linear fits. As regards the signs of regression coefficients we expect the capacity to import should exercise a favourable (i.e. positive) influence both in imports and industrial production; we expect further

that the real GNP per capita should exercise a differential pull on different industries; in most cases this influence is bound to be positive; however, the influence of total industrial production on imports will be either positive or negative depending on whether the underlying relationship is direct or inverse. The negative relationship can show the strength of import substitution but the positive relationship might indicate the strategic importance of the import items in question.

#### Comments on the Results Obtained

Our results on production and import coefficients in a linear case and production and import elasticities in a non-linear case are presented in Tables VII.1, VII.3, VII.5, VII.7. The details of regression results are presented in Tables VII.2, VII.4, VII.6, VII.8. We have the following comments to make on the basis of the above tables.

i)  $R^2$  for sector-wise industrial production on one hand and the real GNP per capita and the capacity to import on the other are quite high in the range of 0.70 to 0.96 and F-test for  $R^2$  is significant at 1% and 5% level of significance in all cases except footwear, wood and cork and miscellaneous manufacturing industry both in the linear and log-linear cases.

ii) The production coefficients (the linear case) are positive with respect to real GNP per capita in 16 out of 18 cases; these coefficients are positive in all cases with respect to the capacity to imports. The signs of the coefficients are mostly correct.

iii) The production elasticities (the log-linear case) with respect to real GNP per capita are greater

than unity for 13 out of 18 cases but these elasticities with respect to the capacity to import are less than unity.

The t-test on b-coefficients turned out to be significant in all but one case at 5% level of significance and in 15 out of 18 cases at 1% level of significance.

iv) In the sphere of industrial production, the real GNP per capita appears to be a far more important variable than the capacity to import. Thus, the internal variable has a dominating influence compared to the external variable.

v) For multiple regression models with a lagged variable, the D-W statistic test for serial correlation is not valid at all. So we did not take account of the D-W results.

vi) The sectorwise imports on one hand and total industrial production coupled with the capacity to import on the other, yield  $R^2$  which are good in many cases, though they are not as high as in the earlier case. In the linear case, Crude Fertilisers and Crude Materials, Chemical Elements and Chemical Compounds, Dyeing, Tanning and Colouring Materials, Explosives and Pyrotechnic products, Wood and Cork Manufactures, Made up Textile Yarn Fabrics, Electrical Machinery and Non-Electrical Machinery furnished  $R^2$ s which fell in the range of 0.81 to 0.61. In the Log-linear case these same product groups along with Manufactured Fertilisers, Plastic Materials and Resins and Transport Equipment furnished  $R^2$ s in the range of 0.89 to 0.59. Besides, in the linear case we come across 14 products whose  $R^2$ s were in the range of 0.57 to

0.43 and in the log-linear case, there were seven such products having  $R^2$ 's between 0.58 and 0.55. In all the cases mentioned here F-test on  $R^2$  turned out to be significant both at 5% and 1% level of significance.

vii) In the linear case, we found 15 out of 28 products having positive import coefficients with respect to the total industrial production. The remaining products had negative coefficients. In the non-linear case, this resulted in 11 out of 13 products having positive import elasticities and greater than unity ranging between 1.11 to 4.78. Only in Iron and Steel, Paper and Paper Products, Plastic Materials and Resins were the import elasticities less than one. For those products where the import coefficients were negative, the import elasticities were absolutely greater than unity in 8 out of 13 products. This explains the strength of import substitution in the case of these products. But in the case of Crude Materials and minerals, Explosives and Pyrotechnic products, Rubber Manufactures, Non-Ferrous Metals and Non-Electrical Machinery these negative import elasticities are absolutely less than unity showing weak negative inter dependence between production and imports.

viii) t-values calculated for b-coefficients in our regressions turned out to be greater than the relevant table values. In most of the cases thus showing that the standard errors of b's were within the permissible limits. In 19 out of 28 cases, of linear and non-linear regressions t-test on b-coefficients was satisfactory at 5% level of significance, while it was satisfactory in 13 out of 28 cases at 1% level of significance.



ix) The capacity to import turned out to be an irrelevant variable because it gave wrong signs in all but nine cases. Among the latter cases, the elasticities were greater than one only in three cases.

x) It must be emphasized that the data-base of this exercise is different from that of the earlier chapters. Here our category-wise imports belong to 2-digit level classification <sup>of</sup> imports\* and these are brought in to interact with the total industrial production. This enables us to examine the behaviour of those imports which were left out in our earlier exercises based on the correspondence of industrial imports and industrial production. For instance, Crude Materials Inedible (except Fuels) and Mineral Fuels and Related Materials figure in our present exercise. As a result of this broadening the scope of imports, we have been able to find out which imports decline in relative importance with the growth in industrial production and which imports increase in relative importance with the growth in industrial production as shown in the para (vi) and (vii) above. To this extent, our earlier results on import-dependence get improved in this chapter.

\* i.e. imports as classified according to the Revised Indian Trade Classification.

**Footnotes**

1. Most studies on the estimation of import-demand functions for the Indian economy use the unit-value index for imports as a proxy for the price of imports. Now, the unit-values are derived from the c.i.f. import values. As soon as an import lands on Indian soil it is subject to a variety of duties that brings the price of the imported goods into equality with the price of the domestic substitute. Thus the tariff-inclusive price, which is the price that the consumer has to pay, is no different from the price of the domestic substitute - the concept of relative prices is thus meaningless. Imports are, therefore, purchased either because domestic production is not able to satisfy demand or because of other non-price factors such as qualitative differences, real or fancied, between the imported commodities and their domestic substitutes.

**Table VII.1 : Import Coefficients (Linear Case)  
with Respect to total Industrial  
Production**

<b>POSITIVE COEFFICIENTS</b>	
Beverages	(1.5884)
Crude Fertilisers	(1.2434)
Metalliferrous Ores and Metal Scrap	(6.2599)
Animal and Vegetable Oils and Fats	(3.1095)
Chemical Elements and Compounds	(1.1215)
Mineral Tar and Crude Chemicals from Coal, Petroleum and Natural Gas	(13.0151)
Medicinal and Pharmaceutical Products	(2.2947)
Fertilisers Manufactured	(12.5657)
Non-metallic Mineral Manufactures	(2.3873)
Electrical Machinery, Apparatus and Appliances	(2.2387)
Petroleum and Petroleum Products	(0.3519)
Plastic Materials, Regenerated Cellulose of Artificial Resins	(0.5520)
Paper, Paper Board and Manufactures thereof	(0.2035)
Iron and Steel	(0.4246)
Miscellaneous Manufactured Articles	(0.9041)
<b>NEGATIVE COEFFICIENTS</b>	
Tobacco	(-3.4874)
Explosives and Pyrotechnic Products	(-1.6856)
Crude Materials	(-0.2178)
Pulp and Waste Paper	(-0.7482)
Textile Fibres and Their Waste	(-0.4874)

Table VII.1 : (Contd.)

Dyeing, Tanning and Colouring Materials	(-0.8079)
Leather, <sup>a</sup> Leathes Manufactures n.e.c. and Dressed Fur Skins	(-0.5165)
Rubber Manufactures n.e.c.	(-0.2879)
Wood and Cork Manufactures	(-0.9675)
Textile Yarn, Fabrics, Made-up Articles and Related Products	(-0.5914)
Non-Ferrous Metals	(-0.5211)
Non-electrical Machinery	(-0.5023)
Transport Equipment	(-0.5591)

## GOODS CLASSIFIED ACCORDING TO ECONOMIC CLASSIFICATION

Consumer Goods	(0.5839)
Intermediate Goods	(0.3136)
Machinery	(0.0012)

$F_{2,12}; .05 = 3.88$ 

5% level of significance

 $F_{2,12}; .01 = 6.93$ 

1% level of significance

\* Significant at 5%

\*\* Significant at both 5% and 1% levels of significance

n.s. Not significant

V)	a	b	c	R <sup>2</sup>	F-Test
	97.4390 (0.4018)n.s.	1.5884 (1.7731)n.s.	-0.1452 (-1.4082)n.s.	0.4313	4.5510*
Manufactures	807.8524 (2.7339)**	-3.4874 (-3.1950)**	-0.0802 (-0.6386)n.s.	0.4770	5.4733*
ible except fuels	158.6057 (3.2912)**	-0.2178 (-1.2235)n.s.	-0.0258 (-1.2591)n.s.	0.1513	1.0697 n.s.
	200.1807 (3.5504)**	-0.7482 (-3.5925)**	0.0023 (0.0943)n.s.	0.5776	8.2040**
air waste	156.5511 (4.0238)**	-0.4874 (-3.3914)**	-0.0073 (-0.4411)n.s.	0.5178	6.4420*
Crude Minerals	9.1639 (0.1680)n.s.	1.2434 (6.1711)**	-0.0225 (-0.9685)n.s.	0.8209	27.5002**
nd Metal Scrap	414.9409 (0.4777)n.s.	6.2599 (1.9510)*	-0.6206 (-1.6801)n.s.	0.4963	5.9113*
um products	144.0832 (1.6318)n.s.	0.3519 (1.0788)n.s.	-0.0394 (-1.0498)n.s.	0.2525	2.0273 n.s.
Oils and Fats	-74.7708 (-0.2291)n.s.	3.1095 (2.5794)*	-0.0920 (-0.6626)n.s.	0.4709	5.3397*
Compounds	25.8478 (0.5205)n.s.	1.1215 (6.1138)**	-0.0369 (-1.7455)n.s.	0.8376	30.9446**
Chemicals from atural Gas	-1352.8965 (-1.2638)n.s.	13.0151 (3.2914)**	-0.1599 (-0.3512)n.s.	0.5534	7.4358**

**Table VII.2 : 1) Import Coefficients (Linear Case)**

$$V = a + bX_1 + cX_2$$

where  $X_1$  : Total Industrial Production (India)

$X_2$  : Capacity to Import

(Figure in the bracket indicates T - Test)

$$t_{12} : .05 = 1.782$$

$$F_{2,12} : .05 = 3.88$$

5% level of significance

$$t_{12} : .01 = 2.681$$

$$F_{2,12} : .01 = 6.93$$

1% level of significance

\* Significant at 5%

\*\* Significant at both 5% and 1% levels of significance

**1) Without Logs**

Equation	Dependent Variable (V)	a	b
T2LN 01	Beverages	97.4390 (0.4018)n.s.	1.5884 (1.7731)n.s.
02	Tobacco and Tobacco Manufactures	807.8524 (2.7339)**	-3.4874 (-3.1950)*
03	Crude materials, inedible except fuels	158.6057 (3.2912)**	-0.2178 (-1.2235)n.s.
04	Pulp and waste paper	200.1807 (3.5504)**	-0.7482 (-3.5925)*
05	Textile Fibres and their waste	156.5511 (4.0238)**	-0.4874 (-3.3914)*
06	Crude Fertilizers and Crude Minerals	9.1639 (0.1680)n.s.	1.2434 (6.1711)*
07	Metalliferrous Ores and Metal Scrap	414.9409 (0.4777)n.s.	6.2599 (1.9510)*
08	Petroleum and Petroleum products	144.0832 (1.6318)n.s.	0.3519 (1.0788)n.s.
09	Animal and Vegetable Oils and Fats	-74.7708 (-0.2291)n.s.	3.1095 (2.5794)*
10	Chemical Elements and Compounds	25.8478 (0.5205)n.s.	1.1215 (6.1138)*
11	Mineral Tar and Crude Chemicals from Coal Petroleum and Natural Gas	-1352.8965 (-1.2638)n.s.	13.0151 (3.2914)*
12	Dyeing, Tanning and Colouring Materials	190.7486 (6.2900)**	-0.8019 (-7.1589)*

Table VII 2 contd.

Equation	Dependent Variable (V)	a	b
T2LN	13 Medicinal and Pharmaceutical Products	-33.5831 (-0.0946)n.s.	2.2947 ( 1.7499)
	14 Fertilizers Manufactured	-694.5247 (-0.6192)n.s.	12.5657 ( 3.0327)
	15 Explosives and Pyrotechnic Products	271.9329 ( 2.0346)*	-1.6856 (-3.4144)
	16 Plastic Materials, regenerated Cellulose and artificial resins	244.3244 ( 2.0192)*	0.5520 ( 1.2351)
	17 Leather, leather manufactures n.e.s. and dressed fur skins	126.4697 ( 1.7824)*	-0.5165 (-1.9706)
	18 Rubber Manufactures n.e.s.	178.2625 ( 2.7368)**	-0.2879 (-1.1965)
	19 Wood and cork Manufactures	40.7135 ( 0.3519)n.s.	-0.9675 (-2.2636)
	20 Paper, Paper Board and Manufactures thereof	104.7592 ( 2.4718)*	0.2035 ( 1.3000)
	21 Textile yarn, Fabrics, made up Articles and Related Products	124.7375 ( 3.0202)**	-0.5914 (-3.8763)
	22 Non-metallic Mineral Manufactures n.e.s.	232.4548 ( 0.6729)n.s.	2.3873 ( 1.8708)
	23 Iron and Steel	1.9447 ( 0.0236)n.s.	0.4246 ( 1.3975)
	24 Non-ferrous Metals	148.3263 ( 2.6638)*	-0.5211 (-2.5337)
	25 Machinery, other than electric	71.3589 ( 1.7828)*	-0.5023 (-3.3973)
	26 Electrical Machinery, apparatus and appliances	-195.1895 (-0.9456)n.s.	2.2387 ( 2.9360)
	27 Transport Equipment	118.3358 ( 3.6261)**	-0.5591 (-4.6383)
	28 Miscellaneous Manufactured Articles	-133.7229 (-0.9925)n.s.	0.9041 (1.8167)
	29 Consumer Goods	-104.7409 (-0.9226)n.s.	0.5839 (1.3923)
	30 Intermediate Goods	97.2272 ( 3.0993)**	0.3136 (2.7059)
	31 Machinery	28.0090 ( 0.6319)n.s.	0.0012 (0.0071)

**Table VII.3 : Import Elasticities (Log-Linear Case)  
with Respect to Total Industrial  
Production**

**POSITIVE COEFFICIENTS**

**(1) GREATER THAN UNITY**

Beverages	(1.2162)
Crude Fertilisers and Crude Minerals	(1.1143)
Metalliferous Ores and Metal Scrap	(2.4825)
Petroleum and Petroleum Products	(3.0295)
Animal and Vegetable Oils and Fats	(1.8322)
Chemical Elements and Compounds	(1.1106)
Mineral Tar and Crude Chemicals from Coal, Petroleum and Natural Gas	(4.7822)
Medicinal and Pharmaceutical Products	(1.0122)
Fertilisers Manufactured	(3.7783)
Non-metallic Mineral Manufactures, N.O.S.	(1.2914)
Electrical Machinery	(1.5703)

**(11) LESS THAN UNITY**

Plastic Materials, Regenerated Cellulose and Artificial Resins	(0.5392)
Paper, Paper Board and Manufactures Thereof	(0.2236)
Iron and Steel	(0.4131)
Miscellaneous Manufactured Articles	(0.8397)

**NEGATIVE COEFFICIENTS**

**(1) WITH ABSOLUTE VALUES  
GREATER THAN UNITY**

Tobacco and Tobacco Manufactures	(-3.4794)
Pulp and Waste Paper	(-1.2971)
Textile Fibres and their Waste	(-1.2110)
Dyeing, Tanning and Colouring Materials	(-2.1200)



Table VII.3 : (Contd.)

<b>Explosives and Pyrotechnic Products</b>	<b>(-3.3029)</b>
<b>Leather, Leather Manufactures, n.e.s. and Dressed Fur Skins</b>	<b>(-1.8746)</b>
<b>Wood and Cork Manufactures</b>	<b>(-2.7218)</b>
<b>Textile Yarn, Fabrics, Made-up Articles and Related Products</b>	<b>(-1.2962)</b>
<b>Transport Equipment</b>	<b>(-1.4205)</b>

**(11) WITH ABSOLUTE VALUES LESS THAN  
UNITY**

<b>Crude Materials, Inedible except Fuels</b>	<b>(-0.4572)</b>
<b>Rubber Manufactures n.e.s.</b>	<b>(-0.7982)</b>
<b>Non-Ferrous Metals</b>	<b>(-0.8251)</b>
<b>Non-electrical Machinery</b>	<b>(-0.9472)</b>

**IMPORT ELASTICITIES (LOG-LINEAR CASE)  
WITH RESPECT TO TOTAL INDUSTRIAL PRODUCTION**

**(GOODS CLASSIFIED ACCORDING TO ECONOMIC CLASSIFICATION)**

<b>Consumer Goods</b>	<b>( 0.7223)</b>
<b>Intermediate Goods</b>	<b>( 0.3679)</b>
<b>Machinery</b>	<b>(-0.1839)</b>

Table VII.4 : 1)

log

Significance

Significance

ii) With Logs :

Equation			$R^2$	F-test
T2LN	01	Bever	0.5920	8.7050 **
	02	Tobac	0.5475	7.2591**
	03	Crude	0.1410	0.9846n.s.
	04	Pulp	0.6021	9.0798**
	05	Texti	0.4124	4.2113*
	06	Crude	0.8211	27.5373**
	07	Metal	0.5655	7.8087**
	08	Petr	0.2435	19309 n.s.
	09	Anim	0.5758	8.1441**
	10	Chem	0.8477	33.4004**
	11	Mine	0.5517	7.3851**

(contd.)

Equation	Dependent Variable (V)	a	b	c	R <sup>2</sup>	F-Test
12	Dyeing, Tanning and Colouring Materials	6.1982 (4.8003)**	-2.1200 (-8.0092)**	0.0310 (0.1050)n.s.	0.8705	40.3440**
13	Medicinal and Pharmaceutical Products	2.1603 (0.7130)n.s.	1.0122 (1.6297)n.s.	-0.6745 (-0.9728)n.s.	0.3414	3.1109n.s.
14	Fertilizers Manufactured	-5.8942 (-1.7573)n.s.	3.7783 (5.4950)**	0.1366 (0.1779)n.s.	0.7526	18.2515**
15	Explosives and Pyrotechnic Products	2.0928 (0.7201)n.s.	-3.3029 (-5.5439)**	2.1674 (3.2591)**	0.8559	35.6429**
16	Plastic Materials, regenerated cellulose and artificial resins	4.5057 (2.7710)**	0.5392 (1.6174)n.s.	-1.1201 (-3.0104)**	0.6235	9.9371**
17	Leather, leather manufactures n.e.s. and dressed Fur skins	6.2899 (1.7998)*	-1.8746 (-2.6166)*	-0.2335 (-2.9199)**	0.3933	3.8889*
18	Rubber Manufactures n.e.s.	7.8644 (2.6999)**	-0.7982 (-1.3368)n.s.	-1.3903 (-2.0859)*	0.2755	2.2820n.s.
19	Wood and Cork Manufactures	-3.1695 (-1.1863)n.s.	-2.7218 (-4.9693)**	3.4263 (5.6040)**	0.8932	50.1844**
20	Paper, Paper Board and Manufactures thereof	2.1062 (2.2585)*	0.2236 (1.1696)n.s.	-0.1672 (-0.7835)n.s.	0.2244	1.7357n.s.
21	Textile yarn, Fabrics, made up Articles and Related Products	2.8088 (1.6347)n.s.	-1.2962 (-3.6798)**	0.5841 (1.4855)n.s.	0.6608	12.7949**
22	Non-metallic Mineral Manufactures n.e.s.	3.3496 (0.9234)n.s.	1.2914 (1.7367)n.s.	-1.2251 (-1.4759)n.s.	0.4360	4.6382*
23	Iron and steel	0.1495 (0.0529)n.s.	0.4131 (0.7132)n.s.	0.2731 (0.4223)n.s.	0.0418	0.2614n.s.
24	Non-ferrous Metals	2.5684 (1.6705)n.s.	-0.8251 (-2.6179)*	0.3653 (1.0382)n.s.	0.5171	6.4244*
25	Machinery, other than electric	0.7267 (0.4080)n.s.	-0.9472 (-2.5940)*	1.0556 (2.5899)*	0.6675	12.0465**
26	Electrical Machinery, apparatus and appliances	-1.9070 (-0.9925)n.s.	1.5703 (3.9866)**	0.2194 (0.4990)n.s.	0.5984	8.9401**
27	Transport Equipment	2.8937 (1.8338)*	-1.4205 (-4.3912)**	0.6181 (1.7116)n.s.	0.7494	17.9402**
28	Miscellaneous Manufactured Articles	-2.3981 (-1.1333)n.s.	0.8397 (1.9359)*	0.8980 (1.8546)*	0.2936	2.4934n.s.
29	Consumer Goods	-3.0726 (-1.3981)n.s.	0.7223 (1.5033)n.s.	1.1433 (2.2733)*	0.3187	2.8061n.s.
30	Intermediate Goods	2.0753 (3.0404)**	0.3679 (2.6293)*	-2.5865 (-1.6559)n.s.	0.5832	8.3960**
31	Machinery	-0.1721 (-0.1494)n.s.	-0.0434 (-0.1839)n.s.	0.7246 (2.7493)**	0.4544	4.9974*

Table VII.4 : (Contd.)

Equation	Dependent Variable (V)	a	
12	Dyeing, Tanning and Colouring Materials	6.1982 (4.8003)**	(-2)
13	Medicinal and Pharmaceutical Products	2.1603 (0.7130)n.s.	(
14	Fertilizers Manufactured	-5.8942 (-1.7573)n.s.	(
15	Explosives and Pyrotechnic Products	2.0928 (0.7201)n.s.	(-)
16	Plastic Materials, regenerated cellulose and artificial resins	4.5057 (2.7710)**	(
17	Leather, leather manufactures n.e.s. and dressed Fur skins	6.2899 (1.7998)*	(-)
18	Rubber Manufactures n.e.s.	7.8644 ( 2.6999)**	(-)
19	Wood and Cork Manufactures	-3.1695 (-1.1863)n.s.	(-)
20	Paper, Paper Board and Manufactures thereof	2.1062 (2.2585)*	(
21	Textile yarn, Fabrics, made up Articles and Related Products	2.8088 (1.6347)n.s.	(-)
22	Non-metallic Mineral Manufactures n.e.s.	3.3496 (0.9234)n.s.	(
23	Iron and steel	0.1495 (0.0529)n.s.	(
24	Non-ferrous Metals	2.5684 ( 1.6705)n.s.	(-)
25	Machinery, other than electric	0.7267 (0.4080)n.s.	(-)
26	Electrical Machinery, apparatus and appliances	-1.9070 (-0.9925)n.s.	(
27	Transport Equipment	2.8937 (1.8338)*	(-)
28	Miscellaneous Manufactured Articles	-2.3981 (-1.1333)n.s.	(
29	Consumer Goods	-3.0726 (-1.3981)n.s.	(
30	Intermediate Goods	2.0753 (3.0404)**	(
31	Machinery	-0.1721 (-0.1494)n.s.	(-)

**Table VII.5 : Production Coefficients (Linear Case)  
with Respect to Real GNP per Capita**

**POSITIVE COEFFICIENTS**

<b>Food</b>	<b>(1.1955)</b>
<b>Beverages and Tobacco</b>	<b>(1.8671)</b>
<b>Wood and Cork except Furniture</b>	<b>(2.1901)</b>
<b>Paper and Paper Products</b>	<b>(2.9209)</b>
<b>Rubber Products</b>	<b>(3.1803)</b>
<b>Chemicals and Chemical Products</b>	<b>(3.8972)</b>
<b>Petroleum Refinery Products</b>	<b>(4.7389)</b>
<b>Non-metallic Mineral Products</b>	<b>(2.6151)</b>
<b>Basic Metal Industries</b>	<b>(2.2371)</b>
<b>Metal Products except Machinery and Transport Equipment</b>	<b>(3.3199)</b>
<b>Non-electrical Machinery</b>	<b>(6.8299)</b>
<b>Electrical Machinery, Apparatus, Appli- ances and Supplies</b>	<b>(6.8651)</b>
<b>Electricity</b>	<b>(5.9822)</b>
<b>Textiles</b>	<b>(0.2578)</b>
<b>Footwear</b>	<b>(0.9485)</b>
<b>Transport Equipment</b>	<b>(0.9772)</b>

**NEGATIVE COEFFICIENTS**

<b>Leather and Fur Products except Footwear</b>	<b>(-0.6676)</b>
<b>Miscellaneous Manufacturing Industry</b>	<b>(-0.0272)</b>

Table VII.6 : 2) Production Coefficients (Linear Case)

$$V = a + bI_1 + cI_2 \quad \text{where } I_1 : \text{Index of Real GNP per Capita}$$

$$I_2 : \text{Capacity to Import}$$

(figure in the bracket indicates T - Test)

$t_{12}; .05 = 1.782$        $F_{2,12}; .05 = 3.88$       5% level of significance

$t_{12}; .01 = 2.681$        $F_{2,12}; .01 = 6.93$       1% level of significance

\* Significant at 5% level of significance

\*\* Significant at both 5% and 1% level of significance

n.s. Not significant

## 1) Without Logs

Equation	Dependent Variable (V)	a	b	c	R <sup>2</sup>	F-Test
T3LN 01	Manufacture of food	-29.8983 (-0.7707)n.s.	1.1955 (5.8686)**	0.0062 (0.4947)n.s.	0.8038	24.5886**
02	Manufacture of beverages and tobacco	-111.0822 (-2.5067)*	1.8671 (8.0239)**	0.0185 (1.2949)n.s.	0.8755	42.1897**
03	Manufacture of textiles	58.6507 (6.2965)**	0.2578 (5.2703)**	0.0132 (4.4132)**	0.7152	15.0701**
04	Manufacture of footwear and other wearing apparel and made up textile goods	-10.2502 (-0.1114)n.s.	0.9485 (1.9623)*	0.0331 (1.1175)n.s.	0.2433	19.2919**
05	Manufacture of wood cork except furniture	-158.8847 (-0.9238)n.s.	2.1901 (2.4251)*	0.0437 (0.7901)n.s.	0.3550	3.3023 n.s.
06	Manufacture of paper and paper products	-206.4802 (-6.8943)**	2.9209 (18.5724)**	0.0083 (0.8608)n.s.	0.9772	257.4093**
07	Manufacture of leather and fur products ex. footwear and other wearing apparel	120.5420 (2.6621)*	-0.6676 (-2.8145)**	0.0432 (2.9728)**	0.7795	21.2066**
08	Manufacture of rubber products	-231.8507 (-5.5367)**	3.1803 (14.4625)**	0.0104 (0.7695)n.s.	0.9627	154.8345**
09	Manufacture of chemicals and chemical products	-313.0679 (-4.8526)**	3.8972 (11.5034)**	0.0110 (0.5305)n.s.	0.9427	98.7785**
10	Petroleum refinery products	-344.7539 (-5.4224)**	4.7389 (14.1939)**	-0.0223 (-1.0893)n.s.	0.9668	174.6134**
11	Manufacture of non-metallic mineral products ex. products of petroleum and coal	-198.3774 (-5.2154)**	2.6151 (13.0925)**	0.0233 (1.9073)*	0.9501	114.2442**

(contd.)

Table VII.6 : (Contd.)

Equation	Dependent Variable (V)	a	b	c	R <sup>2</sup>	F-Test
12	Basic Metal Industries	-159.3970 (-3.1148)**	2.2371 (8.3247)**	0.0425 (2.5813)*	0.8679	39.4084**
13	Manufacture of Metal products ex. machinery and transport equipment	-315.0698 (-4.1742)**	3.3199 (8.3753)**	0.0604 (2.4852)*	0.8705	40.3342**
14	Manufacture of machinery except electrical	-647.0267 (-6.5896)**	6.8299 (13.2464)**	0.0528 (1.6727)n.s.	0.9522	119.4653**
15	Manufacture of electrical machinery apparatus etc.	-610.4636 (-6.5152)**	6.8651 (13.9527)**	0.0083 (0.2760)n.s.	0.9615	149.9477**
16	Manufacture of transport equipment	-124.9067 (-2.9594)**	0.9772 (4.4090)**	0.1067 (7.8584)**	0.8377	30.9721**
17	Miscellaneous manufacturing Industry	74.9630 (1.2087)n.s.	-0.0272 (-0.0836)n.s.	0.0292 (1.4611)n.s.	0.2314	1.8060n.s.
18	Electricity generated	-510.4595 (-7.4549)**	5.9822 (16.6372)**	0.0041 (0.1861)n.s.	0.9729	215.4104**

Table VII.6 : (Contd.)

Equation	Dependent Variable (V)	$\alpha$	
12	Basic Metal Industries	-159.3970 (-3.1148)**	2. (8.)
13	Manufacture of Metal products ex. machinery and transport equipment	-315.0898 (-4.1742)**	3. (8.)
14	Manufacture of machinery except electrical	-647.0267 (-6.5896)**	6. (13.)
15	Manufacture of electrical machinery apparatus etc.	-610.4636 (-6.5152)**	6. (13.)
16	Manufacture of transport equipment	-124.9067 (-2.9594)**	0. (4.)
17	Miscellaneous manufacturing Industry	74.9630 ( 1.2087)n.s.	-0. (-0.)
18	Electricity generated	-510.4595 (-7.4549)**	5. (16.)



**Table VII.7 : Production Elasticities (Log-Linear Case)  
with Respect to Real GNP per Capita**

**POSITIVE COEFFICIENTS :**

**(I) GREATER THAN UNITY**

Food	(1.1196)
Beverages and Tobacco	(1.6464)
Wood and Cork	(1.9128)
Paper and Paper Products	(2.2644)
Rubber Products	(2.3330)
Chemicals and Chemical Products	(2.6413)
Petroleum Refinery Products	(3.0558)
Non-metallic Mineral Products	(2.0807)
Basic Metal Industries	(1.8194)
Metal Products except Machinery and Transport Equipment	(2.4758)
Non-electrical Machinery	(3.6718)
Electrical Machinery, Apparatus, Appliances and Supplies	(3.7363)
Electricity generated	(3.4137)

**(II) LESS THAN UNITY**

Textiles	(0.3109)
Footwear	(0.9985)
Transport Equipment	(0.9523)

**NEGATIVE COEFFICIENTS :**

**(I) WITH ABSOLUTE VALUES GREATER THAN UNITY**

No group falls within this category

**(II) WITH ABSOLUTE VALUES LESS THAN UNITY**

Leather and Fur Products except Footwear	(-0.8654)
Miscellaneous Manufacturing Industry	(-0.0798)

Table VII.8 : 2) Production Elasticities (log linear case)

$$\log V = a + \log X_1 + \log X_2 \quad \text{where } X_1 : \text{Index of Real G.N.P. per Capita}$$

$$X_2 : \text{Capacity to Import}$$

(figure in the bracket indicates T - Test)

$$t_{12}; .05 = 1.782 \quad F_{2,12}; .05 = 3.88 \quad 5\% \text{ level of significance}$$

$$t_{12}; .01 = 2.681 \quad F_{2,12}; .01 = 6.93 \quad 1\% \text{ level of significance}$$

\* Significant at 5%

\*\* Significant at both 5% and 1% levels of significance

n.s. not significant

## 11) With Logs

Equation	Dependent Variable (V)	a	b	c	R <sup>2</sup>	F-Test
T3LN	01 Manufacture of food	-0.4196 (-0.5201)n.s.	1.1196 (5.4092)**	0.0569 (0.3864)n.s.	0.7854	21.9529**
	02 Manufacture of beverages and Tobacco	-1.9181 (-2.3423)*	1.6464 (7.8361)**	0.2017 (1.3507)n.s.	0.8723	40.9698**
	03 Manufacture of textiles	0.8362 (3.7738)**	0.3109 (5.4690)**	0.1758 (4.3509)**	0.7232	15.6747**
	04 Manufacture of footwear and other wearing apparel and made up textile goods	-1.1483 (-0.7531)n.s.	0.9985 (2.5522)*	0.3954 (1.4217)n.s.	0.3535	3.2809n.s.
	05 Manufacture of wood cork except furniture	-3.0520 (-1.1968)n.s.	1.9128 (2.9235)**	0.4051 (0.8709)n.s.	0.4555	5.0188*
	06 Manufacture of paper and paper products	-2.9457 (-5.4830)**	2.2644 (16.4278)**	0.1334 (1.3617)n.s.	0.9708	199.7082**
	07 Manufacture of leather and fur products ex. footwear and other wearing apparel	1.4440 (1.0306)n.s.	-0.8654 (-2.4076)*	0.7461 (2.9195)**	0.7592	189.1769**
	08 Manufacture of rubber products	-3.1393 (-5.1754)**	2.3330 (14.9907)**	0.1569 (1.4181)n.s.	0.9647	163.9863**
	09 Manufacture of chemicals and chemical products	-3.7237 (-5.4367)**	2.6413 (15.0304)**	0.1424 (1.1400)n.s.	0.9656	168.5961**
	10 Petroleum refinery products	-4.0251 (-3.8317)**	3.0558 (11.3384)**	-0.0236 (-0.1322)n.s.	0.9468	106.7494**
	11 Manufacture of non-metallic mineral products ex. products of petroleum and coal	-2.9627 (-5.7465)**	2.0807 (15.7305)**	0.2551 (2.7130)**	0.9649	165.0843**

(Contd.)

Table VII.8 : (Contd.)

Equation	Dependent Variable (V)	a	b	c	R <sup>2</sup>	F-Test
12	Basic Metal Industries	-3.0053 (-3.3970)**	1.8194 (8.0158)**	0.4595 (2.8478)**	0.8569	35.9324**
13	Manufacture of Metal Products ex. machinery and transport equipment	-4.6445 (-3.9527)**	2.4758 (8.2124)**	0.5447 (2.5415)*	0.8672	39.1939**
14	Manufacture of machinery except electrical	-7.0427 (-5.6458)**	3.6718 (11.4730)**	0.5623 (2.4712)*	0.9332	83.8326**
15	Manufacture of electrical machinery apparatus etc.	-6.2492 (-6.1603)**	3.7363 (14.3555)**	0.2529 (1.3666)n.s.	0.9616	150.2774**
16	Manufacture of transport equipment	-3.0548 (-3.5542)**	0.9523 (4.3183)**	1.0265 (6.5477)**	0.7817	21.4803**
17	Miscellaneous manufacturing Industry	1.2218 (0.7902)n.s.	-0.0798 (-0.2012)n.s.	0.3156 (1.1190)n.s.	0.1769	1.2892n.s.
18	Electricity generated	-5.4170 (-6.8346)**	3.4137 (16.7875)**	0.1963 (1.3575)n.s.	0.9721	209.0557**

## CHAPTER VIII

### CONCLUSION

The previous pages present a detailed study on structural change side by side, in industry and imports, as it has occurred during the last 25 years in India; it studies the interdependence between industry and imports by means of the conventional import substitution measures and it also throws light on the factors that tend to determine the pattern of industrialisation and the pattern of imports. These exercises enable us to reach a number of conclusions.

Firstly, the study, as a whole, underlines the fact that the major stimulus behind the acceleration of the process of industrialisation has been provided by the autonomous and endogenous growth of the Indian economy during this period. So in this period the structure of imports has undergone drastic changes largely in response to changes in the structure of industry at home. These findings are contained in the Chapter IV on structural change in industry and imports, Chapter V on import substitution and Chapters VI & VII on import and production elasticities. They show that trade policies did not play a triggering role in industrial transformation. Though this view is at variance with the view held by many trade theorists, our view derives a strong support from Karnets and from Chenery and his associates, whose empirical findings tend to highlight a decisive role played by size and resource base and a negligible role played by trade policies in

economies of moderate size. Since our empirical results are in line with these authors, we accept the endogenous nature of industrial growth in India.

Secondly, this study shows that the acceleration and diversification of industrialisation is largely due to the emergence of new, modern, dynamic and growth oriented industries, like machinery and chemicals as against traditional ones like textiles and footwear. This is revealed by the results we obtain in Chapters IV, V, VI and VII. These are also industries which show high intensities in the use of modern technology, human skills and physical capital. A comparative study between traditional and non-traditional industries could be highly rewarding for the future researchers and the policy-maker.

Lastly, the study notes the possibility of economic stagnation because of the saturation of import substitution potential. However, it does not support the view that the wholesale trade <sup>liberalization</sup> ~~liberalization~~ and pro-trade policies can relieve this stagnation problem. What is needed instead is pushing along a broad front of core industries thereby expanding the market and permitting imports that are necessary. This is not now difficult because of mounting exchange reserves and the disappearance of export pessimism of the 60s.