

STRUCTURE OF THE INDIAN ECONOMY

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THE STRUCTURE OF THE INDIAN ECONOMY :

1953-54

(Supplemented By Inter-industry Transactions Table of
1955-56)

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FOREWORD

Inter-industry tables show the interdependence or inter-connexion between different branches or sectors of the economy. A comparative study of such interdependence at different points of time reveals the extent of technological change in the economy. Inter-industry studies are useful in attempting a projection of the economy over a period during which the technological structure of the economy remains fairly stable. Such studies also supply independent checks of sectoral national income estimates.

In a planned economy inter-industry tables provide checks on the consistency of plan targets. With suitable disaggregation, the knowledge of interdependence of sectors helps one to estimate both direct and indirect requirements of output and thereby makes it possible to formulate targets of production.

Inter-industry studies in India are difficult due to relative scarcity of data compared with countries where statistics have been collected and processed in a wide number of fields. Also, in India much available data frequently lie unprocessed, for example the primary data collected over various rounds of the National Sample Survey between 1951 and 1965.

In the present publication the available data have been used in a meaningful way. In a 36-sector framework, Dr. Chakraverti, with the help of his associates, has handled various economic transactions in the Indian economy for the year 1953-54. In doing this, he has shown his understanding of national income accounting and input-output analysis and familiarity with the available statistical information relating to the structure of the Indian economy. Such empirical studies are essential for the proper understanding of the Indian economy and also for purposes of economic planning.

P. C. MAHALANOBIS

30 September 1966.

PREFACE

1. Inter-industry studies in the Indian Statistical Institute date back to November of the year 1951, when the Prime Minister inaugurated studies relating to planning for national development. After the preliminary attempt leading to a Transactions Matrix for 1950-51 with 12 sector breakdowns (including households as sectors) prepared under the guidance of Dr. T. P. Choudhuri and Dr. R. M. Goodwin, a sort of standard 36-sector classification scheme of the Indian Economy is arrived at. Three tables have so far been made following this 36-sector economic classification.

2. The first table relates to the year 1951-52 and has been published in "National Income And Allied Topics" Volume I by the Indian Conference On Research in National Income. The preliminary version of the Inter-industry Transactions Table at market price for 1953-54 has also been included in the United Nations' Economic Commission for Asia and the Far East publication "Formulating Industrial Development Programmes" (Development Programming Techniques Series No. 2) Bangkok, 1961. In the present publication a thoroughly revised and improved version of the 1953-54 Transactions table has been included and a detailed account of methods of compilation and analysis of data has also been presented. The 1955-56 Inter-industry Transactions table is the latest available and forms a supplement (vide Appendix B) to the present publication.

3. It may be mentioned in passing that the studies also furnish somewhat independent estimates of gross domestic product at factor cost by sectoral origin. Though at places use of some data obtained from the National Income

Unit (NIU) of the Central Statistical Organisation has been made, it is evident from the sectoral notes on estimation that in most cases the gross national income estimates are really independent of those furnished by the latter. In some cases, even the methods followed for income estimation are different. It is, however, essential to bear in mind that the NIU estimates relate to "net" income while estimates presented by the Inter-industry tables are "gross" of depreciation.

4. Inter-industry studies in India are rendered difficult due to the fact that suitable data are not available for some of the sectors while for some others statistics have to be properly systematised and subsequently analysed. The sectoral notes on estimation reveal this fact and further show that estimates are not equally dependable in all the sectors. There seems to be scope for improvement as and when precise and more elaborate information become available.

5. In Chapter One of the present publication we have discussed the type of schematic representation that has been followed in portraying the inter-industry transactions. In other words, treatments with regard to imports, commodity taxes etc. adopted in the present system of reckoning have been elaborated. In Chapter Two a detailed account of distributive margins prevailing in 1953-54 has been given and the method followed in transforming delivered values to values at supply prices (in this case producers' prices increased by commodity taxes) has been discussed. Chapter Three presents a sectorwise analysis of commodity taxes existing in 1953-54. Chapter Four mainly concerns with sectoral notes on estimation and brings out carefully how each transaction is estimated and how each is identified as a flow from one particular sector to another. In Chapter Five a detailed account of house-

hold and government consumption has been presented. In Chapter Six one finds capital transactions in the form of capital outlays by private and public sectors as well as estimated changes in inventories of goods. Chapter Seven deals with foreign trade and gives sectorwise allocations of exports (ex-factory values with duty) and imports (c.i.f. values).

6. In Chapter Eight a brief mention of the Inter-industry Transactions Table (at market prices) for 1955-56 has been made. Studies supplemental to those of 1953-54 have also been summarised.

7. The Inter-industry Transactions Tables for 1953-54 and 1955-56 (at market prices) form the Appendices A and B of the present publication.

8. The "BIBLIOGRAPHY" given at the end really consists of two parts. The first one relates to a sectorwise summary of sources of information. The latter portion of the Bibliography marked "General" in fact is a compilation of existing work (mainly done in India) in the field of Inter-industry and Input-output Analysis. The list of publications appearing under "General" are, however, not exhaustive.

Planning Division,
Indian Statistical Institute,
July, 1962.

A. K. CHAKRAVERTI

ACKNOWLEDGEMENT

In the first place, I wish to express my sincere gratitude to Professor P. C. Mahalanobis, Director, Indian Statistical Institute. Without his continuing interest, encouragement, and zeal—a pioneering research in the field of Inter-industry Studies may not have been altogether possible.

I should also thank Shri M. Mukherjee, Chief of the Planning Division, Calcutta for his interest in the work. I had the opportunity of working under his direct supervision and his invaluable experience in the field of national income estimation was immensely helpful.

The entire work was carried out in the Planning Division, Calcutta and I have to thank my colleagues in the department, who had shared the load of work at various stages of the study. A mention may be made of Dr. S. S. Sengupta who was working with me at the initial stage of the project of 1953-54. After he had left the project and the Indian Statistical Institute in 1956, the work on compilation and analysis of data continued, resulting ultimately in a completely revised and thoroughly improved version of the Inter-industry Transactions Table of 1953-54. A detailed report of the work in its revised and improved form is the subject matter of the present publication entitled “The Structure of the Indian Economy : 1953-54”.

Among other colleagues mention may be made of Sarbashri B. Dey, N. Chattopadhyaya, K. Biswas, A. Sanyal, and C. Ramaswami, who were connected with the project in various capacities like participating in compilation and processing of data, and computation of estimates.

I have, further, to thank the members of the Inter-industry Committee for offering their valuable comments

on the draft report relating to 1953-54. The various Ministries of the Government of India also made available unpublished data, which were of help in finalising the draft. A particular mention of the collaboration received from the National Income Unit of the Central Statistical Organisation may be made.

The 1955-56 project was also carried out in Planning Division, Calcutta, Indian Statistical Institute during later half of 1959 through the year 1960 and the research workers of the Inter-industry Group of the Unit participated in the project.

Over-all supervision of all stages of work pertaining to both the projects and analysis, estimation and presentation of data were my duties. I am also responsible for the preparation of the report in its present form and therefore, accept the blame for any errors or imperfections that may still remain.

Planning Unit, New Delhi.
Indian Statistical Institute,
July, 1962.

A. K. CHAKRAVERTI

General introduction

1.6. Any systematic attempt to study the inter-relations among the different branches of an economy concerns ultimately with the purposes for which the flows of goods and services out of a sector are finally used. The distinction that one would like to keep lies in the different types of uses for which the flows are ultimately absorbed. Owing to the pioneering efforts of Leontief (1941, 1951), it is possible to describe the various inter-relations in the form of a two way table which has great resemblance with the double entry book-keeping device of recording money-flows.

1.7. The present study does not record flows in terms of quantities of goods as are usually shown in the input-output tables. We prefer to use the term "inter-industry transaction table" for the table which records flows in money values as distinguished from the "input-output table" corresponding to the description of flows of physical quantities. The "inter-industry transaction table", however, has a few additional merits. The reckoning in terms of money flows can be suitably extended to include services among other economic activities and also to assess net income by sectoral origin.

1.8. The transactions, if carefully studied, represent both sales and purchases (sales along the row of the table and purchases down the column of the table) between the different branches or sectors of the economy. Or, in other words, the two-way table gives a clear picture of the destination of flows of output as well as the origin of inputs. Each entry in the table has a dual role to play, namely, once as output of one sector and again as input of some other, since each transaction which is a sale by sector A to sector B is evidently a purchase by sector B from sector A.

The sectors of the Indian economy

1.9. For the purpose of the present study of 1953-54 (as also for 1951-52 & 1955-56) the entire economy has been divided into 36 economic sectors. By an economic sector or activity is meant a group of industries that produce various kinds of products. An industry again may be looked upon as a statistical aggregate of enterprises or firms producing products which

are more or less homogeneous. The same logic may also be extended to the sectors producing services. By considering flows out of economic sectors, therefore, one essentially combines various types of products and byproducts. The important question that arises is: how to arrive at a suitable form of classification of sectors that may be regarded as ideal in some sense? One should not, however, overlook that a strictly ideal situation is to have a very large number of sectors each producing as far as possible one homogeneous product. But since from practical considerations such a procedure is not feasible, one has inevitably to face the problem of product-mix and consider the flows as an aggregate of different types of goods and services. It is needless to mention that this simultaneously creates the problem of input-mix since every product-mix is at the same time a mixture of inputs.

1.10. The 36 economic activities or sectors into which the entire Indian economy has been divided fall under four main categories, namely, primary production, large scale manufactures, small-scale manufactures and tertiary activities (including unclassified industries). The individual sectors are labelled as follows:

Primary production

1. Agriculture;
2. Plantations (tea, coffee, and rubber: unprocessed);
3. Animal husbandry, fishery, forestry;
4. Coal mining and coke making;
5. All other minings.

Large scale manufactures

6. Iron and steel;
7. Non-ferrous metals;
8. Engineering;
9. Chemicals, etc.;
10. Cement;
11. Other building materials and wood manufactures;
12. Food, drink, tobacco, oil, etc.;
13. Cotton textiles;
14. Other textiles;

15. Jute and other fibre;
16. Glass and ceramics;
17. Leather and rubber;
18. Paper, printing and stationery;
19. Electricity generation and transmission.

Small scale manufactures

20. Metal and metal working;
21. Building materials and wood manufactures;
22. Textiles and textile products;
23. Food, drink, tobacco, oil, etc.;
24. Glass and ceramics;
25. Leather and leather products;
26. Miscellaneous (n.e.c.).

Tertiary activities (including unclassified large scale manufactures)

27. Railway and communications;
28. Other transport;
29. Trade and distribution;
30. Banks, insurance companies and co-operatives;
31. Professions, services, etc.;
32. Constructions;
33. Residential property;
34. Public administration;
35. Defence materials (including explosives);
36. Unclassified : large scale manufactures.

The rows and the columns of the inter-industry table

1.11. The rows of the inter-industry table denote sectors producing different types of products and, therefore, by reading along the row of the table one gets a picture of destination of the different types of products. The columns corresponding to the same sector classification denote inputs required for the production purposes. The inter-industry transactions, however, exclusively relate to the current costs of materials and services required for maintaining the current level of production of the different sectors. Reading columnwise, therefore, one gets a picture of the breakdown of materials and services currently used as inputs by the column sector.

1.12. The inter-industry quadrant, therefore, consists of 36 rows and 36 columns. Some additional rows and columns are, however, needed to complete the picture of the economy. The additional rows, namely,

- (i) total material inputs,
- (ii) commodity taxes,
- (iii) gross domestic product at factor cost,
- (iv) value of output with tax,
- (v) wage income,
- (vi) non-wage income and depreciation.

give the total of costs of materials and services required in current account, the value of output with tax, the amount of commodity tax on the total output of each sector, the gross domestic product at factor cost with two breakdowns, namely, wage and non-wage income and depreciation.

1.13. The additional columns are of the following description :

- (i) household consumption;
- (ii) public authorities: current account;
- (iii) public authorities: capital account;
- (iv) other capital accounts;
- (v) exports (ex-factory with duty);
- (vi) imports at c.i.f. values;
- (vii) changes in inventory.

1.14. The additional columns give a complete account of the size and breakdown of final demands for the given year. The final flows are observed in meeting consumer demands of households and the government along with investment demands by public and private bodies. The flows relating to exports also form a part of the final demands. It may be noted that by summing along a row it is not possible to arrive at the domestic output in respect of the particular sector since the transactions in the inter-industry table include imported goods both on current and capital accounts. Moreover, a final adjustment in respect of changes in inventory is to be considered in order to arrive at the domestic output of the sector. Such considerations lead to the introduction of columns (vi) and (vii). The treatment of imports will be discussed in some details in subsequent paragraphs.

Valuation of transactions and treatment of commodity taxes

1.15. It is worthwhile to discuss how the transactions are valued. The final entries as recorded in the inter-industry table are obtained in two stages. At the first stage, the transactions are obtained from outlays at delivered prices. At the second stage, the distributive margins (accruing to trade and transport sectors) are deducted. The resulting values, therefore, refer to the value of transactions at producer's prices inclusive, however, of existing commodity taxes on the total amount of transactions. We have already noted that exports are valued at ex-factory prices and to these values are added export duties. The imports are valued at c.i.f. prices. It is evident that the transactions relating to imported commodities include import duties along with the value of imported goods used either for current operations (in the inter-industry demands) or for capital formation (in the final demands). On summing along the row, therefore, the total of transactions would invariably include all commodity taxes existing on the total output of the sector. The detailed procedure of deducting distributive margins will, however, be discussed later under appropriate chapters.

Treatment of imports

1.16. It has already been mentioned that in most cases the transactions included imported inputs. The primary data relating to costs of inputs used by the different sectors in most cases do not distinguish between outlay on indigenous product and that on imported goods. The total outlay thus refers to sum of outlays on domestic as well as imported inputs.

1.17. The picture of imports can be visualised if one conceives of a matrix. The rows of the matrix are identified with the producing sectors of the domestic economy. We assume that the foreign producing sector is identified with a corresponding row-sector of the domestic economy, that is, imports are treated as competitive. The columns of the import matrix, however, perfectly coincide with the absorbing sectors of the domestic economy and along the rows are recorded the final destinations of the imported goods. The imported capital goods are similarly included under the capital accounts of private and public bodies.

1.18. It has already been mentioned that the cost of inputs of the different sectors exists in a form from which it is not possible to get a direct estimate of the imported counter-parts, if any, included in the outlays. For some of the typically non-competitive imports, however, segregation is perhaps possible. But in general it is felt that such a procedure may lead to inaccurate input coefficients and consequently, render the technological structure of the economy somewhat deceptive.

1.19. The entries along the row of the table necessarily exceed the domestic output of the sector by the amount of the value of imported goods used by the sector. This necessitates making the entries in column (vi) all negative so that the row total agrees with the total domestic output of the sector. This, however, also necessitates adjustments on account of changes in inventory as shown in column (vii).

Inter-industry and final flows

1.20 The inter-industry quadrant of the table (36×36 matrix) portrays the inter-dependence *between the different* producing branches or sectors of the economy. By considering additional columns and rows it is possible to *dovetail* other flows which are somewhat independent in character. Much controversy, however, exists in segregating flows that are autonomous from the flows that are dependent on the levels of production of the sectors. Such considerations basically emanate from the treatment of the final demands as being either dependent on or independent of the level of income generated within the economy.

1.21. It is, however, possible to draw a line between flows that are dependent on levels of production of the sectors from the flows that are autonomous or independent of the levels of production. For the present inter-industry table we have considered the intermediate flows classified by 36 sectors as endogenous, which are observed as inputs for maintaining the current level of production. In other words, the flows within the 36×36 quadrant of the table are all intermediate flows. Those which are required for meeting one or other of the different form of final demand may be called "final flows". These flows essentially meet consumer demands of households and public authorities as well as investment demands on account

of capital formation in both private and public sectors. Similarly the demands of foreign countries result in the form of exports by the domestic sectors of economy. These final flows forming the different components of the final demands may be conveniently treated as autonomous and, therefore, may be considered as independent of the levels of the production of the sectors.

1.22. The above two forms of reckoning flows of goods and services are generally called "closed" and "open" systems of reckoning. The "closed" system considers all final flows as dependent on the level of income generated by the different sectors. Consequently, some of the final demands depend on the wage income of the sector and some other final demands are met by entrepreneurial earnings. The present study is essentially that of an open model where the different forms of final demands are treated as independent of the levels of production of the sectors.

Estimates of gross domestic product at factor cost

1.23. It should be noted that all the estimates presented in the inter-industry table of 1953-54 are not obtained directly from the primary sources of data and some of the items of information are derived as residuals from the directly estimated figures.

1.24. From what has been stated in the foregoing paragraphs we note that row (i) simply gives a total of costs of inputs in the form of both materials and services required to maintain the current levels of production. Row (ii) gives a distribution of indirect taxes (mostly in the form of commodity taxes) existing on the total output of the sector. Row (iv) is exactly identical with the last column of the table and gives the total value of output of each sector including taxes. On deducting both rows (i) and (ii) from row (iv) we get the distribution of gross value added by the sectors or gross domestic product at factor cost by sectorial origin. These have been presented along row (iii) of the table. From what has been stated above it is possible to get a distribution of "output at supply prices" over the different sectors of the economy since the value of output at supply

prices is nothing but the difference between row (iv) and row (ii) of the table.

Factor incomes by sectoral origin

1.25. It should be further noted that rows (v) and (vi) give two broad breakdowns of factor incomes by sectoral origin. The figures along row (v) giving wage income of the sector is directly estimated from primary data. Non-wage incomes and depreciation, however, are obtained as residuals and are derived by deducting row (v) from row (iii).

1.26. Wage incomes in general include payments in cash and exclude incomes accruing to self-employed persons. For manufacturing industries wage incomes include labour payments along with benefits, allowances etc. For sectors like "agriculture", "professions, services, etc." the incomes received by own account cultivators and earners are left out from wage incomes but are included in the non-wage incomes of the sectors. Such a procedure has to be followed mainly because of the fact that no definite principles can be conveniently laid down for evaluation of normal income of self-employed persons. Accordingly the non-wage income of the different sectors includes different proportions of income of self-employed persons. Further, it is not possible to get a more detailed breakdown of factor incomes in the shape of rents, interests, taxes, etc.

Treatment of depreciation

1.27. It is necessary to make a special mention of the treatment of depreciation allowances in the context of the present inter-industry studies. In view of the enormous difficulties involved in estimating depreciation allowances for most of the sectors, especially for sectors other than large-scale industries, no attempt has been made to show depreciation in the inter-industry table. Consequently the estimates of domestic product at factor cost presented along row (iii) of the inter-industry table are to be considered as *gross* of depreciation. In what follows we have used the term "gross domestic product at factor cost" to mean value added at factor cost gross of depreciation. In this context Prof Kuznet's advocacy of the concept of gross

national product may be mentioned. It is likely that any estimate of net national product will be subject to a larger amount of error as compared to the corresponding estimate of gross national product. This is due to the considerable difficulty involved in estimating depreciation for a particular sector since it is practically impossible to draw a clear-cut distinction between replacement costs and depreciation allowances. For the purposes of the inter-industry studies, therefore, depreciation allowances are treated as a fund remaining in the hands of enterprisers.

Fundamental relations between economic aggregates

1.28. It is worthwhile to note that two fundamental identities between economic aggregates can be easily established from the inter-industry transactions table. The estimates of gross value added at factor cost for each sector when summed over all the different activities give an estimate of gross domestic product at factor cost for the economy as a whole. If the aggregate of commodity taxes is added to this estimate one arrives at the estimate of gross domestic product at market price. The sum of the final demands, on the other hand, tallies with the sum of gross domestic product at market price for all the sectors establishing an identity between income and expenditure for the nation as a whole. Thus we note that—

*Rs. abja**

1. gross value added at factor cost for all sectors in 1953-54	..	110.17
<i>plus</i> aggregate of commodity taxes	..	4.69
gross domestic product at market price		114.86

* 1 abja = 10⁹

2. final demands at market price—

(a) current consumer outlays		
during the year	..	106.30
household	99.46	
public authorities	6.84	

(b) outlays on capital account		9.90
public authorities	3.03	
other bodies	6.87	

(c) changes in inventory	- 0.93	
(d) balance of trade	- 0.41	

		114.86

1.29. The inter-industry transactions table also shows the two important factor shares of gross income, namely, wage income and non-wage income and depreciation for each of all the sectors of the economy.

Estimational procedures for the different sectors

1.30. Some general statements can be made regarding the nature of statistics used in the Inter-industry Transactions Table of 1953-54. The inter-industrial transactions for most of the sectors are obtained by columns, i.e. the cost structures of the sectors are studied in as detailed a manner as possible. For most of the sectors (except for a few sectors like coal-mining and coke-making, electricity generation and transmission, etc.) adequate knowledge of utilisation of products is lacking. Moreover, cost-statistics are in general found to be more detailed so as to enable one to arrive at an allocation of costs. The situation, however, is not an ideal one, especially because often we come across gaps in the availability of data on specific cost items.

1.31. We have already noted that the deficiency in the statistical materials used in the preparation of the table lies in lack of details on the flows of products. In other words, for some of the sectors we are almost ignorant of sources reporting directly on destination of outputs. The ideal situation, however, is met, when one can check an entry twice, namely, once as the amount of flow from sector A to sector B (utilisation data) and again as the amount of costs incurred by sector B for purchasing goods from sector A (cost data). In a somewhat less satisfactory situation one may use either the estimate of sales or that of purchases, depending on which of the two is available.

1.32. In Chapter Four a detailed description of the methods of estimation in respect of the sectors of the economy is provided with a view to laying bare the assumptions made for filling up the gaps in information. No general statement is, however, possible since the types of information in respect of the sectors are entirely different in character and consequently different methods have to be followed for the purposes of estimation.

CHAPTER TWO

DISTRIBUTIVE (TRADE AND TRANSPORT) MARGINS

2.0. It has already been pointed out that the gross outlays made by the different sectors of the economy on goods and services purchased on current account for running their production activities form the basic statistics that shape the inter-industry table under discussion. In this chapter, however, we shall distinguish outlays on goods from those on services for a few reasons explained below.

2.1. It may be noted that among the list of economic sectors we have included activities like 'trade & distribution' (sector 29) 'transport' (sector 28), 'railway' (sector 27) etc. that render services. Naturally, therefore, earnings of these sectors will include

- (i) railway's goods' earnings,
- (ii) other transport goods' earnings
- and (iii) trade margins.

The outlays on goods (and not on services) therefore, will in most cases include these three types of earnings thereby giving the delivered values of these commodities. We have preferred to use the term 'gross' to indicate these delivered values of the commodities purchased. In other words, 'gross' indicates values inclusive of trade and transport margins.

2.2. We shall further use 'net' to indicate 'gross' values exclusive of trade and transport margins. The 'net' entries have been finally displayed in the inter-industry table and these may be easily seen to be values at supply prices inclusive, however, of commodity taxes. At this stage, it is important to note that the value of output at market price shown in the last column of the table is nothing else but output valued at supply price enhanced by the load of commodity taxes on this output. The flows from the different sectors will only add up to this output if the 'gross' outlays are converted into 'net'

outlays. It is, therefore, essential to express the outlays in terms of 'net' entries so that flows of output to all the sectors of the economy plus flows to the different forms of final uses, namely, consumption, capital formation, exports etc. should ultimately add up to the value of output as shown in the last column of the inter-industry table.

2.3. We now come to a stage where we have to decide on how best the distributive margins can be deducted. The differences existing between the buying prices and selling prices of commodities entering into the market and passing through the distributive channels, form the bases on which our calculations are made.

2.4. For purposes of deduction of distributive margins we have to depend on materials collected through Schedule 2.4 (trading enterprises) of the Seventh Round of the National Sample Survey operations. Three types of prices are distinguished in these schedules, namely,

- (a) producer's price (p_1)
- (b) wholesale price (p_2)
- (c) retail price (p_3)

The flow of commodities, accordingly, takes place in two stages. In the first stage the commodity passes from the producer to the wholesaler. In this case, the buying price for the middleman is p_1 and the selling price is p_2 . For future reference these transactions will be called wholesale transactions.

2.5. The second type deals with the flow of commodities from the wholesaler to the retailer. In this case, the buying price for the retailer is p_2 and the selling price p_3 . These will be referred to as retail transactions.

2.6. A convenient but crude method of estimating distributive margins is to find out ratios of buying price to the selling price of the commodity. Wholesale and retail margins are calculated for wholesale and retail transactions respectively. Denoting wholesale and retail margin by m_w and m_r respectively, we write

$$m_w = p_2/p_1$$

and $m_r = p_3/p_2$

In the case of passage of goods directly from producers to the consumers, the middleman earns total margin m_t given by

$$m_t = p_3/p_1$$

The total margin, as one can easily see, is the product of wholesale and retail margins, i.e.

$$m_t = m_w \times m_r$$

2.7. Let us now examine how these margins can be used to convert values of commodities purchased to values at producer's prices. Supposing Q to be the quantity of a particular commodity purchased, let there be two different prices, namely, wholesale price (p_2) and retail price (p_3) at which the commodity is purchased. Denoting purchase value in the two cases by D_w and D_r we note that—

$$D_w = Q \cdot p_2$$

$$D_r = Q \cdot p_3$$

The producer's price, say p_1 , corresponds to the producer's value

$$D_p = Q \cdot p_1$$

which we ultimately like to estimate. Here, either D_w or D_r is known according as the commodity is purchased at wholesale or retail price along with m_w , m_r and m_t . We, therefore, use the following relations to convert purchase values to values at supply prices:

$$D_p = Q \cdot p_1 = D_w \frac{p_1}{p_2} = \frac{D_w}{m_w}$$

$$\text{or} \quad D_p = Q \cdot p_1 = D_r \frac{p_1}{p_3} = \frac{D_r}{m_t}$$

The total earnings accruing to the distribution in the two cases will be

$$D_w - D_p = D_w \left(1 - \frac{1}{m_w} \right)$$

or

$$D_r - D_p = D_r \left(1 - \frac{1}{m_t} \right)$$

Thus in practice we have to use either m_w or m_t according as the purchase is at wholesale or retail price. The total margin, m_t , however, is given by

$$m_t = m_w \times m_r$$

which need not be computed separately as a price ratio if both m_w and m_r are known.

2.8. For the inter-industry table of 1953-54 we have extensively used prices collected through schedule 2.4 of NSS seventh round operations. In this schedule all the three types of prices are recorded for 75 groups of commodities. The reference period of the survey covers October 1953 to February 1954. Three types of prices are collected separately for trading enterprises owned and operated by household entities in sample villages for rural areas and in sample blocks for urban areas.

2.9. Price ratios giving wholesale and retail sale margins are obtained for each commodity and then a simple average is taken. In the Tables (2.2) & (2.3) are presented the distribution margins for 75 groups of commodities. To get an idea of the extent of coverage, the number of sample villages and the number of sample blocks are given for rural and urban India respectively. In column (7) total margins are recorded.

2.10. Two types of margins (wholesale and total) are used for netting gross entries at delivered prices. Here we propose to detail a few principles of selection of the different margins for making deductions.

2.11. In the chapters to follow, it will be shown that some of commodities entering into the sectors as inputs do not pass through the distributive mechanism. No general principle can be laid down, however, for distinguishing such outlays that are not subjected to margins. But a few points may be noted in this connection. Products produced and utilised at almost the same site by the same firms mostly belong to this category. Seeds, manure, etc. used in agriculture, coal burnt in collieries are examples of this type. Some of the products of small scale manufactures used either as raw materials or as consumer goods are not taken as handled by trade and therefore not subjected to margins.

2.12. In the case of commodities that enter the distributive channel, deductions of margins are made in two stages. Commodities used as raw materials, i.e. commodities entering into the inter-industry quadrant are indiscriminately subjected to wholesale margins. Commodities entering into consumption account, however, are distinguished and subjected to total (wholesale and retail) margins. Goods entering into other accounts of final demand are treated similarly as industrial purchases and accordingly wholesale margins are applied to these transactions. Special attention is paid in using rural and urban margins. Commodities which have similar magnitudes of rural and urban margins do not present difficulties and it is immaterial whether in such cases we use rural or urban margins. Industrial purchases are mostly subjected to urban margins. For items entering into consumption account weighted averages of rural and urban margins are used depending on the nature of the commodity consumed. For the food items, due to obvious reasons, consumption out of home-grown stock is not subjected to margins.

2.13. The total distributive margins for different types of transactions are obtained in the manner described above. These margins exist for each cell-entry of the inter-industry table and consist of three components which are:

- (i) railway goods margins,
- (ii) other transport goods margins, and
- (iii) trade margins.

2.14. Information (available from the Report of the Railway Board on Indian Railways) on earnings of railways by carrying goods of different types are particularly useful in this context. The goods are allocated to the different sectors of the inter-industry table and earnings in 1953-54 are noted against each item. 'Thus the load of railway goods' earnings on each sector is determined*. The distribution of the row total is done in a simple and straightforward manner, i.e. the total is distributed in proportion to the release of aggregate distributive margin corresponding to the cell of the table. Thus the counterparts of railway goods margin out of the total distributive margin corresponding to all the cells of the inter-industry table are determined. The loads of distributive margin on value of outputs of the various sectors are shown in Table (2.1).

2.15. The next task is to segregate other transport goods' margins. Practically no data on earnings of mechanised and non-mechanised transport by breakdowns of different types of goods carried are available. Goods earnings of transports other than railways are estimated rather indirectly as follows. Earnings derived by carrying passengers by transports other than railways are derived from the consumption end, namely, outlay on transport services by consumer households. The estimate of total outlay on conveyance is obtained from NSS 6th & 7th Rounds (vide chapter on "Household Consumer Expenditure"). The passenger earnings of railways being known, passenger earnings of other transport are estimated as a residual. The next step lies in estimating total earnings of all transport other than railways. This will be discussed in the chapter on 'other transports'. For the present, we satisfy ourselves by noting that the estimate of total earnings is known. From this estimate, the passenger earnings of 'other transport' are deducted and the estimate of goods' earnings is obtained as a residual.

2.16. We shall now be concerned with the allocation of the aggregate of earnings to the different cells of the table. Let us assume that

t_{ij} = load of total distributive margin corresponding to cell (i, j)

* See for details Chapter 4, section 9 on Railways and Communication.

r_{ij} = load of railway goods' margin in cell (i, j)

$s_{ij} = t_{ij} - r_{ij}$

D = total goods earnings of other transports.

We have already discussed how estimates of t_{ij} , s_{ij} , r_{ij} and D are obtained. It is also possible to find out the difference between t_{ij} and r_{ij} which denotes other transport goods margins and trade margins contained in the cell (i, j) of the inter-industry transaction table. To segregate goods earnings of other transport d_{ij} (say) for the (i, j) cell, a simple method is followed. A multiplier given by

$$K = \frac{D}{S}$$

is first formed where $S = \sum_i \sum_j s_{ij}$

Then d_{ij} is estimated by

$$d_{ij} = s_{ij} \cdot K = s_{ij} \frac{D}{S}$$

Simple calculations will reveal that the procedure laid down above takes into account two distinct stages combined into one, as may be seen below :

(a) The first stage consists in determining the row-totals D_1, D_2, \dots, D_n in proportion to row-totals S_1, S_2, \dots, S_n , where D_i corresponding to the i -th row ($i = 1, 2, \dots, n$) is given by

$$D_i = \frac{S_i}{S} \cdot D$$

where again $S_i = \sum_j s_{ij}$ for $(i = 1, 2, \dots, n)$ and $S = \sum_i S_i$.

(b) The second stage incorporates distribution of row-totals

D_1, D_2, \dots, D_n over the cells along the different rows. For the i -th row this can be expressed as

$$d_{ij} = \frac{s_{ij}}{S_i} \cdot D_i$$

involving a distribution in proportion to the difference s_{ij} along the i -th row. Now,

$$d_{ij} = \frac{s_{ij}}{S_i} \cdot D_i = \frac{s_{ij}}{S_i} \cdot \frac{S_i}{S} \cdot D = s_{ij} \cdot K$$

where K is our original multiplier.

2.17. What remains is the share of trade margins. Since railway goods earnings and other transport goods earnings are already known, earnings accruing to traders are estimated as a residual. In other words, denoting the accruing trade margins proper contained in the cell (i, j) by e_{ij} , we note that

$$e_{ij} = t_{ij} - r_{ij} - d_{ij} \text{ for } (i, j = 1, 2, \dots, n).$$

With the determination of e_{ij} the entire distribution of different types of margins over the cells of the inter-industry table becomes known.

2.18. We next consider the components of the column of the matrix of distributive margins. For a particular sector we are ultimately interested in estimating the three types of margins included in the purchase value of inputs required by a particular sector for current production purposes. These can be easily obtained by adding the respective margins over the different rows separately for each column of the inter-industry transaction table. The totals corresponding to 'railway goods margins' 'other transport goods margins' and 'trade margins' for a particular column are shown against sectors (given by rows) 27, 28 and 29 respectively.

2.19. The counterpart of other transport goods earnings (as also trade margins) contained in the cell (i, j) of the inter-

industry transactions table is determined in a very simple way. In doing so we have ignored certain issues (due to non-availability of data) noted as under:

(a) We have no knowledge of transport earnings by types of goods carried. This amounts to saying that not even total of other transport goods earnings on the aggregate value of outputs of a particular sector is available (In respect of railways this is, however, not the case).

(b) Further, we have no knowledge of the distribution of transport goods earnings over the different rows. In other words, there is no possibility of detection if different sectors pay transport margins at different rates while purchasing the same commodity. In the circumstances, the method followed for this study considers an allocation of the previously determined row-total of earnings in proportion to the total of other transport goods earnings and trade margins. In the absence of relevant data this procedure seems to be quite reasonable. Moreover, it should be noted that the consequences of lack of data in this case are not as serious as in the case(a).

TABLE (2.1): DISTRIBUTIVE MARGIN ON VALUE OF OUTPUTS
OF DIFFERENT SECTORS

(figures in Rs. crores)

srl. no.	economic sector	sector codes	distributive margins on		
			inter- industrial uses	final uses	aggregate uses
1.	agriculture	1	118.78	503.02	621.80
2.	plantations	2	3.03	—	3.03
3.	animal husbandry, fishery, etc.	3	54.14	368.62	422.76
4.	coal mining and coke making	4	21.45	13.27	34.72
5.	other mining	5	83.19	35.10	118.29
<i>large scale manufactures:</i>					
6.	iron and steel	6	8.72	2.64	11.36
7.	non-ferrous metals	7	18.36	2.85	21.21
8.	engineering	8	25.68	47.06	72.74
9.	chemicals, etc.	9	75.91	24.73	100.64
10.	cement	10	9.72	0.08	9.80
11.	other building materials and wood	11	24.76	4.11	28.87
12.	food, drink, tobacco, oil, etc.	12	38.11	251.43	289.54
13.	cotton textiles	13	15.81	105.76	121.57
14.	other textiles	14	4.63	23.35	27.98
15.	jute and other fibre	15	11.30	8.72	20.02
16.	glass and ceramics	16	3.86	4.52	8.38
17.	leather and rubber	17	6.07	8.44	14.51
18.	paper, printing and stationeries	18	7.85	28.29	36.14
<i>small scale manufactures:</i>					
19.	metal working	20	1.85	2.85	4.70
20.	building materials and wood manufactures	21	11.22	6.27	17.49
21.	textiles and textile products	22	0.66	52.72	53.38
22.	food, drink, tobacco oil, etc.	23	—	273.31	273.31
23.	glass and ceramics	24	0.18	4.48	4.66
24.	leather and leather products	25	—	22.36	22.36
25.	miscellaneous	26	8.70	41.33	50.03
26.	large scale unclassified products	36	3.08	1.34	4.42
27.	all sectors		557.06	1836.65	2393.71

TABLE (2.2): RURAL TRADE MARGINS

Reference Period October 1953 to February 1954

(Source: NSS 7th Round Schedule 2.4)

commodity sl. no.	commodity	wholesale margins			retail sale margins		total margins	
		sample villages observed	average wholesale price	producer's price	sample villages observed	average retailer's price	average retailer's price	producer's price
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	paddy, rice	24	1.079		51	1.115	1.203	
2	rice products (chira, muri, khori, etc.)	11	1.126		17	1.125	1.267	
3	wheat and wheat products (ata, maida, etc.)	6	1.054		18	1.079	1.137	
4	other cereals and their products	26	1.072		43	1.114	1.194	
5	pulse and their products (arhar, gram, moong)	31	1.112		72	1.131	1.258	
6	sugar (gur, sugar-candy, etc.)	36	1.120		102	1.111	1.244	
7	salt (sea and rock salt, etc.)	21	1.282		118	1.364	1.749	
8	milk and milk products (ghee, butter, dai, etc.)	6	1.256		4	1.172	1.472	
9	other dairy products	7	1.137		11	1.101	1.252	
10	oilseeds	11	1.083		23	1.093	1.184	
11	edible vegetable oil (vanaspathi, coconut oil, mustard oil, gingelly oil, sesamum oil)	33	1.083		105	1.105	1.197	
12	edible vegetable oils (others)	6	1.077		25	1.113	1.199	
13	spices (turmeric, black pepper, chillies, garlic, etc.)	35	1.103		96	1.116	1.231	
14	other grocery articles	10	1.111		37	1.122	1.247	
15	vegetables	24	1.220		65	1.308	1.596	

16	fruits and nuts	31	1.149	84	1.170	1.344
17	fish	5	1.393	8	1.377	1.918
18	meat	4	1.312	5	1.210	1.588
19	eggs	2	1.195	1	1.339	1.600
20	pan (leaf and finished, betelnut, catechu, lime, etc.)	9	1.204	31	1.232	1.483
21	sweetmeats, condiments	11	1.102	31	1.211	1.335
22	bakery products	5	1.088	11	1.193	1.298
23	other light refreshments (parched gram, groundnuts, and other salted refreshments)	2	1.098	8	1.243	1.365
24	tea, coffee (tea and coffee processed leaves)	15	1.078	66	1.119	1.206
25	other beverage and drinks	3	1.083	6	1.170	1.267
26	liquors (toddy, country liquors)	3	1.144	4	1.184	1.354
27	tobacco and products (biri, cigarette, cheroot, etc.)	29	1.097	93	1.194	1.310
28	other tobacco products (zarda, kimam, surti, snuff, hookah tobacco, etc.)	21	1.162	74	1.190	1.383
29	other intoxicants (opium etc.)	1	1.110	3	1.196	1.328
30	straw, fodder, green grass	—	—	1	1.086	—
31	other cattlefeed (gram, oilcake, bran)	8	1.143	22	1.118	1.278
32	fire wood	6	1.216	6	1.233	1.499
33	coal, coke	—	—	1	1.667	—
34	other fuel and lighting articles (kerosene, dungcake, gas, electricity, matchbox, charcoal, lubricating oil, motor spirit, etc.),	31	1.142	123	1.171	1.357
35	raw cotton	7	1.117	7	1.100	1.229

TABLE 2.2 (contd.) : RURAL TRADE MARGINS
Reference Period October 1953 to February 1954
(Source : NSS 7th Round Schedule 2.4)

commodity sl. no.	commodity	wholesale margins			retail sale margins		total margins	
		sample villages observed	average wholesale price	producer's price	sample villages observed	average retailer's price	average retailer's price	producer's price
(1)	(2)	(3)	(4)	(4)	(5)	(6)	(6)	(7)
36	raw jute	3	1.064	—	1	1.244	1.324	1.324
37	other raw fibre	1	1.125	—	1	1.111	1.250	1.250
38	cotton yarn and thread	3	1.121	—	7	1.235	1.384	1.384
39	other yarn and thread	3	1.147	—	7	1.138	1.305	1.305
40	clothing and garments	15	1.129	—	44	1.128	1.274	1.274
41	bedding and upholstery	—	—	—	1	1.500	—	—
42	coir, rope and allied articles	1	1.090	—	4	1.189	1.296	1.296
43	other textile products	1	1.087	—	1	1.080	1.174	1.174
44	hides, skins, leather, fur and their products	10	1.192	—	7	1.193	1.422	1.422
45	footwear	—	—	—	—	—	—	—
46	hat, umbrella, waterproof	—	—	—	—	—	—	—
47	pottery, earthenware and toys	—	—	—	1	1.316	—	—
48	ceramics and glass wares	5	1.062	—	4	1.224	1.300	1.300
49	metal utensils	—	—	—	3	1.087	—	—
50	soap (bathing)	15	1.134	—	56	1.158	—	1.313

51	other toilet and luxury goods (snow, hair oil, combs, brush, cream, etc.)	8	1.207	10	1.209	1.459
52	drugs and medicines (allopathic, homeopathic, etc.)	1	1.238	4	1.199	1.484
53	other chemicals	7	1.186	22	1.199	1.422
54	furniture	—	—	1	1.153	—
55	books (journals, newspaper and periodicals)	—	—	2	1.216	—
56	paper	1	1.158	3	1.120	1.297
57	stationery goods (exercise book, file, pencils, etc.)	6	1.186	19	1.220	1.447
58	bricks, tiles, stones	—	—	—	—	—
59	lime, cement	1	1.000	4	1.368	1.368
60	hardwares and sanitary equipment	—	—	11	1.167	—
61	wood, bamboo, cane barks, leaves and thatches	2	1.184	3	1.163	1.377
62	other building materials	1	1.125	1	1.056	1.188
63	cutlery and other domestic implements	—	—	1	1.036	—
64	agricultural and industrial equipment	—	—	—	—	—
65	transport and storage equipment	—	—	—	—	—
66	electric fittings (fans, bulb. wire, etc.)	—	—	2	1.181	—
67	clocks, watches	—	—	—	—	—
68	fine instruments (spirit level, eye glass, thermometer, stethoscope, compass, magnet, etc.)	—	—	—	—	—
69	ornaments (gold, silver, precious stones)	2	1.112	2	1.067	1.187
70	other minerals and mineral products	—	—	1	1.210	—
71	musical instruments (radio, gramophones, etc.)	—	—	—	—	—
72	picture, paintings and other curio dealings	—	—	1	1.542	—
73	livestock	4	1.128	6	1.170	1.320
74	poultry	—	—	—	—	—
75	other goods and articles unspecified	17	1.151	.47	1.180	1.358

TABLE (2.3): URBAN TRADE MARGINS
Reference Period October 1953 to February 1954
(Source: NSS 7th Round Schedule 2.4)

commodity sl. no.	commodity	wholesale margins			retail sale margins			total margins	
		sample blocks observed	average		sample blocks observed	average		average retailer's price	producer's price
			wholesale price	producer's price		retailer's price	wholesale price		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	paddy, rice	14	1.054	31	1.070	1.128			
2	rice products (chira, muri, kholi, etc.)	—	—	7	1.185	—			
3	wheat and wheat products (ata, maida, etc.)	11	1.033	29	1.100	1.136			
4	other cereals and their products	13	1.099	29	1.166	1.281			
5	pulse and their products (arhar, gram, moong, etc.)	15	1.111	52	1.138	1.264			
6	sugar (gur, sugar-candy, etc.)	15	1.096	47	1.131	1.240			
7	salt (sea and rock salt, etc.)	8	1.351	34	1.329	1.795			
8	milk and milk products (ghee, butter, dai, etc.)	8	1.093	8	1.171	1.280			
9	other dairy products	4	1.055	8	1.089	1.149			
10	oil seeds	4	1.179	10	1.245	1.468			
11	edible vegetable oil (vanaspathi, coconut oil, mustard oil, gingelly oil, sesamum oil)	15	1.059	47	1.115	1.181			
12	edible vegetable oils (others)	1	1.036	4	1.165	1.207			
13	spices (turmeric, black pepper, chillies, garlic, etc.)	11	1.115	44	1.177	1.312			
14	other grocery articles	8	1.204	33	1.244	1.498			
15	vegetables	11	1.313	30	1.290	1.694			

16	fruits and nuts	11	1.140	44	1.237	1.410
17	fish	1	1.240	2	1.238	1.535
18	meat	4	1.150	6	1.314	1.511
19	eggs	2	1.123	3	1.217	1.367
20	pan (leaf and finished betelnut, catechu, lime, etc.)	7	1.192	25	1.302	1.552
21	sweetmeats, condiments	10	1.144	35	1.274	1.457
22	bakery products	4	1.143	24	1.320	1.509
23	other light refreshments (parched gram, groundnuts, and other salted refreshments)	2	1.290	1	1.109	1.431
24	tea, coffee (tea and coffee processed leaves)	5	1.058	32	1.114	1.179
25	other beverage and drinks	2	1.233	4	1.448	1.785
26	liquors (toddy, country liquor)	—	—	1	1.647	—
27	tobacco and products (biri, cigarette, cheroot)	13	1.063	60	1.161	1.234
28	other tobacco products (zarda, kimam, sutu, snuff, hookah tobacco, etc.)	7	1.162	24	1.206	1.401
29	other intoxicants (opium, etc.)	—	—	—	—	—
30	straw, fodder, greengrass	3	1.222	7	1.177	1.438
31	other cattle feed (gram, oilcake, bran, etc.)	3	1.044	7	1.103	1.152
32	fire wood	9	1.144	16	1.251	1.431
33	coal, coke	1	1.000	6	1.163	1.163
34	other fuel and lighting articles (kerosene, dung cake, gas, electricity, matchbox, charcoal, lubricating oil, motor spirit, etc.)	13	1.095	57	1.162	1.272
35	raw cotton	1	1.043	1	1.088	1.195

TABLE 2.3 (contd): URBAN TRADE MARGINS
Reference Period October 1953 to February 1954
(Source : NSS 7th Round Schedule 2.4)

commodity sl no.	commodity	wholesale margins			retail sale margins		total margins	
		sample blocks observed	average wholesale price	producer's price	sample blocks observed	average retailer's price	average retailer's price	producer's price
(1)	(2)	(3)	(4)	(4)	(5)	(6)	(6)	(7)
36	raw jute	1	1.051		2	1.110		1.167
37	other raw fibres	—	—		1	1.101		—
38	cotton yarn and thread	2	1.040		13	1.228		1.277
39	other yarn and thread	1	1.091		5	1.153		1.258
40	clothing and garments	19	1.077		43	1.142		1.230
41	bedding and upholstery	2	1.086		4	1.086		1.179
42	coir, rope and allied articles	1	1.050		4	1.102		1.157
43	other textile products	1	1.120		5	1.241		1.390
44	hides, skins, leather, fur and their products	4	1.118		7	1.146		1.281
45	footwear	—	—		3	1.156		—
46	hat, umbrella, waterproof	1	1.143		1	1.125		1.286
47	pottery, earthenware and toys	3	1.080		8	1.319		1.425
48	ceramics and glass wares	2	1.031		5	1.220		1.257
49	metal utensils	4	1.075		8	1.201		1.291
50	soap (bathing)	8	1.148		45	1.176		1.350

51	other toilet and luxury goods (snow, hair oil, combs, brush, cream, etc.)	5	1.095	22	1.224	1.340
52	drugs and medicines (allopathic, homeopathic, etc.)	3	1.178	10	1.286	1.515
53	other chemicals	2	1.014	13	1.203	1.220
54	furniture	3	1.095	6	1.184	1.294
55	book (journals, newspaper and periodicals)	2	1.178	7	1.464	1.725
56	paper	4	1.070	8	1.149	1.229
57	stationery goods (exercise book, file, pencils, etc.)	9	1.214	33	1.312	1.593
58	bricks, tiles, stones	—	—	—	—	—
59	lime, cement	2	1.101	4	1.196	1.317
60	hardwares and sanitary equipment	—	—	6	1.191	—
61	wood, bamboo, cane barks, leaves and thatches	2	1.009	6	1.314	1.431
62	other building materials	1	1.250	2	1.090	1.362
63	cutlery and other domestic implements	—	—	7	1.242	—
64	agricultural and industrial equipment	—	—	4	1.048	—
65	transport and storage equipment	—	—	2	1.077	—
66	electric fitting (fan, bulbs, wire, etc.)	—	—	6	1.242	—
67	clocks, watches	—	—	2	1.086	—
68	fine instruments (spirit level, eye glass, thermometer, stethoscope, compass, magnet, etc.)	—	—	—	—	—
69	ornaments (gold, silver, precious stones)	3	1.041	9	1.157	1.204
70	other mineral and mineral products	—	—	—	—	—
71	musical instruments, (radio, gramophone, etc.)	1	1.080	1	1.126	1.216
72	picture, paintings and other curio dealings	—	—	2	1.312	—
73	livestock	3	1.049	3	1.189	1.247
74	poultry	—	—	—	—	—
75	other goods and articles unspecified	16	1.160	50	1.275	1.479

CHAPTER THREE

COMMODITY TAXES

3.0. In portraying the inter-connections between the different branches of the economy, we have already noted that the transactions between the different sectors have been arrived at from an analysis of sectoral cost-structures. The outlays accordingly include loads of commodity taxes. On summing the flows out of a sector, we, therefore, obtain the value of output at market prices, i.e. output at supply prices enhanced by the load of commodity taxes on outputs of the sector.

3.1. It is not possible, however, to ascertain the load of commodity taxes contained in a cell entry of the table since no information is available on the distribution of commodity taxes among the cells. The only course left lies in ascertaining the nature of duties and indirect taxes by commodities and services on which they are levied. Some of the taxes have been treated in a special way in the context of the present inter-industry analysis. These will be discussed in appropriate places later.

3.2. The sources of data used for building up the estimates are:

- (a) Budgets and Accounts of Central and State Governments: 1953-54,
- (b) Statistical Abstract: 1953-54,
- (c) National Income Estimates: 1953:54 issued by the Central Statistical Organisation,
- (d) Taxation Enquiry Commission's Report,
- (e) Budgetary Statistics of India -(1951-52 to 1957-58) Economic Division, Ministry of Finance, September, 1957.

3.3. Some of the sources (namely, Report of the Taxation Enquiry Committee) do not publish accounts relating to 1953-54 and therefore some adjustments have been made on the basis of information relating to the years 1951-52 and/or 1952-53.

In some other cases, the budget figures are used in the absence of proper accounts in respect of 1953-54. However, subsequent checks may be applied as recent statistics from source (e) are now available.

3.4. *Excise Duties:* The total amounts of excise duties is placed at Rs. 139.64 crores for 1953-54 with central and state excise duties noted as under:

			<i>Rs. crore</i>
State excise duties ..	States A ..		24.45
	States B ..		18.11
	States C ..		2.10
			<hr/>
			44.66
Central excise duties ..			94.98
			<hr/>
total ..			139.64
			<hr/>

The excise duties, then, are distributed over commodity groups. The knowledge of the commodities is mostly derived from the analysis of budgets of central and state governments obtained in respect of 1951-52. These have been supplemented wherever possible by data relating to 1953-54.

3.5. *Customs:* The following figures relating to export and import duties are obtained from the 'Accounts relating to Sea and Air-Borne Trade' and 'Statistical Abstract'.

			<i>Rs. crore</i>
import duties ..			119.78
export duties ..			44.15
			<hr/>
total customs ..			163.93
			<hr/>

Refunds and drawbacks are noted separately and are merged with import duties under the assumption that these primarily refer to import trade only. The next step lies in allocating import and export duties to the various sectors of the inter-industry table. This task is rendered easier since we have already laid down principles of allocating exported and imported goods.

3.6. *Sales tax*: The total amount of sales tax collected is placed at Rs. 58.33 crores for 1953-54 derived as noted below:

		<i>Rs. crore</i>
Sales tax: States A ..	..	49.02
States B ..	..	7.97
States C ..	..	1.34
total ..	..	58.33

This, however, excludes sales tax on motor spirit, which has been grouped under 'other taxes and duties'.

3.7. Some difficulty is faced in distributing sales tax over the different sectors since there is very little uniformity in different regions in regard to commodities on which they are collected. Such differences were very acute in 1951-52, though afterwards there was a tendency towards making the schedule of commodities subject to sales tax more and more uniform in the different states of the country.

3.8. In the present context we have assumed that only large scale goods are subject to sales tax and accordingly availability of outputs of large scale manufacturing activities (namely, sectors 6 to 18) has been determined in each case. The entire amount of sales tax has then been distributed over the sectors in proportion to availabilities of output.

3.9. *Other taxes and duties*: The total of other taxes and duties is placed at Rs. 107.51 crores for 1953-54 with the following breakdowns:

		<i>Rs. crore</i>
total of other taxes and duties ..	..	107.51
(i) entertainment tax ..	..	5.88
(ii) electricity duty ..	..	4.76
(iii) stamps and registration ..	..	28.34
(iv) motor vehicles tax ..	..	13.67
(v) taxes on motor spirit ..	..	7.35
(vi) octroi, terminal taxes on entertainments, tolls, etc. ..	..	14.86
(vii) taxes on professions ..	..	2.41
(viii) taxes on forest products ..	..	11.35
(ix) miscellaneous ..	..	18.89

It is necessary, at this stage, to make special mention of the procedure adopted for determining the sectors on whose outputs and earnings the charges have been made :

- (i) entertainment tax- this does not include betting taxes and mostly consists of taxes collected through cinema projections. Since cinema projection has been included in trade and distribution, this tax has been charged to the sector 29;
- (ii) electricity duty- this has been charged to the sector 'electricity generation and transmission'. To avoid double counting the valuation of energy flowing out of this sector has been done so as not to include 'electricity duty' and value of output at market price is obtained by adding Rs. 4.76 crores to the value of output of the sector;
- (iii) stamps and registration- following the usually accepted practice the entire amount of Rs. 28.34 crores against stamps and registration has been charged to sector, 'residential property' (sector 33) because it is quite reasonable to assume that such charges are paid out of gross rentals of house properties;
- (iv) motor vehicles tax -this has been charged to sector 28 ('other transports') on the assumption that it is wholly paid by transport entrepreneurs;
- (v) taxes on motor spirit we have not followed the usual practice in that the same has not been treated as sales tax. We assume that such taxes in the first instance raise the market price of motor spirit which ultimately is reflected through higher rates of transport earnings. Thus the amount of Rs. 7.35 crores has been charged to sector 28;
- (vi) octroi, terminal taxes, theatres, tolls etc. -these are collected by local bodies. The entire amount has been charged to sector 29 (trade and distribution);
- (vii) taxes on professions- this amount of Rs. 2.41 crores has been charged to sector 31 ('professions, services, etc.');
- (viii) taxes on forest products—this has been estimated from the current revenue of forest departments. The income of the forest departments of the Union and the State

Governments is usually derived from sale of semi-processed and processed forest products. Processed forest products, such as lac, turpentine and resin, perfumed oils etc. have been treated as products of 'chemicals' industry. Other forest products like timber, firewood, etc. are also subject to certain amount of taxes. Under the above circumstances, the total tax of Rs. 11.35 crores has been apportioned between sectors 9 ('chemicals, etc.') and 11 ('other building materials and wood manufacture');

- (ix) miscellaneous taxes and duties—these are not well classified and as such are treated and distributed proportionally over the classified taxes and duties. This procedure though not accurate is not expected to involve considerable errors since the magnitudes of additions are quite small.

3.10. It is now possible to pool the various commodity taxes together under some broad categories:

				<i>Rs. crores</i>
indirect or commodity taxes: 1953-54				
(a)	customs	..	..	163.93
	import duties	..	..	119.78
	export duties	..	..	44.15
				<hr/>
(b)	sales tax	..	..	58.33
(c)	excise and other duties	..	..	247.15
	excise duties	..	..	139.64
	entertainment tax	..	..	5.88
	electricity duty	..	..	4.76
	stamps and registration	..	..	28.34
	motor vehicles tax	..	..	13.67
	taxes on motor spirit	..	..	7.35
	octroi, terminal taxes, theatres, tolls, etc.	..	..	14.86
	taxes on professions	..	..	2.41
	taxes on forest products	..	..	11.35
	miscellaneous	..	..	18.89
				<hr/>
(d)	total commodity taxes	..	..	469.41
				<hr/>

3.11. As discussed earlier, the next step is to consider the allocation of the indirect or commodity taxes to the various sectors, the principle of allocation being identification of the commodities and services, on which the taxes are levied, as output of the various sectors. The final consolidated statement given below distinguishes commodity taxes under four broad heads, namely, (a) import duties, (b) export duties, (c) excise and other duties, and (d) sales taxes.*

TABLE (3.1): DISTRIBUTION OF COMMODITY TAXES (IN RUPEES CRORE) CHARGED ON THE OUTPUTS OF THE VARIOUS SECTORS (1953-51)

Figures in Rs. crores.

srl. no.	sectors	import duties	export duties	excise and other duties	sales taxes	all commodity taxes
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	1	9.45	3.14	8.82	—	21.41
2.	3	3.93	—	—	—	3.93
3.	5	39.35	3.48	10.19	—	53.02
4.	6	3.13	0.19	0.61	—	3.93
5.	7	2.01	0.08	—	1.38	3.47
6.	8	28.93	—	—	8.86	37.79
7.	9	10.26	—	10.57	5.25	26.08
8.	10	0.25	—	0.16	0.96	1.37
9.	11	0.08	—	8.62	0.92	9.62
10.	12	6.14	10.51	60.17	17.76	94.58
11.	13	4.12	9.51	21.69	15.97	51.29
12.	14	6.33	—	0.11	2.00	8.44
13.	15	0.02	12.21	—	0.97	13.20
14.	16	1.36	—	—	0.63	1.99
15.	17	0.26	5.03	—	1.37	6.66
16.	18	4.14	—	—	2.26	6.40
17.	19	—	—	4.76	—	4.76
18.	23	—	—	26.99	—	26.99
19.	26	0.02	—	—	—	0.02
20.	28	—	—	21.04	—	21.04
21.	29	—	—	36.60	—	36.60
22.	31	—	—	2.41	—	2.41
23.	33	—	—	28.34	—	28.34
24.	36	—	—	6.07	—	6.07
25.	all	119.78	44.15	247.15	58.33	469.41

3.12. We now give below the value of outputs of the different sectors at market prices, the derivation of which is made possible by the use of the distribution of commodity taxes as obtained above.

TABLE (3.2): SECTORAL OUTPUTS AT SUPPLY AND MARKET PRICES (1953-54)

		Figures in Rs. crores.		
sector codes	description of sectors	commodity taxes on output	value of output	
			at supply prices	at market prices
(1)	(2)	(3)	(4)	(5)
1.	agriculture	21.41	5234.80	5256.21
2.	plantations	—	57.29	57.29
3.	animal husbandry, fishery, forestry	3.93	2121.48	2125.41
4.	coal mining and coke making	—	69.95	69.95
5.	other mining	53.02	60.73	113.75
<i>large scale manufactures:</i>				
6.	iron and steel	3.93	105.71	109.64
7.	non-ferrous metals	3.47	26.81	30.28
8.	engineering	37.79	124.21	162.00
9.	chemicals, etc.	26.08	159.48	185.56
10.	cement	1.37	27.09	28.46
11.	other building materials and wood	9.62	50.68	60.30
12.	food, drink, tobacco, oil, etc.	94.58	667.67	762.25
13.	cotton textiles	51.29	513.62	564.91
14.	other textiles	8.44	54.47	62.91
15.	jute and other fibre	13.20	129.94	143.14
16.	glass and ceramics	1.99	18.02	20.01
17.	leather and rubber	6.66	49.23	55.89
18.	paper, printing and stationeries, etc.	6.40	61.08	67.48
19.	electricity generation and transmission	4.76	44.38	49.14

TABLE (3.2) *contd.* : SECTORAL OUTPUTS AT SUPPLY AND MARKET PRICES (1953-54).

sector codes	description of sectors	Figures in Rs. crores.		
		commodity taxes on output	value of output	
			at supply prices	at market prices
(1)	(2)	(3)	(4)	(5)
<i>small scale manufactures :</i>				
20.	metal and metal working	—	51.61	54.61
21.	building materials and wood manufacture	—	77.46	77.46
22.	textiles and textile products	—	149.55	149.55
23.	food, drink, tobacco, oil, etc.	26.99	521.98	548.97
24.	glass and ceramics	—	13.06	13.06
25.	leather and leather products	—	76.40	76.40
26.	miscellaneous	0.02	307.38	307.40
<i>other activities (not classified above) :</i>				
27.	railway and communications	—	316.96	316.96
28.	other transports	21.04	136.87	457.91
29.	trade and distribution	36.60	2153.13	2189.73
30.	banks, insurance and co-operatives	—	118.76	118.76
31.	professions, services, etc.	2.41	782.23	784.64
32.	constructions	—	747.82	747.82
33.	residential property	28.34	564.50	592.84
34.	public administration	—	435.84	435.84
35.	defence materials (including explosives)	—	72.72	72.72
36.	unclassified: large scale	6.07	20.83	26.90
37.	all sectors	469.41	16126.74	16896.15

3.13. We shall examine below the agreement of our estimates derived for purposes of inter-industry studies with those obtained from different sources. We shall compare our estimates with estimates from two different sources, namely, estimates used by the Central Statistical Organisation for national income estimation purposes and those presented in the 'Budgetary Statistics of India (1951-52 to 1957-58)' published by the

Economic Division of the Ministry of Finance. The latter came out in September 1957 and hence could not be used for the present inter-industry study.

Comparison with the Central Statistical Organisation

3.14. The sum total of excise duties is placed by C.S.O. at Rs. 138.00 crores as against Rs. 139.64 crores used in the inter-industry table. Inter-industry estimate in respect of customs comes to Rs. 163.93 crores as against Rs. 160.00 crores used by C.S.O. 'Other taxes and duties' estimated by C.S.O. is found to be Rs. 150.00 crores. This excludes 'stamps and registration' but includes 'sales tax'. The parallel inter-industry estimate is Rs. 137.50 crores and can be obtained as:

	<i>Rs. crore</i>	
total excise and other duties	..	247.15
less excise duties	..	139.64
less stamps and registration	..	28.54
add sales tax	..	58.33
		137.50

The total of indirect taxes derived by C.S.O. comes to Rs. 473.00 crores as against Rs. 469.41 crores of commodity taxes used for purposes of the inter-industry table of 1953-54.

3.15. The comparison with C.S.O. estimates may be summarised as follows:

	(1953-54)	(figures in Rs. crore)
indirect tax heads	C.S.O.	I.I.T.
customs	160	164
excise	138	146
stamps	25	28
others	150	137
total	473	469

Comparison with estimates of Ministry of Finance (Economic Div.)

3.16. Reclassifying the indirect taxes under conformable heads the following statement of reconciliation may be arrived at:

(1953-54)			(Rs. crore)	
heads of commodity taxes			Ministry of Finance	I.I.T.
excise duties	..	..	139.88	139.64
customs	..	..	158.71	163.93
sales tax and tax on motor spirit	..	..	62.31	65.68
stamps and registration	..	..	28.70	28.34
motor vehicles tax	..	..	13.45	13.67
others*	..	..	22.66	26.06

3.17. It may be further noted that this publication of the Ministry of Finance deals with accounts of central and state governments and therefore excludes taxes collected by local and other similar bodies.

* estimates under this head are not strictly comparable. This item however, includes electricity duties; tobacco duties; inter-state transit duties; taxes on trade, callings and professions; taxes on passengers and goods; taxes on raw jute; sugar-cane cess, etc.

CHAPTER FOUR

SECTORAL NOTES ON ESTIMATION

SECTION 1

SECTOR 1 : AGRICULTURE

4.1.0. This activity, regarded as the first sector of the Inter-Industry Transactions Table of 1953-54, includes cultivations of cereals, oilseeds, etc. of the following types -(i) wheat, (ii) paddy, (iii) all other cereals and pulses, (iv) oilseeds, (v) cotton (raw, unbaled), (vi) jute and hemp (raw, unbaled), (vii) sugarcane (uncrushed), (viii) tobacco (uncured), (ix) vegetables and spices including orchard grown fruits and nuts. The plantation crops, e.g. tea, coffee and rubber, however, have not been included in this sector and can be found treated separately under sector number 2. Partial processing of crops for direct household consumption or for direct delivery to small scale and large scale manufacturing concerns for further processing and to traders for export, etc. is also included under the sectoral activity "agriculture". The total flow from this sector, of course, takes account of by-products of agricultural operations namely, straw used subsequently for feeding cattle and also for rural constructions.

4.1.1. It may be noted that earnings coming from marketing of agricultural crops have been excluded from the value of output of this sector. Accordingly costs incurred on this account are also excluded. This, however, is not in complete agreement with the procedure adopted by the National Income Unit (NIU) of the Central Statistical Organisation (CSO).

4.1.2. Rearing and feeding of service animals form a part of the sector "animal husbandry". Thus costs incurred on different items for feeding bullocks and other service animals, if any, do not form a part of the costs of sector "agriculture". Hired and household animal labour charges for all sorts of

agricultural operations (under purview of this activity) form a single money flow or transaction from sector number 3 to sector number 1.

4.1.3. Of all information of costs of agricultural operations at the country level, the best with reference to the present study is obtained from estimates furnished by Schedule 2.1 of the Seventh Round of the National Sample Survey (NSS)*. This Round of the NSS was conducted during October 1953 to March 1954 and covered the entire agricultural year 1952-53. This year was spread over the following 4 seasons: (a) kharif season (autumn) 1952, (b) kharif season (winter) 1952-53, (c) rabi season (spring) 1953, and (d) summer season, 1953. Apparently this does not cover the financial year 1953-54. But as no other parallel information was available, use of the cost-structure furnished by the 7th Round of the NSS, was the best possible course open to us. For some minor items, it will be noticed later on that non-NSS data have been used to supplement the analysis of cost structure.

4.1.4. The value of agricultural output is available from two sources: (1) NSS 7th Round estimates and (2) unpublished estimates of output of different agricultural crops prepared by the NIU. The mode of collection of statistics in respect of quantity and value of agricultural crops has been explained in detail in the "Final Report of National Income Committee" (February, 1954). It can be seen that such valuation of crops was made on the bases of four types of prices available from different official sources, namely (a) harvest prices; (b) wholesale prices; (c) retail prices; and (d) procurement prices. As these prices sometimes have wide range of variations, averages at the state levels were used. On the whole the CISO preferred to use average of wholesale prices prevailing during the harvest period.

4.1.5. As regards our procedure for the Inter-industry Transactions Table, we have more or less accepted the estimates

* Among other publications "Report of the Rural Credit Survey (1954-55)", Reserve Bank of India gives details of costs for 1951-52. Reports on Economics of Farm Management (1954-55), Ministry of Food & Agriculture, also give some useful data for 1954-55, but these pertain to some important States only.

prepared by the CSO. The following observations have led us to adopt such a procedure.

Notes :

(1) It can be seen that for the particular year under study, the NSS estimates of quantity, in most cases, (especially in respect of major crops) tally reasonably well with those published in official sources. But the valuation of the output by the two organisations has been based on somewhat different price statistics, thus resulting in apparently different value totals.

(2) A lot of confusion arises chiefly because of the fact that the CSO has evaluated rice, while NSS schedules report for paddy, i.e. the unhusked cereal. As our activity 'agriculture' includes partial processing of the crop at the farm level, prices of paddy (unhusked cereal) lead to gross under-estimation of the output. Similar remarks apply as well to some other crops. As only large scale mills are left out of the activity, partially processed crops at the farm level can be easily traced as being directly consumed by the farmers' households and also by some other rural households.

(3) As estimates in respect of value of output of minor crops are not available from the NSS in a final shape separate treatment of all agricultural products is not possible on the basis of NSS data. Again regarding some items of costs of agricultural operations, namely, maintenance costs of tractors, outlays on electricity, etc. the NSS does not supply information and we have made use of unpublished data from both official and non-official sources.

(4) Wholesale prices are compiled from the "Bulletin of Agricultural Prices (weekly), 1953-54" for rice and wheat. These are available for some important centres only. With due regard to the acreage of the crop under study, complete enumeration is attempted by valuing the physical output of the crop available from the NSS Schedule 2.1 at the median of the weekly prices collected from the official sources. The value of output, thus arrived at, agrees remarkably well with the value of output estimated by the CSO.

(5) Apart from the considerations cited above in favour of using CSO values of output, it is of interest to note another

important reason. As survey of agricultural enterprises is not a regular and continuing feature of the NSS, and as NSS crop surveys do not yet cover many crops, we are compelled to prepare our estimates on the basis of official data which are of a continuing nature, in spite of several known shortcomings of such data.

4.1.6. As the total of gross value of output of agriculture (row total arrived at by summing the entires along the first row of the Inter-industry Transaction Table) includes commodity taxes, we have to add export duties, import duties and excise and other duties, if any, to the value of output obtained from the CSO. We exclude value of outputs of tea, coffee and rubber from this sector, since we have already mentioned that these commercial crops are dealt with separately under sector number 2, namely, "plantations".

4.1.7. The total value of output of agriculture is obtained under 9 important heads. These are shown in Table (4.1.1.).

TABLE (4.1.1): VALUE OF OUTPUT OF AGRICULTURAL PRODUCTS (IN RUPEES CRORES) : 1953-54

items	value of output	commodity taxes	value of output with tax
(1)	(2)	(3)	(4)
1. wheat ..	346.01	—	346.01
2. paddy ..	1421.38	—	1421.38
3. other cereals and pulses ..	1867.56	—	1867.56
4. oil seeds ..	416.10	0.51	416.61
5. cotton (raw, unbaled) ..	132.81	—	132.81
6. jute and hemp ..	46.41	0.49	46.90
7. sugarcane ..	157.37	6.53	163.90
8. tobacco (uncured) ..	96.85	3.70	100.55
9. vegetables, spices, orchard grown fruits and nuts ..	750.31	10.18	760.49
10. total ..	5234.80	21.41	5256.21

4.1.8. Special mention need be made about item (7), which is not directly available from the CSO. From unpublished papers of the CSO, a total value of Rs. 202.19 crores is available as the value of output of sugarcane and gur. This conveys very little meaning since gur preparation (mostly organised by the food branches of the small scale industries) involves a good deal of processing of sugarcane. Hence, we are forced to use the technical requirement of 8.589 ton of sugarcane per ton of gur, obtained as an average of 14 observations taken from the schedules relating to gur factories collected in the Sample Survey of Manufacturing Industries (SSMI). This gives us the total requirement of sugarcane in thousand tons for production of gur. Taking an average farm price of approximately Rs. 40 per ton of sugarcane, we emerge with the estimate of Rs. 157.37 crores as the value of production of sugarcane.

4.1.9. "Other cereals and pulses" include jowar, bajra, barley, maize, ragi, small millets, gram, arhar, urd, moong, musur etc. "Oilseeds" include linseed, sesamum, groundnut, rape and mustard, castor, etc. Under "vegetables, spices and orchard grown fruits and nuts" are included items among which the important ones are potato, cardamom, dry chillies, black peppers, bananas, etc.

4.1.10. On coming to the costs of agricultural operations, the following breakdown are available from the NSS 7th Round:

	<i>outlays in</i>
	<i>Rs. crores</i>
seed requirements	259.81
manure (all sort:)	146.32
animal labour charges	710.61
operational costs including repair and maintenance	80.53
total	1197.27

Notes:

(1) The total value of seeds includes requirements met both by home-supply and by purchase. The entire amount is

obviously intra-sector transactions, i.e. a fraction of output of agriculture being used up within the sector.

(2) The total value of manure used for cultivation is built up in the following way:

	<i>Rs. crores</i>
NSS estimate of cost of manures	
for rural cultivation ..	135.48
Add 8% for urban cultivation ..	10.84*
	<hr/>
total ..	146.32

The total value of Rs. 146.32 crores includes chemical fertilisers, oil cakes, bone manure, etc. besides dung manure which form a substantially major part of the total use. It is very difficult to get information on the total value of different forms of manure. We are forced to build up approximate estimates of total production of chemical fertilisers by large scale industries reported under SSML. Estimating the total availability of ammonium sulphate, phosphates, potash and oil cakes and leaving out a minor fraction of these for use in plantations and other activities, we arrive at the approximate breakdown of the estimated total outlay on all manures, as follows:

<i>types of fertilisers</i>	<i>Rs. crores</i>
oil cakes ..	13.26
chemical manures ..	10.93
dung and other items used as manure ..	122.13
	<hr/>
total ..	146.32

* The estimate of outlay on manures is available for both major and minor crops in respect of rural areas only. The value of output of urban crops formed about 8 per cent of the value of rural crops, against which outlays on manures are reported.

taxes have been deducted from the output of agriculture; thereby gross value added in the sector remains unaltered. Expenses incurred by Government on irrigation projects and maintenance of bunds, etc. are covered under governments' current and capital accounts.

4.1.12. It should be noted that interest payments on loans taken (for agricultural pursuits) from households and/or from private money lenders have not been taken into account in view of the fact that such interest payments can be effectively treated as a part of the entrepreneurial income accruing to the sector. All such interest payments, therefore, remain merged with the entry "non-wage income".

4.1.13. Before concluding the discussion on costs of agricultural operations, maintenance costs of tractors used in agriculture should be considered. Very little, however, is known about such costs. From official sources it is known that about 11,000 tractors are in use during 1953-54. Operating costs of the tractors include mainly expenditure incurred on rubber tyres and tubes; fuel oils and lubricants; starter battery; and sulphuric acid. Costs for maintenance of tractor are arrived at by estimating physical requirements of above items per tractor and then evaluating these at current available prices. This procedure gives us the following outlays:

	<i>outlays in Rs. crore</i>
rubber tyres and tubes	0.20
fuel oils and lubricants	2.38
starter battery ..	negligible
sulphuric acid ..	negligible

4.1.14. The estimate of outlay on electricity consumption in agriculture for pumping and other allied purposes is obtained from the Studies on Utilization of Primary Energy in India published by the National Council of Applied Economic Research. It is observed that about 3.69 per cent of the total

use of electricity is channelled to the sector agriculture. This gives an estimated outlay of Rs. 1.90 crores on electricity.

4.1.15. Analysis of distribution of earnings of agricultural co-operative societies (see section 12, chapter four) enables us to evaluate costs of utilising services of sector 30 by the sector, agriculture. The estimated cost of Rs. 3.87 crores, therefore, is treated as a payment to sector 30 by sector 1.

4.1.16. Wages and other payments in agriculture have been built up from the NSS estimates. The estimates available from the NSS in the first instance, pertain to major crops only. For each major crop, the total charge based on both hired and household labour days is available. This amount includes both actual and imputed charges evaluated at the same rate per working day. Moreover, number of hired and household labour days worked in connection with the cultivation of the crop are separately known. Using these data, cropwise estimates of charges per labour day are obtained. It is to be noted that the use of the same wage rate (that prevails in the market and is paid in cash in order to hire labour) is applied to evaluate both hired and household labour. In the circumstances, the hired labour days are multiplied by the estimated charges per day in order to ascertain the exact amount paid in cash for hiring labour. The hired labour charges so obtained are ultimately marked up in proportion to the value of output of agricultural products not covered by the major crops. This sort of marking up, however, is subject to the limitation that for the minor crops, the same wage per working day as for the major crops may not hold true. On the other hand, due to the fact that major crops (for which the NSS estimates are available), e.g. paddy, wheat, barley, maize, jowar, bajra, small millets, ragi, grain, jute, cotton and groundnut, cover a very large portion of the total output of agriculture, an allowance for minor crops, on the basis of the proportion of values of output, is not expected to involve large errors. The total wage payment thus estimated comes to Rs. 239.09 crores.

4.1.17. As we are not distinguishing between profits rents, taxes, etc. the wage income is deducted from gross domestic product at factor cost to arrive at the estimate of non-wage income.

4.1.18. The breakdowns of costs are available at delivered current 1953-54 prices. Between this value and the producer's value lie all distributive margins taken together. The difference is nothing but an aggregate of earnings accruing to trade and transport enterprises (including railway transportations on goods account). A detailed discussion of such earnings on distributive account has been made in the relevant chapter. Here we intend to note only two points. Firstly, all transactions are not subject to distributive margins. For example, the value of seed obtained from within the same activity is taken to be free of trade and transport margins. A clearcut rule cannot, however, be made in this respect. Secondly, inter-industry transactions as distinguished from flows going to "final demands" are in most cases assumed to be of wholesale nature and hence wholesale trade margins are applied for netting delivered values in the inter-industry quadrant.

4.1.19. A detailed study of the nature of payments made by the sector "agriculture" to the other economic activities enables us to make the sector allocations. A sector to which an outlay is allocated is determined by the type of inputs on which the outlay is made. In making the sector allocations as precise as possible, we should, therefore, ascertain the sources from which the inputs originate. In Table (4.1.2.) below is presented a summary of the outlays on various types of inputs pooled together. The sectors to which they are allocated are also shown against each.

4.1.20. The final entries shown in the first column of the Inter-industry Transactions Table (1953-54) pertaining to the sector "agriculture" are, however, not identical with the entries shown in column (4) of Table (4.1.2). The entries shown in the inter-industry table are net of distributive margins. Accordingly the original outlays at delivered prices are subjected to a deduction of distributive margins as discussed in 4.1.18. The distributive margins include (i) earnings accruing to the trade sector, (ii) earnings accruing to railways on account of transportation of goods, and (iii) earnings accruing to the sector "other transport" on account of transportation of goods. The procedure followed for deduction of distributive margins has been discussed in appropriate chapters.

TABLE (4.1.2): SECTOR ALLOCATIONS OF THE COSTS OF AGRICULTURAL OPERATIONS (IN RUPEES CRORES)

items	sector allocation	costs on items	total payment to the sector
(1)	(2)	(3)	(4)
1. seed requirements	1	259.81	259.81
2. dung used as manure	3	122.13	—
3. animal labour charges	3	710.61	832.74
4. fuel oil and lubricants for tractors, etc.	5	2.38	2.38
5. machine components for repair, maintenance, etc.	8	3.07	3.07
6. chemical fertilisers	9	10.93	10.93
7. oil cakes as manure from large scale units	12	7.26	7.26
8. rubber tyres, tubes, etc.	17	0.20	0.20
9. electricity	19	1.90	1.90
10. agricultural implements for repairs, etc. from small scale units	20	14.67	14.67
11. wood manufactures for repairs, etc. from small scale units	21	26.96	26.96
12. rope, etc. for packing from small scale units	22	0.04	0.04
13. oil cakes as manure from small scale units	23	6.00	6.00
14. packing and other unclassified small scale products	26	32.00	32.00
15. payments to co-operatives	30	3.87	3.87
16. payment to profession for repairs, etc.	31	3.79	3.79
17. total		1205.62	1205.62

4.1.21. The total cost of materials and services for agricultural operations thus amounts to Rs. 1205.62 crores at current prices of 1953-54. The estimate of gross domestic product at factor cost for the sector "agriculture" can be obtained as follows. The term "gross" implies that the estimate is inclusive of depreciation.

	<i>outlays in</i> <i>Rs. crore</i>
gross output at market price (i.e. with tax)	.. 5256.21
output without tax (less commodity taxes Rs. 21.41 crores)	.. 5234.80
gross domestic product at factor cost (less total cost of materials and services of Rs. 1205.62 crores)	.. 4029.18

4.1.22. We have already seen that the estimated labour payment comes to Rs. 239.09 crores. The residual of gross value added amounting to Rs. 3790.09 crores, therefore, gives the non-wage income of the sector. This non-wage income evidently includes rents, profits, and income of unincorporated enterprises, taxes over and above depreciation.

SECTION 2

SECTOR 2 : PLANTATIONS

(Unprocessed: Tea, Coffee & Rubber)

4.2.0. This sector is confined to the cultivation of plantation crops, namely, tea, coffee and rubber. This activity is very often included under "agriculture", though for our purpose, we intend to treat the plantation crops separately. This is done mainly because the cultivation of tea and coffee and exploitation of rubber is far more organised compared to cultivation of other agricultural crops. Moreover, plantation crops have essentially different users, when compared with other agricultural crops.

4.2.1. Besides to a number of other references, the following sources of information are mainly used to build up our estimates:

- (a) Report of the official team on tea industry, (1952), Ministry of Commerce and Industry, Appendix C.
- (b) Tea in India, 1953-54, Ministry of Food and Agriculture.
- (c) Coffee in India, 1953-54; Ministry of Food and Agriculture.
- (d) Rubber in India, 1953-54; Ministry of Food and Agriculture.
- (e) Unpublished tea-industry estimates, Sample Survey of Manufacturing Industries, 1953.
- (f) Unpublished estimates from Schedule 2.1, Seventh Round, National Sample Survey.
- (g) "How they work and live", Dr. B. Ramamurty, Ministry of Labour (1954).

4.2.2. The area under tea-plantations is reported to be 777 thousand acres in 1953-54. Out of this area, 719 thousand acres are reported to have been plucked and the remaining gardens have not produced matured plants. The total production, of both black and green tea, as available from official statistics is obtained as 589 million pounds in 1953 and 648

million pounds in 1954. The average of 618 million pounds may, therefore, be taken as the total production of tea in 1953-54.

4.2.3. The area under coffee is reported to be 232 thousand acres during 1953-54. The total production for the year is available in terms of cured coffee, mainly obtained from the coffee-gardens of Mysore, Coorg, Madras and Travancore-Cochin. The production of cured coffee totals 55.6 million pounds in 1953-54.

4.2.4. The area under exploitation of rubber covers essentially the same states as under coffee-plantation and accounts for an area of about 170 thousand acres. The production of natural rubber (dry) for the whole of India comes to about 44 million pounds during 1953-54.

4.2.5. Fairly extensive knowledge of inputs is available in respect of tea-gardening. Nevertheless, a number of working assumptions have to be made to arrive at the estimates of inputs conforming to the sector-classification adopted for purposes of our inter-industry table. Of these, the most important one is to make use for the sector as a whole a representative proportion of inputs based on gardens belonging to Northern India.

4.2.6. It may be noted that as more than 75 per cent of the total value of production of this sector is accounted for by tea (uncured), the inputs required for tea-gardening will have a very dominating influence on the cost-structure of the sector as a whole.

4.2.7. We start with a breakdown of costs of tea-plantation, as available in source (a). Various items of cost are given in terms of annas per pound of finished tea for 1952. Now, since North India gardens account for about 80 per cent of tea production of India, the cost structure of tea-plantations at the India level will have a closer resemblance with the Northern Indian weighted average (using production as weights) than with any other zone. We note below the weighted average costs for Northern India selecting items that relate mainly to the garden activity.

		<i>cost (in annas) per lb. of finished tea</i>
1. <i>labour:</i>		
cultivation and current plantation	..	1.10
plucking	..	1.42
allowance and benefits of all kinds	..	5.50
establishment	..	1.07*
2. <i>manures</i>	..	0.84

4.2.8. In estimating the labour payments to persons engaged in the tea-gardens we are now confronted with the problem of splitting up payments (in the shape of dearness allowance, other benefits and establishment over-heads) separately for "garden" (i.e. plantation proper) and for "manufacturing establishments". The large scale processing units for finished tea are conveniently traced through SSMI, 1953. The labour employed in the plantation fields is obtained from the official publication (a).

4.2.9. It may be noted that during 1953-54, an average of 981 thousands employees are reported to work daily in all the tea-gardens taken together. Out of these, 972 thousands are permanently engaged in the gardens and the remaining are temporary labourers from outside.

4.2.10. From a knowledge of the following two factors, namely,

- (i) proportion of number of workers employed in tea gardens to the number employed in the large scale processing units, and
- (ii) benefits and allowances of all kinds paid to officer staff and other workers employed in the tea curing industry (reported through SSMI),

* Establishment labour cost is arbitrarily fixed at annas 1.07 per pound of finished tea to take account of tea gardens only. The establishment labour charges for both tea-gardens and tea-industry as found in the source (a) are annas 2.07 per pound of finished tea. It should be noted also that dearness allowances and other benefits similarly may include some elements of the cost of the industrial activity.

we arrive at a total deduction of 1.283 annas per pound of finished tea as over-head costs of those who are employed in tea processing units. Here we are excluding all payments to workers who are not regularly employed in the tea manufacturing industry. Thus, dearness allowance, other benefits and establishment charges for those who work in "tea gardens" come out as 5.287 annas per pound of finished tea.

4.2.11. At this stage, we are in a position to build up the share of wages of those who are employed in the tea gardens. Accordingly, the appropriate "annas per pound of finished tea" is revised as follows:

		<i>cost (in annas) per lb. of finished tea</i>
1.	labour payment: all kinds ..	9.090
	cultivation and current plantation ..	1.100
	plucking ..	1.420
	allowances and benefits of all kinds ..	5.500
	establishment ..	1.070
2.	less labour payment of those engaged in tea manufacturing industries ..	1.283
3.	revised labour payment for those en- gaged in tea plantations proper ..	7.807

4.2.12. The physical output of finished tea (including tea in the dust form) as obtained from SSMI "tea curing" is 629191 thousand pounds. Taking the revised labour payment as 7.807 annas per pound of finished tea, we arrive at Rs. 30.70 crores as the entire wage-bill of the labour engaged in tea-plantations.

4.2.13. The estimation of the same wage-bill may be attempted from another source. From official publication, namely, source (b), it can be seen that in the tea-gardens of Assam the monthly level of wages for men and women labourers is given to be Rs. 29.43. Children working in the gardens are excluded because their earnings are much less. Taking 981

thousands as the total number of persons, we come out with an estimate of Rs. 34.64 crores as the total wage-bill of the labourers employed in all the tea-gardens of India.

4.2.14. This estimate of Rs. 34.64 crores may be regarded to compare favourably with our former estimate of Rs. 30.70 crores, especially when we remember that

- (i) the workers engaged in tea-gardens in Assam have, in general, a higher wage-rate than those employed in tea-gardens in other states; and
- (ii) even the actual earnings per worker in Assam will be lower than Rs. 29.43 per month as adopted for our calculations, because we are excluding children who earn considerably less than men and women labourers.

4.2.15. In coffee plantations, the daily average number of persons employed during 1953-54 is found to be 176 thousand, from source (c), out of which 113 thousand are permanent labourers and 63 thousand are temporary labourers from outside.

4.2.16. Corresponding wage-payment for labour engaged in coffee-plantations is not directly available. One has to be satisfied with the daily average earning of Rs. 1.25 per worker available from source (g). Moreover, we have to fix rather arbitrarily the estimated number of working days per year at 300. Thus, the wage-bill for 176 thousand persons is estimated at Rs. 6.60 crores.

4.2.17. In the case of rubber plantations, we observe from source (d) that the daily average number of persons working during 1953-54 is in the neighbourhood of 44 thousand out of which 31 thousand are permanent field labourers and 13 thousand are temporary labourers from outside the fields.

4.2.18. Very little is known in respect of exploitation of rubber in the curde form. We take the labour force engaged in rubber plantations to be 44 thousand. In the absence of relevant statistics, we are forced to accept the same wage-rate and the same average number of working days during the year as in the case of coffee. Thus the total of labour payments is placed at Rs. 1.65 crores.

4.2.19. We are now in a position to assemble the three components already estimated to arrive at the total wage-bill for the sector as a whole.

		<i>Rs. crore</i>
wage-bill in respect of:		
tea-plantations	..	30.70
coffee-plantations	..	6.60
rubber-plantations	..	1.65
		--
all plantations	..	38.95

4.2.20. Having obtained the labour-cost for the plantation activity as a whole, we trace back to the estimation of value of manures required for cultivation. This is the most important item among all that constitute the list of material inputs for this sector.

Fertilisers in use can be broadly divided under two categories:

- (a) *chemical fertilisers*: ammonium sulphate, phosphates and super-phosphates, potash, etc.
- (b) *other manures*: including oil cakes, dung manure, etc. (dung manure is extensively used and this constitutes imputed value of dung manure from service and non-service animals kept at the farms as well as dung manure obtained against cash payments.)

4.2.21. We have already noted that 0.84 annas worth of fertilisers are required per pound of finished tea. The total estimate, accordingly, for 629191 thousand pounds of tea is placed at Rs. 3.30 crores.

4.2.22. This estimate, however, can be checked against the availability of the important fertilisers. We have already noted in section 1 that out of the total availability of ammonium sulphates, phosphates and potash, a part has been allotted to agriculture and the rest is assumed to be taken up by plantations. Here the term "availability" is used to denote total value of output including commodity taxes *plus* imported value (c.i.f.) *less* exported value at ex-factory prices.

4.2.23. The estimate of availability of chemical fertilisers for domestic use in India, is built up as follows. Information about imported manures are obtained from the "Accounts Relating to the Foreign (Sea, Air & Land) Trade and Navigation" 1953-54, Ministry of Commerce & Industry as follows:

<i>manures imported</i>	1953-54 (<i>c.i.f. values</i>) <i>Rs. crore</i>
sodium nitrate ..	0.04
ammonium sulphate ..	2.13
urea ..	0.15
potassium compounds ..	0.32
phosphates ..	0.67
others ..	0.12
	<hr/>
all	3.43
	<hr/>

The value of chemical fertilizers originating in large scale manufacturing units in India amounts to Rs. 8.84 crores at ex-factory prices. Therefore we have:

	<i>Rs. crore</i>
chemical fertilizers produced by large scale industries (producers' value) ..	8.84
imported manures (c.i.f.) ..	3.43
total ..	12.27

Noting that chemical manures are not exported, we apply a wholesale distributive margin of 15 per cent and arrive at a value of Rs. 14.11 crores reckoned at delivered prices. On deducting an estimated absorption of Rs. 10.93 crores (see, section 1; sector: agriculture) of chemical manures by the agricultural crops (especially wheat, paddy, oilseeds, jute, etc.) we arrive at an estimate of Rs. 3.18 crores as the intake of chemical fertilizers by plantations.

4.2.24. Similar reckoning enables one to place the outlay on oilcakes at Rs. 0.17 crores. Hence the total cost of all manures comes to Rs. 3.35 crores. It can be seen that this compares favourably with our former estimate of Rs. 3.30 crores derived in paragraph 4.2.21. Further, we have charged an additional outlay of Rs. 0.05 crores on insecticides arbitrarily.

4.2.25. Regarding dung manure, we have allocated a major fraction of the availability to "agriculture" and the rest is now allocated to plantations. Thus, value of dung manure used in plantations comes to Rs. 5.33 crores.

4.2.26. Since the cost estimates as worked out now provide a breakdown of items on which the costs are incurred, we have accepted this in preference to the earlier one. It may be noted, however, that the two sets of estimates are not widely different and therefore not much error is involved in accepting any one of the two.

4.2.27. Another important item of cost relates to the maintenance of a large fleet of automobiles in the plantations. No direct estimate of this is known. An approximation, in the absence of even the vaguest idea of the probable components of operating costs, lies in taking into account the inputs estimated (from the NSS Schedule 2.3, Seventh Round) per vehicle for lorry transport in general (as will be discussed under the section "other transport"). The components of cost with the estimates of total expenditure are obtained as follows:

	<i>Rs. crore</i>
tyres and tubes ..	0.07
fuel oils and petrol ..	0.08
battery and acids	negligible

4.2.28. The allowance for repairs and maintenance of assets is taken to be Rs. 1.04 crores. This amount has been arbitrarily split into the constituents noted below:

	<i>Rs. crore</i>
agricultural tools and implements	
including parts for tractors ..	0.49
wood and building materials ..	0.20
hardware (from large scale industries)	0.35

The last two items include materials required for the upkeep of buildings and fences.

4.2.29. With these, we come to an end of the list of inputs for plantations. This, however, is incomplete in respect of certain inputs of coffee and rubber plantations. In this connection, it is worth remembering that some inputs like dung manure, chemical fertilisers, oil cakes, etc. have been estimated for the activity as a whole and, therefore, the value of inputs of coffee and rubber plantations left out is likely to be quite negligible. Moreover, we have already observed that as tea covers more than 75 per cent of the total value of production of the sector, the inputs required for tea-plantations will account for a substantial part of the total value of inputs.

4.2.30. We next consider the allocation of inputs traced so far. This is done with reference to our 36 sector classification. Table (4.2.1) shows gross entries representing money-flows received by the sector "plantations" from other sectors of the economy before deduction of distributive margins.

TABLE (4.2.1): ALLOCATION OF GROSS COSTS OF MATERIALS IN PLANTATIONS

srl. no.	items	delivering sector code	outlays (in Rs. crore)
(1)		(3)	(4)
1.	dung manure	3	5.33
2.	fuel oils and petrol	5	0.87
3.	agricultural tools and implements	8	0.49
4.	hardware for repair and maintenance	8	0.35
5.	chemical fertilisers	9	3.23
6.	oil cakes as manure (large scale)	12	0.08
7.	tyres and tubes	17	0.07
8.	wood and building materials	21	0.20
9.	oil cakes as manure (small scale)	23	0.09
10.	total cost of materials		10.71

4.2.31. The entries shown in column 2 of the Inter-industry Transactions Table are finally obtained by deducting distributive margins from some of the outlays shown in 4.2.30. The procedure has already been discussed in Chapter Two.

4.2.32. The problem of assessing output of tea in the crude form lies in accepting some plausible figure among the rather widely varying estimates available from different sources. The value of raw tea leaves in the 'Final Report of the National Income Committee' (February, 1954) is reported to be Rs. 26 crores for 1950-51. Accepting this value and observing the change in ex-garden price and the physical production of raw tea leaves over the period 1950-51 to 1953-54, it is possible to get an idea of the value of output of uncured tea leaves for 1953-54. For all practical purposes, this estimate is expected to range between Rs. 25 to 28 crores. This estimate (being less than the estimated wage payment in respect of tea-plantation activity) seems to be quite poor and has not been accepted.

4.2.33. From data relating to the "tea-manufacturing" industry reported in the SSMI, we notice that Rs. 43.86 crores worth of uncured tea leaves is used as input in the industry. As the passage of raw tea leaves from gardens to the factory gate is not handled by organised distributors, we have accepted Rs. 43.86 crores as the value of output of raw tea leaves for 1953-54.

4.2.34. Regarding the value of output of uncured coffee we have used the estimate of Rs. 7.48 crores as prepared by the CSO. It is, however, possible to obtain the physical production of cured coffee as 29,410 tons in 1953-54 from a different official source (namely, Report of the Plantation Enquiry Commission, 1956, Part II, Coffee; published much later). The same publication further makes it possible to obtain a pooled basic price of Rs. 165.20 per cwt. as the average of the prices of Arabica & Robusta Coffee. Using this price the value of cured coffee comes to Rs. 9.72 crores. To convert this to value of crude coffee, some adjustments for both quantity and ex-garden price of crude coffee are to be made.

4.2.35. As in the case of coffee, the value of output of crude rubber is taken from unpublished documents available with the CSO. This is obtained as Rs. 5.95 crores.

4.2.36. Thus the total value of output of the sector is obtained as the aggregate of values of production of crude forms of tea, coffee and rubber, as shown below:

	<i>Rs. crore</i>
tea (uncured) ..	43.86
coffee (crude) ..	7.48
rubber (unprocessed) ..	5.95
	<hr/>
total value of production ..	57.29
	<hr/>

4.2.37. We have already seen that the total cost of material inputs for plantations is given by Rs. 10.71 crores. On deducting this amount from the total value of output we get the "gross domestic product at factor cost," since no commodity taxes are taken to exist on the outputs of this sector. Knowing the wage-bill we are able to get the non-wage income of the sector, which includes rents, taxes, entrepreneurial earnings, and also depreciation. The accounting is furnished below:

	<i>Rs. crore</i>
total value of output of plantations ..	57.29
total cost of material inputs ..	10.71
	<hr/>
gross domestic product at factor cost	46.58
wage income ..	38.95
non-wage income ..	7.63

4.2.38. The limitations of the estimates discussed above may be mentioned in this context. The cost in annas per pound of finished tea relates to the price level of the year 1952; the "annas" are not properly adjusted to take account of the prices prevailing in 1953-54. The estimates based on "annas" worth of manures per pound of finished tea, however, have been rejected. In the case of labour payments, no adjustments could be made due to lack of precise knowledge of the change in wage-rates of tea-garden labourers over 1952 to 1953-54.

4.2.39. A large volume of data on agricultural labour and wage in India have been collected and analysed (reference:

Agricultural Labour Enquiry, Ministry of Labour, 1954 and Agricultural Wage in India, 1953-54, Ministry of Food & Agriculture); unfortunately, plantation labourers have been excluded, for these studies. The need for collecting statistics on costs of plantations and various other characteristics of economic significance being increasingly felt, the government set up an enquiry commission in 1954. The Government of India Report on the Plantation Enquiry Commission, 1956, Part I (tea), has been recently released and includes very detailed analysis of costs, production, wage-structure, etc., in respect of tea-plantations. For the present work, however, this publication could not be used since the estimates were prepared earlier.

4.2.40. It is, however, worthwhile to compare some of the estimates presented in this paper with relatively more dependable estimates based on the report mentioned above.

4.2.41. The physical production of cured tea is reported to be 615 million pounds for 1953-54 (and this compares favourably with the SSMI estimate of 629 million pounds for 1953). Information is also available on the average costs in rupees per 100 pounds of cured tea in 1953 under the various heads, namely, cultivation, gathering, manufacture, general charges, packing, selling expenses and so on. The items include outlays on materials as well as labour payments. Taking 615 million pounds as the aggregate production of tea during 1953-54, it is possible to build up estimates of cost, as indicated below:

<i>head of costs</i>	<i>average cost in 1953 (Rs./100 lbs.)</i>	<i>estimated cost (Rs. crore)</i>
cultivation	.. 21.55	13.25
gathering	.. 20.38	12.53
manufacture	.. 20.29	12.48
general charges	.. 49.54	30.47
packing	.. 10.82	6.65
selling expenses	.. 15.50	9.53
commission to agents	.. 7.07	4.35
all costs	.. 145.15	89.26

4.2.42. The total of costs in respect of tea-plantation and tea-manufacture as estimated above agrees quite satisfactorily with the total costs derived from the two sources, namely, SSMI (for tea industry) and the present publication (for tea-gardens). This can be seen from the statement below:

	<i>Rs. crore</i>
cost of manufacture (tea industry: SSMI)	29.43
labour payment in tea industry (SSMI)	7.73
non-labour cost of plantation at tea gardens (from the present publication)	.. 8.20*
cost of labour at tea gardens (from the present publication)	.. 30.70
all costs	76.06

Now, it is clear that selling expenses and commission to agents are not included in the estimate of Rs. 76.06 crores. Hence adjusting the estimate of Rs. 89.26 crores for selling expenses and commission to agents, we arrive at an estimate of Rs. 75.38 crores. This agrees very nicely with the estimate of Rs. 76.06 crores obtained by us.

4.2.43. The estimate of wage-bill for the sector as a whole may be similarly compared. On referring to Section E of the Report, we find that the cash wage-bill for 1953 comes to Rs. 41.38 crores. This includes wage bill for the factory workers, along with payments to the labourers in the tea-gardens. From

* Note that Rs. 10.71 crores is the estimated cost of material inputs for tea, coffee and rubber. The same cost for tea only is obtained as Rs. 8.20 crores approximately by using the proportion of the value of output of tea to the value of output of the sector as a whole.

this it is possible to estimate the wages of the garden-labourers as shown below:

	<i>Rs. crore</i>
wage-bill in respect of tea-industry and tea-gardens ..	41.38
less wage-bill in tea-industry (SSMI)	7.73
estimated wages of garden labourers ..	33.65

The parallel estimate presented in this publication is Rs. 30.70 crores.

SECTOR 3: ANIMAL HUSBANDRY, FISHERY AND FORESTRY

4.3.0. The scope of this sector extends to primary production originating from mainly three types of activities, namely, animal husbandry, fishery, and forestry. These will be treated one by one in the following paragraphs.

Animal husbandry

4.3.1. This forms the most important of the three activities mentioned above judged by both the gross value of production and the contribution to national income. Hence, it would be worth while to precisely define at the outset the component parts that go to build up the total output of animal husbandry. In the interest of clear understanding as well as for the formulation of certain principles (which may differ from those followed by the National Income Unit for the estimation of national income) this sector has been split up into two components, viz.

- (i) rearing and disposing of the products and services of *service* animals; and
- (ii) rearing and disposing of the products of *non-service* animals.

4.3.2. The distinction between these two components is the same as that between service animals and non-service animals. Although the output of service animals mainly consists of non-tangible animal services (mostly imputed either at hire charges or at feed cost), while the output of non-service animals are mostly tangible livestock products, the two components are not easily distinguished in all cases. Thus, we may encounter exceptions in that female buffaloes in addition to yielding milk sometimes render service as draught and pack animals, and power animals though not yielding milk contribute to the output of meat, hides, skins, bones, etc. Similarly, both

service and non-service animals contribute to the total output of dung.

4.3.3. We may now observe some important features of the outputs of service and non-service animals. The entire output of animal husbandry can be conveniently classed under three heads, namely,

- (a) products common to both service and non-service animals, like dung, hides and skins, bones, meat, etc.;
- (b) products from non-service animals only, like milk, egg, poultry birds etc.; and
- (c) service mostly from service animals.

So far as the value of output is concerned, the contribution of (b) is the most significant. Contribution of (c) comes next, while that of (a) forms only a small fraction of the total value of output.

4.3.4. Special mention of the services rendered by animals coming under (c) seems to be essential here. Agriculture makes the most important use of animal services. The transport sector is another important consumer of animal services especially in the operation of certain types of carts and vehicles. Small-scale manufacture of edible oils comes next in the list of users of animal services, but it is much less important than the two activities mentioned earlier.

4.3.5. Imputation of these animal services forms an interesting problem and much weight should be given to such problems in India especially for purposes of national income estimation. We do not propose to go here into any detailed examination of the theoretical implications of such problems and would only make a mention of the estimation procedure finally adopted for constructing the Inter-industry transaction table for India, 1953-54.

4.3.6. In NSS Schedules 2.1 we have information on animal-labour spent for various agricultural operations, namely, cultivation, sowing, transplanting, etc. Moreover, hired animal-labour is distinguished from household animal-labour. Accordingly, estimates of cash payments for hired animal-labour are

obtained and household animal-labour is imputed at the same rate of charges per animal-labour day*.

4.3.7. This practice is not followed, however, in the case of small-scale oil manufacture. The NSS estimates furnish detailed costs of animal feed; and the value of animal services purchased by small-scale manufacture is equated to the feed cost of animals used in small-scale enterprise. Reference, in this connection, may be made to the section on small-scale manufacture.

4.3.8. Estimation of the value of output of animal husbandry may now be described. To start with, the value of animal services is ascertained from the utilisation end. As already mentioned, the principal users of animal services are agriculture, small-scale manufactures and non-mechanised transport.

4.3.9. The value of animal services used in the cultivation of various crops is obtained from the NSS estimates pertaining to 7th Round. The estimates are as follows.

TABLE (4.3.1): VALUE OF ANIMAL SERVICES
USED IN AGRICULTURE (IN RUPEES CRORE)

srl. no.	crops	value of animal services used
(1)	(2)	(3)
1.	wheat	134.55
2.	paddy	148.26
3.	other cereals and pulses	294.37
4.	oilseeds	26.71
5.	cotton	23.76
6.	jute, hemp, etc.	7.17
7.	sugarcane	23.41
8.	tobacco	7.32
9.	all other crops	45.05
10.	all crops	710.60

* It may be noted that no independent information of payments in kind for services rendered by household animals are available from the National Sample Survey (NSS).

These estimates are based on the procedure mentioned in para 4.3.5. and include both hired and household animal services.

4.3.10. The value of animal services used for oil manufacture in small-scale manufacturing units is evaluated at feed cost and amounts to Rs. 3.06 crore (on the basis of NSS 7th Round estimates). For the estimated value of animal services used in non-mechanised transport, attention is invited to the section devoted to "other transport". Here we simply note that the value of animal services used in non-mechanised transport is obtained as Rs. 97.21 crore, giving a total value of Rs. 100.27 crore for manufacture and transport taken together. By including agriculture, the total comes to Rs. 810.87 crore, and this can be regarded as the value of output corresponding to item 4.3.3(c) mentioned above.

4.3.11. Coming to livestock products, fluid milk forms the most important single item. From the available estimates it is found that the value of fluid milk estimated from production end is very much different from that estimated from consumption end. The value of fluid milk consumed as such by households or by industries for manufacture of milk products is much higher than the output of fluid milk directly estimated from NSS Schedules 2.1 (7th Round)*. An explanation for this probably lies in the inclusion of consumption out of home supply by households in the consumption account and exclusion of the same from the production account.

4.3.12. Reference to the section on small-scale manufacture will reveal that milk products are included in the output of food industries. Hence fluid milk utilised for the preparation of milk products is to be treated as a flow from the "animal husbandry" sector to the "food industries" sector of small-scale manufactures.**

* An independent attempt was made to estimate the output of fluid milk in a subsequent year from the yield rate per animal and the number of milch animals, as projected from the Livestock Census Reports. This reveals the same story of under-reporting of output from NSS. For this reason the NSS estimate of output has not been accepted at face value.

** For purpose of inter-industry studies, we have treated the entire activity of preparation of milk-products as belonging to sector 23 (small-scale food

4.3.13. To estimate the output of fluid milk from consumption end we take note of the following (also vide section on small-scale manufacture):

	<i>value in Rs. crore</i>
1. household consumption of milk and products (NSS 7th Round estimate) ..	660.11
2. less estimated consumption of milk products	240.68
3. estimated consumption of milk in fluid form ..	419.43
4. utilised in preparation of milk products	158.85
5. utilised in small-scale manufacture (other than 4) ..	15.59
6. estimated utilisation in hotels ..	15.00
7. total fluid milk to support consumption, etc. ..	608.87

4.3.14. A detailed discussion on how these estimates are arrived at will be found in the section devoted to small-scale manufacture. It will suffice to note here that in some cases (as, for example, for item 2) NSS estimates are not directly available and some assumptions have to be made, while some other estimates (for example, for item 4 and 6) based on unauthorised figures were arrived at by less tangible means.

4.3.15. The above procedure, however, assumes that the estimated consumption of milk and products (item 1) does not include trader's or distributor's margins. This assumption is not entirely correct. But, it is justified for consumption out of home supply (included in item 1), which is not subject to trade and distributive margins. Even for other types of consumption, the assumption is fairly realistic, since the distribu-

industries). This is a departure from the procedure followed by the National Income Unit. It may, however, be noted that production of ghee, butter, etc. is sometimes carried on as ancillary activities to "Animal Husbandry Sector".

tion of milk is usually not organised through traders, especially in rural areas.

4.3.16. As is evident from the statement above, fluid milk worth Rs. 608.87 crore is required to support consumption and industrial use. We have accepted this estimate of the output of fluid milk. It may be incidentally noted that value of output of fluid milk directly estimated from NSS Schedule 2.1 (7th Round) is only Rs. 339.98 crore. This, however, excludes milk used for preparation of milk products and should, therefore, be placed against the estimate of Rs. 450.02 crore derived from the consumption account.

4.3.17. The item which comes next to milk is dung. The total output of dung (used either as manure or as dung-cake) is obtained from NSS estimates pertaining to 7th Round (Schedule 2.1). The estimated value is found to be Rs. 307.38 crore.

4.3.18. In respect of other products we accepted unpublished estimates available from the National Income Unit of CSO. The NSS estimates of production of meat, wool and hair, horns, and bones, hides and skins, etc. suffer from various deficiencies. For example, the value of output of hides and skins obtained from Schedule 2.1 (7th Round) is very much short of the corresponding value of exports. Probably the non-household farms falling outside the scope of the household Schedule 2.1 have a vital role in the production of these particular items.

4.3.19. The following are the estimates for meat, hides and skins, eggs, etc. used for purposes of the present study:

	<i>value of output in Rs. crore</i>
hides and skins	.. 22.09
bones and horns	.. 10.00
wool	.. 9.13
meat of all sorts	.. 68.52
poultry	.. 8.52
eggs	.. 9.75
others (excluding dung and milk)	.. 138.72
total	.. 266.73

4.3.20. On summing one arrives at the total value of output of the "animal husbandry" sector. The following is a summary statement:

	<i>value of output in Rs. crore</i>
animal services	.. 810.87
fluid milk	.. 608.87
dung (manure and fuel)	.. 307.38
all other livestock products	.. 266.73
	<hr/>
total	.. 1993.85

4.3.21. A final adjustment, however, is made on this. The wholesale value of small animals and poultry purchased for slaughter and processing is found in NSS Schedule 2.4 of the 7th Round and it is felt that an under-estimation to the extent of Rs. 8.25 crore has taken place. This leads to a small adjustment in the value of output (excluding commodity taxes) of animal husbandry, which is ultimately accepted as Rs. 2002.10 crore.

4.3.22. The operating cost of the animal husbandry sector should include the cost of services and materials required for the upkeep and maintenance of animals. Consequently, we have to collate information on feed cost of animals used in various activities like agriculture, transport, small-scale food industries, etc.

4.3.23. From NSS Schedule 2.1 (5th Round)* dealing with agriculture and animal husbandry, the feed cost of animals coming under the scope of the schedule is estimated at Rs. 551.02 crore. This estimate, however, does not include service charges for maintaining animals other than labour. Parallel estimates of feed cost are obtained from Schedules 2.2 and 2.3 of NSS 7th Round dealing with small-scale manufacturing and transport enterprises respectively.

* In the absence of NSS 7th Round estimates, the 5th Round estimates are used, although they do not relate to the year 1953-54.

		<i>feed cost of animals (Rs. crore)</i>
agriculture (reported in Schedule 2.1, 5th Round)	..	551.02
transport (reported in Schedule 2.3, 7th Round)	..	27.30
small-scale manufacture (reported in Schedule, 2.2, 7th Round)	..	8.76
total	..	587.08

An additional amount of Rs. 12.27 crore* is added to this total to take account of the other activities (reported under other schedules) required to maintain animals. Hence the adjusted total feed cost comes to Rs. 599.35 crore.

4.3.24. Information on breakdowns of feed cost is obtained from NSS Schedule 2.1 (5th Round). This source provides a total estimate of Rs. 551.02 crore itemised under eight important heads. These estimates are treated as preliminary and subjected to some adjustments, noted below.

4.3.25. The first step consists in adjusting these estimates so that the adjusted estimates add up to the total feed cost of Rs. 599.35 crore arrived at in paragraph 4.3.23. The relative proportions of the different items are retained in the adjustment. We give a statement showing both the preliminary and the adjusted estimates of feed cost :

4.3.26. A final blowing up of the adjusted cost estimates is dictated by the gap between the value of output reported under various schedules and the value of output estimated in the foregoing paragraphs for the Inter-industry Transactions Table of 1953-54. It is worth mentioning that the total feed cost of

* It will be noticed presently that even this additional amount is not adequate and the feed-cost estimates (as directly obtained) suffer from considerable under-enumeration.

		<i>estimated feed cost</i> (Rs. crore)	
		<i>preliminary</i>	<i>adjusted</i>
green grass, straw fodder	..	428.07	465.60
gram and other feed	..	40.17	43.70
bran	..	11.42	12.42
oil cakes	..	35.49	38.61
seeds and oilseeds, etc.	..	27.82	30.26
salt	..	4.53	4.93
concentrates	..	1.96	2.13
medicines	..	1.56	1.70
total		551.02	599.35

Rs. 599.35 crores does not include service charges other than labour, viz. outlays on treatments, harnessing, etc. of animals. Estimated service charges towards maintenance of animals are obtained as Rs. 20.58, 6.59 and 1.06 crore from NSS Schedules 2.1 (5th Round), 2.3 (7th Round) and 2.2 (7th Round) respectively. Thus a total of Rs. 28.23 crore is added to Rs. 599.35 crore, giving Rs. 627.58 crore as the aggregate cost of maintenance of both service and non-service animals.

4.3.27. This estimate of Rs. 627.58 crore is now marked up by a multiplying factor, approximately 1.393, (which is the ratio of the value of output accepted for the inter-industry table to the value of output corresponding to the feed-cost of Rs. 627.58 crore) to obtain Rs. 874.07 crore as the total cost incurred on the maintenance of animals. However, the item-wise cost estimates, are not straightway multiplied by 1.393. It seems that if this is done, the blown-up figures for bran, oilcakes, salt, concentrates and medicines, cannot be supported by availability and other considerations. Estimates for green grass, straw and fodder, and gram and other feed are separately marked up, while the estimates for bran, oilcakes, salt, concentrates, and medicines are retained at the previous level. The

residual of total cost is then subjectively allocated between remaining items, namely, seeds, etc. and service charges other than labour. Thus we arrive at the feed cost estimates shown below:

	<i>final feed- cost estimates (Rs. crore)</i>
(i) green grass, straw and fodder ..	648.52
(ii) gram and other feed ..	60.87
(iii) bran ..	12.42
(iv) oil cakes ..	38.61
(v) seeds, oilseeds, etc. ..	50.26
(vi) salt ..	4.93
(vii) concentrates ..	2.13
(viii) medicines ..	1.70
(ix) service charges other than labour ..	54.63
<hr/>	
(x) total outlay ..	874.07

4.3.28. One final adjustment of the figure for grass, straw and fodder is necessitated by the fact that the value of output of grass, straw, and fodder included under agriculture is somewhat in excess of their utilisation traced so far. From common sense it is expected that the important sectors absorbing grass, straw and fodder would be animal husbandry (as animal feed), constructions (as building material in rural areas) and large-scale industries (as packing materials). Utilisation in large-scale industries is, however, found to be almost insignificant, and it is felt that even after allocation to constructions (in building rural huts, cottages, etc.) about Rs. 50.00 crores worth of grass, straw and fodder remains unutilised. The only possible course left is to allocate this surplus (from the view point of utilisation) to the animal husbandry sector,

which happens to be the most important user of the items. Hence, we get the following:

	<i>Rs. crore</i>
total feed-cost of materials (as stated in para 4.3.27)	.. 819.44
services other than labour (as stated in para 4.3.27)	.. 54.63
additional input of grass, straw and fodder	.. 50.00

total outlay	.. 924.07

4.3.29. Next we start analysing the various items used as inputs according to sources from where they may have been derived. The following important points may be mentioned regarding input allocations to the various sectors:

- item (i) of para 4.3.27: green grass, straw and fodder constitute the bulk of the total outlay. The revised figure stands at Rs. 698.17 crore. A very small amount of Rs. 0.35 crore is set apart as an outlay on green grass and allocated to the same sector, "animal husbandry". Straw and fodder, however, are allocated to "agriculture";
- item (ii): gram and other feed are considered as products flowing from "agriculture";
- items (iii), (iv) & (vii): these items have been considered as products of either "large-scale" or "small-scale" food industries. The allocations, are made on the basis of availability of the items from the sectors mentioned above;
- item (v): the method of estimation is such that there is a possibility of unspecified input items being included in these items. Unspecified items worth Rs. 0.35 crore are therefore set apart. The residual of Rs. 49.91 crore has been considered

as the outlay on "seeds, oilseeds, etc." coming from the sector "agriculture". The amount of Rs. 0.35 crore is further split into outlays on *gur*, *rub*, etc. coming from "large-scale food industries" (Rs. 0.33 crore), fuel oils for maintaining transport at the livestock farms (Rs. 0.01 crore) coming from sector 5, and packing materials (Rs. 0.01 crore) coming from sector 15;

- item (vi): outlay on salt is allocated to "large-scale food industries" according to the procedure laid down for the classification of large-scale industries;
- item (viii): outlay on medicines, drugs, pharmaceuticals, etc. for maintaining animals is allocated to sector 9;
- item (ix): service charges other than labour is considered to be flowing from the sector "professions and personal services".

Fishery

4.3.30. This activity consists of catching and local preservation of both sea and fresh water fishes. The entire activity can be visualised as being carried on in two different forms, namely, (i) sea and fresh water fishing, and (ii) subsistence fishing.

4.3.31. The estimates of value of output are taken from unpublished papers of the CSO (National Income Unit). The total cost is assumed to be 5% of the value of output in the case of sea and fresh water fishing and 1% of the value of output in the case of subsistence fishing.

4.3.32. Some difficulty is faced in splitting up the total cost into outlays on individual input items. In this connection, a reference is made to the "Report of Marketing of Fish in India (1948)" issued by the Agricultural Marketing Adviser, Government of India. Information on the cost of curing (salting and sun-drying) one maund of fish is available from this source. Further some useful information is given on the differential between producer's price and consumer's price with some percentage breakdowns (in terms of consumer's prices) attributable to handling and curing, transportation, trade, etc.

4.3.33. To start with, the following statement is prepared primarily using (as mentioned earlier) unpublished estimates of the CSO for 1953-54*. However, some adjustments are made of the value added by salting and sun-drying. Preservation of fish in cold storage, etc. is considered as falling under trade except where this is done at the catching-site.

	<i>Rs. crore</i>
value of catch of fresh water fish ..	24.57
value of catch of sea-fish ..	12.04
value of output from sea and fresh water fishing ..	36.61
value of output from subsistence fishing	8.69
total value of output ..	45.30

4.3.34. On the assumptions stated in para 4.3.31, the cost of materials required for sea and fresh water fishing comes to Rs. 1.83 crore. For subsistence fishing, the corresponding estimate comes to Rs. 0.09 crore. We thus arrive at the following statement of outputs and inputs:

	<i>sea and fresh water fishing</i>	<i>subsistence fishing</i>	<i>all total</i>
gross value of output (Rs. crore) ..	36.61	8.69	45.30
value of material inputs (Rs. crore) ..	1.83	0.09	1.92
gross value added (Rs. crore) ..	34.78	8.60	43.38

* These estimates were supplied by the National Income Unit (CSO) in April, 1956 and did not furnish details regarding "pearl fishery" and "chank gathering".

4.3.35. The next step is to split up the cost of materials into two definite categories, namely, outlay on materials required for repair and maintenance of fishing equipment, and outlay on materials required for current operations. There is, however, a residual category of unspecified materials.

	<i>Rs. crore</i>
cost of materials for current use	0.76
cost of repairs and maintenance	0.76
unspecified materials	0.40
	<hr/>
total outlay	1.92

4.3.36. No reliable information is available on the nature of inputs and hence the breakdowns given below are based on percentages ascertained from local enquiries. Materials for current use consist of the following:

	<i>Rs. crore</i>
salt for local preservation ..	0.46
ice for cold storage ..	0.28
baits for fishing ..	0.02
	<hr/>
total outlay ..	0.76

Outlay on repairs and maintenance is split as:

	<i>Rs. crore</i>
replacement of ropes and nets	0.18
wood-products for repair of boats	0.55
replacement of equipments like rods	0.03
	<hr/>
total outlay	0.76

Lastly, the outlay on unspecified materials is allocated to sector 36, namely, "unspecified: large-scale products"

Forestry

4.3.37. This activity is considered under two broad heads, namely, (a) lumbering and (b) production and collection of forest-grown fruits, nuts, herbs, barks, bamboo, grass, cane, etc. Timber and firewood form the most important products of lumbering; and the estimates of value of output are obtained from unpublished papers of the CSO as noted below*.

		<i>value of output without commodity taxes (Rs. crore)</i>
timber	..	43.55
firewood	..	20.57

total	..	64.12

Commodity taxes on these products come to Rs. 2.32 crore (vide chapter on "Commodity taxes"), giving Rs. 66.44 crore as the value of output including tax.

4.3.38. The value of output corresponding to part (b) of the activity mentioned above is estimated indirectly. Information on utilisation of forest products other than timber and firewood, namely, bamboo, grass, leaves, canes, barks, herbs, etc. are utilised for this purpose. The value of such products used as inputs in different activities is obtained at delivery prices and the value at producer's prices is estimated by deducting a certain percentage as the distributive margin. Thus we get:

* It is possible that these estimates have been subsequently revised in the light of the "Timber Trends Survey" conducted by the Union Ministry of Food & Agriculture.

	<i>Rs. crore</i>
utilisation of products of "forestry"	
other than firewood and timber	
(at delivery prices) ..	13.45
<i>plus</i> exports (with duty)	2.78
<i>less</i> import (c.i.f.) ..	1.60
<i>less</i> commodity taxes (including	
import & export duties) ..	0.49
	<hr/>
delivered value of domestic output ..	14.14

On deducting about 30 per cent at the delivery value as trade and transport margins*, the value at producer's prices is obtained as Rs. 9.96 crore.

4.3.39. "Indian Forest Statistics", Vol. II, 1953-54, published by the Ministry of Food & Agriculture, gives a detailed account of major and minor forest products in India. The Vol. I of the same publication as well as "Forestry in India, 1953-54", Ministry of Food & Agriculture, give a summary of production and allied statistics in respect of Indian forests. Unfortunately, however, the value figures of production seem to be under-estimates due to the use of different price statistics, especially for timber and firewood. The wholesale prices reported in "Forestry in India (1953-54)", and adjusted for wholesale margins obtained from the NSS, yield considerably higher value totals. The estimates for timber and firewood obtained from the CSO also support the same story. Finally, the same conclusion is reached in an attempt to value the quantity of firewood consumption from NSS 8th Round (1954-55) estimates at producer's price. It is in view of this that we have followed the procedure outlined above.

* An average ratio between producer's and wholesaler's price of 1.42 obtained from Schedule 2.4 of NSS, 7th Round (vide Chapter on Distributive margins) is employed to convert delivered value into producer's value.

4.3.40. Thus the value of output of this sector comes to:

		<i>Rs. crore</i>
value of timber and firewood	..	64.12
other forest products traced through utilisation	..	9.96
total value of output at supply price	..	74.08
commodity taxes	..	2.81
value of output at market price	..	76.89

4.3.41. Coming to the estimation of costs incurred on maintenance of forests and collection of forest products, reference is made to the "Budget for Andamans (1951-52)". It is observed that the ratio of cost of materials to gross income derived from forests comes to about 0.0688 with the following breakdowns:

		<i>ratio of costs to gross income</i>
stores, tools and plants	..	0.0213
forest maintenance and improvements		0.0438
other charges	..	0.0037
		<hr/>
all	..	0.0688
		<hr/>

4.3.42. A little judgement is exercised in using the above cost—income ratios to arrive at the overall costs for the sector. The overall ratio of 6.88 per cent is used only for the output of timber and firewood while for the output of other forest products, the material cost is taken as 4.38 per cent as though such cost is incurred only for the maintenance and improvement of forests. Thus we arrive at the following statement:

Rs. crore (1953-54)

	<i>value of output</i>	<i>material cost</i>	<i>gross value added</i>
timber and firewood ..	64.12	4.44	59.68
other forest products traced through utilisation ..	9.96	0.44	9.52
all products	74.08	4.88	69.20

4.3.43. Sector-wise allocation of the inputs is next taken up. Tar and insecticides are allocated to chemical industries. Animal service is evaluated at feed-cost and allocated to sector 3. Unspecified materials are allocated to "unspecified: large-scale". Tools and implements are equally apportioned between small-scale producing sectors 20 (metalware) and 21 (wood and building materials).

Animal husbandry, fishery and forestry combined

4.3.44. Combining the three types of activities, gross and net values of output of the sector are obtained as follows:

Rs. crore (1953-54)

	<i>output with tax</i>	<i>commo- dity taxes</i>	<i>output without tax</i>	<i>material cost</i>	<i>value added</i>
Animal husbandry	2003.15	1.05	2002.10	924.07	1078.03
fishery ..	45.37	0.07	45.30	1.92	43.38
forestry ..	76.89	2.81	74.08	4.88	69.20
combined ..	2125.41	3.93	2121.48	930.87	1190.61

4.3.45. Values of inputs in the form of deliveries from different sectors are also pooled together to get the sectoral inputs. The pooling is shown below:

TABLE (4.3.2): SECTOR ALLOCATIONS OF INPUTS (RUPEES CRORE), 1953-54

srl. no.	delivering sectors	outlays inclusive of distributive margins			
		animal husbandry	fishery	forestry	combined
(1)	(2)	(3)	(4)	(5)	(6)
1.	1	808.95	-	-	808.95
2.	3	0.35	—	—	0.35
3.	4	-	—	0.07	0.07
4.	5	0.01	—	0.02	0.03
5.	6	—	—	0.14	0.14
6.	8	-	-	1.25	1.25
7.	9	1.70	-	0.08	1.78
8.	12	38.21	0.46	—	38.67
9.	15	0.01	—	—	0.01
10.	19	—	—	0.01	0.01
11.	20	—	—	1.65	1.65
12.	21	—	0.58	1.65	2.23
13.	22	—	0.18	—	0.18
14.	23	20.21	0.02	—	20.23
15.	27	—	—	—	—
16.	28	-	—	—	—
17.	29	—	0.28	—	0.28
18.	31	54.63	—	—	54.63
19.	36	—	0.40	0.01	0.41
20.	total	924.07	1.92	4.88	930.87

4.3.46. Labour payments by the sector as a whole are estimated rather indirectly. For service and non-service animals, the number of servicing labour days per animal per year are obtained by analysing some 2.1 schedules of NSS 6th Round. The bullock and the cow are taken to represent service animals and non-service animals respectively. It is found that on the average about 230 servicing mandays are required per bullock per year and, on the average, 325 servicing mandays are required per cow per annum. In a similar manner, it was found that the charges per labour day is about Rs. 0.26 in both cases.

4.3.47. Observing that not all servicing labour days are hired and further that we are leaving out animals like sheep, pigs and goats, (which require some amount of servicing), we finally assume that about 20 per cent of the amount involved will be in the form of paid wages. It may be recalled in this connection that according to the Report on the Indian Livestock Census, 1951, the proportion of employees to the total number of persons engaged in animal husbandry comes to about 20 per cent.

4.3.48. The next step is to estimate the total number of animals in the service and non-service categories separately. For this purpose, we make use of statistics of number of livestock available from the Reports on Indian Livestock Censuses relating to the years 1951 and 1956. A projection of the number of animals is made for 1953 by simple interpolation, i.e., on the assumption of uniform rate of growth between 1951 and 1956. This gives the estimate of the number of cattle as 157 million with the following breakdowns:

	<i>estimated number in 1953 (million)</i>
1. all cattle	157
males	63
females	50
young-stock	44
2. all buffaloes	44
males	7
females	22
young-stock	15

4.3.49. In order to estimate the number of service and non-service animals, we treat all cows and she-buffaloes as non-

service animals and all bullocks and he-buffaloes as service-animals. As the young-stocks are likely to require less number of servicing mandays, we treat all the young-stock as service animals. We then find that out of a total of 201 million, 129 million are service-animals and 72 million are non-service animals. We thus get the total labour payment in respect of service animals

$$= \text{Rs. } 129 \times 10^6 \times 230 \times 0.26 \times 0.20$$

$$= \text{Rs. } 154.28 \text{ crore.}$$

and the total labour payment in respect of non-service animals

$$= \text{Rs. } 72 \times 10^6 \times 325 \times 0.26 \times 0.20$$

$$= \text{Rs. } 121.68 \text{ crore.}$$

4.3.50. For the "fishery" sector the entire value added is treated as non-wage income. Owing to lack of information, estimation of wage-income does not seem to be possible; it is, however, expected to be very low.

4.3.51. Wage bill for lumbering activity is taken to be equal to the income of the forest department, net of costs (Vide, "Forests in India: 1953-54", Ministry of Food & Agriculture). For the other forest products (i.e. forest products other than timber and firewood), wage-income is subjectively taken as two-thirds of the "value-added". Thus the wage-bill pertaining to "forestry" activity comes to Rs. 65.84 crore.

4.3.52. Taking all three activities together the total wage-income of "animal husbandry, fishery and forestry" is estimated as Rs. 341.28 crore. The share of non-wage income from this sector, therefore, comes to Rs. 849.33 crore, being obtained as a residual from the gross domestic product at factor cost.

SECTION 4

SECTOR 4 : COAL MINING AND COKE MAKING

4.4.0. This activity primarily includes mining of coal in different types of coal mines, namely, underground, open and surface working. In addition, the activity of coke making comes under the purview of the sector. The bulk of the coke is produced at the pit heads of the coal mine by burning coal raised on the spot. Coke is also produced in steel plants and coke-plants. Steel plants produce coke mainly for their internal consumption.

4.4.1. The output of coal during 1953-54 is obtained as an aggregate of monthly figures of raisings from collieries spread over April '53 to March '54, the source of information being "Monthly Coal Bulletins" issued by the Chief Inspector of Mines. Coal raised from collieries comes to a total of 35630 thousand tons. The bulletins further report output of coke in two forms, namely,

	<i>thousand tons</i>
hard coke	.. 2055
soft coke	.. 1676

The total output of coke can be further traced to their different origins as given below:

	<i>thousand tons</i>
hard coke: from collieries	127
from steel plants	.. 1669
from coke plants	.. 259
	2055
soft coke: from collieries	.. 1500
from steel plants	.. 156
from coke plants	.. 20
	1676

4.4.2. Details regarding utilisation of coke can not be obtained separately for hard and soft varieties of coke. Though consumption in industry and households together with exports can be made available for hard and soft coke separately, internal consumption of coke in steel plants does not distinguish the two varieties. A broad picture of production and utilisation of coke can be obtained in the following form, where change in inventory of coke is derived as a residual. Thus:

		<i>thousand tons</i>
A.	production of coke ..	3731
	hard coke	2055
	soft coke	1676
B.	utilisation of coke ..	3731
	consumption in industry, households and export--	
	hard coke	129
	soft coke	1483
	internal consumption of coke	
	in steel plants	1723
	inventory formation	396

4.4.3. Utilisation picture of coal is similarly built up leading to an estimated residual in the shape of addition to previous year's stock.

		<i>thousand tons</i>
A.	coal raised during (1953-54) ..	35630
B.	consumption in industry and households and exports	30243
	coal used in collieries for making soft and hard coke	2419
	internal consumption of coal by collieries	2765
	change in inventory of coal	203
	total utilisation of coal	35630

4.4.4. Report of the Chief Inspector of Mines (1953, 1954) revealed that average pit-head price of coal is Rs. 16.2 per ton*. At this price, the total value of coal raised is Rs. 57.72 crore. Prices of hard and soft coke are determined from SSMI schedules (1953) dealing with coke-plants. Producer's prices of hard and soft coke are determined as Rs. 34.453 and Rs. 21.749 per ton respectively. Thus values of hard and soft coke come to Rs. 7.08 crores and Rs. 3.64 crores respectively.

4.4.5. Bye-products of coke-plants are valued at Rs. 1.51 crore. Quantities of bye-products are first compiled from monthly figures reported in "Monthly Coal Bulletins". Producers' prices for the items are taken from SSMI schedules in respect of the year 1953.

TABLE (4.4.1): QUANTITY AND VALUE OF BYE-PRODUCTS OF COKE-PLANTS

srl. no.	bye-products	unit	quantity	price Rs. per unit	value (Rs. lakhs)
(1)	(2)	(3)	(4)	(5)	(6)
1.	coal tar	ton	65936	68.08	44.89
2.	pitch	„	953	225.33	2.15
3.	ammonium sulphate	„	8833	279.23	24.66
4.	sulphuric acid	„	11028	247.90	27.34
5.	naphthaline	lb.	205394	0.48	0.99
6.	benzol	gal.	1183732	3.89	46.05
7.	creosote oil	„	166200	3.08	5.12
8.	all items	—	—	—	151.20

* It may be noted that from the returns of Geological Survey of India average pit-head price of coal comes to about Rs. 14.67 per ton. For our purposes we have used the Report of the Chief Inspector of Mines and almost all estimates derived in this section are obtained from the same source.

4.4.6. On aggregation we have Rs. 69.95 crore as the total value of output of the sector. This value at the same time happens to be value of output at market prices since commodity taxes on coal and coke are reported to be nil (vide Chapter Three on "Commodity Taxes").

TABLE (4.4.2) : TOTAL VALUE OF OUTPUT
OF THE SECTOR (RUPEES CRORE)

srl. no.	items	value (Rs. crore)
(1)	(2)	(3)
1.	coal	57.72
2.	coke	10.72
	hard coke	7.08
	soft coke	3.64
		--
3.	bye-products of coke making	1.51
4.	total value of output of the sector	69.95

4.4.7. Analysis of inputs is taken up separately for coal mining and coke making. Internal consumption of coal by collieries as well as by coke and steam plants for making soft and hard coke is placed at Rs. 3.66 crore. It may be noted that though coal is evaluated at the average ex-pit price of Rs. 16.2 per ton, the price corresponding to internal consumption of coal is much less than the average. This can, however, be normally expected.

4.4.8. As regards other inputs of coal mining, reference is first made to the report of the 'Indian Coal Fields Committee'. The procedure is more or less similar to that adopted for "Inter-industry table (1951-52)" with, however, some minor adjustments. The breakdown of costs of raising coal is available in the form of rupees per ton of coal raised. The adjusted figures are accepted as follows:

		<i>Rs. per ton of coal raised</i>
stores	..	1.125
paper, printing, stationery, etc.	..	0.035
repair and maintenance	..	0.375

Outlay against repair and maintenance of capital is almost taken to be equivalent to the depreciation provision. Cost of paper, printing, stationery, etc. is not found separately noted and the estimate of Rs. 0.25 per ton is inclusive of office rent, etc. The estimates of Rs. 0.035 per ton against this item is arbitrarily obtained as exclusive of office rent, etc.

4.4.9. Thus costs (other than that of coal consumed internally) of coal mining corresponding to a total raising of 35630 thousand tons are estimated as:

	<i>Rs. crore</i>
stores	4.01
paper, printing, stationery, etc.	0.12
repair and maintenance	1.34
	<hr/>
total	5.47
	<hr/>

4.4.10. Further splitting of outlays on stores and materials used for repair and maintenance have to be partly based on a detailed analysis of imports. Imported explosives, tools and implements for cutting coal, etc. are obtained from the detailed list of imports. Reference is also made to some schedules returned under code 63 of the SSMI (reference period, 1953) which dealt with activities that combined coke-making in coke plants and coal mining. Outlays on electricity, fuel, oils, timber for stowing, etc. are thus guessed.

4.4.11. Estimation of costs of coke making is rather easy since information can be conveniently based on a few schedules returned under code 63 of the SSMI (1953). The information based on this sample is arranged so as to yield outlays against the various inputs per unit of gross value of output. These outlays per unit value of output are multiplied by the value of coke (i.e. Rs. 12.23 crore) to arrive at the following estimated breakdowns:

<i>items of inputs</i>		<i>cost in rupees per unit value of output</i>	<i>cost in rupees lakhs</i>
basic materials:			
sulphur	..	0.0366	44.79
lead	..	0.0004	0.49
resin	..	0.0030	4.89
fireclay	..	0.0030	3.67
castor oil	..	0.0070	8.57
others	..	0.0006	0.73
chemicals:			
creosote oil	..	0.0003	0.37
sodium nitrate	..	0.0030	3.67
soda ash	..	0.0004	0.49
caustic soda	..	0.0019	2.32
others	..	0.0062	7.59
packing materials:			
asbestos	..	0.0575	70.36
gunny bags	..	0.0022	2.69
drums	..	0.0001	0.12
consumable stores:	..	0.0780	95.45
fuel and power:			
petroleum	..	0.0006	0.73
lubricating and fuel oil	..	0.0036	4.40
other fuel	..	0.0201	24.60
electricity	..	0.0214	26.19
water	..	0.0031	3.79
repair and maintenance of:		-	
buildings and equipment	..	0.0049	6.00
transport, etc.	..	0.0041	5.02
total outlay			316.93

4.4.12. Reference to section 12 of Chapter Four to follow reveals that Rs. 0.25 crore is the estimate of earnings of the sector 30 (i.e., banks, insurance and co-operatives) from the sector 'coal mining'. This amount, therefore, forms a payment made by sector 4 to sector 30.

4.4.13. Thus the aggregate outlay on materials required as inputs of the sector 'coal mining and coke-making' may be obtained as:

TABLE (4.4.3) : TOTAL COST OF MATERIALS
AND SERVICES OF THE SECTOR

srl. no.		cost (Rs. crore)
(1)	(2)	(3)
1.	coal used for coke-making and for internal consumption of collieries ..	3.66
2.	other inputs of coke-making	3.17
3.	other inputs of coal-mining	5.47
4.	bank charges	0.25
5.	total cost of materials	12.55

4.4.14. The inputs are allocated to the sectors from which they have conceivably been derived. Distributive margins are applied to items like machine tools and implements, timber, and unspecified large scale goods to arrive at the net entries finally shown in column 4 of the inter-industry table. The gross entries are given in Table (4.4.4).

TABLE (4.4.4) : ALLOCATION OF COSTS OF MATERIALS AND SERVICES BY DELIVERING SECTORS

srl. no.	sectors delivering inputs	sector codes	gross deliveries (Rs. crore)
(1)	(2)	(3)	(4)
1.	animal husbandry, etc.	3	0.66
2.	coal mining & coke making	4	3.66
3.	other mining	5	1.59
4.	engineering	8	2.35
5.	chemicals, etc.	9	1.00
6.	food, drink, tobacco, etc.	12	0.08
7.	jute and other fibre	15	0.03
8.	paper & printing, etc.	18	0.09
9.	electricity	19	1.22
10.	bank, insurance, etc.	30	0.25
11.	public administration	34	0.03
12.	defence materials	35	0.57
13.	unclassified large scale	36	1.02
14.	total		12.55

4.4.15. Wage-bill is calculated in the following way. Average number of persons including men, women and children working in the various mines is obtained for each month from the monthly coal bulletins. Corresponding average weekly earnings are also available. Thus average weekly wage-bill (over April '53 to March '54) is obtained. The following statement gives the necessary details:

<i>month</i>		<i>average number of persons (000)</i>	<i>wage rate (Rs.)</i>	<i>weekly wage-bill (Rs. 10⁵)</i>
April '53	..	346	12.08	41.80
May '53	..	349	11.97	41.77
June '53	..	329	11.06	36.39
July '53	..	310	11.48	35.59
August '53	..	236	11.52	27.19
September '53	..	347	11.71	40.63
October '53	..	342	11.81	40.39
November '53	..	317	11.66	36.96
December '53	..	325	11.97	38.90
January '54	..	334	12.01	40.11
February '54	..	353	12.01	42.39
March '54	..	327	12.22	39.96
total	..			462.08

4.4.16. The annual wage payment is derived as:

$$\text{Rs. } \frac{462.08 \times 52}{12} \text{ lakhs} = \text{Rs. 20.02 crore.}$$

It should be noted that the wage-bill of Rs. 20.02 crore, derived as above, includes a part of payments to labourers engaged in coke-making carried along with the coal mining activity in the collieries.

4.4.17. Wage-bill corresponding to coke-making activity is obtained almost similarly as other input items stated in 4.4.11.

The few schedules of coke-plants already referred to indicated 0.3192 as the ratio of wages and salaries to the value of coke produced. Using this proportion the wage-bill is obtained as Rs. 3.90 crore. But this estimate is adjusted in view of the fact that a portion of this amount has already been included in the estimate of Rs. 20.02 crore mentioned in 4.4.16.

Accordingly, an arbitrary extra amount of Rs. 1.68 crore is added to the estimate of Rs. 20.02 crore to take account of

the adjustment stated above. Thus the final estimate of wage-bill for the entire sector is placed at Rs. 21.70 crore.

4.4.18. Reference to the chapter on "Commodity Taxes" will reveal that commodity taxes are not charged on the final products of this sector. Hence gross domestic product at factor cost is identical with gross domestic product at market prices. The following statement gives a brief summary of "gross value added at factor cost", "wage income", and "operating surplus" in the shape of non-wage income.

	<i>Rs. crore</i>
gross value of output at supply prices ..	69.95
less value of material inputs ..	12.55
 gross value added at factor cost ..	 57.40
less wage-bill ..	21.70
 non-wage income ..	 35.70

SECTION 5

SECTOR 5 : "OTHER MINING"

(Excluding Coal and Salt)

4.5.0. The scope of this sector extends to include all mining activities other than coal and salt. It has been already mentioned that coal mining and coke making form a separate sector. Salt is also left out of this sector and is included under "large scale food" industry (sector 12). Petroleum mining and refining, however, is taken out of large scale manufacturing sectors and is included under "other mining". To mention a few important ones, the following items form the outputs of this sector: limestone, sand, clay, manganese ore, iron ore, copper ore, marble, mica, gold, gypsum, building materials, etc. Since petroleum mining and refining is considered as a joint activity, refined petroleum forms the ultimate product.

4.5.1. The value of output of mineral products excluding coal, salt and petroleum as estimated by CSO for national income purposes is found to be Rs. 51.01 crore for 1953-54. Reference to "Statistical Abstract", a publication of the same authority, reveals that value of output of minerals and products other than coal, salt and petroleum is Rs. 41.42 crore. The gap between the estimates put forward by the two sources is almost explained by noting that (a) an additional amount of Rs. 5.47 crore of building materials has been taken into account by the CSO, and (b) the quantity of mica raised has been adjusted upward with the help of export statistics for the purpose of national income estimation; the value of mica estimated for this purpose being Rs. 1.61 crore in excess of the value presented in the "Statistical Abstract".

4.5.2. For our purposes we have tried to estimate value of output of this sector (except gold, building materials and petroleum products) from the utilisation end, i.e. by adding inter-industrial uses and final demands including exports (all at

ex-factory value) and subtracting imports (c.i.f.) therefrom. The inter-industrial absorptions are first obtained at delivered prices and a deduction of 10 per cent is made to convert the value at supply prices. For exports, a deduction of 30 per cent is arbitrarily made. Thus:

		<i>delivered value (Rs. crore)</i>	<i>value at supply prices (Rs. crore)</i>
inter-industrial and final uses			
excl. export	..	16.06	14.45
add exports	..	40.60	28.42
less imports (c.i.f.)	..	—	4.36
<hr/>			
value of output at supply			
prices	..		38.51

A further addition of Rs. 15.04 crore is made, the components of which are:

- (a) value of gold extracted, namely Rs. 5.07 crore (this is taken from unpublished papers of CSO) and
- (b) value of building materials, ores, marble, limestone, etc. namely Rs. 9.97 crore not formerly traced.

Thus the total of value of output is revised as Rs. 53.55 crore. Further, the value of refined petroleum is obtained from SSMI estimates (reference 1953) and thus an addition of Rs. 7.18 crore finally augments the value of output of the sector to the level of Rs. 60.73 crore.

4.5.3. Commodity taxes (vide Chapter Three on "Commodity taxes") charged on the products of the sector come to Rs. 53.02 crore. Thus:

TABLE (4.5.1) : ESTIMATED VALUE OF OUTPUT
OF THE SECTOR AT MARKET PRICE

srl. no.	items	amount (Rs. crore)
(1)	(2)	(3)
1.	value of output of mineral products other than coal, salt, petroleum, gold and building materials at supply prices	38.51
2.	value of gold extracted	5.07
3.	value of building materials not formerly traced	9.97
4.	value of refined petroleum (ex-plant)	7.18
5.	commodity taxes	53.02
6.	value of output at market prices	113.75

4.5.4. It is worth mentioning here that value of production of minerals in India published by the Ministry of Steel, Mines & Fuel, Indian Bureau of Mines agrees fairly well with our estimates built up independently. The above source reports Rs. 54.18 crore and Rs. 44.39 crore as the total value of production of minerals other than coal, salt and petroleum for 1953 and 1954 respectively. Converted to the financial year 1953-54 the estimate is obtained as Rs. 51.74 crore against our estimate of Rs. 53.55 crore.

4.5.5. On coming to the estimation of material costs of "other mining", we assume arbitrarily a deduction of about 45 per cent and 10 per cent of gross value of output at supply prices as cost of materials for gold mining and other mining respectively. Practically no information on costs of gold mining can be made available and an arbitrary deduction for costs is guessed*. Such assumptions lead to a total Rs. 7.27

* From what follows we may observe that cost of materials as a percentage of gross value of output at supply prices come to 45, 14 and 17 per cent for petroleum mining & refining, other mining and all activities of the sector respectively. Some results published in September 1957 issue of Reserve

crore in the shape of costs of materials and services required for current operations for the sector as a whole excluding, however, the activity of petroleum mining and refining.

4.5.6. The costs of petroleum mining and refining are obtained from SSMI estimates as Rs. 3.25 crore. Thus we arrive at the following summary:

	<i>petroleum mining and refining (Rs. crore)</i>	<i>other mining (Rs. crore)</i>	<i>all activities of the sector (Rs. crore)</i>
value of output at			
supply prices .	7.18	53.55	60.73
material costs .	3.25	7.27	10.52
gross domestic product			
at factor cost ..	3.93	46.28	50.21

4.5.7. Analysis of costs for petroleum mining and refining is separately taken up and the breakdowns of estimated costs are available from the SSMI. Same principles, as in the case of other large scale industries, are followed with regard to allocation of costs to the various sectors.

4.5.8. Breakdowns of costs of mining activities other than petroleum mining & refining covered by the sector are obtained with reference to some schedules dealing with mica, marble and other stone excavations surveyed under miscellaneous industry code 63 of the SSMI. Percentage distribution of unweighted costs over important groups of items are first obtained and these percentages are used to break-up the total

Bank of India Bulletin and based on the balance sheets of only 6 companies relating to mining and quarrying establishments (other than coal mining) reveal that cost of materials come to 25 per cent of the gross value of output. The nature of activities of the companies, however, is not known. On the other hand, a detailed study was made by Sri B. Dey of the Planning Division of I.S.I. on cost of all non-coal minerals (vide Working Paper No. 148 mimeographed under "Study Relating to Planning for National Development" series) which shows an estimate of 13.66 per cent of gross value of output as cost of mining other than coal.

outlay of Rs. 7.27 crore (vide para 4.5.5). The following estimates are obtained:

		<i>percentage distribution of costs</i>	<i>estimated outlay (Rs. lakh)</i>
consumable stores (other than chemicals, packing materials and fuels)	..	30.734	223.45
chemicals	..	1.501	10.91
packing materials:			
gunny bags	..	11.323	82.32
wooden boxes & others	..	35.753	259.92
grass	..	0.050	0.36
string	..	0.321	2.33
fuel and lubricants:			
charcoal	..	0.013	0.09
fuel oil	..	20.305	147.62
total cost	..	100.000	727.00

Outlay on "Consumable stores" is further split up. Availability of imported goods, namely, parts of mining machinery, explosives, wires and wire-ropes, parts of electrical machinery, etc. that are considered chargeable as current inputs of mining activities (other than coal), are obtained at delivered values.

4.5.9. We thus arrive at the final breakdown of costs in respect of mining other than coal and petroleum, as shown below:

<i>items of cost</i>	<i>amount (Rs. lakh)</i>
explosives	85.18
chemicals (other than explosives)	0.41
gunny bags	82.32
wooden boxes	100.92
grass for packing	0.36
strings for packing	2.33

<i>items of cost</i>	<i>amount</i> <i>Rs. lakhs</i>
fuel oils ..	147.62
electricity ..	44.63
parts of machinery and other materials for repair, maintenance, etc. (charged to current account)	
(a) mining and excavating machinery	94.90
(b) wagons ..	28.00
(c) wire ropes, pumps, etc. ..	54.02
(d) electrical machinery ..	52.99
unallocated ..	33.32
total outlay ..	<u>727.00</u>

4.5.10. The distribution of earnings of the sector 'banks, insurance and co-operatives' enables us to estimate Rs. 0.33 crore as the receipts of sector 30 from the sector 'other mining'. This amount is, accordingly, shown in column 5 against row 30.

4.5.11. On combining the costs of petroleum mining and refining, the analysis of costs with important breakdowns for the entire sector is obtained. These are, in the first instance, allocated to the various sectors—a particular cost item being allocated to a sector which produces the same.

4.5.12. The next step consists in deducting appropriate trade and transport margins from the gross entries. Intra-sector transactions are not subjected to margin deduction, since such transactions are not usually organised by professional distributors. Margins are not deducted also from small entries. The gross entries (before deduction of trade margins) can be arranged according to delivering sectors, as shown below:

TABLE (4.5.2) : DISTRIBUTION OF COST INCLUSIVE OF
TRADE AND TRANSPORT MARGINS BY DELIVER-
ING SECTORS IN RUPEES CRORE

srl. no.	delivering sectors	sector code	gross deliveries (Rs. crore)
(1)	(2)	(3)	(4)
1.	animal husbandry, etc.	3	0.19
2.	other mining	5	4.19
3.	iron and steel	6	0.21
4.	engineering	8	2.31
5.	chemicals	9	0.08
6.	jute and other fibre	15	0.85
7.	electricity	19	0.46
8.	small scale building material, etc.	21	1.01
9.	bank, insurance, etc.	30	0.33
10.	public administration	34	0.04
11.	defence materials	35	0.85
12.	unclassified large scale	36	0.33
13.	total		10.85

4.5.13. Estimation of wage-bill is attempted from the SSMI schedules referred to in para 4.5.8. All the schedules consulted for the analysis of costs, however, do not report value of output of minerals raised. Hence the ratio of wage payment to value of gross output is built up from only those schedules that report both wage-bill and gross value of output of the mining enterprises.

4.5.14. The wage-bill corresponding to petroleum mining and refining is estimated at Rs. 0.60 crore by the SSMI. The ratio of wage payment to gross output is found as 0.17408 and this being multiplied by Rs. 53.55 crore yields Rs. 9.32 crore as the estimate of wage-bill for the remaining activities. Thus, the total wage-bill for the entire sector comes to Rs. 9.92 crores.

4.5.15. On pooling the estimates, the gross value added at factor cost and operating surplus in the hands of mining entrepreneurs (as equated to the non-wage income of the sector), are obtained as:

	<i>Rs. 10⁷</i>
(a) gross value of output without tax	60.73
(b) <i>less</i> value of material inputs . .	10.85
	<hr/>
(c) gross value added at factor cost .	49.88
(d) <i>less</i> wages and salaries . .	9.92
 (e) non-wage income	 39.96

SECTION 6

SECTORS 6-18 : LARGE SCALE MANUFACTURES

(Other than Sector 19: Electricity and Sector 36: Unclassified)

4.6.0. This section is devoted to all kinds of manufactures organised by "large scale units". By "large scale manufacturing units" we mean and include those production units that are registered under 2m(i) or zone 1, and 2m(ii) or zone 2 of the Factories Act of 1948. To be a little more elaborate, inclusion under this Act is justified when the establishments use power and employ 10 or more persons or do not use power and employ 20 or more persons on any working day.

4.6.1. The scope of large scale industries as defined above is primarily in line with the "Sample Survey of Manufacturing Industries" (SSMI). Besides zone 1 and zone 2, the survey, however, includes some other establishments about which the information about either use of power or number of workers engaged is not available. Such establishments are usually classed under zone 3 and are found to be rather small in size compared to those falling under zone 1. NSS prepares separate estimates for zone 2 and zone 3 establishments. It is desirable to note that this procedure of distinguishing large scale units of production from small scale ones is identical with that adopted for national income estimation by CSO. This is rendered so because of the fact that the scope and coverage of the large scale manufacturing sector happens to be exactly same in the cases of both inter-industry studies and national income estimation.

4.6.2. Estimates of values of output and cost of materials, etc. for various industries constitute the subject matter of a separate publication, viz. the Report on Sample Survey of Manufacturing Industries. The statistics relate to the calendar year 1953 and no adjustment for the fiscal year 1953-54 is made. The ideal situation will, of course, lie in applying weights $3/4$

and 1/4 to estimates of 1953 and 1954 respectively. But in practice this was not done chiefly because SSMI data for the reference year 1954 did not undergo even the primary stages of tabulation at the time when the inter-industry table was constructed. Moreover, only sub-sample 1 estimates in respect of the reference year 1953 are being systematized to serve our requirements.

4.6.3. Census of Manufacturing Industries (CMI) constitutes another important source which publishes statistics on manufacturing industries. This is essentially a census and publishes figures in respect of 29 industries based on complete enumeration of units, and accordingly gives more details of outputs compared to parallel industries reported through SSMI. For the present studies, however, we have used only SSMI data, the chief reasons for such a treatment being that—

(a) SSMI covers all industries whereas CMI covers only 29 industries;

(b) SSMI distinguished 62 classified industries and one unclassified industry, whereas CMI classifies only 29 industries;

(c) access to the SSMI schedules relating to 1953 makes it possible to analyse the inputs in considerable detail, which is not possible for CMI;

(d) though census estimates should be in general more reliable than Sample Survey estimates, it is observed that values of products for comparable major industries agree reasonably well in the two cases.

4.6.4. SSMI distinguishes firms in various industry groups suitably coded from 1 to 63. However, the well defined industry groups fall within codes 1 to 62 and plants which can not be classified into one or other of these SSMI codes have been recorded under code 63. However, for the purpose of this analysis a further attempt is made to reclassify industries that fall within code 63 of the SSMI.

4.6.5. To meet the requirements of the inter-industry sector classification scheme all the industry codes are grouped under sector codes 6 to 19. In other words, the inter-industry table is intended to distinguish 14 groups or sectors of large scale industries. While many alternative principles can be laid

down for aggregating manufacturing activities, the following two are the chief criteria adhered to as far as practicable:

- i) homogeneity of products produced by the activities to be aggregated; and
- ii) similarity of input structures between industries within a sector.

In fact, primary consideration was given to the first criterion and adjustments in the composition are made, wherever possible, depending on the second.

4.6.6. The following statement is compiled in order to show how the industries (with SSMI codes) have been aggregated under different sector codes with abbreviated names. It is important to note that estimates in respect of "electricity generation and transmission" (sector 19) are not taken from the SSMI. Statistics from "Public Electricity Supply" are analysed instead. These will be dealt with in Section 7 of this chapter devoted to Sector 19.

<i>sector codes with short names</i>		<i>industries (with SSMI codes) aggregated</i>
6. iron and steel	(23-A)	iron and steel, primary products
	(23-B)	iron and steel, secondary products
7. non-ferrous metal	(22-A)	aluminium, copper, brass: primary products.
	(22-B)	aluminium, copper, brass: secondary products.
8. engineering	(24)	bicycles
	(25)	sewing machines
	(27)	electric lamps
	(28)	electric fans
	(29)	general engineering and electricity (unspecified)
	(29-A)	-do- repairing
	(29-B)	-do- manufacturing
	(56)	automobile and coach building
	(57)	ship building and repairing
	(60)	air-craft, assembling and repair
	(62)	textile machinery and accessories

<i>sector codes with short names</i>	<i>industries (with SSMI codes) aggregated</i>
9. chemicals, etc. (07)	starch
(09)	paints and varnishes
(10)	soap and glycerine
(21)	chemicals
(36)	lac
(37)	turpentine and rosin
(38)	plastics (including gramophone records)
10. cement, etc. (12)	cement
(33)	cement and concrete products
(34)	asbestos and asbestos cement
11. other building (15)	plywood and tea-chests
materials and (17)	matches and veneers
wood manu- (35)	bricks, tiles, lime, surki, etc.
facture (40)	saw milling
(41)	wood-ware (including furniture)
12. food, drink, (01)	wheat flour
tobacco, oil, (02)	rice milling
etc. (03)	biscuit making
(04)	fruits and vegetables processing
(05-A)	sugar: vacuum pan factory
(05-B)	sugar: refineries
(05-C)	gur factories
(06)	distilleries and breweries
(08)	vegetable oil: unclassified
(08-A)	vegetable oil: hydrogenated
(42)	tea-manufacturing
(43)	tobacco-products
(44)	groundnut decortication
13. cotton (18-A)	cotton textiles: spinning mills
textiles (18)	cotton textiles: unclassified
(18-B)	composite mills
(18-C)	cotton textiles: power-loom
(48)	thread and thread balls
(49)	textiles: dyeing and bleaching
(51)	cotton ginning and pressing

<i>sector codes with short names</i>		<i>industries (with SSMI codes) aggregated</i>
14. other textiles	(19)	woollen textiles
	(46)	webbing narrow fabrics
	(47)	hosiery and knitted goods
	(50)	clothing and tailoring
	(53)	silk and artificial silk
15. jute and	(20)	jute textiles
other fibre	(52)	rope making
	(54)	jute pressing
16. glass and	(13)	glass and glassware
ceramics	(14)	ceramics
	(32)	enamel ware
17. leather and	(11)	tanning
rubber	(30)	footwear and leather
	(31)	rubber and rubber-manufacture
18. paper, print-	(16)	paper and paper-board
ing and	(45)	printing and book-binding
stationery		
19. electricity		
generation and		
transmission		not from SSMI.

4.6.7. It can be seen from above that industry code 39 has been left out from the SSMI list. This industry relates to "petroleum refining and canning". For the purpose of our inter-industry analysis this activity of oil refining has been included under the sector "other mining", i.e. mining other than coal.

4.6.8. Industries and plants that do not fall under SSMI codes 01 to 62 are found grouped under code 63. A further scrutiny and classification of plants falling under this group is necessitated by the fact that our sectors 6 to 18 of large scale industries are supposed to cover all sorts of large scale manufacturing activities. Accordingly all firms coming under sub-sample 1 of industry code 63 are picked out and reclassified in conformity with the sectors or groups of industries. However, even this attempt does not ensure a complete reclassification of firms belonging to SSMI code 63. This is mainly due

to the presence of some entirely different types of enterprises. Moreover, some enterprises are found to be completely of a mixed nature and their products can not be identified as products of any defined group of industries.

4.6.9. The above issue almost leads to the justification of the existence of the sector number 36, i.e. "unclassified:large scale". As explained above, we are forced to regard some enterprises as completely separate from those belonging to any sector or group of industries. These constitute sector number 36 and the outputs and inputs of sector 36 are made up as follows. SSMI estimates do not furnish sufficient information as to delivering sectors from which a certain amount of inputs are supplied and these inputs are shown as unclassified. These "unclassified" inputs, however, exist in three breakdowns, namely, (i) unclassified basic materials, (ii) unclassified packing materials, and (iii) unclassified chemicals. From a detailed discussion on allocation of inputs, that will follow a little later, it will be possible to know how these unclassified items are dealt with. At present, it will suffice to note that a part of the unclassified items can be reallocated partly on considerations of availability of products and partly depending on the magnitudes of unclassified items. The important point is to take separate note of the unclassified items that still stand apart and can not be re-allocated. This constitutes the total product of sector 36 and the value of output is approximately Rs. 25 crores.

4.6.10. From the procedure laid down above, it is easy to see that the row corresponding to sector number 36 gets automatically constructed. This means that corresponding to a particular absorbing sector, given by the column, the unclassified items left over after re-allocation are inserted along row 36 down the same column. However, the "unclassified" part of exports (ex-factory with duty), imports (c.i.f.) and capital outlays are determined more or less arbitrarily.

4.6.11. On coming to column 36, we confront the problem of constructing inputs for the unclassified sector. As already noted, this involves separate estimation of inputs (by using multipliers) from the schedules belonging to SSMI code 63, that are completely distinct in respect of the nature of enterprises

and can not be re-allocated to any of the sectors 6 to 18. Looking from another angle, the "unclassified: large-scale" sector is a residual group of large scale manufacturing activities that can not be operationally included under any of the defined sectors 6 to 18.

4.6.12. The value of output of a sector reckoned at market-price is expressed as a sum-total of (i) physical products, bye-products and subsidiary products valued at ex-factory prices, (ii) commodity taxes (i.e. import duties, export duties, sales taxes and other duties), and (iii) gross earnings from work done for other concerns. We propose to deal with earnings from industrial servicing (in fact, value of work done regarded both as inflow and outflow) in details in paragraphs to follow. We have already dealt with commodity taxes in Chapter 3.

4.6.13 Table (4.6.1) is prepared to show the load of commodity taxes on each sector as well as value of outputs including

TABLE (4.6.1) : VALUE OF OUTPUTS WITH AND WITHOUT TAXES FOR THE DIFFERENT SECTORS (IN RUPEES CRORE)
(BASED ON ALL FACTORIES—POWER USING AND NON-POWER USING)

code	sector description	output at market prices	commodity taxes	output at ex-factory prices
(1)	(2)	(3)	(4)	(5)
6.	iron and steel	109.64	3.93	105.71
7.	non-ferrous metals	30.28	3.47	26.81
8.	engineering	162.00	37.79	124.21
9.	chemicals, etc.	185.56	26.08	159.48
10.	cement, etc.	28.46	1.37	27.09
11.	other building materials and wood	60.30	9.62	50.68
12.	food, drink, tobacco, etc.	762.25	94.58	667.67
13.	cotton textiles	564.91	51.29	513.62
14.	other textiles	62.91	8.44	54.47
15.	jute and other fibre	143.14	13.20	129.94
16.	glass and ceramics	20.01	1.99	18.02
17.	leather and rubber	55.89	6.66	49.23
18.	paper, printing and stationery	67.48	6.40	61.08

earnings from industrial servicing. It is worth noting that the value of outputs in some of the sectors included a counterpart from SSMI code 63, as mentioned in para 4.6.8.

4.6.14. In Table (4.6.2) below we present the contribution to the value of output of a sector by earnings from industrial servicing. For this we have analysed the zone 1, i.e. power using factories only. It can be seen that the total contribution of gross earnings from industrial servicing just exceed 3 per cent

TABLE (4.6.2) : VALUE OF WORK DONE FOR OTHER CONCERNS
AS PERCENTAGE OF TOTAL EARNINGS (BASED ON POWER
USING FACTORIES ONLY)

sector code	sector description	value of work done (Rs. crore)	total earnings (Rs. crore)	percentage of value of work done to total earning
(1)	(2)	(3)	(4)	(5)
6.	iron and steel	1.41	105.71	1.33
7.	non-ferrous metals	0.43	25.98	1.66
8.	engineering	25.94	124.21	20.88
9.	chemicals, etc.	0.26	159.48	0.16
10.	cement, etc.	0.06	27.09	0.22
11.	other building materials and wood	1.08	25.53	4.23
12.	food, drink, tobacco, etc.	3.92	573.69	0.68
13.	cotton textiles	15.83	499.27	3.17
14.	other textiles	0.74	54.47	1.36
15.	jute and other fibre	0.52	129.94	0.40
16.	glass and ceramics	0.08	16.34	0.49
17.	leather and rubber	0.14	40.61	0.34
18.	paper, printing and stationery	10.94	61.08	17.91
total		61.35	1843.40	3.33

Note: Differences between the figures in column 5 of Table (4.6.1) and column 4 of Table (4.6.2) against some of the sectors are due to the fact that Table (4.6.2) does not include non-power using factories.

of the total earnings of all large scale industries. Two of the sectors namely "engineering" and "paper, printing and stationery" need a special mention where earnings from industrial servicing are of the order of 21 per cent and 18 per cent respectively of the total earnings. In all other sectors the contributions do not exceed 5 per cent of the total gross earnings. However, the counterpart of earnings from industrial servicing corresponding to these additional outputs from industry code 63, has not been taken account of due to estimational difficulties. But these obviously affect the results very insignificantly.

4.6.15. The problem of product-mix is one among the various problems which are inherent in grouping of products of the various industries. Since various combination of inputs invariably leads to a combination of outputs, it is almost impossible to conceive of a firm or processing unit which produces a single homogenous product. What actually happens is that a firm absorbs various inputs, processes them to manufacture a composite basket of goods. One can imagine a composite *basket-unit* of products in which different products are present in a definite proportion. This logic can be extended to industries (defined as groups of firms) as well as to sectors (defined as groups of industries).

4.6.16. To get an idea of the intensity of product-mix of the various sectors, it may be of interest to assess, in a hypothetical set-up, how much of a particular sector's product can be identified as primary products of other sectors. In other words, by constructing mutually exclusive sets of primary products for the different sectors, it may be possible to identify products actually produced in a sector as primary products of its own and other sectors. The total value of output of each sector (excluding earnings from work done) is accordingly distributed over different sectors and a table (*vide* Table 4.6.3) showing percentages is prepared to get an idea of the intensity of product-mix of the different sectors. The present reckoning, however, suffers from a major drawback, namely, details about unclassified products cannot be made available and hence a certain percentage of the total value of output escapes classification. It is worthwhile to note, in this context, that such attempts are immensely helpful in problems of aggregation and especially

TABLE (4.6.3) : INTENSITY OF PRODUCT-MIX IN MANUFACTURING INDUSTRIES : 1953-54
(based on power using factories only)

producing sectors	percentage of values of outputs when identified as primary products of sector																total value of output (excluding services)
	6	7	8	9	10	11	12	13	14	15	16	17	18	(15)	(16)	(17)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
6. iron and steel		78.42	10.92	—	0.53	—	—	—	—	—	—	—	—	—	10.13	100.00	
7. non-ferrous metals		—	86.93	—	0.98	—	—	—	—	—	—	—	—	—	12.09	100.00	
8. engineering		—	—	75.59	5.53	—	—	—	—	—	—	—	—	—	18.88	100.00	
9. chemicals, etc.		—	—	—	91.53	—	0.50	—	—	—	—	—	—	0.43	7.34	100.00	
10. cement, etc.		—	—	—	—	89.40	6.12	—	—	—	—	—	—	—	4.48	100.00	
11. other building materials and wood manufacture		—	—	—	—	—	97.69	—	—	—	—	—	—	—	2.31	100.00	
12. food, drink, tobacco, etc.		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
13. cotton textiles		—	0.01	—	0.25	—	—	98.00	0.14	—	—	—	—	—	1.60	100.00	
14. other textiles		—	—	—	0.03	—	—	0.17	92.65	3.79	—	—	—	—	3.36	100.00	
15. jute and other fibre		—	—	—	—	—	—	—	3.87	92.71	—	—	—	—	3.42	100.00	
16. glass and ceramics		—	—	—	—	—	—	0.34	—	99.17	—	—	—	—	0.49	100.00	
17. leather and rubber		—	—	—	1.41	0.06	—	—	—	—	92.01	—	—	—	6.52	100.00	
18. paper, printing and stationery		—	—	—	0.17	—	—	—	—	0.05	—	—	89.70	—	10.08	100.00	
		—	—	—	—	—	—	—	—	—	—	—	—	86.57	13.43	100.00	

in forming sectors (as groups of industries) with minimum possible product-mix.

4.6.17. As can be well imagined, the compilation of a list of primary products for each of the sectors with corresponding values of output have to be given a top priority before we can proceed to analyse the inputs. The inter-industry table is constructed by filling up the columns one by one or in other words, the outlays on the various inputs made by a particular sector (or column) are analysed so as to trace the origin (or row) from which the inputs are supplied. Now, this can be done only when one knows what are the primary items produced by each sector. Over and above, the values of output of such items enable one to get a rough idea of how much worth of goods (at ex-factory prices) is available for meeting inter-industrial and final demands.

4.6.18. In Table (4.6.4) a sector-wise statement showing values of outputs for important products within a sector has been presented. The values of products and by-products have been shown at ex-factory price. The earning from industrial servicing has also been separately recorded for each sector. It is important to note in this connection that the estimates furnished by the SSMI do not relate to items of products and by-products in such details as shown here. The estimates presented in Table (4.6.4) have been alternatively derived by using unweighted proportions of values of itemised outputs obtained from the original schedules returned under the survey. The SSMI does not distinguish more than one or two important products within each industry. For less important items unweighted proportions (as mentioned above) are used. However, controls are kept on the estimated "totals" of value of outputs obtained from the SSMI for less important items grouped together. The estimates, therefore, may be regarded as somewhat crude and approximate. Moreover, even the details available in the schedules do not permit complete classification of outputs and a part of the value is shown against "unclassified" products. Consequently, there may be cases (though, in general, not always true) where even the classified items are not completely accounted for and parts of such items remain merged with the group "unclassified".

4.6.19. A further attempt is also made to compare values of outputs available from the "Report of The Eighth Census of Indian Manufactures: 1953" (CMI) of the Directorate of Industrial Statistics, Ministry of Commerce and Industry. This is obviously not feasible for all items of products and therefore, values for comparable items only have been shown. It is to be borne in mind that such comparisons are not very accurate not only because methods of preparing estimates (depending on scope and coverage) are different, but also due to reasons mentioned in para 4.6.3. above. In addition, the SSMI values of outputs are based on power using factories only and have not been augmented by values reported under zone 2 or not-power using factories. On the other hand, again, the CMI values of outputs are exclusive of products consumed within the factories.

TABLE (4.6.4) : VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNINGS FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) (SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY)

srl. no.	items	SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
<i>sector 6: iron and steel</i>			
1.	castings, pipes, hoops, plates, bars, wheels, etc.	21.65	58.28
2.	other iron and steel products	44.54	
3.	pig iron	7.24	5.54
4.	coke and tar	2.31	
5.	aluminium foils	2.01	
6.	ammonia, ammonium sulphate, sulphuric acid	0.54	0.48
7.	ferro-alloys	0.52	
8.	electricity	0.19	0.34
9.	unclassified products	23.62	
10.	value of work done	1.41	
11.	transferred from "miscellaneous industry code 63"	1.68	
12.	total	105.71	

TABLE (4.6.4) (Contd.): VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNING FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY.

srl. no.	items	SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
<i>sector 7: non-ferrous metals</i>			
1.	aluminium, copper, brass and products	12.91	14.56
2.	refined silver	6.92	
3.	aluminium oxide	0.26	
4.	unclassified products	5.46	5.78
5.	value of work done	0.43	
6.	total	25.98	
<i>sector 8: engineering</i>			
1.	machinery and machine components	17.18	
2.	bicycles and parts	2.96	4.39
3.	structural materials	11.64	
4.	complete vessels and accessories	2.19	
5.	automobiles and other transport equipment	22.01	
6.	fans and accessories	2.50	2.53
7.	lamps of all kinds	1.31	1.32
8.	electric motors	1.15	
9.	sewing machines and parts	0.86	0.94
10.	unclassified products	12.64	
11.	value of work done	25.94	
12.	transferred from "miscellaneous industry code 63"	23.83	
13.	total	124.21	

TABLE (4.6.4) (Contd.) : VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNINGS FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY.

srl. no.	items	SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
<i>sector 9: chemicals, etc.</i>			
1.	soap (including glycerine and fatty acids)	15.34	14.88
2.	fertilisers	9.80	10.41
3.	paints and varnishes	9.37	6.96
4.	sodium compounds	3.89	4.10
5.	lac and plastic goods	3.73	
6.	starch, etc.	2.44	2.23
7.	acid, bleaching powder and alum	1.02	1.05
8.	coal and road tar	0.83	0.93
9.	unclassified chemicals	47.69	
10.	drugs and pharmaceuticals (based on "miscellaneous" industry)	40.21	
11.	batteries (dry and wet) (from outside SSMI)	7.05	
12.	films (from outside SSMI)	5.93	
13.	unclassified others	10.68	
14.	value of work done	0.26	
15.	transferred from "miscellaneous industry code 63"	1.24	
16.	total	159.48	
<i>sector 10: cement, etc.</i>			
1.	portland cement	21.20	24.90
2.	bricks, roofing sheets, pipes, etc.	2.31	
3.	electricity	0.11	
4.	unclassified products	2.06	
5.	value of work done	0.06	
6.	transferred from "miscellaneous industry code 63"	1.35	
7.	total	27.09	

TABLE (4.6.4) (Contd.) : VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNINGS FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY.

srl. no.	items	SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
<i>sector 11: other building materials & wood manufacture</i>			
1.	matches and veneers	7.24	7.04
2.	bricks and tiles	3.87	
3.	sawn logs, furniture and fittings	2.23	
4.	manufactured timber	2.14	
5.	plywood and tea-chests	2.06	2.02
6.	unclassified products	1.54	
7.	value of work done	1.08	
8.	transferred from "miscellaneous industry code 63"	5.37	
9.	total	25.53	
<i>sector 12: food, drink, tobacco, oil, etc.</i>			
1.	vegetable and hydrogenated oil	148.60	106.08
2.	tea and coffee	137.37	
3.	sugar and gur	72.08	71.32
4.	rice	68.11	54.80
5.	tobacco and tobacco products	39.73	
6.	oil cakes	23.36	16.35
7.	husked pulses	19.50	
8.	wheat flour, suji, atta, etc.	18.21	18.96
9.	bread, biscuits, confectioneries, etc.	7.24	5.64
10.	groundnut, cashew kernel, etc.	5.84	
11.	alcohols	3.39	3.12
12.	pollard, bran, husk, shell, etc.	3.29	
13.	soap	1.09	
14.	unclassified products	15.55	
15.	value of work done	3.92	
16.	transferred from "miscellaneous industry code 63"	6.41	
17.	total	573.69	

TABLE (4.6.4) (Contd.) : VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNINGS FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY.

srl. no.	items	SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
<i>sector 13: cotton textiles</i>			
1.	cotton woven goods	325.28	310.70
2.	cotton yarn, waste, etc.	89.80	79.60
3.	kapas ginned and baled	27.63	
4.	hosiery, knitted goods, etc.	5.34	5.95
5.	woollen silk goods, etc.	1.72	
6.	tyre board fabrics	1.66	
7.	unclassified products	32.01	
8.	value of work done	15.83	
9.	total	499.27	
<i>sector 14: other textiles</i>			
1.	woollen and hosiery goods	37.92	
2.	wool, silk and cotton yarn	7.94	
3.	unclassified products	3.11	
4.	rayon and staple fibre (from outside SSMI)	4.76	
5.	value of work done	0.74	
6.	total	54.47	—
<i>sector 15: jute textiles and other fibre</i>			
1.	hessian and sacking (including cotton bagging)	111.59	109.64
2.	rope, yarn, twists, twine, canvas, etc.	3.38	3.93
3.	pressed and baled jute	0.32	
4.	unclassified products	0.69	
5.	value of work done	0.52	
6.	coir and matting (based on miscellaneous industry code 63)	12.28	
7.	transferred from "miscellaneous industry code"	1.16	
8.	total	129.94	—

TABLE (4.6.4) (Contd.) : VALUES OF OUTPUTS (AT EX-FACTORY PRICES) AND EARNINGS FROM INDUSTRIAL SERVICING (WITH COMPARABLE CMI FIGURES) SSMI ESTIMATES BASED ON POWER-USING FACTORIES ONLY.

srl. no.		SSMI estimates (Rs. crore)	comparable CMI figures (Rs. crore)
(1)	(2)	(3)	(4)
	<i>sector 16: glass and ceramics</i>		
1.	bottles, jars, etc.	4.27	2.68
2.	other glass and ceramic wares	6.26	3.96
3.	refractories	2.52	2.73
4.	enamel ware	0.99	
5.	sheet glass	0.92	0.66
6.	unclassified products	1.30	
7.	value of work done	0.08	
8.	total	16.34	
	<i>sector 17: leather and rubber products</i>		
1.	tyres and tubes	15.09	
2.	footwear and shoes	7.75	
3.	leather goods	5.92	
4.	leather and skin (processed)	3.99	
5.	rubber goods (miscellaneous)	2.27	
6.	rubber and latex by-products	1.08	
7.	unclassified others	4.37	
8.	value of work done	0.14	
9.	total	40.61	
	<i>sector 18: paper, printing and stationery</i>		
1.	paper (including exercise books)	15.78	14.99
2.	books, gazettes, maps	9.34	
3.	newspaper, periodicals	6.49	
4.	paper boards	2.47	3.10
5.	pulp, paper cuttings, etc.	0.86	
6.	unclassified products	5.42	
7.	stationery (from outside SSMI)	9.52	
8.	value of work done	10.94	
9.	transferred from "miscellaneous industry code 63"	0.26	
10.	total	61.08	

4.6.20. In the next step, some special adjustments in the value of outputs of some of the sectors are made. Such considerations mainly arise from the fact that some items of large scale manufacture are either found classed under "miscellaneous industry code 63" or are altogether omitted. The adjustments may be summarised as follows:

(a) *sector 9.*

- (i) drugs and pharmaceuticals are estimated from a few schedules found under "miscellaneous industry code 63" using multipliers. The value of output works out to Rs. 40.21 crore and the inputs are accordingly blown up.
- (ii) batteries (both dry and wet) worth Rs. 7.05 crore are partly estimated from "miscellaneous industry code 63" and partly from industry 29B. The outlays consist of a part transferred from industry 29B and a part estimated from miscellaneous industry code 63.
- (iii) the value of output of film producing industry is estimated at Rs. 5.93 crore by noting the footage of films produced. The outlays are estimated from the observed ratios returned under a few schedules found in the miscellaneous industry code 63.

(b) *sector 14.*

- (i) rayon and staple fibre worth Rs. 4.76 crore are estimated from outside SSMI and the inputs of sector 14 are blown up by maintaining the original proportional outlays per unit of output.

(c) *sector 15.*

- (i) coir and matting worth Rs. 12.28 crore are estimated from miscellaneous industry code 63 and the inputs are constructed by blowing up the respective outlays.

(d) *sector 18.*

- (i) stationery worth Rs. 9.52 crore are estimated from a few returns found under miscellaneous industry code 63 and the same is added to the value of output of this sector. The additional outlays corresponding to this value of output are arrived at by blowing up the outlays per unit of output obtained from the same source.

4.6.21. In analysing outlays a general principle is followed in respect of all the large scale manufacturing industries. Hence the main task which we have to face now is to make available estimates of outlays by different manufacturing industries on different sorts of inputs. By following the list of primary products of different sectors, the estimated outlays are next allocated to sectors from which the respective inputs may conceivably have originated.

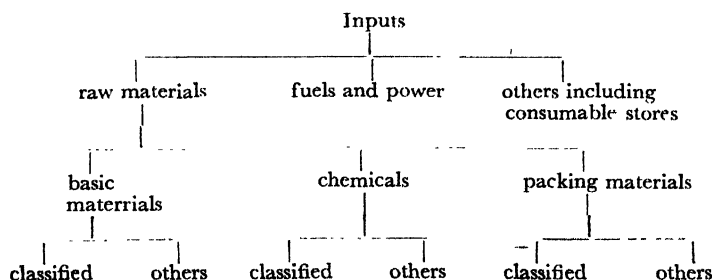
4.6.22. Difficulties have to be faced when inputs escape classification. The schedules distinguish raw materials under the sub-heads (i) basic materials, (ii) chemicals, and (iii) packing materials. In each of these groups there is an item "others" to accommodate anything that baffles classification. However, these "others" are ultimately allocated on considerations of availability and nature of inputs. "Other chemicals" do not present much difficulty since we are not distinguishing even heavy chemicals from others. From a knowledge of probable basic materials and packing materials that are likely to be used by different industries (and noting the items that are not classified and grouped under "others") we have to allocate "other basic materials" and "other packing materials" to the respective producing sectors.

4.6.23. Besides the unclassified items mentioned above, the SSMI data furnish estimates against an item, namely, "others including consumable stores". Against this item is found recorded entirely different sorts of unclassified inputs, in the sense that these inputs are not classed under "other basic materials" "other chemicals" and "other packing materials". It is doubtful, however, whether there may have been any such unclassified item that can not be classed under either

basic materials, chemicals or packing materials especially when fuels, etc., are found estimated separately. It is also not entirely unlikely that at the time of filling up of schedules the inputs found included under "others including consumable stores" may have been classed under either of the preceeding groups of raw materials. Judged from this end a proportional re-distribution of such outlays among unclassified basic materials, chemicals and packing materials is thought to be the only course left open to us.

4.6.24. Allocation of material costs of the sectors from which they may be considered as flowing into the sector under consideration is, however, immensely facilitated by an examination of the filled-in schedules. From a scrutiny of the inputs it is easy to determine the items (each under sub-groups as referred to above) against which outlays are not separately estimated, i.e. it is possible to ascertain the nature of the items that escaped classification. Finally, from a knowledge of the availability of materials the magnitudes of allocation are determined with a check that total gross output of a sector should tally with the sum-total of deliveries along the same row. This check can be ensured only because all the flows are reckoned in terms of money, i.e. we are constructing an inter-industry transactions table and not an input-output table depicting flows in terms of physical goods*.

4.6.25. So far we have traced inputs which can be schematically represented as follows:



* Summation along rows of an input-output table is also not theoretically impossible if one considers only one non-divisible homogenous product along a row. However, in actual practice when sectors produce mixture of products (as in the present study) this summation possibility is ruled out for the input-output table of physical flows.

The list of material inputs includes outlays on fuel, light and power besides those discussed above. The available estimates distinguish between (i) coal and coke, (ii) electricity (excluding electricity generated by plants themselves for their own use), (iii) fuel oils and (iv) others. The nature of the last item can not be ascertained in most cases and hence is credited as output of "other mining" except where specific information to the contrary is available.

4.6.26. Depreciation on fixed capital (namely, land, building, plant and machinery) is not considered. This is in accordance with the general principle that we have decided not to show depreciation allowance in the inter-industry tables. Accordingly, the ignorance of depreciation allowances results in the outcome of entrepreneurial earnings of the sectors that include the same as a fund.

4.6.27. Special mention of outlays found as "water charges" need be made. "Water charges" are found estimated under outlays on fuel, power, etc. These amounts are treated as payments to various public authorities under sector 34, i.e. "public administration". This sector is treated as a dummy sector in the sense that it carries no defined activity. Earnings of "public administration", therefore, include water charges paid by manufacturing enterprises. We do not propose to omit the outlays altogether, since the inclusion of outlays on water within the inter-industry quadrant of the transactions table is justified on the ground that similar outlays are expected to have a one-to-one correspondence with the level of output of the large scale manufacturing sectors under consideration. In the simplest case this will mean that if production law be assumed linear, any change in the level of output will imply a proportional change in the requirement of volume of water.

4.6.28. Outlays on repair and maintenance chargeable to current costs of production are not found properly and completely estimated by SSML. One of the 'drawbacks of SSML enquiry is that the schedules do not properly record either outlays on repair and maintenance in connection with the current running of the production units or their breakdowns into material and labour components. In the absence of such estimates, we have not attempted to make additional allowance

for costs on account of repairs and maintenance. Few arguments in favour of this procedure may be noted as follows.

4.6.29. It is quite common that many establishments do their own repair and maintenance work. This means that no payment is made for hired labour, and workers in the roll of the factories are employed to do such repair job. The materials needed also are likely to be purchased with raw materials purchased for manufacture and are included under one or more of the groups like "basic materials", "fuels and power", "chemicals", "packing materials", and "consumable stores". Under the circumstances, there seems to be no need for making extra allowances for repairs, etc.

4.6.30. It is not, however, unlikely to come across other specialised types of repair jobs, where assistance from outside is sought. As for example, repairs of machineries and plants owned by non-engineering concerns have to be essentially done by engineering firms. In such cases, the non-engineering firms have to make payments for industrial servicing. Thus it is easy to see that payments for industrial servicing are sometimes completely in the nature of outlays on repairs and maintenance. It is necessary to discuss this issue in some details.

4.6.31. We have already noted that earnings of a sector include earnings from industrial servicing or, in other words, the industrial firms earn partly by rendering services to other concerns. The other side of the picture is that some firms make payments for specialised work done to them by other concerns. We have observed that these are likely to be specialised type of repairs and maintenance works. A detailed analysis of inflow and outflow of industrial servicing should normally give a complete picture of such transactions. Complete accounting of such services should obviously give identical amounts of total outward flows and total inward flows for the entire economy. In practice, this is a very difficult proposition, chiefly because of the fact that complete enumeration of either outward flows or inward flows for all economic activities is an impossible task, especially because the services are very heterogeneous in character (namely, trade, transport, repairs of all kinds, etc., that exist as subsidiary activities along with other principal activities) and moreover, there is no systematic record of services

either rendered or absorbed by non-specialised and un-organised economic activities.

4.6.32. An attempt to analyse the outward and inward flows of industrial services for the large scale manufacturing sectors 6-18 reveals similar findings. For this purpose, both **SSMI** and **CMI** data on value of (a) work done for the factory by other concerns and (b) work done by the factory for other concerns, are analysed by industries. We find that in almost all cases receipts exceed payments and the total discrepancy between outward and inward flows is considerable. This clearly suggests that such flows are not only confined to manufacturing industries and very often passes over to the non-specialised activities. (Even private consumers may borrow industrial services of a specialised nature.)

4.6.33. In view of what has been discussed above, we have followed a uniform procedure for all the large scale manufacturing sectors in that we have used the estimates of earnings from industrial servicing and ignored outlays on industrial services purchased. A complete cross checking of inflows and outflows for the entire economy being not feasible, the only reasonable procedure seems to lie in ignoring services purchased from other concerns and placing complete reliance on services rendered to other concerns.

4.6.34. Moreover, it is worthwhile to note that there will be cases where value of work done by other concerns in the shape of industrial servicing borrowed from other concerns will mostly consist of payments to labour. By judging from this angle, it may not be entirely unlikely that such payments will be included in extra wage payments. However, since the outlays on industrial servicing do not distinguish their counterparts on materials and labour, it is not possible to verify this hypothesis.

4.6.35. Another difficulty regarding allocation of inputs arises from the fact that no distinction can be made between inputs coming from large scale and small scale producing sectors. In fact, if enterprises purchase inputs through intermediaries it will not be possible to know directly from the enterprises whether the inputs originated in large scale or small scale units. In most cases for our purpose we allocate inputs to large scale

producing sectors. In exceptional cases, where the nature of inputs indicate products coming from small scale manufacture, are the outlays allocated to small scale producing sectors. On the other hand, though subjective judgements have to be used for identification of some inputs, for some others it is definitely known that they fall outside the scope of small scale production units.

4.6.36. In Section 12 of Chapter Four to follow we have presented a detailed account of distribution of earnings of the sector 'banks, insurance and co-operatives'. A closer examination of such earnings of sector 30 (i.e. banks, insurance and co-operatives) unfolds that approximately 14 per cent of such receipts come from the manufacturing industries. These are partly in the shape of payments to banks by manufacturing industries for the loans and advances received by them and partly in the nature of payments to fire and marine insurance companies against the policies owned by the manufacturing industries. The industry-wise distribution of such payments charged against sector 30 will be discussed in full in the relevant chapter.

4.6.37. With these we complete the allocation of inputs; the outlays, however, still remain at delivered prices in the sense that they include distributive margins. Following the standard convention of reckoning outlays at ex-factory prices, the entries so far arrived at are then subjected to a deduction of trade, transport (goods) and railway (goods) margins. The details of this working can be found discussed under section devoted to distributive margins.

4.6.38. "Gross domestic product at factor cost" is derived from output at market price by deducting commodity taxes on products of the sector and the total cost of materials and services used as inputs, as shown in Table (4.6.5) below.

4.6.39. From Table (4.6.6) it can be seen that gross domestic product at factor cost does not exceed 50 per cent of the value of output in any of the sectors except in the case of sector 11 (other building materials and wood manufacture) where it exceeds 60. However, for the sectors "paper, printing and stationery" and "iron and steel" the percentages are very near 50.

TABLE (4.6.5) : SECTORAL ESTIMATES OF GROSS DOMESTIC PRODUCT AT FACTOR COST (IN RUPEES CRORE)

(based on all factories)

sl. no.	sector description	sector codes	output at market price	commodity taxes	material inputs	gross domestic product at factor cost
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	iron and steel	6	109.64	3.93	52.21	53.50
2.	non-ferrous metals	7	30.28	3.47	21.21	5.60
3.	engineering	8	162.00	37.79	67.91	56.30
4.	chemicals etc.	9	185.56	26.08	99.24	60.24
5.	cement, etc.	10	28.46	1.37	16.02	11.07
6.	other building materials and wood manufacture	11	60.30	9.62	14.42	36.26
7.	food, drink, tobacco, etc.	12	762.25	94.58	511.76	155.91
8.	cotton textiles	13	564.91	51.29	346.17	167.45
9.	other textiles	14	62.91	8.44	37.64	16.83
10.	jute and other fibre	15	143.14	13.20	32.82	47.12
11.	glass and ceramics	16	20.01	1.99	8.66	9.36
12.	leather and rubber	17	55.89	6.66	35.57	13.66
13.	paper, printing and stationery	18	67.48	6.40	29.08	32.00

4.6.40. On coming to labour-payments the estimates furnished by the SSMI are found to distinguish salaries and wages paid to men, women and children separately. Besides these the aggregate labour payment, however, includes payment to workers employed through contractors, payment to employees other than workers, value of benefits in kinds, contribution to provident fund, group benefits, etc. Estimates of total labour payments are available at the industry levels and these are aggregated to form totals at the sector levels. Table (4.6.7) is compiled to show these sectoral labour payments and their percentages to gross domestic product at factor cost.

TABLE (4.6.6) : GROSS DOMESTIC PRODUCT AT FACTOR COST
AS PERCENTAGE OF VALUE OF OUTPUT AT MARKET PRICE

(based on all factories)

srl. no.	sector description	sector code	value of output at market price (Rs. crore)	gross domestic product at factor cost (Rs. crore)	percen- tage
(1)	(2)	(3)	(4)	(5)	(6)
1.	iron and steel	6	109.64	53.50	48.80
2.	non-ferrous metals	7	30.28	5.60	18.49
3.	engineering	8	162.00	56.30	34.75
4.	chemicals, etc.	9	185.56	60.24	32.46
5.	cement, etc.	10	28.46	11.07	38.90
6.	other building materials and wood manufacture	11	60.30	36.26	60.13
7.	food, drink, tobacco, etc.	12	762.25	155.91	20.45
8.	cotton textiles	13	564.91	167.45	29.64
9.	other textiles	14	62.91	16.83	26.75
10.	jute and other fibre	15	143.14	47.12	32.92
11.	glass and ceramics	16	20.01	9.36	46.78
12.	leather and rubber	17	55.89	13.66	24.44
13.	paper, printing and stationery	18	67.48	32.00	47.42

The percentages are found to have a wide range of variation, namely, from as low as 27 per cent for the sector "food, drink and tobacco" to as high as 70 per cent in the case of "jute and other fibre".

4.6.41. Non-wage income for each of the sector is estimated as a residual by deducting labour-payments from gross domestic product at factor cost. We have already pointed out that domestic product at factor cost is gross in the sense that it

TABLE (4.6.7) : WAGES AND OTHER LABOUR PAYMENTS AS PERCENTAGE OF GROSS DOMESTIC PRODUCT AT FACTOR COST

(based on all factories)

srl. no.	sector description	sector code	gross domestic product at factor cost (Rs. crore)	wages and other labour payments (Rs. crore)	percen- tage
(1)	(2)	(3)	(4)	(5)	(6)
1.	iron and steel	6	53.50	21.99	41.10
2.	non-ferrous metals	7	5.60	2.81	50.18
3.	engineering	8	56.30	31.26	55.52
4.	chemicals	9	60.24	22.46	37.28
5.	cement, etc.	10	11.07	3.40	30.71
6.	other building materials and wood manufacture	11	36.26	13.86	38.22
7.	food, drink and tobacco, etc.	12	155.91	42.73	27.41
8.	cotton textiles	13	167.45	113.53	67.80
9.	other textiles	14	16.83	9.57	56.86
10.	jute and other fibre	15	47.12	33.25	70.56
11.	glass and ceramics	16	9.36	5.34	57.05
12.	leather and rubber	17	13.66	6.05	44.29
13.	paper, printing and stationery	18	32.00	19.25	60.16

includes depreciation allowance. Accordingly, non-wage income estimated as a residual from gross product at factor cost includes depreciation allowance in the shape of a fund in the hands of the entrepreneurs. Hence non-wage income of each sector is an aggregate of entrepreneurial earnings, rents, direct taxes and depreciation allowances.

4.6.42. In Table (4.6.8) we present the gross outlays made by each of the absorbing sectors 6 to 18. These gross entries are finally subjected to distributive margins before they are shown in the Inter-industry Transactions Table of 1953-54.

TABLE (4.6.8) : SECTORAL ALLOCATIONS OF GROSS OUTLAYS BY LARGE SCALE MANUFACTURING SECTORS
(based on all factories)

delivering sectors	gross entries (in Rupees crore) by absorbing sectors																	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	3.49	..	0.01	331.52	148.98	0.81	60.92	0.13	..	0.15	..	..	..	..
2	1.38	..	..	..	44.90	..	6.01	..	..	..	..	..	7.68	..	..
3	0.09	0.06	4.25	2.72	0.02	4.97	41.47	0.91	14.60	0.12	0.01	15.37	2.71	..	..	..	..
4	9.20	0.45	0.83	4.59	3.69	0.06	3.48	6.86	0.25	1.24	1.25	0.55	1.66	..	..	..	..
5	8.46	8.92	1.93	7.09	4.05	2.32	4.66	5.49	0.27	4.59	3.25	0.57	0.43	..	..	..	..
6	22.41	1.48	30.47	0.39	0.25	1.48	0.25	0.72	..	0.53	0.35	0.21	0.06	..	..	..	..
7	8.28	9.71	12.40	1.88	..	0.01	1.19	..	0.08	..	0.07	..	0.04	..	..	..	..
8	6.52	0.41	..	0.01	4.28	..	..	..	..	0.01	..	..	..	..	..
9	0.66	0.20	2.43	54.18	0.04	1.31	1.54	17.72	2.34	0.73	1.88	2.18	4.42	..	..	..	..
10	0.12	..	0.63	0.05	..	..	..	..	..	..	..	..	..	..	..
11	0.11	..	0.31	1.45	0.07	0.60	6.61	0.14	0.04	..	0.23	0.04	0.06	..	..	..	..
12	0.06	9.70	..	..	46.99	0.03	..	1.81	..	0.83	0.24	..	..	..	..
13	0.40	..	..	0.02	0.04	134.38	3.95	0.60	..	4.77	0.23	..	..	..	..
14	0.24	..	..	..	..	10.78	12.57	2.97	..	0.01	..	..	..	..	..
15	0.07	0.03	0.04	3.91	4.51	0.01	13.24	4.57	0.07	6.01	0.24	0.30	0.39	..	..	..	..
16	0.26	0.38	..	..	0.38	..	..	..	0.20	..	..	..	..	..	..
17	2.23	..	..	0.08	..	..	..	0.07	..	1.53	0.05	..	..	..	..
18	0.08	..	0.13	0.93	1.40	0.89	4.25	1.65	0.39	0.17	0.08	0.60	14.66	..	..	..	..
19	1.23	0.08	0.96	1.09	0.70	0.22	1.63	6.82	0.39	1.20	0.33	0.31	0.75	..	..	..	..
23	0.17	..	..	..	..	..	..	..	..	..	..
26	0.44	1.44	..	..	..	0.01	0.03	..	..	..	..	..
30	0.93	0.14	1.60	1.13	0.25	0.21	2.12	5.23	0.78	1.71	0.08	0.31	1.57	..	..	..	..
31	3.12	..	..	..	..	..	..	..	..	..	..	..	..	..
34	0.61	0.05	0.22	0.24	0.02	0.90	1.28	1.05	0.09	0.02	0.11	0.10	0.08	..	..	..	..
36	0.08	0.09	1.13	2.54	0.39	0.83	0.32	0.84	1.00	0.13	0.44	0.17	1.58	..	..	..	..
total	52.21	21.21	67.91	99.24	16.02	14.42	511.76	346.17	37.64	82.82	8.66	35.57	29.08	..	..	..	..

SECTION 7

SECTOR 19 : ELECTRICITY GENERATION, TRANSFORMATION AND DISTRIBUTION

4.7.0. This sector deals with the activities of generation, transformation and distribution of electrical energy. So far as statistical data are concerned, the chief source of information is the 'General Review' issue of the 'Public Electricity Supply: All India Statistics, 1953 and 1954' published in August, 1954 and June, 1955 respectively. These publications give details of expenditure incurred during the calendar year 1953. Keeping similarity with the procedure adopted in the case of large scale manufacturing industries, no further adjustment in respect of 1954 is made.

4.7.1. Electricity mainly originates from three different sources, namely, (a) coal plants (or steam plants), (b) oil-plants, and (c) hydro-plants. Aggregate energy sold to the various users (namely, agriculture, public authorities, industries, households, etc. for lighting, heating, irrigation, pumping, industrial use and so on) is noted as 5597 million kilowatt-hours for 1953.

4.7.2. Valuation of electrical energy sold to different consumers during 1953 has been made at average price of 1953 based on data relating to only major electricity supply undertakings covering about 80 per cent of the aggregate power sold to the ultimate consumers. Average price per kilowatt-hour for 1953 is obtained as follows:

	1953
Coverage: Major Electricity Supply Undertakings	—
(a) energy sold (million kilowatt-hours)	4373
(b) revenue realised (excluding taxes, in Rs. lakhs)	.. 2962
(c) average price per kilowatt-hour (Rs.)	.. 0.068

Using the same price of Rs. 0.068 per kilowatt-hour, the entire energy generated and sold during 1953 (i.e. 5597 million kilowatt-hours) is evaluated at Rs. 3805.96 lakhs.

4.7.3. Some further adjustment is made in order to arrive at the final value of output inclusive of taxes. Electricity duty is noted as Rs. 476.00 lakhs. Value of energy used in auxiliaries is placed at Rs. 392.00 lakhs and is equated to purchase of energy by the distributing and transmitting plant. Other revenues come to Rs. 240.00 lakhs and include meter rentals, income from public lighting maintenance etc. Thus—

	<i>Rs. lakhs</i>
value of electricity sold (excluding tax)	4197.96
(i) energy sold to users ..	3805.96
(ii) energy used by auxiliaries ..	392.00
other revenue	240.00
value of output excluding tax	4437.96
electricity duty	476.00
value of output with tax	4913.96

The final entry in respect of value of output at market price is accordingly shown as Rs. 49.14 crore.

4.7.4. It may be noted at this stage that sometimes industrial plants produce electricity for their self-consumption. They often carry on electricity generation (and in very few cases transformation, too) as a part of their manufacturing operations. The energy thus produced, however, falls outside the scope of this sector. The inputs required by such plants to generate electricity for self-consumption purposes, however, enter into costs of current operations in much the same way as other inputs do, though the value of such electricity produced and consumed within the plants is not recorded as part of the value of their output.

4.7.5. Current operating expenses are obtained from 'consolidated revenue account' in the 'General Review' issue of the 'Public Electricity Supply: All India Statistics, 1954' published in June, 1955. The statement furnishes some details of expenditure for 1953. Other sources like the SSMI 1953 are also used. Item of inputs like fuels, fuel-oils, repair-maintenance, stores, etc. are noted separately for the different types of generating plants. The following working notes give details about how the estimates are arrived at: (i) coal consumed by steam-plants is noted as an important item of input of the steam-plants. Average ex-pit price of coal is taken as Rs. 16.2 per ton for 1953. The cost of coal consumed is evaluated at Rs. 702.73 lakhs. Comparing this with the NSS estimate, it is felt that the estimate obtained as above suffers slightly from underestimation. The estimate at delivered value, therefore, has been placed at Rs. 728.70 lakhs; (ii) purchase of energy gives the value of electricity sold by generating plants to the distributing and transmitting concerns. This is reckoned at Rs. 3.92 crore and forms a part of both earnings of and outlays by the sector taken as a whole; (iii) consumable stores and repair and maintenance account for Rs. 229.00 lakhs in 1953 and pertain to the generation activity taken as a whole (it may be noted that NSS estimate for 1953 is Rs. 183.84 lakhs); (iv) oil consumed by oil plants is placed at Rs. 255.36 lakhs.

4.7.6. It is possible to split up inputs of stores and maintenance and purchase of energy for the different generating plants on the basis of kilowatt-hours of electrical energy generated, though such details have not been shown in the final inter-industry table. Noting that every 100 kilowatt-hours of power generated maintains the following ratio in 1953:—(Coal plants): (oil plants) : (hydro-plants) = 54: 3: 43, the outlays on 'repair, maintenance and stores' and 'purchase of energy' are distributed by types of generating plants. Table (4.7.1) gives the consolidated account of the current operating costs according to the different types of generating plants.

4.7.7. So far as the activity of 'distribution and transmission of electricity' is concerned, it is to be noted that this branch purchases power from the generating plants and dis-

TABLE (4.7.1) : CURRENT OPERATING COSTS BY TYPES OF GENERATING PLANTS (IN RUPEES LAKHS)

srl. no.	items of input	coal plants	oil plants	hydro plants	all generating plants
(1)	(2)	(3)	(4)	(5)	(6)
1.	coal	728.70	--	-	728.70
2.	purchase of energy	211.68	11.76	168.56	392.00
3.	stores and maintenance	123.66	6.87	98.47	229.00
4.	fuel oils		255.36		255.36
5.	total	1064.04	273.99	267.03	1605.06

tributes the same to the different users with transformation, if necessary. The value added by the sector as a whole can be visualised as made up of two counterparts, namely, value added in generation and value added in transformation and distribution of electricity.

4.7.8. The operating costs of transmission and distribution excluding the purchase value of energy from the generating plants are noted as follows:

	<i>cost in</i>
	<i>Rs. lakhs</i>
repairs and maintenance	.. 286.00
management expenses	.. 394.00
depreciation	.. 439.00

It is felt that management expenses have a very insignificant counterpart of outlays on materials covered under items like repairs and maintenance, consumable stores, etc. It may be noted that 'management expenses' will be mostly pertaining

to distributing licenses and as such we have decided to merge this with wages and salaries. This item, therefore, has not been treated as an item of current costs of materials and services. Following the usual procedure, depreciation is also ignored. The expense of repair and maintenance forms the only item of costs for this branch of the activity.

4.7.9. Operating costs chargeable to current account thus come out as follows:

<i>items</i>	<i>costs in</i> <i>Rs. lakhs</i>
(1) coal ..	728.70
(2) energy produced and consumed	392.00
(3) stores and maintenance ..	515.00
(4) fuel oils ..	255.36
 (5) total	 1891.06

Regarding items (1), (2) and (4) there is no difficulty in allocating them to the sectors of the inter-industry table. Item (3) presents some difficulty and indirect method is being followed for estimating the outlays on individual components. For this purpose availability of materials likely to be used for repairs etc. is reckoned at delivered value. Regarding cables, both domestic and imported outputs are recorded at delivered values. Other items like wires, blow lamps, switch boards, electrical apparatus, belting, condensers, etc. are available from imported supply of goods. Total availability of materials at delivered value works out at Rs. 1773.07 lakhs for which a breakdown by items is presented below. The outlay of Rs. 515.00 lakhs

is allocated to the items in proportion to the availabilities at delivered value. Outlays on stores and maintenance are:

<i>items</i>		<i>availability at delivered value Rs. lakhs</i>	<i>outlay charged Rs. lakhs</i>
wires and cables	..	947.44	275.19
apparatus, condensers, etc.	..	196.24	57.00
copper wires	..	67.62	19.64
blow lamps	..	5.01	1.46
porcelain (electrical)	..	12.71	3.69
belting	..	150.87	43.82
balls, bearings and engine parts	..	393.18	114.20
total	..	1773.07	515.00

Using the estimates obtained as above the entire outlay of Rs. 18.91 crore has been distributed to the various sectors which supply the inputs required for the entire activity of generation and transmission of electricity.

4.7.10. As mentioned under section 6, Chapter Four, we note that industries make payments to sector 30 (i.e. banks, insurance and co-operatives) for loans and advances received by them from the banks. Industry-wise allocation of these receipts in proportion to the magnitudes of loans and advances yields the estimate of Rs. 0.65 crore, which is recorded as payments by sector 19 (i.e. electricity generation and distribution) to sector 30.

4.7.11. The outlays at delivered prices are then converted to transactions at producers' prices (inclusive, however, of commodity taxes on the inputs) by releasing the quota attributable to trading and transportation (goods) activities. The gross entries (inclusive of distributive margins) are shown as given below:

TABLE (4.7.2) : ALLOCATION OF COST OF MATERIALS AND SERVICES BY DELIVERING SECTORS

srl. no.	sector description	delivering sector	amount Rs. crore
(1)	(2)	(3)	(4)
1.	coal mining and coke making	4	7.29
2.	other minings	5	2.55
3.	non-ferrous metals	7	0.20
4.	engineering	8	4.47
5.	glass and ceramics	16	0.04
6.	leather and rubber products	17	0.44
7.	electricity generation and transmission	19	3.92
8.	banks, insurance and co-operative	30	0.65
9.	total	—	19.56

4.7.12. Wages and salaries are noted from the consolidated revenue account of 1953 for the different types of activity as follows:

	<i>Rs. crore</i>
wages and salaries for generation	2.25
wages and salaries for transmission	0.18
wages and salaries for distribution	2.62
wages and salaries for consumer servicing	1.65
total	6.70

We have already pointed out that management expenses are mostly of the nature of labour payments. Thus management expenses augment the total of wages and salaries by Rs. 3.94 crore and the level of wage income for the sector is placed at Rs. 10.64 crore. 'Non-wage income' and 'gross value added at factor cost' are estimated as residuals as shown below:

		<i>Rs. crore</i>
value of output with taxes	..	49.14
indirect taxes on output	..	4.76
value of output without taxes	..	44.38
cost of inputs	..	19.56
gross value added at factor cost	..	24.82
wage income	..	10.64
non-wage income and depreciation		14.18

4.7.13 The **SSMI**, however, covers 'electricity generation and transformation' as one of the large scale industries surveyed. But the source 'Public Electricity Supply: All India Statistics: General Review' is found to be much more elaborate and suitable for the type of analysis sought for. The reason for using estimates given in the latter publication lies in the fact that it gives some additional data as compared to **SSMI**. In fact, data relating to both utilisation and generation of electricity are available from the latter publication. Moreover, it is interesting to note that the value of electricity absorbed by different industries as inputs derived from the **SSMI** and the value of consumption of electricity by households and by public authorities along with other uses derived from the source 'Public Electricity Supply: All India Statistics' fits in well with the value of production of electricity estimated from the latter source.

4.7.14. It is of interest, however, to compare the two sets of estimates derived from entirely independent sources. These are presented below:

	<i>estimates presented in the inter- industry table (1953-54) (Rs. crore)</i>	<i>SSMI estimates (1953) (Rs. crore)</i>
value of output	44.38*	56.45
operating costs	19.56	22.18
gross value added	24.82	34.33
wage-income	10.64	9.92

* note that for inter-industry studies aggregate energy sold to ultimate consumers (i.e. 5597 million Kilowatt-hours) has been evaluated. The total energy produced (i.e. 6697 million Kilowatt-hours) if evaluated at the same price and then augmented by other earnings will come to Rs. 51.86 crore.

SECTORS 20-26 : SMALL SCALE AND COTTAGE PRODUCTIONS

4.8.0. This section of the report is devoted to "Small Scale and Cottage Productions". In our country these small scale production units play quite an important role and claim a large bulk of manufacturing goods which, in most cases, are ultimately consumed by households. These are manufacturing enterprises usually owned and operated by heads of households, either singly or jointly with other household heads.

4.8.1. A special mention has to be made regarding the scope and coverage of small scale manufacturing enterprises analysed for the inter-industry study. As the primary object is to cover the entire Indian Economy, it need not be emphasized that all the manufacturing activities have got to be covered either under large scale manufacture or under small scale manufacture. Logically, therefore, one must lay down certain principles relating to size of manufacturing establishments. Under the section dealing with large scale manufacture, we have already mentioned that in inter-industry studies large scale units are taken to be those employing 10 or more workers and using power as also those employing 20 or more workers and not using power. These are necessarily registered under the Factories Act of 1948.

4.8.2. There is, however, a third category of establishments for which the information on use of power and/or number of workers is not available. For the purpose of inter-industry analysis we include them under large scale manufacturing industries and thus cover all manufacturing establishments under either large scale or small scale units.

4.8.3. The estimates presented in the inter-industry table of 1953-54, had been prepared much before any survey results on small scale industries at the all-India level came out. The National Income Unit, however, indirectly estimated gross

value of output by the method of income approach. For a long time to come (almost till the end of 1956), except the Final Report of the National Income Committee (February, 1954) there seemed to be no attempt in the direction of estimating gross or net value of output of small scale industries at the all-India level. By the end of 1956, however, a note on "Small Scale and Household Production in India: 1953-54", was prepared by A. K. Chakraverti and S. Sankar Sengupta of the Indian Statistical Institute, who tried to collate information collected through various schedules of the National Sample Survey during its 7th Round operations. For the inter-industry table we have used this paper as the main source of information.

4.8.4. Before going into the details of the method of estimation, it will be worthwhile to make some broad comparisons of the inter-industry estimates with estimates from other sources. The recently finalised NSS Report, No. 21 (June, 1958) deals with "Household Small Scale Manufacturing Establishments" not coming under the purview of Industries Development Act of 1951. The Industries Development Act (1951) differs from the Factories Act (1948) to the extent that it covers establishments using power with 50 or more workers and establishments not using power with 100 or more workers. Large scale industries as surveyed through SSMI cover all registered factories coming under Factories Act of 1948, i.e. factories with 10 or more workers using power and those with 20 or more workers not using power. Evidently, therefore, results presented in NSS Report, No. 21 relate to establishments using power with 10 to 50 workers as well as those with 20 to 100 workers but not using power. Since SSMI includes these establishments and since for our inter-industry table we have used SSMI estimates for large scale industries, it is needless to mention that small scale industries include only those establishments that fall outside the scope of Factories Act of 1948.

4.8.5. As a result, the estimates presented in Report No. 21 can be made comparable with inter-industry estimates only when these are adjusted for the overlap mentioned above. Even this adjustment is not enough. The NSS Report on "Household Small Scale Manufacturing Establishments" deals with manufacturing establishments run by households on

proprietary or partnership basis. Accordingly, therefore, there should be a counteracting adjustment (for the inclusion of 'non-household' small scale enterprises) in the estimates presented in the report. In passing, we note that a special tabulation of SSMI factories stratified according to number of workers reveals that factories using power with 10 to 50 workers accounted for an estimate of net value added not exceeding Rs. 60 crore. Taking all these into consideration, we give below a comparison for some broad items of information.

TABLE (4.8.1) : BROAD COMPARISON OF ESTIMATES
FOR SELECTED ITEMS

srl. no.	items of information	estimates available from	
		NSS Report No. 21	Inter- industry Table (53-54)
(1)	(2)	(3)	(4)
1.	hired labour charges (Rs. crore)	98.48	70.12
2.	gross earnings (Rs. crore)	1187.14	1200.44
3.	value added (Rs. crore)	519.28	553.26
4.	cost of materials etc. (Rs. crore)	667.86	647.18
5.	costs as percentage of gross earnings	56.25	53.91
6.	hired labour charges as percentage of value added	18.96	12.67
7.	hired labour charges as percentage of gross earnings	8.30	5.84

Even though the estimates presented in the inter-industry table based on indirect methods of estimation had been prepared much before the survey results came out, it can be seen that the magnitudes are more or less of the same order.

4.8.6. A comparison with the estimates furnished by National Income Unit of the Central Statistical Organisation may be attempted. Apart from the less important question of inclusion or non-inclusion of servicing households, there exists another

point of disagreement between the methods followed by NIU and the inter-industry approach. NIU has included all types of constructions (both residential and non-residential by Government and non-Government concerns) and hence the labour payment to workers engaged in all sorts of construction activities eventually gets included in the estimate of net value added by small scale manufacture. In the inter-industry table, we have treated construction as an activity separated from small scale manufacture and the labour payment for 1953-54 has been estimated at Rs. 355 crore. The two sources tally reasonably well after due adjustment has been made for this factor.

4.8.7. The position in respect of employment in small scale industries is not very happy in the sense that the different sources present rather discrepant estimates. The total volume of employment in small scale manufactures (both in principal and in subsidiary activities) is estimated at 30.7 million in NSS Report, No. 21 (number of establishments estimated at 14.49 million with an estimate of 2.12 workers per establishment). These include persons engaged in small scale activities along with a part of construction activities. Attention may be drawn, in this connection, to the estimate of about 30 million as the total number of persons, both hired and non-hired, engaged in small scale and household production, presented in the paper by Chakraverti, Sankar Sengupta mentioned earlier. The adjusted 1951 census estimate used by NIU in respect of number of earners and earning dependants in the sector small scale manufacture seems to be much lower than any of these. The difference is probably explained by the non-inclusion of *all* persons engaged in small scale manufacture as subsidiary means of livelihood and/or huge influx of persons into small scale manufacturing activities. Thus regarded, the projections of 1951--census figures for 1953-54 would appear practically invalid.

4.8.8. The detailed industry classification, used by NSS, helps us to divide the entire activity into seven broad classes. Out of these we try to specify the first six classes, the last one being a miscellaneous group. Each class is defined by enterprises having over-all similarity (if not homogeneity) of products. The broad groups are as follows:

- (1) sector no. 20—*metal-ware and metal working*: this sector covers iron and other non-ferrous metal products along with jewellery products;
- (2) sector no. 21—*building materials and wood manufacture*: this sector covers production of bricks, tiles, carts, boats, furniture, other wood products, etc.;
- (3) sector no. 22—*textile and textile products*: this sector covers cotton and silk cloth weaving; hosiery works, lace, embroidery works; handloom production of all kinds; production of ropes, coir, etc.; jute binding and pressing; garments, umbrella, waterproofs, etc.;
- (4) sector no. 23—*food, drink, tobacco and edible oils*: this sector covers primarily household processing of agricultural products (e.g. cereals and pulses), and manufacture of salted fish, sugar, gur, bread, sweetmeats, biri and other tobacco products; vegetable and other oils, etc.;
- (5) sector no. 24—*glass and ceramics*: this sector covers production of glass-ware, earthen-ware, etc.;
- (6) sector no. 25—*leather and leather products*: this sector includes processing of raw hides and skins, as well as fabrication of leather goods, e.g. footwear, belts, suit cases, etc.,
- (7) sector no. 26—*other small scale productions*: this sector includes miscellaneous products like indigenous medicines, soaps, charcoal, paper and products, stonewares, printings, etc.

4.8.9. Though the above classes appear as independent and non-overlapping, they are not so in practice. It is quite probable that one class includes some part of another activity. Especially, a part of the value of output of the miscellaneous group includes value of products falling under one or the other of the previously classified groups. As a result not much weight can be attached to individual group estimates of output, costs and value added. Emphasis has primarily been laid on the total value of output of the sector. It should, of course, be

noted that no two activities have any common part between them so that double counting of outputs has been avoided.

4.8.10. Below is placed a statement in which a comparison of results of NSS Report, No. 21 (Household Small Scale Manufacturing Establishments) with inter-industry results is attempted. NSS estimates have, however, not been adjusted either for the part common with SSMI or for non-inclusion of non-household manufacturing establishments.

TABLE (4.8.2) : COMPARISON OF SECTOR-WISE ESTIMATES (IN RUPEES CRORE) OF GROSS AND NET OUTPUT

srl. no.	group of industry or sector	NSS estimates average of (1953-55)		inter-industry estimates (1953-54)	
		gross output	net output	gross output	net output
(1)	(2)	(3)	(4)	(5)	(6)
1.	metal and metalware	63.8	36.5	54.61	25.84
2.	building materials and wood	57.8	56.0	77.46	57.18
3.	textile and products	163.6	82.7	149.55	93.66
4.	food, drink, tobacco, oil, etc.	393.6	119.6	521.98	187.18
5.	glass and ceramics	12.2	9.0	13.06	10.10
6.	leather and products	29.9	14.0	76.40	50.44
7.	other productions	466.3	201.4	307.38	128.86
8.	total	1187.2	519.2	1200.44	553.26

4.8.11. Certain interesting observations, confirming what we have stated above, follow from this statement. Gross values of outputs from the two sources agree reasonably well for three industry groups, namely, metal and metalware, textile and products, and glass and ceramics industry. This indicates that these industry groupings are similar for both. For the sector 'building materials and wood manufacture' the agreement is not so close. And for the rather heterogeneous small scale activities like 'food, drink and tobacco' and 'leather and products' the estimates of values of outputs differ considerably. The variation in estimates may be due to lack of similarity of industry groups or to real differences in estimates caused by

errors due to sampling. The lack of similarity seems to be the more important cause since it can also explain the variations in the estimates of the 'miscellaneous' group while the 'total' estimates tally for all practical purposes.

Value of Output:

4.8.12. We now come to a stage when we have to detail the methods and estimational procedures that lead to the enumeration of output. Outputs are found recorded under conventional but not rigorously defined heads of enterprises. The principal sources of information from which a complete account is sought to be built up for small scale and cottage industries are the Sample Survey of Manufacturing Industries (Ref. period: 1953) and the Schedules 2.1, 2.2 and 2.4 of the 7th Round NSS relating to 'animal rearing', 'small scale and household enterprises' and 'trade' respectively.

4.8.13. Schedule 2.2 of NSS (7th Round) accounts for enterprises carried on by households in rural and urban areas. A few of these enterprises happen to be registered under Factories Act, 1948 and are seen to belong mostly to the list of large scale factories from which samples are taken from SSMI. These are left out to avoid double counting of outputs and inputs. Below is supplied a table showing estimated inputs and outputs of unregistered enterprises reported under Schedule 2.2 of NSS (7th Round).

TABLE (4.8.3) : ESTIMATED VALUES OF OUTPUTS AND INPUTS
FOR UNREGISTERED SMALL SCALE ENTERPRISES
REPORTED UNDER SCHEDULE 2.2 (7TH ROUND)

srl. no.	activity or sector	sector code	value (Rs. crore) of		value added (Rs. crore)
			outputs	inputs	
(1)	(2)	(3)	(4)	(5)	(6)
1.	metal and metal ware	20	54.61	28.77	25.84
2.	building materials and wood	21	77.46	20.28	57.18
3.	textile and products	22	92.41	49.81	42.60
4.	food, drink, tobacco, oil, etc.	23	188.90	166.15	22.75
5.	glass and ceramics	24	13.06	2.96	10.10
6.	leather and products	25	33.35	21.42	12.13
7.	other productions	26	264.52	173.98	90.54
8.	total	--	724.51	463.37	261.14

It will be evident that the estimates emerging out of returns under Schedule 2.2 of NSS (7th Round) constitute the major share of the value of outputs shown against different sectors of the inter-industry table. However, we are now going to discuss some additions and alterations in order to define the full scope and coverage of the small scale production activities considered for the purpose of inter-industry studies.

4.8.14. The chief difficulty in identifying transactions of small scale and particularly, household enterprises lies in the fact that small scale and household enterprises are often engaged in a large variety of activities. These are sometimes mixed up to such extent that it is very difficult to segregate the principal activity from the subsidiary ones. Instances are not rare where one comes across *mixed* enterprises carrying on different activities during different parts of the year.

4.8.15. In the National Sample Survey set-up, household enterprises are returned under different schedules dealing with different forms of enterprises. In view of the fact that some activities are carried on along with other more stable and regular occupations, it is not impossible to find small scale manufacturing activities being pursued together with trading and agricultural enterprises.

4.8.16. In the present context, a systematic accounting of these non-specialised activities is out of the question. It is possible, however, to make a plausible grouping under two broad heads, viz.

- i) activities involving some unavoidable transformation of the physical product in course of handling; and
- ii) activities not requiring much skill, such as upkeep of dwelling houses and allied rural constructions, carried on along with the principal occupations (such as agriculture).

Chief examples of transformations, in course of handling or trading are preparation of milk-products, processing of food articles such as is done in hotels, restaurants and eating shops, and retailing done by butchers and fish-mongers. Activities of type (ii) present a lot of difficulty because in some cases the

“output” is practically the imputed value of labour of persons not having anything else to do. Moreover, materials required for such jobs are, in some cases, procured without any payment and are thus valued by imputation.

4.8.17. We have, however, confined ourselves to type (i) activities and ignored non-specialised activities coming under type (ii). Argument in favour of ignoring type (ii) activities is explained by noting that “constructions” have mostly been included under a different sector in the inter-industry table. It may not be out of place to note that the chief difference in respect of sectoral descriptions adopted for present inter-industry table and for national income estimation by the National Income Unit (NIU) lies in how “constructions” are dealt with. The NIU includes payments to workers engaged in all sorts of constructions (residential and non-residential) by both the Government and the non-Government concerns as a part of net value added by small scale enterprises. In the inter-industry table we have treated “constructions” as a separate sector of economic activity.

4.8.18. The search for small scale transformations of products arising out of handling, etc. is confined to Schedule 2.4 of NSS (7th Round). This schedule deals primarily with trading enterprises. It is observed that along with wholesale and retail trading of commodities certain types of transformations of products such as processing of cereals, grains, pulses, etc., processing of fish, meat, etc., processing of tobacco, pan, etc.; preparation of meals, sweets, condiments, etc. (as in hotels, restaurants); preparation of medicines, toilet goods; and processing of leather, get completely mixed up.

4.8.19. Estimates of gross earnings appropriate to such mixed activities are noted under following heads.

Rs. crore

Gross earnings from:		
wholesale trading and processing of cereals, grains,		
pulses and products thereof	..	52.83
retail trading and processing of fish, meat, eggs		
and poultry	..	24.99

Rs. crore

retail trading and processing of wines, liquors, tobacco, biri, pan etc.	.. 61.60
retail trading and preparation of sweets, condi- ments, drinks, etc. including hotels and eating shops	.. 14.59
retail trading and processing of fibre products, textile products, toilet goods, medicines, foot- wear, etc.	.. 238.03
total gross earnings	.. 392.09

It appears, therefore, that earnings of small scale and household enterprises from Schedule 2.2 of NSS (7th Round) are understated to the extent that earnings attributable to pure transformations get mixed up with outputs worth about Rs. 392.09 crore. On a scrutiny of relevant schedules it is revealed that not more than 60 to 70 per cent of this output can be ascribed to transformations proper. A conservative reckoning suggests a transfer of 60% of this worth and accordingly we add Rs. 235.25 crore to the value of output of small scale and household enterprises. The balance is left as value of trading services proper.

4.8.20. The question is how to get an idea of the quantum of manufacture that gets mixed up with trade proper. An examination of schedules reveals that for some enterprises, buying prices (either producers' or wholesale) are recorded against a number of commodities but corresponding selling prices are missing. Prices of finished product or products are noted instead either in a foot note or against a new item, thereby showing that the commodities are not sold as such and some kind of transformation must have taken place. Remembering that this part of the output is obtained from the "trade" schedules, we note that the cost of distribution corresponding to Rs. 235.05 crore is Rs. 24.95 crore, since 'gross earnings' in this case are nothing but 'gross value of sales less gross value of purchases'.

4.8 21. We now come to another adjustment in respect of the conversion of milk into milk-products in household enterprises. Complete account of this widely dispersed activity is not feasible. We have, therefore, to fall back upon indirect methods of estimation.

The following estimates are recorded to start with:

	<i>Rs. crore</i>	
household consumption of milk and products estimated from 7th Round NSS		660.11
add (a) utilisation of fluid milk in hotels	15.00*	
(b) utilisation of fluid milk in small scale enterprises	.. 15.59**	30.59
		690.70
less estimated value of consumption of milk-products	..	240.68***

estimated total use of fluid milk	..	450.02
output of fluid milk estimated from Schedule 2.1, 7th Round, NSS	..	339.98
probable underestimation of fluid milk		110.04

* this is estimated from (i) input ratios found from about 20 sample hotels returned under code no. 63 of the SSMI (1954 Survey), and (ii) estimated level of activity in catering enterprises, derived on the bases of the assumptions that about 5% of the urban population of 6 crore take meals from hotels, and that the expenditure per capita per day is Rs. 2 only.

** this refers to the utilisation of fluid milk in small scale and household enterprises returned under Schedule 2.2 and under zones 2 and 3 of the SSMI (1954 Survey). It excludes the estimated utilisation of fluid milk by enterprises that properly belong to the household sector but have either been returned under some other schedule(s) or have been omitted altogether.

*** this estimate is obtained by splitting the estimate of household consumption of milk and milk-products in the ratio of the estimates of recorded production of milk and milk-products in Schedule 2.1 (5th Round).

Since we have not as yet taken account of utilisation of fluid milk in the preparation of milk-products, the extent of under estimation of fluid milk production is likely to increase. Reference to DMI Report on Marketing of Milk (1943, 1947) reveals that for every rupee's worth of milk-products, the intake of fluid milk (at bulk price) works out on the average to about 0.66 rupee. Thus, the estimated intake of fluid milk for the preparation of milk-products worth Rs. 240.68 crore is Rs. 158.85 crore. Using this information we have the following account of the utilisation of fluid milk:

		<i>Rs. crore</i>	
household consumption	..		419.43
utilisation in productive activities:			
hotels	..	15.00	
small scale enterprises	..	174.44	189.44
		-----	-----
production required to support consumption, etc.	..		608.87
output directly estimated	..		339.98

probable gap in reporting	..		268.89

4.8.22. Let us now sum up our findings. In the following statement we present an integrated account of value of outputs, cost of material inputs and services, (i.e. all inputs on current account other than labour, rent and accounting transfers in the books of enterprises) and value added by small scale manufacture.

4.8.23. In passing, we further note that outputs shown in the inter-industry table are reckoned at market prices and hence we have to add commodity taxes. These have been almost wholly allocated to products of the small scale food-industry. A great deal of arbitrariness has to be faced in allocating commodity taxes to products of large scale and small

scale manufacturing units. In general we allocate commodity taxes almost entirely to products of large scale manufacture unless we have definite evidence to the contrary such as excise duties on country liquors, etc. which are assigned to the "food, drink, tobacco and oils" sector of the small scale manufacture.

TABLE (4.8.4) : CONSOLIDATED STATEMENT (1953-54)

(in Rs. crore)

srl. no.	name of activity	sector code	value of		gross value added
			inputs	outputs	
(1)	(2)	(3)	(4)	(5)	(6)
1.	metal and metal ware	20	28.77	54.61	25.84
2.	building materials and wood	21	20.28	77.46	57.18
3.	textiles and textile products	22	55.89	149.55	93.66
4.	food, drink, tobacco, oil, etc.	23	334.80	521.98	187.18
5.	glass and ceramics	24	2.96	13.06	10.10
6.	leather and leather products	25	25.96	76.40	50.44
7.	all others	26	178.52	307.38	128.86
8.	total	- -	647.18	1200.44	553.26

TABLE (4.8.5) : OUTPUTS WITH TAXES

(in Rs. crore)

srl. no.	name of activity	sector code	output without tax	comino- dity taxes	output with tax
			(4)	(5)	(6)
1.	metal and metal ware	20	54.61	—	54.61
2.	building materials and wood	21	77.46	—	77.46
3.	textile and textile products	22	149.55	—	149.55
4.	food, drink, oil, tobacco, etc.	23	521.98	26.99	548.97
5.	glass and ceramics	24	13.06	—	13.06
6.	leather and leather products	25	76.40	-	76.40
7.	all others	26	307.38	0.02	307.40

4.8.24. *Cost Structure:* The sub-division of total outlay into various items on which the costs are incurred forms the most important stage of work from the viewpoint of inter-industry analysis. Since the final entries in the Inter-industry Transactions Table are to be obtained in terms of flow from different sectors to the absorbing industry group or sector under consideration, our primary job should be to break up material costs into as many items as practicable.

4.8.25. As dictated by the procedure adopted for estimation, the breaking down of costs is undertaken separately for each of the two sets of estimates, namely, (i) NSS Schedules 2.2 (7th Round), and (ii) partial collection of estimates from Schedules 2.1, 2.4. These are ultimately pooled together to give an integrated picture of small scale production activities in India.

4.8.26. Some details of costs are furnished by NSS in respect of household enterprises properly reported through Schedule 2.2 (7th Round). The estimates are obtained from NSS and the following items are considered to be costs of current production:

- raw materials,
- auxiliary materials,
- fuel,
- lubricants,
- cattle feed,
- packing materials,
- other consumable stores, and
- services from other concerns.

Estimates of outlays on each of the items mentioned above are available for each of 47 industry groups. These 47 industries are further aggregated to form the seven sectors into which the entire activity of small scale manufacture is subdivided.

4.8.27. No further breakdowns within each item, however, are available. We lack information in respect of types of raw and auxiliary materials used by different industries, types of fuel used (i.e. whether coal, coke, wood, etc.), items required for feeding power animals, types of packing materials (i.e. whether wooden boxes, gunny bags, paper board, etc.), and also breakdowns of consumable stores. Services from other concerns, however, do not present much difficulty since they

are appropriately treated as payments to the sector 31, i.e. to the people engaged in various professions and personal services.

4.8.28. Another important point is that the NSS makes available only monthly estimates. To make these conform to the reference year in question, the estimates are multiplied by 12. The inaccuracy arising out of multiplication by 12 cannot be avoided. No adjustment for seasonal employment in the small scale and cottage enterprises (for example, processing of agricultural crops especially in the harvest period, etc.) is made and it is assumed that the NSS estimates partly take account of this factor.

4.8.29. The next problem is to make a thorough probe into the different types of raw materials, fuel, packing materials, etc. used by different small scale industries. The only course that seems open to us is to make a systematic analysis of NSS schedules. The schedules belonging to each of the 47 industries are first sorted by industries and the outlays on specific items are noted under three broad heads, namely, raw materials, fuel and packing materials. The outlays are pooled over schedules within each industry class and unweighted proportions of outlays on different items are calculated for each of the three broad heads. Using these proportions the 'estimates' of NSS are broken up into constituent items. Thus we get 'estimated' outlays on specific items of raw materials, fuel and packing materials, which are then pooled for industries belonging to a particular sector. These estimated outlays can now be identified as flows from one or the other of the sectors adopted for the inter-industry table.

4.8.30. However, classification of inputs as stated in para 4.8.29 is not complete in the sense that the schedules contain some unclassified items. The unallocated outlays ultimately existed under the three broad heads, i.e. (i) unclassified raw materials, (ii) unclassified consumable stores, and (iii) unclassified packing materials.

4.8.31. A further classification of these unclassified items is done more or less arbitrarily following two distinct procedures. The first procedure lay in allocating both (i) and (ii), i.e. unclassified raw materials and consumable stores among the *already classified* items of raw materials. Unclassified packing

materials are similarly apportioned among the classified packing materials. The first procedure as stated above, however, is not sufficient by itself and simultaneously a second check is applied. After allocating a part of the unclassified, the total outlay against each item is checked with the availability of such products for inter-industrial uses. At times it can be detected that no more addition to a particular item of input is permissible in view of availability of the product. For this part of the work we have continually to refer to the detailed list of products (with their values at ex-factory prices) in respect of both large scale and small scale industries.

4.8.32. The outlay on cattle feed or more generally feed-cost for power-animals in small scale industries, needs a special mention. As the animal husbandry sector of the inter-industry table takes care of maintenance costs of both service and non-service animals, the outlays against each item of cattle feed are shown in the column of the same sector. The output pertaining to service animals is the total worth of services rendered by such animals. In the present case, the cost of cattle-feed in small scale industries is treated as the value of animal services purchased from sector 3 (animal husbandry, etc.) and accordingly is allocated to the same sector.

4.8.33. With this we close the discussion on classification of inputs and their proper allocation to sectors in respect of information pertaining to Schedule 2.2 of NSS (7th Round). As regards costs of production corresponding to the activities transferred from other schedules, namely, Schedules 2.1 and 2.4 of NSS 7th Round to small scale manufacture, the inputs are allocated more or less following the broad pattern of outlays obtained from Schedule 2.2.

4.8.34. Transactions between small scale manufacturing sectors (20 to 26) and sectors 27 (railway and communications), 28 (other transport), and 29 (trade and distribution) are not estimated directly from the source materials discussed above. At first deductions are made from gross values of transactions with other sectors, thereby converting delivered values to values at supply prices. The deductions include "railway goods earnings", "other transport goods earnings" and "traders earnings". The share going to each of these three sectors

has already been discussed in the chapter on "Distributive Margins".

4.8.35. It may be further added that it is difficult to trace the origin of inputs absorbed by various small scale industries. In other words, it cannot be ascertained in most cases whether the inputs originated in large scale or small scale units of production. The inputs are treated as products of small scale industries only when the nature of materials is stated to be exclusively of such an origin, or when there is clear evidence of a small scale production unit absorbing its own product.

4.8.36. The estimates of wages and salaries (inclusive of allowances, benefits etc.) are basically obtained from the NSS Schedules 2.2 (Household Small Scale Manufacturing Enterprises) of the 7th Round. These have been adjusted for additional activities as reported in the foregoing paragraphs. Sectorwise estimates of 'non-wage income and depreciation' are finally obtained as a residual from 'gross value added at factor cost'. These may be presented as follows :

TABLE (4.8.6) : SECTOR-WISE ESTIMATES OF 'GROSS VALUE ADDED' 'WAGE-INCOME' AND 'NON-WAGE INCOME AND DEPRECIATION'.

(in Rs. crore)

srl. no.	sector	sector code	gross value added at factor cost	wages, salaries etc.	non-wage income and depreciation
(1)	(2)	(3)	(4)	(5)	(6)
1.	metal and metal ware	20	25.84	4.88	20.96
2.	building materials and wood	21	57.18	4.70	52.48
3.	textile and products	22	93.66	10.52	83.14
4.	food, drink, tobacco, oil etc.	23	187.18	23.67	163.51
5.	glass and ceramics	24	10.10	0.22	9.88
6.	leather and products	25	50.44	3.29	47.15
7.	other productions	26	128.86	22.84	106.02
8.	total	---	553.26	70.12	483.14

TABLE (4.8.7) : SECTORWISE ESTIMATES OF GROSS VALUES OF TRANSACTIONS

(in Rs. crore)

delivering sectors	absorbing sectors (small scale manufacture)						
	20	21	22	23	24	25	26
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	—	0.11	—	—	—	—	—
2	—	—	—	126.94	0.05	—	0.53
3	2.84	8.30	3.15	148.81	1.63	—	0.21
4	0.89	0.67	0.13	1.21	0.09	6.33	23.45
5	0.56	4.59	1.17	2.73	0.97	—	3.20
6	8.45	0.20	—	—	—	0.36	3.57
7	15.70	—	—	—	—	0.04	—
8	—	0.01	—	—	—	—	0.11
9	0.19	—	—	0.02	—	—	4.51
10	—	—	0.91	0.61	—	0.12	114.52
11	—	—	—	—	—	—	—
12	—	0.10	—	—	—	—	—
13	—	—	0.17	40.83	0.01	—	—
14	—	—	40.15	—	—	0.01	0.26
15	—	—	7.45	—	—	1.46	0.13
16	—	—	0.75	0.17	—	—	—
17	—	—	—	—	—	—	0.05
18	—	—	—	—	—	—	—
19	0.09	0.24	0.48	0.63	—	8.63	4.97
20	—	—	0.13	0.21	0.02	0.01	2.50
21	—	—	—	—	—	—	0.17
22	—	—	—	—	—	0.01	—
23	—	—	—	—	—	—	—
24	—	—	0.89	5.93	—	—	—
25	—	—	—	—	—	—	1.37
26	—	—	—	—	—	—	—
31	—	6.06	0.14	6.27	—	—	—
36	—	—	0.33	0.44	—	8.97	16.97
all	0.05	—	0.04	—	0.19	—	—
all	28.77	20.28	55.89	334.80	2.96	25.96	178.52

small scale manufacture:

- sector 20—metal and metal working
 21—wood manufacture and other building materials
 22—textiles and textile products
 23—food, drink, tobacco, oil etc.
 24—glass and ceramics
 25—leather and leather products
 26—miscellaneous (n.e.c.)

4.8.37. In Table (4.8.7) is given a summary statement of the delivered values of the transactions noted against the delivering sectors. The usual principle of allocation of inputs to the 'delivering sectors' have been followed for each of the seven small scale manufacturing sectors that absorb the inputs. The value of transactions are 'gross' and the final entries as shown in the inter-industry table are derived after appropriate deductions of distributive margins (i.e. trade margins, railway goods earnings and other transport goods earnings).

SECTION 9

SECTOR 27 : RAILWAY AND COMMUNICATIONS

4.9.0. This sector deals with two rather distinct types of activities, namely,

- (1) Posts and Telegraphs, and
- (2) The Railways

From technical considerations, a combination of these two different types of activities, however, raises some doubt since the first activity relates to communications whereas the Railways belong to transportation activities. Nevertheless, mainly for two reasons, we have combined these two activities under one sector. The first is that the scale of the activity of Posts and Telegraphs department (measured by the level of gross earnings or output) in the inter-industry analysis is very small and therefore to treat it under a separate sector is likely to render the inter-industry table uneven in character. Secondly, for comparability with National Income Statistics, we note that the National Income Unit of the Central Statistical Organisation treats 'railways and communications' as a joint activity.

4.9.1. *Posts and Telegraphs*: The data in respect of communications are almost exclusively obtained from "The Annual Report of Posts and Telegraphs Department for 1953-54". The outlays on current and capital accounts are fully differentiated in two statements, namely (a) statement of monetary transactions for current outlays and receipts (together with profits and loss accounts, and (b) statement of capital outlays. The statement (a) furnishes all details regarding earnings and current outlays.

4.9.2. The statement of gross earnings is placed at Rs. 44.15 crore for 1953-54 consisting of:

	<i>Rs. crore</i>
postage and message revenue (excluding telegraph charges realised in cash) ..	25.14
telegraph charges realised in cash ..	2.82
telephone revenue realised in cash ..	11.43

	<i>Rs. crore</i>
receipts on account of money orders and	
Indian Postal Orders etc. ..	3.27
miscellaneous ..	1.49
total ..	44.15

4.9.3. The current expenditures are available under the following heads:

	<i>Rs. crore</i>
labour payment ..	29.06
pensionary charges ..	1.90
repairs and maintenance ..	2.45
conveyance of mails ..	2.39
stamps, other postages etc. ..	2.34
	38.14
book entries ..	3.46
credit to working expenses ..	3.68
total ..	45.28

A few adjustments are made to arrive at the final analysis. 'Book entries' and 'credit to working expenses' are completely ignored since these do not represent outlays on goods and services required for current operations and are in the nature of book entries. The first two items together give the wage bill which comes to Rs. 30.96 crore. The fifth item is in the form of transaction within the activity and is therefore left out. Thus the third and fourth items are taken as costs of materials and services for current operations.

4.9.4. The outlays on repairs and maintenance are ultimately split up as:

	<i>Rs. crore</i>
maintenance of workshop ..	0.77
other repairs and maintenance ..	1.68
total ..	2.45

Outlays of maintenance of workshop are further split up according to proportions derived from workshop data reported under S.S.M.I. schedules. These are stated below:

	<i>Rs. lakh</i>
iron and steel	.. 30.73
brass	.. 4.69
zinc	.. 12.46
copper	.. 1.10
other basic materials	.. 12.04
acids	.. 0.64
paints	.. 0.36
other chemicals	.. 1.21
timber	.. 1.95
packing cloth	.. 0.03
other packing materials	.. 0.12
unclassified consumable stores	.. 6.43
coal	.. 3.03
fuel oil and lubricating oil	.. 0.42
charcoal and other fuel	.. 0.06
electricity	.. 1.40
water	.. 0.14
	<hr/>
total	.. 76.81
	<hr/>

Under certain assumptions outlays on other repairs and maintenance are split up as:

	<i>Rs. lakh</i>
repairs of buildings	.. 28.27
cables, wires etc.	.. 95.33
electrical apparatus and equipment	.. 43.86
parts for vans and vehicles	.. 0.32
	<hr/>
total	.. 167.78
	<hr/>

Outlays on conveyance of mails are further classified as:

	<i>Rs. lakh</i>
railway freight	140.31
air freight	78.83
freight charges for other transport	20.04
	<hr/>
total	239.18

Using the above details the outlays are allocated to the different sectors of the inter-industry table giving the aggregate outlay on inputs as Rs. 4.84 crore.

4.9.5. *The Railways:* The source of information in respect of the railway transport is the "Report By The Railway Board On Indian Railways For 1953-54". In this publication the railways have been classified as (i) government railways, and (ii) non-government railways. Most of the detailed statistics are available, however, for government railways only.

4.9.6. Gross earnings of railways (both government and non-government) during 1953-54 are obtained under three main heads, namely, coaching earnings, goods earnings and miscellaneous earnings as shown below:

	<i>Rs. crore</i>		
	<i>government railways</i>	<i>non- government railways</i>	<i>total</i>
coaching earnings	.. 118.01	1.43	119.44
goods earnings	.. 147.57	0.59	148.16
miscellaneous	.. 5.17	0.04	5.21
	<hr/>	<hr/>	<hr/>
total earnings	.. 270.75	2.06	272.81
	<hr/>	<hr/>	<hr/>

From the above figures it can be seen that out of Rs. 272.81 crore representing the total earnings, goods earning came to Rs. 148.16 crore in 1953-54. Coaching earnings were found

to be composed of (a) earnings from passengers carried, and (b) other coaching earnings.

	<i>Rs. crore</i>
earnings from passengers carried	101.35
other coaching earnings	18.09
	<hr/>
total	119.44

Other coaching earnings are treated very much like goods earnings and form a part of our railway margins. The miscellaneous earnings of Rs. 5.21 crore are also included in "railway margins", since these are likely to be more related to the volume of commodities than to the number of passengers carried by railways. The aggregate level of goods earnings treated as railway margins is placed at Rs. 170.10 crore with breakdowns as shown below:

		<i>Rs. crore</i>
goods earnings	..	145.58
agricultural products	..	27.64
animal products	..	2.13
minerals	..	35.29
mineral oils	..	10.67
forest products	..	4.04
manufactured goods	..	35.44
miscellaneous goods	..	30.37
		<hr/>
other coaching earnings	..	18.09
miscellaneous earnings	..	5.21
difference of goods earnings and revenue-earning traffic	..	1.22
		<hr/>
total gross earnings treated as railway margins	..	170.10

Reference to the section on "Distributive Margins" reveals how the goods earnings are distributed over the different rows of the inter-industry table. The load of railway margins on a

particular row (or activity) is obtained by summing earnings arising out of transportation of commodities produced by the activity.

4.9.7. Extensive details (as shown below) are available in respect of Rs. 145.58 crore and the residual of Rs. 24.52 crore is distributed over the different rows on the basis of load o total distributive margins on each row of the table.

<i>commodities carried</i>		<i>railway earnings Rs. lakhs</i>
agricultural products		2764.07
rice		433.14
gram and pulse		493.07
wheat		323.11
jowar and bajra		163.31
other grains		124.34
oilseeds		339.80
cotton (raw)		337.33
jute (raw)		163.36
fruits and fresh vegetables		245.22
tobacco		141.39
		<hr/>
animal products	..	212.97
livestock	..	155.00
hides, skins, leathers	..	57.97
		<hr/>
minerals	..	3529.02
coal and coke	...	2101.79
marble and stone	..	409.48
salt	..	367.70
manganese	..	297.83
other ores	..	352.22
		<hr/>
minerals oils	..	1066.69
oil fuel	..	296.04
kerosene	..	350.82
petrol	..	419.83
		<hr/>

<i>Commodities carried</i>		<i>railway earnings</i> <i>Rs. lakhs</i>
forest products	..	404.46
firewood and other fuel	..	146.46
wood (unprocessed)	..	251.36
lac	..	6.64
		<hr/>
manufactured goods	..	3544.03
sugar	..	641.54
cotton manufactures	..	339.93
jute manufactures	..	98.35
vegetable and other edible oils	..	199.04
cement	..	491.90
iron and steel products	..	915.19
provisions	..	305.88
glassware	..	38.34
paper	..	286.26
tea	..	227.60
		<hr/>
miscellaneous	..	3036.85
manure	..	124.06
fodder	..	155.05
other commodities	..	2757.74
		<hr/>
total goods earnings	..	14558.09
		<hr/>

4.9.8. The wage bill is obtained in three divisions, namely,
wages,
value of grain shop concessions, and
benefits

These have been separately shown for government and non-government railways:

		(Rs. crore)		
		<i>railway</i>		
		<hr/>		
		<i>non-</i>		
		<i>government</i>	<i>government</i>	<i>total</i>
wages	..	120.82	0.85	121.67
value of grain shop concessions		5.33	0.04	5.37
benefits	..	9.16	0.06	9.22
		<hr/>		
total	..	135.31	0.95	136.26

Thus, the total wage bill is placed at Rs. 136.26 crore as reported in the report of the Railway Board. Wages consist of pay, dearness allowance and other allowances. Benefits include provident fund, gratuity etc. It may, however, be noted that relevant details in respect of non-government railways are not available in a ready-made form and in calculating the share of wages of the non-government railways the ratio of number of staff in non-government railways to that in the government railways is being used.

4.9.9. The working expenses are in the first stage obtained from the Vol. III of the Report of the Railway Board, 1953-54. In the case of government railways the figures are available in all details, whereas for non-government railways in some cases figures of 1952-53 have to be used. The amounts involved being small in magnitude the effect of such adjustment is negligible.

4.9.10. Detailed information with regard to consumption of fuel by locomotives etc., is obtained for the government railways. Three items are distinguished such as coal, wood and fuel oil. Quantities of coal, wood and fuel oil in tons are available. Evaluation of input of coal is done at the pithead price of Rs. 16.2 per ton since no transport and trade margins are likely to be involved in the case of coal carried for the self-consumption of railways. For wood and fuel oil inputs are reported in terms of coal equivalents. The following proportions are found to be used for reporting.

2.50 tons of wood \equiv 1 ton of coal

0.55 tons of oil fuel \equiv 1 ton of coal

The estimates of fuel consumption are finally obtained as:

<i>items</i>	<i>(Rs. lakh)</i>			
	<i>railways</i>			
		<i>government</i>	<i>non-government</i>	<i>total</i>
coal	..	1758.5	13.0	1771.5
wood	..	1.7	—	1.7
fuel oil	..	93.6	—	93.6
total	..	1853.8	13.0	1866.8

4.9.11. The expenditure on foodgrains and groceries is obtained as Rs. 5.37 crore. The outlays on other items like (a) clothing, (b) stationery, forms and tickets, (c) electricity, (d) lubricating oil, tallow etc., and (e) other stores are not directly available, except that percentages of itemised costs to the total working expenses are computed in respect of particular railway systems belonging to a particular gauge system.

4.9.12. In the next step outlays on the different items are obtained using total working expenses for each category defined by a particular class of railways belonging to particular gauge system. Some adjustments, however, were made in working out outlays on some items such as lubricating oil, and other stores.

4.9.13. The estimated payment by the combined activity 'railways and communications' to the sector 30 for utilising services of banks, insurance companies and cooperatives is independently derived as Rs. 0.33 crore. The relevant details are discussed in section 12 of Chapter Four.

4.9.14. The outlays on repairs and maintenance have to be estimated rather indirectly for purposes of the present study. We have already estimated outlays on fuel, clothing, stationery, forms and tickets etc., as mentioned above. We also estimate the value of stores purchased and consumed. Deducting the outlays already obtained, the current outlay on repairs and maintenance is placed at Rs. 38.76 crore.

4.9.15. On summarising the current outlays the following statement can be arrived at:

<i>items</i>	<i>current outlays in Rs. crore</i>
fuel ..	18.67
repair and maintenance ..	38.43
foodgrains ..	5.37
clothing ..	0.54
stationery, forms and tickets ..	0.97
electricity ..	0.42
lubricating oil, tallow etc. ..	2.00
other stores ..	1.36
payments to banks, insurance etc. ..	0.33
	<hr/>
total outlays ..	68.09
	<hr/>

From the details of items of stores purchased the current outlay of Rs. 38.43 crore on repair and maintenance is split up as:

	<i>Rs. lakh</i>
bridge work materials ..	9.97
building materials ..	129.98
engineering components and part ..	8.25
workshop machinery parts etc. ..	20.93
rails ..	157.53
steel sleepers ..	73.82
cast iron sleepers ..	54.79
wooden sleepers ..	220.68
other allied materials ..	83.71
steam locomotive parts and fittings ..	268.37
railway carriage frames and components ..	395.79
railway wagon body components ..	760.99
automatic vacuum brake equipment ..	48.31
textile fibre, leather articles, etc. ..	11.41
signal and inter-locking materials ..	19.79
hardware, copper, tin, zinc materials ..	51.75
leather, canvas and rubber parts ..	30.44
metal products ..	289.42

	<i>Rs. lakhs</i>
painter's stores	.. 80.85
timber	.. 129.92
electrical, lighting and locomotive equipment	.. 190.25
other stores	.. 806.40
	<hr/>
repairs and maintenance: total outlay	.. 3843.35
	<hr/>

4.9.16. Ignoring depreciation, we finally arrive at the gross value added at factor cost.

	<i>Rs. crore .</i>
gross earnings	.. 272.81
costs of materials and services	.. 68.09
	<hr/>
gross value added at factor cost	.. 204.72
wage earnings	.. 136.26
	<hr/>
non-wage earnings and depreciation	.. 68.46

4.9.17. *Railways and communications (combined activity)* The estimates of earnings, costs, wages etc., are obtained for the combined activity as shown below:

(*Rs. crore*)

	<i>gross earn- ings</i>	<i>value of inputs</i>	<i>gross value added</i>	<i>wages</i>	<i>non- wage income and deprecia- tion</i>
railways	272.81	68.09	204.72	136.26	68.46
communications (Posts & Telegraphs)	44.15	4.84	39.31	30.96	8.35
combined activity	316.96	72.93	244.03	167.22	76.81

Thus, for the combined activity, gross value added at factor cost is Rs. 244.03 crore while non-wage income and depreciation are obtained as Rs. 76.81 crore.

4.9.18. The current costs are ultimately allocated to the different sectors on the basis of details outlined above. These represent 'gross entries', sectorwise allocations of which are presented in Table (4.9.1). Appropriate distributive margins are deducted in order to arrive at the 'net entries', which have been posted in the inter-industry transactions table.

TABLE (4.9.1) : SECTORWISE ALLOCATIONS OF CURRENT COSTS OF RAILWAYS AND COMMUNICATIONS 1953-54

srl. no.	description of delivering sectors	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	4.41
2.	animal husbandry, fishery, forestry	3	3.88
3.	coal mining and coke making	4	17.74
4.	other mining	5	4.02
5.	iron and steel	6	7.70
6.	non-ferrous metals	7	0.36
7.	engineering	8	23.67
8.	chemicals etc.	9	1.15
9.	cement	10	0.54
10.	other building materials	11	2.81
11.	food, drink, oil, tobacco etc.	12	0.96
12.	cotton textiles	13	0.54
13.	jute and other fibre	15	0.06
14.	leather and rubber	17	0.36
15.	paper, printing and stationery	18	0.97
16.	electricity generation and transmission	19	0.92
17.	railways and communications	27	1.40
18.	other transport	28	0.99
19.	banks, insurance and co-operatives	30	0.33
20.	unclassified: large scale	36	0.12
21.	all sectors	—	72.93

SECTION 10

SECTOR 28 : OTHER TRANSPORT

(Mechanised and Non-mechanised Transport other than Railways)

4.10.0. The scope of this sector extends to include all transport services other than those of railways. Services in the form of carrying goods and passengers rendered by mechanised and non-mechanised vehicles (other than the railways) are taken into account. The mechanised transports include buses, trucks, lorries, taxis, auto-rickshaws, aeroplanes, ships, tram etc., whereas non-mechanised units consist of animal driven carts and carriages, hand-carts, boats and so on. These means of conveyance are expected to exhaust all types of transports, namely transports by road, air and water, other than the railways.

4.10.1. Different published and unpublished sources of information have been consulted for preparing the estimates used for the construction of the inter-industry table of 1953-54. For mechanised transport, like trucks, lorries, buses etc., and in the case of all non-mechanised transport, estimates are built up from unpublished data thrown up by the National Sample Survey. For other mechanised transport like airways, shipping, tramways etc., relevant published information is used. The sources and publications are as given below:

- (a) Investor's Year Book, 1953.
- (b) The Indian Labour Year Book, 1952-53.
- (c) The National Sample Survey, Schedule 2.3 of 7th Round : Operations.
- (d) The Statistical Abstract relating to 1953-54.
- (e) Annual Report of Air Services of India Limited, 1953-54.
- (f) Report of the Air Transport Enquiry Committee (1950).
- (g) First Report (Aug. '53 to March '54) of Air India International Corporation.

- (h) First Annual Report & Accounts (Aug. '53 to March '54) of Indian Airlines Corporation.
- (i) "Basic Road Statistics of India", Sixth (1955) Supplement, Ministry of Transport.
- (j) The National Sample Survey Report (No. 13) on 'Household Transport Operations', Seventh Round.

4.10.2. For the sake of convenience different types of transport are dealt with separately, as far as practicable. The divisions under which the estimates were prepared run as follows:

- (1) automobiles: buses, trucks, taxis, etc.;
- (2) shipping (inland and coastal; and overseas);
- (3) tramways;
- (4) airways;
- (5) all others (non-mechanised) bullock-carts, animal-driven carts, hand-carts, etc.

We propose to present estimates for each of the above categories in the following paragraphs. Our primary interest lies in the preparation of estimates relating to gross earnings, operating costs and wage payments for the various forms of transport.

4.10.3. An important point may be noted in this connection. Vehicles such as private motor cars, rickshaws, cycles, etc., mostly used by households for private purposes are completely left out and the operating costs of such vehicles have been charged to household consumption account.

4.10.4. *Automobiles:* For automobiles the relevant data are not readily available and therefore the analysis has been carried out on primary data. These primary data are collected in Schedule 2.3 of the National Sample Survey, 7th Round operations and are analysed so as to yield estimates of gross earnings, operating costs and wage payments per vehicle of different types. Three different classifications are made, namely—(i) taxis, (ii) buses and vans and (iii) trucks and lorries. These per vehicle estimates are used to arrive at aggregate estimates for the entire economy by making use of number of registered vehicles under operation. However, some adjustments are made to arrive at the final estimates. These are discussed below.

4.10.5. Since the unweighted per vehicle estimates refer to automobiles owned and operated by household entities, the corporate sector is not at all represented. This factor is likely to pull the estimates down since the big transport companies admittedly share the bulk of heavy goods carried on business account. This leads to an arbitrary blowing up of estimates per vehicle to the extent of 20 to 40 per cent in different cases on the basis of local enquiries from established transport companies.

4.10.6. The number of automobiles are obtained as per details available in "Basic Road Statistics" Sixth (1955) Supplement, Ministry of Transport and "The Statistical Abstract of India relating to 1953-54". As regards the number of goods vehicles the registered number of 83,443 is split up into two categories, namely, those used by entrepreneurs and those maintained by firms for their use only. In other words, the first category is the profit making one whereas the second one is the non-profit making category. An arbitrary division of goods vehicles has been made giving 42,000 and 41,443 as the number of vehicles in the first and second categories respectively. The gross earnings and operating costs of those vehicles belonging to the second category, namely trucks and lorries owned by firms for their own use have been ignored since these are included in the costs of inputs of the firms. Thus:

<i>type of vehicles</i>	<i>no.</i>	<i>annual earnings per vehicle (Rs.)</i>	<i>gross earnings (Rs. crore)</i>
taxi ..	11,482	12,404	14.24
buses and vans ..	34,231	17,740	60.73
trucks and lorries ..	42,000	19,889	83.53
total ..			158.50

The operating costs are also similarly derived by using per vehicle estimates. Major inputs are distinguished. A further breakdown of outlays reported under repairs of vehicles including expenses incurred on industrial services can not be directly

obtained from the schedules and hence these are split up into items by making use of availability of materials (both imported and indigenous) that are likely to be used for repair purposes. The pooled estimates of outlays on inputs for buses, trucks and taxis are first obtained in the following form:

<i>items</i>	<i>outlays in</i> <i>•Rs. crore</i>
(1) repair of vehicles (including industrial services)	.. 32.94
(2) kerosene	.. 0.02
(3) petrol	.. 6.64
(4) mobil oil	.. 2.90
(5) other lubricants	.. 0.41
(6) stationery articles	.. 0.37
(7) legal and other services (excluding insurance services)	.. 0.38
(8) postage and stamps	.. 0.05
(9) charcoal	.. 0.03
(10) diesel and other fuel oils	.. 32.33
(11) unclassified materials	.. 0.46
total	.. <u>76.53</u>

Outlays on repairs etc., are itemised as follows:

	<i>Rs. crore</i>
(1) imported goods	.. 7.41
(2) indigeneous goods	.. 17.87
axles	.. 0.35
motor parts	.. 0.04
body parts etc.	.. 4.29
beltings etc.	.. 0.51
tyres, tubes etc.	.. 9.31
acid, spirit etc.	.. 2.34
batteries	.. - 1.03
(3) industrial services	.. <u>7.66</u>
total	.. <u>32.94</u>

The estimate of wage-bill is worked out as follows noting that only 42,000 truck owners have to make wage payments. Thus:

<i>types of vehicles</i>	<i>no.</i>	<i>annual wages per vehicle (Rs.)</i>	<i>estimate (Rs. crore)</i>
taxi	11,482	312	0.37
buses and vans	34,231	2605	8.92
trucks and lorries	42,000	1675	7.04
total wage bill	..		16.33

4.10.7. *Shipping (Inland, Coastal and Overseas)*: The Indian Labour Year Book, 1952-53 is used to estimate earnings and costs of coastal and overseas trade. For inland navigation "Investor's Year Book" is the chief source of information. Earnings are noted as follows:

	<i>Rs. crores</i>
gross earnings from coastal trade ..	11.93
freight earnings from overseas trade	8.59
	20.52
less adjustment for charter hire paid and received ..	1.36
total earnings ..	19.16

For inland navigation gross earnings are noted as Rs. 7.81 crores from Investor's Year Book. Thus:

	<i>Rs. crores</i>
gross earnings from coastal and overseas trade	19.16
gross earnings from inland navigation trade	7.81
total ..	26.97

For costs of operation in respect of coastal and overseas trade it is noted that about 647 thousand tons of coal are consumed. Using purchase price of Rs. 32.4 per ton expenses are obtained at Rs. 2.10 crore. Insurance premia have been estimated for the sector as a whole and therefore, they are left out from the items of costs, for the present. Another Rs. 8.05 crore is taken to be the estimate of outlays on repair and maintenance. This is arbitrarily allocated to the different sectors which supplied items like cables, ropes and cordages, paints and varnishes, transformers and parts for repair of ships etc. Thus total costs come to Rs. 10.15 crore.

4.10.8. For Inland Navigation costs are obtained under three main heads, namely,

	<i>Rs. crore</i>
coal consumed ..	0.84
(260 thousand tons @ Rs. 32.4 per ton)	
repairs and maintenance ..	0.37
unclassified materials ..	0.06
	<hr/>
total ..	1.27

Thus costs of materials and services for shipping trade as a whole come to Rs. 11.42 crore, obtained as:

	<i>cost of inputs</i> <i>(Rs. crore)</i>
coastal and overseas shipping trade	10.15
inland navigation	1.27
	<hr/>
total costs	11.42

Wage payment for inland navigation is obtained from Investor's Year Book and placed at Rs. 6.32 crore.

For coastal and overseas shipping the labour bill is worked out under certain assumptions. The Indian Labour Year Book, 1952-53 gives certain details regarding the ports of

Calcutta and Bombay only. We further note that 120 ships had been operating at the end of 1953 and average employment per ship was 200. On assuming Rs. 2500 as the average annual earning per person employed, the labour bill is placed at Rs. 6.00 crore. Thus, combining the estimates:

		<i>labour bill</i> (Rs. crore)
coastal and overseas shipping	..	6.00
inland navigation	..	6.32
		<hr/>
total wages paid	..	12.32
		<hr/>

4.10.9. *Tramways*: Information is available in the Investor's India Year Book. The estimates for 1953-54 are built up by adding 0.75 of 1953 to 0.25 of 1954. Taking account of the non-reporting companies also, the estimate of gross earnings is placed at Rs. 5.75 crore for 1953-54.

4.10.10. Working expenses are also similarly obtained after making adjustments for depreciation. The wage bill is placed at Rs. 2.51 crore. The estimate of current outlays on materials and services consumed comes to Rs. 2.64 crore.

4.10.11. *Airways*: Statistics in respect of Air-India International and Indian Airlines are available from the 'First Report of Air India International Corporation, and the 'First Annual Report & Accounts of Indian Airlines Corporation, respectively. The corporations had come into existence in August, '53 and accordingly the above-mentioned reports presented accounts relating to eight months covered by August '53 to March '54. Earnings and operating costs have been proportionately marked up for twelve months for these two companies in the absence of comparable data relating to the first four months of the financial year, namely, April '53 to July '53. The annual estimates of gross earnings for 1953-54 are obtained as follows:

annual estimates of earnings
(in Rs. lakh)

		<i>Air-India International Corporation</i>	<i>India Air-lines Corporation</i>	<i>total</i>
passenger revenue	..	244.86	355.46	600.32
mail revenue	..	66.90	69.66	136.56
cargo & excess baggage revenue		39.45	140.26	179.71
non-scheduled flights	..	—	62.65	62.65
charter and other revenue		7.59	23.43	31.02
total	..	358.80	651.80	1010.26

Current expenses including wages and salaries paid are available in some detail for the Air-India International Corporation. These are given below:

estimated current expenses of Air-India International Rs. lakh

wages and salaries	69.76
fuel and oil	91.29
operational expenses	15.34
maintenance, stores, etc.	30.69
traffic expenses	22.04
commission to booking agents	22.86
passenger services	13.47
publicity and advertisement	10.12
office expenses	3.50
board of members' fees	0.09
auditors' fees	0.08
managers' fees	1.12

total

280.36

The statement of expenditures of the Indian Airlines Corporation furnishes even greater details. The annual estimates built up from figures reported for 8 months are presented below:

<i>estimated current expenses of Indian-airlines</i>	<i>Rs. lakh</i>
wages and salaries (including benefits) ..	227.82
training of technical personnel ..	0.09
crew outstation expenses ..	8.16
staff uniform ..	3.85
medical and staff welfare ..	1.24
other expenses of staff ..	2.24
fuel ..	286.40
oil ..	9.21
materials consumed ..	43.28
landing fees ..	21.60
communication expenses ..	1.24
housing and parking fees ..	7.77
handling charges ..	0.60
repairs and services ..	25.10
meals, accommodation etc. ..	9.15
other passenger services ..	1.35
booking agency commission ..	13.54
advertisement and publicity ..	2.68
maintenance of buildings ..	0.54
electricity and water ..	1.38
printing and stationery ..	5.36
postage and telegrams ..	0.38
telephone and trunk calls ..	2.68
conveyance ..	2.89
auditors' and other fees ..	3.36
unclassified ..	4.29
 total ..	 <hr/> 686.20 <hr/>

The next step lies in segregating payments in the shape of wages and salaries. The estimated level of wages, salaries etc.

comes to Rs. 2.99 crore derived as:

	<i>Air-India International (Rs. lakh)</i>	<i>Indian Air-lines (Rs. lakh)</i>	<i>total (Rs. lakh)</i>
wages and salaries ..	69.76	227.82	297.58
medical and staff welfare	—	1.24	1.24
total ..	69.76	229.06	298.82

The current costs of material inputs and services, therefore, come to Rs. 2.10 crore and Rs. 4.57 crore for Air-India International and Indian Airlines Corporation respectively. Using the details presented above the itemised expenses are allocated to the different sectors. Fees, commissions etc. are treated as payments to sector 31 (i.e. professions, services etc.) in conformity with the practice followed earlier. The outlays on materials are allocated to the sectors from which they have been supplied.

4.10.12. *Non-mechanised other transport:* These mainly consist of transport like bullock and buffalo carts, other animal driven carts and coaches, cycle and man driven rickshaws and so on. From the nature of the transport, it is clear that they are all non-mechanised and are almost predominantly used in rural areas.

4.10.13. Of all the non-mechanised transport, bullock and buffalo carts are the most important. The number of carts in India is available from reports on livestock census of India. The census enumerations are available for the years 1951 and 1956. By simple interpolation number of carts for 1953-54 has been placed at 10314 thousand, of which

	<i>no. of carts — (000)</i>
rural	9874
urban	440
total	10314

(The rural and the urban breakdowns are worked out using proportions that are available in 1956 Livestock Census of India, 1956).

4.10.14. Estimates of earnings and operating costs per unit of various types of non-mechanised transport have been obtained by analysing a great number of schedules (No. 2.3) of the National Sample Survey relating to the 7th, 8th and 9th rounds of enquiry. These data have been extensively analysed to throw light on proportions of operating and non-operating carts during the year under consideration and also on the average duration of operations for those units having seasonal activities. The report on household transport enterprises of the N.S.S. is also helpful in getting various other types of information. The procedure of estimation is discussed in detail in the paragraphs to follow.

4.10.15. For urban areas, number of operating carts has been placed at 356 thousand i.e. at 81 per cent of all urban carts. The average annual earning per cart is observed as Rs. 752.28 giving an estimate of Rs. 26.78 crore for total gross earnings of all urban carts.

4.10.16. For rural areas bullock and buffalo carts are distinguished under two heads, namely, perennial (31.3 per cent) and seasonal (40.4 per cent). For carts operating throughout the season annual earnings per cart are obtained as Rs. 245.80. For seasonal carts the figure is placed at Rs. 102.42 on the assumption that the carts on the average operate for 5 months only. Thus earnings from bullock and buffalo carts in rural areas come to Rs. 116.84 crore, derived as:

		<i>percentage</i>	<i>no. of carts (000)</i>	<i>gross earnings per cart (Rs.)</i>	<i>estimated gross earnings (Rs. crore)</i>
<i>rural carts</i>					
perennial	..	31.3	3091	245.80	75.98
seasonal	..	40.4	3989	102.42	40.86
non-operating	..	28.3	2794	—	—
total	..	100.0	9874	—	116.84

Consequently, earnings from bullock and buffalo carts at the all-India level works out at Rs. 143.62 crores. It may be noted, however, that the census does not report horse driven and other animal drawn carts separately and therefore, the number reported against the general heading 'carts' is likely to include a few carts other than bullock and buffalo carts. No separate calculation has been made for these carts (in the absence of number of such carts) and level of earnings and cost of bullock carts have been taken to be representative of the entire group. The operating costs of bullock carts have been derived from norms giving costs of different types as percentages of gross earnings. The aggregate cost of materials and services used as inputs and hired labour payments come to Rs. 120.71 crore and Rs. 10.27 crore respectively, as shown below:

<i>operating costs of bullock and buffalo carts</i>	<i>costs as percentages to gross earnings</i>	<i>amount (Rs. crore)</i>
treatment of animals	2.98	4.28
animal feed	72.65	104.34
repair and maintenance	6.60	9.48
fuels etc. (a) kerosene	0.05	0.07
(b) lubricants	0.97	1.39
(c) others	0.54	0.78
other materials	0.02	0.03
industrial services	0.24	0.34
all materials and services	84.05	120.71
hired labour	7.15	10.27
gross earnings	100.00	143.62

Regarding other types of non-mechanised transport estimation of earnings and costs by the same procedure as above is not possible due to lack of data on number of such operating vehicles in the country. The NSS report on households transport enterprises, however, gives some indication of the level of earnings of transport other than bullock and buffalo carts. Expressed

as a percentage these come to about 64 per cent of the aggregate earnings of all animal drawn carts. These include vehicles like rickshaws, cycle rickshaws, and various animal-transport. By this method of reckoning we get Rs. 91.92 crore as the total earnings of all non-mechanised vehicles other than animal drawn carts such as bullock and buffalo carts operating in both rural and urban areas of the country. The costs of materials and services come to Rs. 19.35 crore and hired labour payments account for another Rs. 3.28 crore. These estimates have been obtained from an analysis of a number of schedules pertaining to the household-transport enterprises of the eighth round of the National Sample Survey. The details of inputs used for sectorwise allocations are similar to those of bullock and buffalo carts. By pooling the estimates, aggregate level of earnings and wage-payments for all types of non-mechanised transport are obtained as:

		<i>gross earning (Rs. crore)</i>	<i>wage payment (Rs. crore)</i>
bullock, buffalo and other animal drawn carts	..	143.62	10.27
other non-mechanised transports	..	91.92	3.28
		<hr/>	<hr/>
all non-mechanised	..	235.54	13.55

4.10.17. Before closing the discussion on various types of inputs, it is necessary to make allowance for insurance premia and other banking charges paid by the sector "Other Transport" as a whole for utilising services rendered by the sector 30 (i.e. banks, insurance and co-operatives). Referring to section 12 (Chapter Four) of the report we find that an allowance of Rs. 0.98 crore has been made for the purpose. It may be noted that these payments mostly consist of insurance premia paid by mechanised road-transport, shipping and the air-ways.

4.10.18. The next step consists in allocating the costs (inclusive of distributive margins) to the different sectors of the inter-industry table. Table (4.10.1) gives the sectorwise allocations of the gross current outlays.

TABLE (4.10.1) : ALLOCATIONS OF COSTS OF THE SECTOR

srl. no.	description of delivering sectors	sector codes	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	animal husbandry, fishery and forestry	3	97.24
2.	coal mining and coke making	4	2.94
3.	other mining	5	61.41
4.	iron and steel	6	1.42
5.	engineering	8	39.79
6.	chemicals	9	4.64
7.	other building materials and wood	11	0.01
8.	cotton textiles	13	0.04
9.	jute and other fibre	15	0.51
10.	leather and rubber	17	11.65
18.	paper, printing and stationery	18	0.46
19.	electricity generation and transmission	19	0.01
<i>small scale :</i>			
20.	metal and metal-working	20	2.24
21.	small scale: building materials and wood manuf.	21	1.18
26.	miscellaneous: small scale manufacture	26	3.08
27.	railways and communications	27	0.32
28.	other transport	28	0.03
29.	trade and distribution	29	0.38
30.	banks, insurance and co-operatives	30	0.98
31.	professions, services and institutions	31	9.97
32.	all sectors	—	238.30

4.10.19. For the sector as a whole estimated gross earnings and wage-payments come to Rs. 436.87 crore and Rs. 47.70 crore respectively. The chapter on commodity taxes reveals that a load of Rs. 21.04 crore has been charged to this sector. Earnings inclusive of taxes, therefore, have been accepted as Rs. 457.91 crore for 1953-54. The details are shown below:

TABLE (4.10.2) : ESTIMATES OF GROSS EARNINGS AND WAGES OF THE SECTOR

srl. no.	type of transport	Rs. crore	
		gross earnings without taxes	wage payments
(1)	(2)	(3)	(4)
1.	automobiles	158.50	16.33
2.	shipping	26.97	12.32
3.	tramways	5.74	2.51
4.	air-ways	10.11	2.99
5.	non-mechanised transport	235.54	13.55
	all transport	436.87	47.70

4.10.20. 'Gross value added at factor cost' (inclusive of depreciation) and 'non-wage income & depreciation' are derived as residuals as shown below:

	<i>Rs. crore</i>
gross earnings including taxes	457.91
taxes	21.04
gross earnings without taxes	436.87
cost of materials and services	238.30
gross value added at factor cost	198.57
wage-income	47.70
non-wage income and depreciation	150.87

SECTOR 29 : TRADE AND DISTRIBUTION

4.11.0. This section mainly deals with all sorts of intermediaries that play their role in helping passage of goods from producers on to the ultimate users. In the chapter on distributive margins (vide Chapter Two) we have already discussed the various forms of passages of commodities entering into the distributive channel. We have, however, left out all transactions in which the producers directly hand over the commodities to the ultimate users since in such cases the margins are not earned by distributors but by the producers themselves. Though the main activity covers wholesale and retail trade carried on by households as well as firms, companies and other like organisations, a few other allied activities namely, cold storage, cinema projection, catering and running of hotels, are also included in the same sector.

4.11.1. The sources of information include (a) National Sample Survey estimates relating to Schedule 2.4 of the seventh Round; (b) Sample Survey of Manufacturing Industries estimates relating to Miscellaneous Industry Code No. 63; (c) Census of India, 1951; (d) Statistical Abstract relating to 1953-54. The information relating to hotels and catering units are mainly derived from (b). Wholesale and retail trading proper is practically covered by source (a). Sources (c) and (d) are consulted for general information relating to particular issues to be discussed in the following paragraphs.

4.11.2. *Wholesale and retail trade:* We have already discussed (vide chapter on Distributive margins) that the earnings of trading activity proper are derived as a residual from aggregative distributive margins after appropriate deductions of goods earnings of railways and of other transport. The inputs corresponding to wholesale and retail trading, however, consist of expenses on establishments and packing materials for inter-

mediate handling of commodities passing through the distributive channel. The outlays on inputs are mainly derived from N.S.S. estimates based on Schedule 2.4 of 7th Round. These estimates are, however, slightly adjusted. Reference to Section 8 of Chapter Four on Small Scale Enterprises reveals that some small scale manufacturing activity gets intermingled with household trading enterprises and hence costs on manufacturing accounts are to be deducted from reported aggregate costs. The costs for trading activity proper are accordingly derived as under:

	<i>Rs. lakh</i>
repair and maintenance of buildings ..	397.84
repair and maintenance of tools, appliances	212.92
repair and maintenance of furniture and fittings ..	16.33
packing materials ..	670.56
stationery articles ..	148.00
fuel and power ..	322.44
other stores ..	89.50
agency services ..	155.97
advertisement services ..	95.97
warehousing services ..	57.06
other services ..	303.10
	<hr/>
total costs	2469.69

4.11.3. One of the limitations from which the N.S.S. estimates as presented above suffer, lies in the fact that the trading activities relate basically to household enterprises and therefore, do not adequately represent business concerns in the corporate sector of the economy. This is likely to underestimate operating costs of all distributive activities. Bearing this in mind a few additional current expenses have been charged to the sector as a whole. These are summarised as follows.

4.11.4. One important item of costs is the payment made by traders for utilising services of banks, insurance companies

and co-operatives. As has been already discussed (vide section 12 of Chapter Four on 'Banks, Insurance Companies and Co-operatives') the aggregate payment to sector 30 comes to Rs. 27.24 crore. The next important item of cost consists of payments for postage and telephones. An idea of allocation of earnings of Sector 27 helps to place the entire expenditure on postage, telephones etc., at Rs. 18.14 crore. An additional outlay of Rs. 16.19 crore is further charged to take account of agency, advertisement and other commissions paid by trading concerns in the corporate sector. Finally, from considerations of availability of products an additional amount of Rs. 6.16 crore by way of expenses incurred on paper, printing, stationery and packing materials, is added to the current costs of operations.

4.11.5. Thus the aggregate cost of current operations of trading activities is placed at Rs. 92.93 crore, derived as under:

	<i>Rs. crore</i>
current costs reported under household	
trading enterprises ..	24.70
payments to banks, insurance companies	
and co-operatives ..	27.24
postage, telephones, etc. ..	18.14
agency, advertisement and other com-	
missions ..	16.19
paper, printing, stationery and pack-	
ing materials ..	6.16
	<hr/>
all costs ..	92.43

4.11.6. *Cold storage*: Information regarding cold storage activity is obtained from the S.S.M.I. (Sample Survey of Manufacturing Industries) Schedules returned under miscellaneous industry code number 63. The estimates of value of output, value of inputs and labour costs are derived from these schedules by the use of appropriate multipliers. The value of output is placed at Rs. 5.93 crore and costs are estimated at Rs. 4.36 crore. The inputs are allocated to the different sectors by using proportions derived from the schedules.

4.11.7. *Cinema projection*: Estimates regarding earnings, inputs and labour bill are built up rather indirectly. From Statistical Abstract the average daily number of workers employed in studios and cinema houses in the principal states are noted. The earnings are estimated from the N.S.S. estimates of consumer outlays on cinemas reported against 'amusements etc.' The estimate of earnings is placed at Rs. 35.88 crore. Outlays on inputs are found out separately for imported stores, consisting of small apparatus, electric carbons etc. Other stores include transformers, fuel oils, electricity, printing and stationery. On the assumption that approximately 500 big houses and 1500 small houses exist, advertisement services and labour bill are worked out on the basis of costs per cinema. Quotations from local houses are used with adjustments. Aggregate cost of materials and services is placed at Rs. 6.15 crore.

4.11.8. *Hotels and restaurants*: Estimate of earnings of hotels and restaurants is derived under certain assumptions. Assuming that about 5 per cent of urban population of 6 crore take meals from hotels and restaurants daily and average expenditure per day comes to about Rs. 2.25, we arrive at an annual outlay of Rs. 249.00 crore. The inputs are mostly food items along with fuel, and power. Details of inputs are obtained from a number of schedules returned under miscellaneous industry code 63 of the Sample Survey of Manufacturing Industries (SSMI). The estimated outlays against inputs and labour are obtained from unweighted totals by using multipliers obtained from S.S.M.I.

4.11.9. Wage bill in trading activity proper is built up as follows. The number of workers employed in shops and commercial establishments are noted from the Statistical Abstract for 1953 as:

shops	..	6.04 lakh
commercial establishments	..	2.69 ,,
all establishments	..	8.73 lakh

These employment figures for 1953 cover concerns falling under "Shops and Commercial Establishments Acts" and naturally do not cover small establishments. Number of employees engaged in commercial activities as per 1951 census is noted as 12.11 lakh. The corresponding figure of employment in shops and commercial establishments as per Statistical Abstract is available as 7.20 lakh, showing that about 5 lakhs of people are employed in small establishments. Noting that employment in shops and establishments registered under the act record an increase of about 21 per cent over the two years from 1951 to 1953, the estimate of number of employees in commercial activities comes to 14.65 lakh in 1953. Assuming arbitrary average wage earnings per employee of Rs. 935 per annum and of Rs. 660 per annum for the bigger and smaller establishments respectively the wage bill is estimated at Rs. 120.66 crore for the entire trading activity. Noting that there are 8.71 lakh and 5.94 lakh employees in bigger and smaller shops and establishments respectively the weighted average earnings comes to about Rs. 824 per head per annum. The National Income Committee's estimate corresponding to 1950-51 is Rs. 739 per capita. Due to increase in the cost of living in 1953 compared to 1950 the level of wage earning may be expected to have risen higher in the later years.

4.11.10. *Combined activity*: At this stage, it is possible to pool together all the estimates of the component activities described above. As usual, details regarding items of costs are used to make sectorwise allocations. The gross entries (namely, costs of inputs inclusive of distributive margins) in respect of the component activities like cold storage and warehousing, wholesale and retail trading, cinema projections, and catering and running of hotels and restaurants are shown in Table (4.11.1). The net entries, i.e., entries exclusive of distributive margins, however, have been finally presented in the inter-industry transactions table.

TABLE (4.11.1) : COSTS OF CURRENT OPERATIONS

(in Rs. crore)

srl. no.	delivering sectors	deliver- ing sector codes	cold storage and ware- housing	wholesale and retail trad- ing	cinema projec- tion	hotels, resta- urants and catering	all activi- ties of the sector
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	agriculture	1	0.04	—	—	72.06	72.10
2.	plantations	2	—	—	—	4.14	4.14
3.	animal husbandry etc.	3	0.16	—	—	47.69	47.85
4.	coal mining etc.	4	0.18	—	0.62	0.58	1.38
5.	other mining	5	0.75	2.57	0.88	0.06	4.26
6.	iron and steel	6	—	0.77	—	—	0.77
7.	engineering	8	—	—	0.96	—	0.96
8.	chemicals etc.	9	0.66	—	—	—	0.66
9.	cement etc.	10	—	1.16	—	—	1.16
10.	other building materials etc.	11	0.05	0.85	—	—	0.90
11.	food, drink, etc.	12	0.14	—	—	56.94	57.08
12.	jute etc.	15	0.06	4.41	—	—	4.47
13.	paper, printing etc.	18	0.04	8.29	0.45	—	8.78
14.	electricity generation etc.	19	2.18	2.73	2.76	1.12	8.79
15.	metal and metal- working	20	—	0.31	—	—	0.31
16.	building materials	21	—	0.59	—	—	0.59
17.	miscellaneous other products	26	—	3.06	—	—	3.06
18.	railways etc.	27	—	18.14	—	—	18.14
19.	banks, etc.	30	—	27.24	—	—	27.24
20.	professions etc.	31	—	22.31	0.48	—	22.79
21.	unclassified	36	0.10	—	—	0.16	0.26
22.	total	—	4.36	92.43	6.15	182.75	285.69
23.	wage-bill	—	0.54	120.66	2.30	26.39	149.89

SECTION 12

SECTOR 30 : BANKS, INSURANCES AND CO-OPERATIVES

4.12.0. This sector covers, mainly three distinct types of financial intermediaries, namely, (a) banks, (b) insurance companies, and (c) co-operatives; however, under co-operatives we also include non-credit societies.

4.12.1. For purposes of inter-industry analysis, we have to carefully examine whatever statistical materials are available in the field and at the same time, to determine what should be taken to constitute earnings and costs of the respective organisations. It may be mentioned that in general, all receipts and disbursements in the shape of financial transfers, i.e., all transactions arising out of existing titles to wealth are left out.

4.12.2. In the paragraphs to follow, we propose to describe in detail the procedures adopted to arrive at the estimated transactions presented in the inter-industry table for each of the categories mentioned above. The primary data have mostly been derived from the following publications:

- (i) Statistical Tables Relating to Banks in India, 1953 and 1954; Reserve Bank of India.
- (ii) Trend and Progress of Banking in India, 1953; Reserve Bank of India.
- (iii) The Indian Insurance Year Book 1953-1956; Issued by the Controller of Insurance.
- (iv) Statistical Statements Relating to the Co-operative Movements in India, 1953-54; Reserve Bank of India.
- (v) Income Tax Annual Report, 1953.
- (vi) Statistical Abstract of India, 1953-54.

Banks

4.12.3. *Gross earnings:* The gross earnings of both scheduled and non-scheduled banks other than the Reserve Bank of India are obtained from Table 4 (ii) of the Statistical Tables Relating

to Banks in India. The figures for 1953-54 as noted below have been obtained by averaging those for the calendar years 1953 and 1954 using the weights 75 and 25 respectively. The second category of earnings includes rents and other incomes, such as net profits from sale and revaluation of investments and incomes from non-banking assets. As is evident, scheduled banks accounted for most of the earnings. They include exchange banks and foreign banks but exclude the Reserve Bank of India.

<i>description of earnings</i>	<i>gross earnings in 1953-54</i> (<i>Rs. crore</i>)		
	<i>scheduled banks</i>	<i>non- scheduled banks</i>	<i>total</i>
interests and discounts ..	33.45	3.39	36.84
commission, exchange, brokerage etc. ..	11.91	0.57	12.48
total ..	45.36	3.96	49.32

4.12.4. We shall now consider the row-allocation of the earnings of banks or, in other words, the distribution of gross earnings among the sectors from which they are derived. In analysing costs of different sectors we have generally found that expenditures on services of banks, insurances and co-operatives, utilised by the different sectors in connection with their current production activities, are not directly obtainable from the data on costs. We have, therefore, decided to build up the row for the sector 'banks, insurances and co-operatives' independently from whatever information is available.

4.12.5. In doing so, we make use of certain details of earnings in respect of Indian scheduled and non-scheduled banks and exchange banks. Interests, dividends, commissions, exchange etc., earned on bills purchased and discounted, loans and advances and different types of securities are noted. The reported total comes to only Rs. 48.60 crore and this total is

marked upto Rs. 49.32 crore retaining the proportions observed. Thus we have:

(Rs. crore)					
<i>Source of income</i>	<i>Indian scheduled banks</i>	<i>Exchange banks</i>	<i>Indian non- scheduled banks</i>	<i>reported total</i>	<i>all banks</i>
interests, dividends, commissions, etc., earned on:					
bills purchased and discounted	2.86	3.85	0.11	6.82	6.92 \
loans and advances ..	17.47	5.30	1.17	23.94	24.30
investment in Govt. securities	7.68	1.17	0.44	9.29	9.43
other invest- ments ..	0.90	0.03	0.06	0.99	1.00
deposits with banks ..	0.07	0.09	0.04	0.20	0.20
other incomes ..	5.98	1.21	0.17	7.36	7.47
(commission on bills, T.T. s and D.D. s sold, ser- vice charges etc.)					
all ..	34.96	11.65	1.99	48.60	49.32

4.12.6. The whole of interests, dividends, commissions, etc., earned on loans and advances amounting to Rs. 24.30 crore is distributed over the different sectors in proportion to the respective volume of advances as on 31 December, 1953, available from "Trend and Progress of Banking in India". This procedure is, however, subject to one limitation, namely, that the percentages to total advances refer to a particular date only and we have to assume these to hold, on the average, over the

entire financial year 1953-54. The distribution of earnings on loans and advances is presented below:

		<i>percentage to total advances (as on 31-12-53)</i>	<i>all earnings on loans, advances etc. (Rs. crore)</i>
industries:			
cotton weaving	..	10.6	2.57
jute textiles	..	3.7	0.90
other textiles	..	2.2	0.53
iron and steel	..	1.4	0.34
coal and other mining	..	0.9	0.22
engineering	..	3.2	0.78
sugar	..	2.2	0.53
cement	..	0.2	0.05
transport, communications, elec- tricity	..	1.1	0.27
vegetable oil	..	1.6	0.39
chemicals, dyes and paints	..	1.7	0.41
others	..	5.8	1.41
wholesale and retail trade and other commerce	..	49.2	11.95
agriculture	..	2.4	0.58
personal and professional	..	8.7	2.11
all others	..	5.2	1.26
		<hr/>	<hr/>
all	..	100.0	24.30
		<hr/>	<hr/>

4.12.7. So far as interests on bills purchased and discounted are concerned, we assume that the whole amount (Rs. 6.92 crore) is paid by traders and distributors. This amount is, therefore, entirely allocated to "trade and distribution" (sector 29). All earnings on government securities are conveniently treated as payments by the government to banks in lieu of banking services. Earnings of banks from other investments, amounting to Rs. 1.00 crore, is likely to be out of shares and debentures of manufacturing concerns. In the absence of

relevant data, we distribute this among the different industries in proportion to the respective fixed and working capital invested as available from the Census of Manufacturing Industries. Other earnings (inclusive of commissions on bills, T.T. s and D.D. s sold, and service charges etc.) are approximately distributed into the already classified categories.

4.12.8. *Current costs:* Expenditure towards the running of establishments is available in some detail from Table 4(ii) of the 'Statistical Tables Relating to Banks in India'. A few adjustments and arbitrary allocation of grouped outlays, as summarised below, have been made to arrive at the final analysis. The specified items of costs are available as follows:

- (a) *Salaries and allowances:* Bonus to staff is added to salaries and allowances and the total is shown against wage income of the sector.
- (b) *Directors', auditors', legal practitioners' fees etc.:* These are all treated alike and considered to be payments to sector 31 (i.e., professions, personal services etc.).
- (c) *Rents, taxes, insurance and lighting etc.:* The data for income-tax paid is available from the Income-Tax Annual Report. An idea of other taxes paid is obtained from Tables 7(i) to 7(iv) of 'Statistical Tables Relating to Banks in India'. The residual is arbitrarily split up between lighting charges and insurance premia. Rents are omitted from current outlays on goods and services. Lighting charges are allocated to sector 19 (i.e., electricity generation and transmission) and are worked out by multiplying an average value of electricity consumption per bank per annum (notional) for scheduled and non-scheduled banks by the respective numbers of offices. In respect of insurance premia, it is assumed that banks paid approximately 10 per cent of the entire fire insurance premia received by insurance companies in 1953-54. The rest is treated as unclassified.
- (d) *Postage, telegrams and stamps:* The total outlay has been shown as payment to sector 27 (i.e., railways and communications).

- (e) *Stationery, printing and advertisement*: About 15% of this amount is regarded as advertisement expenses and the rest is allocated to sector 18 (i.e., paper, printing and stationery etc.).
- (f) *Other expenses*: The entire outlay is arbitrarily split up into three categories, viz., telephone charges, travelling allowances and unclassified. Telephone charges are allocated to sector 27 (i.e., railways and communications). Travelling expenses are treated as payments partly to railways (two-thirds of the total expenses) and partly to other transports (one third). The residual of "other expenses" is treated as "unclassified".

4.12.9. The items under which costs are incurred can, therefore, be summarised as follows:

<i>items</i>	<i>costs</i> (<i>Rs. crore</i>)	
	1953-54	
salaries and allowances	.. 18.56	
bonus to staff	.. 0.92	19.48
		<hr/>
director's fees etc.	.. 0.11	
auditor's fees	.. 0.08	
legal practitioner's fees	.. 0.25	
advertising agent's fees	.. 0.20	
electricity	.. 0.20	
insurance charges	.. 1.08	
postage, telegrams and telephones	.. 1.60	
travelling expenses	.. 1.38	
stationery and printing	.. 1.02	
unclassified	.. 0.95	6.87
		<hr/>

Insurance Companies

4.12.10. Data for insurance companies are available under four categories, namely, (a) life insurance and provident societies, (b) fire insurance, (c) marine insurance, and (d) miscellaneous insurance. The main source of information is

"The Indian Insurance Year Book" for the years 1953 to 1956. The 1953-54 estimates are built up by taking weighted average of the figures for calendar years 1953 and 1954, using 75 and 25 respectively as weights.

4.12.11. *Gross earnings*: Under life insurance companies we also include provident societies. Gross earnings are given by 'gross premium incomes' diminished by 'outgo'. Gross premium incomes include both 'first year' and 'renewal' premiums for life insurance along with net interest, dividends, rents and other receipts. 'Outgo' denotes surrenders etc., and claims paid by death and by survivance. For all insurances both Indian and non-Indian insurers are covered. In the case of fire, marine and miscellaneous insurance companies, we similarly treat 'gross earnings' as equivalent to 'premiums less re-insurances' plus 'net interests, dividends, rents etc.' and 'other receipts' diminished by 'claims less reinsurances'. Thus gross earnings for the sector may be denoted as 'net premium incomes'. These are shown below for different types of companies for the year 1953-54.

		(Rs. crore)				
		<i>life insurance and provident societies</i>	<i>fire insurance</i>	<i>marine insurance</i>	<i>others</i>	<i>all</i>
gross premium						
incomes	..	65.82	10.83	4.66	6.61	87.92
less 'outgo'	..	20.84	3.66	3.47	3.22	31.19
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
net premium						
earnings	..	44.98	7.17	1.19	3.39	56.73
		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

4.12.12. Coming to the allocation of these earnings among the sectors from which they are received, we may note that life insurance premiums are almost entirely paid by households. Fire insurance premiums are assumed to be roughly propor-

tional to paid-up capital in the different branches of economic activity. This indicates that manufacturing industries pay more than 60 per cent of fire insurance premiums. The rest is shared by trading concerns, financial bodies, mining and transport, excepting that a small fraction is assumed to be paid by government and quasi-government bodies. The share of manufacturing industries is allocated among different industries in proportion to respective values of productive capital employed as available from the report on "Census of Manufacturing Industries, 1953". Marine insurance premiums are assumed to be almost entirely paid by trading concerns with a small fraction left for transport. This is because marine insurance premiums depend on (i) goods exported and (ii) ships insured. Premiums in respect of (i) will be paid by traders and distributors, while those for (ii) will be paid by transport enterprises. Lastly, miscellaneous insurance covers insurance of vehicles, burglary insurance, accident insurance etc., and is distributed between "households" and "other transport", by subjective judgement.

4.12.13. *Current costs:* Management expenses are noted below under (i) wages and salaries, and (ii) other expenses.

<i>type of insurance</i>	<i>management expenses (Rs. crore)</i>		
	<i>salaries and wages</i>	<i>others</i>	<i>total</i>
life insurance and provident societies ..	6.21	9.06	15.27
fire insurance ..	1.76	1.93	3.69
marine insurance ..	0.82	0.47	1.29
miscellaneous ..	0.93	1.01	1.94
all ..	9.72	12.47	22.19

Commissions to agents of life insurance business is calculated by assuming an average rate of commission of 5 per cent of the policy renewal premiums and a rate of 40 per cent of the first

year's premium on new business. For other types of insurance the relevant data are available. The whole of commissions to agents is treated as payments to sector 31, i.e., professions and personal services.

4.12.14. With regard to other items of cost, practically no information is available. As the cost-structure is likely to be very similar to those of banks, the proportions found for banks are employed with, however, some minor adjustments. The final estimates are obtained as follows:

		(Rs. crore)
personal fees etc.	..	1.40
printing and stationery	..	0.71
postage, telegrams, telephones	..	1.04
remittance to banks	..	0.16
electricity charges	..	0.06
commissions to agents	..	8.35
others: unclassified	..	0.75
<hr/>		
total expenses (other than salaries and wages)	..	12.47

Co-operatives

4.12.15. *Gross earnings:* In the case of co-operatives, some information is available from the publication "Statistical Statements Relating to Co-operative Movements in India (1953-54)". Interests received and paid are not, however, available for all the types of co-operatives listed below and therefore, net interest earnings cannot be estimated. An indirect procedure is followed instead. Gross earnings are estimated by adding 'cost of management' to 'profit or loss' of the co-operative organisations. These are noted below for 11 different types of co-operatives:

		<i>Rs. lakh (1953-54)</i>	
<i>type of co-operatives</i>		<i>cost of manage- ment</i>	<i>profit (+) or loss (—)</i>
state (provincial) banks (central credit societies) ..	48.92	+25.71	
central banks (central credit societies)	103.08	+53.05	
state (provincial) non-credit societies ..	25.84	—12.58	
central non-credit societies ..	147.84	—10.19	
agricultural credit societies ..	107.00	+73.75	
agricultural non-credit societies ..	152.02	—20.21	
grain banks ..	1.50	+15.09	
central land mortgage banks ..	6.01	+5.56	
primary land mortgage banks ..	9.20	+3.55	
non-agricultural credit societies ..	151.36	+120.59	
non-agricultural non-credit societies ..	350.47	—106.93	
all co-operatives ..	1103.24	+166.77	

Thus, the estimate of earnings of all types of co-operatives comes to Rs. 12.71 crore for 1953-54 derived as under:

	<i>Rs. crore</i>
management expenses ..	11.03
profit ..	1.68
total interest and other earnings ..	12.71

4.12.16. It is difficult to ascertain precisely the contribution of different sectors to the earnings of co-operative societies. As already stated, data on interests received and loans due are not available for most of the concerns except for co-operatives like state (provincial) or central non-credit societies. It is, therefore, not possible to find out the amount of interest received by different types of co-operatives from different concerns

borrowing money from the co-operatives. Agricultural credit societies, however, are likely to earn interests from the agricultural sector alone and hence the entire earnings of such societies is allocated to 'agriculture' (sector 1). Regarding loan transactions of non-agricultural credit societies, it is assumed that traders and distributors account for a major share of the earnings. A fraction, however, is treated as contributed by the 'households'.

4.12.17. *Current costs:* Practically no information is available on the breakdown of expenses. The cost-breakdown of non-scheduled banks is utilised for the purpose. Subjective adjustments are also made in some cases. We then get the following breakdown:

		<i>Rs. crore</i>
total management expenses	..	11.03
wages and salaries	..	9.90
depreciation, rent etc.	..	0.43
cost of materials and services	..	0.70
		<hr/>

The cost of materials and services is further split up as:

		<i>Rs. crore</i>
printing and stationery	..	0.34
postage, telegrams, etc.	..	0.20
electricity	..	0.01
other items (kerosene etc.)	..	0.04
professional fees, etc.	..	0.11
		<hr/>
total	..	0.70

4.12.18. We have already pointed out that the cost-structures of different sectors do not enable us to estimate the expenses incurred towards the utilisation of banking and allied services. Approximate methods are followed for estimating the distribution of earnings of sector 30 (i.e. banks, insurances, and

co-operatives) as depicted by the corresponding row in the inter-industry table. We have already described the procedures followed for distributing the earnings from each of the three types of financial activities. In the statement below, we present the combined distribution for the whole sector, viz., banks, insurance and co-operatives:

<i>activities receiving</i>	<i>sector allocations of earnings (Rs. crore)</i>
agriculture	.. 3.87
coal mining	.. 0.25
other mining	.. 0.33
iron and steel industries	.. 0.93
non-ferrous metal industries	.. 0.14
engineering industries	.. 1.60
chemical industries	.. 1.13
cement industries	.. 0.25
plywood and tea-chest industries	.. 0.21
sugar, vegetable oil and other food industries	2.12
cotton textiles industries	.. 5.23
other textile industries	.. 0.78
jute textile industries	.. 1.71
glass and ceramics industries	.. 0.08
tanning and leather industries	.. 0.31
paper, printing and stationery industries	.. 1.57
electricity generation and transmission	.. 0.65
railways and communications	.. 0.33
all other transport	.. 0.98
trade and distribution	.. 27.24
financial bodies	.. 1.24
unclassified	.. 0.15
government	.. 9.57
households	.. 58.09
all activities	118.76

4.12.19. We are also in a position to combine the inputs of the three types of financial activities and to allocate them among the delivering sectors. Table (4.12.1) gives the estimates of inputs in respect of (a) banks, (b) insurance, and (c) co-operatives. The "gross entries" in this table are, however, value at delivered prices and as such inclusive of distributive margins. Distributive margins are deducted before the final 'net' entries are assembled in col. 30 of the inter-industry transactions table.

TABLE (4.12.1) : SECTORWISE COST ALLOCATIONS FOR 1953-54

srl. no.	delivering sectors	sector code	cost allocation (in Rs. crore) for			gross entries (Rs. crore)
			banks	insur- ance	co-opera- tives	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. other mining		5	—	—	0.04	0.04
2. paper, printing stationery etc.		18	1.02	0.71	0.34	2.07
3. electricity generation etc.		19	0.20	0.06	0.01	0.27
4. railways and communications		27	2.52	1.04	0.20	3.76
5. all other transport		28	0.46	—	—	0.46
6. banks, insurance etc.		30	1.08	0.16	—	1.24
7. professions, services etc.		31	0.64	9.75	0.11	10.50
8. unclassified		36	0.95	0.75	—	1.70
9. total		—	6.87	12.47	0.70	20.04

4.12.20. Combining wages and salaries for banks, insurance, and co-operatives, we arrive at the estimate of Rs. 39.10 crore as the 'wage-income' of the entire activity:

	<i>wages and salaries (Rs. crore)</i>
banks	.. 19.48
insurance companies (including provident societies)	.. 9.72
co-operatives	.. 9.90
total	39.10

4.12.21. Similarly, the following statement for 1953-54 combines 'gross earnings' and 'cost of materials and services' for the three types of activities. 'Gross value added' is estimated as the difference between 'gross earnings' and 'cost of materials and services' and is therefore inclusive of depreciation. 'Non-wage income', also inclusive of depreciation, is obtained as a residual from 'gross value added' after the deduction of 'wage-income' as estimated in 4.12.20.

		(Rs. crore)			
		<i>banks</i>	<i>insurance companies</i>	<i>co-operatives</i>	<i>all activities</i>
gross earnings	..	49.32	56.73	12.71	118.76
costs of materials, services		6.87	12.47	0.70	20.04
gross value added	..	42.45	44.26	12.01	98.72
wage-income	..	19.48	9.72	9.90	39.10
non-wage income (including depreciation)		22.97	34.54	2.11	59.62

SECTION 13

SECTOR 31 : PROFESSIONS, SERVICES AND INSTITUTIONS

4.13.0. This sector like trade, transport etc., produce services (both professional and institutional) for the markets. To be more precise the sector comprises all services rendered by self-employed persons along with, however, institutions like schools, colleges, hospitals, research centres etc. The scope of the sector further extends to include domestic servants, unlike the practice of the National Income Unit of the Central Statistical Organisation which presents separate income estimates for 'domestic service' and 'professions and liberal arts'.

4.13.1. The services rendered by self-employed persons as well as by institutions can be spelled out as below, following, however, the main lines of the NSS classification.

- (1) medical, health and sanitary services;
- (2) educational and research services;
- (3) recreation services (excluding cinema projection and catering);
- (4) business services (excluding trade and distribution);
- (5) arts and journalism;
- (6) legal services;
- (7) religious and charitable services;
- (8) services of barbers and hair dressers;
- (9) services of washermen and laundries;
- (10) building services (i.e., those of architects, builders, contractors, etc.);
- (11) domestic services (i.e., services rendered by sweepers, cooks, etc.).

Looked at from a different angle, the sector includes all economic activities (of which a description is given above) performed by (1) self employed persons, (ii) institutions not working for profits and (iii) domestic servants. The gross value of output of the sector accordingly tallies with the aggregate of gross earnings received by all the different categories of persons.

4.13.2. The net earnings of persons in the first group, namely, the self-employed persons have been entirely treated as belonging to 'entrepreneurial earnings' of the sector included under 'non-wage income'. In the case of non-profit institutions, namely, schools, colleges, hospitals and other research institutions the payments received by employees (such as teachers, doctors, technicians, research workers, nurses, etc.) are treated as wage-payments. For the last group of persons engaged in various forms of domestic services, it is quite interesting to note that they receive an income for which they practically do not incur any expenditure for 'current operations'.

4.13.3. Institutions run wholly or partly by state and other government and non-government grants have been included as stated earlier and therefore the grants received by them have been treated as usual revenues. The recurring expenditures on establishments etc., have been charged as costs of current operations. To give a precise example, a physician working in a hospital has been treated as an employee and since hospitals come under the coverage of the sector his earnings will form a part of the wage-income of the sector. On the contrary, a physician working on his own account will be treated as a self-employed person and his net earnings will be treated as belonging to 'non-wage' income of the sector.

4.13.4. Those working in this field are pretty well acquainted with the very little factual information that can be of any use. For inter-industry studies we make use of two sources of information, namely,

- (i) report number 55 of NSS on 'Profession, services and Financial operations' (4th to 8th Round, NSS); and unprocessed materials collected through schedule 2.5 (Professions, Services, Financial Operations-household enterprise enquiry) of the NSS;
- (ii) national income estimates of Central Statistical Organisation, Government of India for 1953-54.

4.13.5. All India estimates of total gross earnings are not directly available. An indirect method of estimation has to be followed. This essentially lies in tracing the payments made by different sectors to earners belonging to sector 31 (i.e., professions, services, etc.). This is not in itself a fully satis-

factory method of estimation of gross earnings in that it ignores the inaccuracies involved in the estimates of payments by the sectors (since it has been already discussed in an earlier chapter that some of those estimates are quite arbitrary).

4.13.6. The only comparison (from quite an independent source) that can be made is provided by the estimate of net earnings published by the C.S.O. There is no parallel estimate of gross earnings available and therefore our estimate of domestic product at factor cost gross of depreciation can be broadly compared with the estimate of net earnings prepared by the National Income Unit of C.S.O. following a direct method of income estimation.

4.13.7. Table (4.13.1) shows the money-flows received by sector 31 from other sectors. These are reproduced from the inter-industry transactions Tables of 1953-54.

TABLE (4.13.1) : ESTIMATES OF EARNINGS OF SECTOR 31

srl. no.	originating sector	sector code	amount (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	3.79
2.	animal husbandry, fishery, forestry etc.	3	54.63
3.	chemicals	9	3.12
4.	small scale: textile and products	22	0.33
5.	small scale: food, drink, tobacco etc.	23	0.44
6.	other transport	28	9.97
7.	trade and distribution	29	22.79
8.	banks, insurance and co-operatives	30	10.50
9.	constructions	32	42.30
10.	residential property	33	4.71
11.	total inter-industry flows		152.58
12.	households		586.98
13.	public authorities (current account)		45.08
14.	total final flows		632.06
15.	total inter-industry and final flows		784.64

The level of total gross-earnings of sector 31 in 1953-54 is thus placed at Rs. 784.64 crore.

4.13.8. The next step lies in arriving at the estimate of cost of materials required for the current activities included in the sector. An idea of ratio of cost of materials to gross earnings is derived from an analysis of schedules 2.5 of the 4th Round of NSS, which had also been used in connection with the preparation of inter-industrial relations table for 1950-51 prepared under the guidance of Dr. T. P. Chowdhury and Dr. R. M. Goodwin. For urban households the ratio is observed as 0.2092. However, the NSS enquiry relates to household entrepreneurs only and therefore excludes institutions in the fields of research, education, etc. Moreover, it has already been observed that domestic servants are likely to incur practically no costs on current account. In view of such institutional and personal services outlay on materials for current activities is expected to be somewhat lower than the ratio cited above. Such an observation leads to the acceptance of a much lower overall ratio of outlay on material to total gross earnings. The revised overall ratio is placed at 0.1437 approximately leading to the estimate of Rs. (784.64×0.1437) crore. = Rs. 112.75 crore for the aggregate outlay on materials required for current operations.

4.13.9. The estimate of gross domestic product at factor cost is thus placed at Rs. 669.48 crore derived as:

	<i>Rs. crore</i>
gross earning ..	784.64
less commodity taxes ..	2.41*
gross earnings less taxes ..	782.23
less cost of materials ..	112.75
gross domestic product at factor cost	669.48

*Vide Chapter Three on "Commodity Taxes" for taxes on professions amounting to Rs. 2.41 crore.

4.13.10. The next step consists in finding out a detailed breakdown of materials likely to be absorbed by the sector as a whole. The analysis of schedules 2.5 of 4th Round NSS furnishes the necessary details. A number of schedules more or less covering the different types of services in a particular sub-sample had been analysed earlier in connection with the preparation of the 1950 transactions table of the Indian Economy. In the absence of any other information these are used to calculate proportion of outlays on particular items. These percentages to total cost are applied to arrive at a detailed sectoral breakdown of costs with, however, some adjustments dictated by availability of particular materials for inter-industry uses. The adjustments are minor and are mostly in the nature of transfers from one sector to another sector. The transfers relate mostly to items about which no specific information is available so as to enable one to distinguish whether the products belong to large scale or small scale industries.

4.13.11. Following, the usual practice the gross entries are first obtained. These are 'gross' in the sense that they include trade and transport margins. Distributive margins were then deducted to arrive at the net entries at supply prices (inclusive, however, of indirect or commodity taxes). These have been finally shown in the inter-industry transactions table. The gross entries are presented in Table (4.13.2).

4.13.12. Estimation of wage income is rendered difficult due to the fact that it is practically not possible to isolate wage-earners from non-wage earners. Apart from the question of non-availability of suitable statistics in respect of earners belonging to this sector there is also the issue of proper classification of earners into wage-earning and non-wage earning categories. It is worthwhile noting that such a classification is primarily dictated by the purpose for which one likes to carry on the analysis. For our purposes we have followed some procedures with a view to classifying earners into just two categories, namely, wage-earners and non-wage earners. The following details may be noted in this connection. All persons (like teachers, research workers, technicians, professors, etc.) employed in various types of institutions like schools, colleges and other educational, medical, engineering institutions etc.,

are treated as wage-earners. Some indications of the level of their earnings is derived from the Statistical Abstract. All earners engaged in domestic services are also treated as wage-earners. The earnings of doctors, lawyers and others in allied professions working on their own account are included in non-wage income. It is necessary, however, to note that the persons employed by such own-account earners, who carry on their business as employers, are treated as purely wage-earners.

TABLE (4.13.2) : ALLOCATION OF COSTS OF MATERIALS AND SERVICES BY DELIVERING SECTORS

srl. no.	description of delivering sector	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	animal husbandry, fishery and forestry	3	0.76
2.	coal mining and coke making	4	3.04
3.	all other mining	5	6.83
4.	non-ferrous metals	7	5.04
5.	engineering	8	10.90
6.	chemicals etc.	9	24.07
7.	other building materials and wood manufacture	11	4.51
8.	cotton textiles	13	2.43
9.	glass and ceramics	16	8.35
10.	paper, printing and stationery	18	4.71
11.	electricity generation and transmission	19	2.77
12.	small scale: metal working	20	12.81
13.	small scale: building materials and wood manufacturing	21	5.94
14.	small scale: textile and textile products	22	5.17
15.	small scale: miscellaneous	26	10.54
16.	railways and communications	27	2.38
17.	unclassified: large scale	36	2.50
18.	all sectors		112.75

4.13.13. An attempt to reckon the level of wage-earning at discussed above is next made. We have already noted that the Statistical Abstract gives some indication of earnings of persons employed in various educational and other institutions. The level of earnings of persons engaged in domestic services is broadly indicated by the contribution to national income from domestic services as estimated by the National Income Unit of the Central Statistical Organisation. In respect of other wage-earnings data (relating to 7th round) published in the N.S.S. Report (no. 55) on 'Professions, Services and Financial Operations' are used. It is observed that wage payments come to about 11 per cent of gross earnings. On aggregation the wage income for the sector as a whole is placed at Rs. 343.74 crore, which amounts to about 44 per cent of the gross earnings.

4.13.14. We have already seen that the estimate of gross domestic product at factor cost for the sector comes to Rs. 669.48 crore. We have also estimated the level of wage-income. The level of non-wage income and depreciation, estimated as residual in the usual manner, thus comes to Rs. 325.74 crore as shown below:

	<i>Rs. crore</i>
gross domestic product at factor cost ..	669.48
less wage-income ..	343.74
 non-wage income and depreciation ..	 325.74

SECTION 14

SECTOR 32 : CONSTRUCTIONS

4.14.0. This section is devoted to all types of constructional activities, undertaken by private and public authorities during the year 1953-54. All types of new constructions, namely construction of residential buildings, factory establishments, roads, bridges, multipurpose power projects, bunds, fencings etc., come within the scope of this sector.

4.14.1. The various sources of information tapped for estimation of costs of different types of constructions may be broadly listed as follows:

- (a) the National Sample Survey: estimates from the Sample Survey of Manufacturing Industries (1953), estimates from Schedule 2.2 (Small Scale Manufacture) and Schedule 2.1 (Agriculture) 7th Round, estimates from Schedule 1.0 (Consumer Expenditure) 2nd and 3rd Rounds, N.S.S. estimates from Schedule 10 (Employment & Unemployment), 9th Round.
- (b) Public Electricity Supply: All India Statistics, 1953.
- (c) Report by the Railway Board on Indian Railways, 1953-54.
- (d) Annual Report of the Posts and Telegraphs Department, 1953-54.
- (e) Report on Currency and Finance (1953-54).
- (f) Statistical Tables Relating to Banks in India (1953-54).
- (g) Statistical Statements relating to the Co-operative Movement in India, 1953-54.
- (h) Budgets and Accounts of Part A & B States, 1953-54.
- (i) Budgets and Accounts of Union & Part C States, 1953-54.
- (j) Five Year Plan Progress Reports.
- (k) Working paper on "Capital Formation in Indian Union" (April 1955) prepared by C.S.O. and N.I.U. in collaboration with the Economic Wing, Ministry of Finance.

- (l) Report of Committee of Experts on buildings.
- (m) Planning Commission Working Papers on Housing.
- (n) Preliminary papers on Costs of Multipurpose and Power Projects from C.S.O.
- (o) Report of the Environmental Hygiene Committee, October, 1949.
- (p) Taxation Enquiry Committee Report, Vol. III. Ministry of Finance (Department of Economic Affairs), 1953-54.

4.14.2. Outlays on various types of constructions (residential and non-residential, of factory buildings and others) are traced from sources mentioned in para 4.14.1. Constructions undertaken by large scale manufacturing industries are estimated as the difference in the value of buildings at the end of 1953 from that at the end of 1952. Construction of buildings undertaken by small scale industries is available from N.S.S. estimates based on Schedule 2.2 (7th Round). Constructions undertaken by agricultural enterprises are obtained from estimates based on Schedule 2.1 (N.S.S.). Thus:

<i>Constructions (non-residential) reported under :</i>		<i>Rs. .</i>
large scale manufacture	..	34.14
small scale manufacture	..	15.59
agriculture	..	33.34
store houses, sheds etc.	7.49	
cattle sheds	25.85	
	<hr/>	<hr/>
total	..	83.07

4.14.3. Outlays on residential constructions are obtained from N.S.S. estimates. The cost of construction of residential buildings has been estimated by the N.S.S. from returns collected under block 12 of Schedule 10 (9th Round). The 9th Round of N.S.S. covers the period 15 May to 31 August, 1955. The costs of private constructions collected by N.S.S. relate to all types of new constructions undertaken during the year preceding the date of enquiry. This suggests that the estimates built up from such returns represent the annual value of constructions

relating broadly to the year 1954-55. The two sub-sample estimates are combined separately for rural and urban India as shown below:

<i>sub-samples</i>	<i>estimated costs of construction (Rs. crore)</i>		
	<i>rural</i>	<i>urban</i>	<i>all-India</i>
sub-sample 1	135.80	144.89	280.69
sub-sample 2	129.24	137.80	267.04
combined	132.52	141.34	273.86

4.14.4. Thus the estimated value of constructions for the year 1954-55 comes to Rs. 273.86 crore. The level of constructions in 1953-54 is arbitrarily placed at 5 per cent below the estimates of 1954-55. This gives aggregate costs of constructions in 1953-54 as Rs. 260.82 crore, which are made up of:

	<i>Rs. crore</i>	
rural	..	126.21
urban	..	134.61
all-India	..	260.82

4.14.5. Other non-government constructions undertaken by various sectors are also obtained from N.S.S., as mentioned below:

	<i>Rs. crore</i>	
repair and maintenance of buildings in large scale industries (estimated from S.S.M.I., 1953)	..	1.84
constructions by household (recorded under and estimated from Schedule 1.0, 2nd and 3rd Rounds, N.S.S.)	..	32.68
bunds, fencings and drains	7.18	
tanks and wells	22.60	
reclamation of land	2.90	
land improvement (reported under and estimated from Schedule 1.0, 2nd and 3rd Rounds, N.S.S.)	..	54.13
total	..	88.65

4.14.6. On integration outlay on constructions charged to "Other Capital Accounts" (i.e., capital accounts other than those of public authorities) is obtained as:

		<i>Rs. crore</i>
constructions reported under large scale		•
manufacture ..		35.98
buildings etc.	34.14	
repair and maintenance	1.84	
construction reported under small scale		
manufacture ..		15.59
constructions reported under agricultural		
other households ..		120.15
stores houses, sheds etc.	7.49	
cattle sheds	25.85	
bunds and fencings	7.18	
tanks and wells	22.60	
reclamation of land	2.90	
land improvement	54.13	
non-residential constructions: total ..		171.72
residential constructions ..		260.82
rural	126.21	
urban	134.61	
all constructions charged to 'other capital accounts'	..	432.54

Thus, outlay on constructions charged to 'other capital accounts' works out to Rs. 432.54 crore for 1953-54.

4.14.7. It is necessary to make here a special mention of labour payments, for installations of machinery etc. In our scheme of inter-industry transactions such labour payments for

installations other than constructions are included in the total outlay charged against row 32 (i.e., constructions). Consequently they are covered by the estimate of "wage-income" shown in column 32 of the inter-industry transactions table.

4.14.8. A reference to section 3 of Chapter Five (i.e., Public Authorities: Capital Account) to follow reveals that gross outlays on constructions by different departmental activities of the government comes to Rs. 250.00 crore for 1953-54, built up as:

		<i>Rs. crore</i>
gross outlays on constructions by:		
railways	..	27
posts & telegraphs	..	7
multipurpose river schemes	..	54
irrigation schemes	..	42
electricity schemes	..	25
forests	..	1
civil administration	..	94
all	..	250

A closer examination of these outlays and repair-maintenance outlays charged to constructions under public authorities' current account is next made to get an idea of the different types of constructions. The estimates made available by the National Income Unit of CSO distinguish only three types of constructions, namely, (a) buildings, (b) roads and bridges, and (c) other construction works. Besides, an attempt is made to use information available by one or the other of the sources mentioned under 14.2. Below is presented an account of the different heads under which the constructions are ultimately traced:

*gross outlays
on construc-
tions
(Rs. crore)*

constructions by public authorities traced under:

port development (Bombay Port trust and Kandla Port)	..	5.50
aerodrome	..	1.39
education, health and housing	..	48.33
roads (national highways and state roads)	..	38.78
(a) government	20.18	
(b) municipalities	18.60	
power projects including electricity schemes	..	27.74
other multipurpose projects including irrigation schemes and river schemes	..	86.87
community development, National Extension Service (NES) and rural programmes	..	6.39
railways and posts-telgraphs (P & T)	..	34.00
buildings	8.00	
other constructions	13.00	
repairs and maintenance	13.00	
constructions by forest departments	..	1.00
repair & maintenance (other than P & T)		65.28
defence outlays on repair and maintenance	25.28	
buildings and roads	22.17	
land reclamation	1.78	
C.T.O. operating expenses	2.10	-
other accounts including irrigation	13.95	—
all outlays	..	315.28

4.14.9. Reference to public authorities' current and capital accounts immediately reveals that the outlay on government constructions is charged partly to current account and partly to capital account as follows:

	<i>Rs. crore</i>
constructions charged to "current" account	
of public authorities ..	65.28
constructions charged to "capital" account	
of public authorities ..	250.00
	<hr/>
total ..	315.28

To these we have to add the estimated outlay on constructions charged to "Other Capital Accounts" namely Rs. 432.54 crore (as shown in para 4.14.6) to arrive at the total outlay on constructions in 1953-54. This works up to Rs. 747.82 crore.

4.14.10. Since outlays on constructions form a part of the capital outlays of the economy during the year, the total outlay is apportioned between government capital accounts and other capital accounts with, however, a relatively small part (Rs. 65.28 crore) charged to government current accounts. The part of constructions charged to current account of the public authorities is expected to be of a recurring nature and consists mainly of repair and maintenance outlays of civil administration and defence departments. In view of the fact that construction outlays form a part of the capital formation of the country, no entry is made along the row corresponding to sector 32 within the inter-industry box of current transactions.

4.14.11. Viewed from a different angle the inputs required for various types of constructions have a direct impact on the demand for goods and services of the economy. This is one of the reasons that go to explain why construction activity is included as one of the transactors in the inter-industry quadrant. In the inter-industry setup we have treated the activity as non-profit making and hence income of self-employed persons gets included in the wage bill of the sector. Distinction, however, is maintained in respect of payments for services

of masons, carpenters, plumbers, etc., which are treated as payments to the sector 31, namely, 'professions and personal services'. Further, it can be seen that wage income of people engaged in constructions forms a part of the national income of the country. In the scheme followed to depict the inter-industrial connections of the economy, the entire economy is divided into a number of sectors that have a share of contribution to the aggregate national income of the country. This again explains the inclusion of 'construction' activity as one of the sectors (or current transactions) of the economy, though the outcome of the activity not utilised by the transactors but forms a part of the capital assets of the country.

4.14.12. The estimation of inputs of the activity involves segregation of outlays on various types of constructions. A few categories of constructions have been noted, information on cost items of which is available from one or more sources mentioned in para 4.14.1. The following breakdowns are used for further analysis:

The outlay on construction of roads is distinguished as:

		<i>Rs. crore</i>
Asphalt	..	20.18
W.B.M. Crust	..	18.60
total	..	38.78

Outlays on constructions in Railways and Post & Telegraph are split up as:

		<i>Rs. crore</i>
building construction in Railways and	-	
P. & T.	..	8.00
other constructions	..	13.00
repairs and maintenance	..	13.00
total	..	34.00

Outlays under Community Development and N.E.S. Schemes are split up as

		<i>Rs. crore</i>
repairs etc., of buildings	..	2.13
other repairs	..	4.26
		<hr/>
total	..	6.39

Outlays by public authorities on repair and maintenance of roads and buildings are arbitrarily broken up in equal parts as:

	<i>Rs. crore</i>
repair and maintenance of roads ..	11.09
repair and maintenance of buildings	11.08
	<hr/>

Outlays on building construction in rural areas is divided into two parts: two-thirds being construction of 'pucca' buildings, and one-third being construction of huts and cottages:

	<i>Rs. crore</i>
construction of 'pucca' buildings ..	84.14
constructions of huts and cottages	42.07
	<hr/>
total	126.21

4.14.13. By arranging the whole information and using estimated breakdowns as in 4.14.12. aggregate outlays for various types of constructions are obtained as follows:

<i>types of constructions :</i>	<i>outlays (in Rs. crore)</i>
	(1953-54)
(1) roads by government and municipalities	38.78
Asphalt	20.18
W.B.M. Crust	18.60

		<i>(outlays in Rs. crore)</i>
(2) non-government outlays on reclamation and improvement of land	..	57.03
reclamation	2.90	
land improvement	54.13	
(3) C.T.O. operating expenses by public authorities		2.10
(4) government outlay on reclamation of land	..	1.78
(5) residential huts, sheds and cottages in rural areas		75.41
huts and cottage	42.07	
store house and sheds	7.49	
cattle sheds	25.85	
(6) bunds, fencings, and drains	..	7.18
(7) tanks and wells	..	22.60
(8) project outlays by public authorities	..	114.61
power projects including electricity schemes	27.74	
other multipurpose projects including irrigation and river schemes	86.87	
(9) 'pucca' residential construction in rural areas	..	84.14
(10) buildings by small scale industries	..	15.59
(11) buildings by large scale industries	..	34.14
(12) urban residential constructions	..	134.61
(13) port-development outlays	..	5.50
(14) aerodromes	..	1.39
(15) education, housing and health	..	48.33
(16) repair and maintenance of buildings	..	40.33
by large scale industries	1.84	
by community development and N.E.S.	2.13	
by defence departments	25.28	
by other public bodies	11.08	

		(outlays in Rs. crore)
(17) repair & maintenance of roads	..	11.09
Asphalt	5.77	
W.B.M. Crust	5.32	
<hr/>		
(18) government outlays on other repair and main- tenance	..	31.21
irrigation etc.	13.95	
railways and P & T	13.00	
other by NES and community developments	4.26	
<hr/>		
(19) constructions by railways and Posts & Telegraphs		21.00
buildings	8.00	
other construction works	13.00	
(20) construction by forest departments	..	1.00
<hr/>		
(21) all constructions	..	747.82

4.14.14. Analysis of inputs required for various types of constructions (as in para 4.14.13) and estimation of outlays on different types of inputs are next taken up. Outlays on materials, services and labour are first expressed as percentages to total cost for different categories of constructions. Information in this regard are obtained from the sources (m), (n), (o) and (p).

4.14.15. Construction costs of two types of roads namely, with asphalted crust and W.B.M. crust are built up from the following percentage outlays as shown on the next page :

4.14.16. Maintenance of roads is separately split up into materials and labour. The percentage outlays for the two different types of roads are noted as given overleaf :

			<i>percentage costs of road construction with</i>	
			<i>asphalted crust</i>	<i>W.B.M. crust</i>
<i>materials:</i>	ruble stones	..	7.60	10.53
	stone metal	..	12.39	16.99
	brick metal	..	3.82	5.29
	moorum	..	3.66	5.07
	stone chips	..	8.53	—
	bitumen	..	9.02	—
	bricks	..	10.05	12.27
	cement	..	3.82	3.98
	steel	..	1.31	1.36
	stone ballast	..	0.87	0.09
	boundary stones	..	0.55	0.75
	contingencies	..	2.92	3.04
profession and services		..	10.01	10.47
labour		..	25.45	30.16
all outlays			100.00	100.00

			<i>percentage costs of main- tenance of roads</i>	
			<i>asphalted crust</i>	<i>W.B.M. crust</i>
<i>materials:</i>	stone metals	..	—	50.7
	moorum	..	—	6.3
	stone chips	..	25.8	—
	bitumen	..	33.2	—
	contingencies	..	2.6	2.5
professions and services		..	8.9	8.9
labour		..	29.5	31.6
all outlays		..	100.00	100.00

4.14.17. Outlay on bridge construction by railways is broken up on the basis of information obtained from a major bridge (with R.C.C. Superstructure) construction costing Rs. 50 lakhs. The percentage outlays on different materials and labour are obtained as shown below:

		<i>percentage to total cost of construction of a bridge</i>
materials: iron and steel	..	18.0
bricks and stones	..	11.0
cement	..	22.0
timber	..	5.1
sand and aggregates	..	7.8
contingencies	..	2.6
labour	..	33.5
		<hr/>
all outlays		100.00

4.14.18. Construction costs of "pucca" buildings are obtained in two different forms. These have been used in deriving cost breakdowns of residential buildings. The percentage outlays in respect of the first type of residential construction are obtained from the results of a survey and those in respect of the second type of building constructions are obtained from results of constructions by DLF, Delhi—both published in the "Report of the Environmental Hygiene Committee, October, 1949".

4.14.19. Cost structures in power and multipurpose projects are built up from materials collected by the Central Statistical Organisation. Data in respect of 18 projects are analysed. Total cost incurred in each project along with outlays on materials, namely coal, steel, cement, oil and petrol, other materials and labour were tabulated. The following percentage outlays have been derived for splitting the estimated outlay on multipurpose and power projects (vide Table 4.14.1):

		<i>percentages to total cost</i>	
		<i>"pucca" residential building</i>	<i>DLF type</i>
labour	..	30.0	29.1
professions and services	..	—	12.2
materials	..	(70.0)	(58.7)
cement	..	8.4	10.5
bricks	..	17.5	19.3
iron and steel	..	8.4	8.8
wood	..	3.4	6.7
other materials	..	27.3	13.4
		100.00	100.00

TABLE (4.14.1) : COSTS OF CONSTRUCTION OF MULTIPURPOSE AND POWER PROJECTS

		<i>percentages to total cost</i>
labour	..	35.399
materials	..	15.918
coal	..	0.248
steel	..	1.597
cement	..	5.397
oil and petrol	..	2.992
other materials	..	5.684

From above it can be seen that about 51 per cent of the total cost is accounted for by materials purchased and labour employed. Evidently, however, electrical and other heavy machineries purchased are not included in the list of materials covered. Value of imported machineries likely to be used in the projects is estimated at 28.683 per cent (inclusive of import

duties) of the total cost. An arbitrary 10 per cent of the total cost is taken to be payment to professions and services. Plan progress reports further showed that the remaining 10 per cent of the total cost is incurred on transports for carrying goods to the project spot. This forms a part of the earnings of the sector 28 (i.e., "other transport").

TABLE (4.14.1) : SECTORAL ALLOCATIONS OF COSTS OF CONSTRUCTIONS: 1953-54

srl. no.	delivering sectors	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	3.77
2.	animal husbandry, fishery and forestry	3	18.32
3.	coal mining and coke making	4	0.28
4.	all other mining	5	42.08
5.	iron and steel	6	42.11
6.	engineering	8	32.88
7.	chemicals etc.	9	18.17
8.	cement	10	45.01
9.	other building materials and wood manufacture	11	66.75
10.	glass and ceramics	16	9.09
11.	paper, printing and stationery	18	1.44
12.	small scale: metal and metal working	20	9.08
13.	small scale: building materials and wood manufacture	21	24.94
14.	small scale: glass and ceramics	24	6.06
15.	small scale: miscellaneous	26	39.29
16.	other transport	28	11.46
17.	professions, services etc.	31	42.30
18.	labour	—	334.79
19.	all costs of constructions	—	747.82

4.14.20. No direct information is available regarding type of materials used in rural residential constructions. The already available statistics have to be used with, however, some adjustments based on the use of some typical materials required for rural constructions of huts, cottages, cattle-sheds etc.

4.14.21. The outlay-structures of the various constructions suggested above almost lead to the detailed cost breakdowns, which are pooled for the different types of constructions. The outlays on the different items are then allocated to the different sectors and "gross entries" inclusive of trade and transport margins are finally obtained. From these entries distributive margins are deducted as usual to arrive at the transactions valued at supply prices, which have been finally shown in the inter-industry table. The gross entries are obtained as shown in Table (4.14.2).

SECTOR 33 : RESIDENTIAL PROPERTY

4.15.0. The scope of this sector extends to include rural and urban residential properties. Gross earnings of the sector have been measured by the gross rental of both rural and urban house properties, the procedure followed being similar to that of the estimation of national income. By the term 'gross', we mean earnings gross of depreciation and current costs of repairs and maintenance of buildings. The detailed procedure of estimation of gross earnings and operating costs of the sector is discussed in the following paragraphs.

4.15.1. A number of publications (as listed below) have been consulted. Actual use has been made of the data reported in some of them while some others have been used only for reference. These are: (a) Report of the Taxation Enquiry Commission, 1953-54, Vol. III; (b) Final Report of the National Income Committee, February, 1954; (c) Statistical Abstract relating to 1953-54; and (d) Report of the Local Finance Enquiry Committee (1951).

4.15.2. Gross rentals for both rural and urban residential properties have been estimated from statistics of tax-collection. For this purpose statistics of property taxes have been analysed. The Report of the Taxation Enquiry Commission, 1953-54 gives fairly adequate details of tax-collection. The statistical appendix on local taxes collected by village panchayats, municipalities, district boards and municipal corporations, and the chapter on "Taxes on Property" have particular relevance bearing upon our studies. The Final Report of the National Income Committee (1954) also makes a critical appraisal of data on taxes, while the Report of the Local Finance Enquiry Committee (1951) gives some data on tax-rates of municipalities.

4.15.3. In order to estimate gross rentals of house property, we have attempted to assess property-taxes collected by village-panchayats, municipal corporations, district boards and muni-

cipalities. Property-taxes collected by panchayats have been taken to represent rural areas, while those collected by the municipalities, municipal corporations and district boards taken together represent urban areas. The next step consists in assuming a relation between the rental value of buildings and tax assessed. As the information from different sources is rather limited only fixed proportions between tax paid and rental value of buildings have been considered, although in the matter of such proportions, care has been taken to distinguish rural from urban house property.

4.15.4. It is essential to underline the serious limitations which are inherent in the procedure discussed above. The tax-returns are seldom complete and, therefore, unless adjusted for under-coverage (the extent of which is pretty difficult to guess), are likely to lead to considerable under-estimation of gross-rentals. Moreover, it is quite possible that a number of houses may not be subjected to taxes by pauchayats in rural areas and by municipalities etc., in urban areas. As a matter of fact, such bodies may not exist in some areas. All these lead to an under-reporting of taxes that represent both owner-occupied and rented residential premises.

4.15.5. Among the various other difficulties, is the one that arises out of differential tax-rates. The tax-rates levied by different bodies vary widely. Again, such rates are appreciably different in the different states of the country. It is also practically impossible to work out an appropriate average (of the varying ad-valorem tax-rates) for the entire country since comparable statistics do not exist for all states and there is considerable regional disparity in respect of the basis of levy. Absence of recent statistics in the field of property-taxes cannot be ruled out as well. In fact, the data used for estimation of rentals relate to various points of time spread over 1948-49 to 1952-53.

4.15.6. We have already noted that the level of property-taxes collected by the different bodies is the starting point in our analysis. Property taxes, though mostly consisting of taxes on lands and buildings, also include a relatively low share of taxes on other types of properties. It may be noted in this connection that the rental value of buildings does include

value of land on which such residential constructions are made and sometimes include portions of value of landed property, which is ultimately to be used for purposes of house-building. Value of land which is meant for other uses should normally fall outside the scope of activities of this sector. It is not possible to find out to what extent property-taxes result out of such valuations and therefore, no adjustment has been made in this regard.

4.15.7. The aggregate amount of tax collected by village panchayats is estimated by noting down the number of panchayats and the tax income per panchayat for the different states as available from the statistical appendix of the Report of the Taxation Enquiry Commission, 1953-54: Vol. III. The figures relate to 1952-53 in most cases and to 1951-52 in some others where later information is not available. The calculation is shown below:

<i>states</i>		<i>no. of panchayats</i>	<i>property- tax per village panchayat (Rs.)</i>	<i>estimated total tax (Rs. lakh)</i>
<i>Part A</i>	Assam	.. 94	530	0.50
	Bihar	.. 781	65	0.51
	West Bengal	.. 1784	3366	60.05
	Bombay	.. 5636	8386	472.63
	Punjab	.. 6765	107	7.24
	Uttar Pradesh	.. 36139	259	93.60
	Madras	.. 4592	7698	353.49
	Andhra, Madhya- Pradesh & Orissa	10986	259	28.45
sub-total Part A states				1016.47

Note.—Number of panchayats are not available for some states. These are left out. For some other states for which panchayat incomes are not reported, those for neighbouring states have been used for calculation.

<i>states</i>	<i>no. of panchayats</i>	<i>property- tax per village panchayat (Rs.)</i>	<i>estimated total tax (Rs. lakh)</i>
<i>Part B</i> Hyderabad ..	1021	795	8.12
Mysore ..	10409	787	81.92
Travancore-Cochin	169	23	0.04
Madhya Bharat ..	4110	787	32.35
<i>Part C</i> Vindhya Pradesh ..	61	169	0.10
sub-total Part B & C States			122.53
all states			1139.00

Thus the estimated income of all panchayats comes to Rs. 1139.00 lakh. This needs adjustments for the reference year (i.e., 1953-54) and for under-coverage in tax-statistics. These will be discussed in the paragraphs to follow.

4.15.8. For urban house property, property taxes are usually collected by the municipalities and municipal corporations. In very few cases district boards also collect property taxes. Land cess and local rates are however, excluded from our calculations. Available property-tax figures collected by different municipalities relate to the latest years from 1948-49 to 1952-53. Those collected by municipal corporations relate to 1952-53. The data are noted as shown below:

	<i>reference year</i>	<i>(Rs. lakh)</i>
property-taxes collected by:		
district boards	1951-52	20.08
municipalities	1948-49 to 1952-53	523.46
municipal corporations	1952-53	960.94
all bodies		1504.48

As already noted, this level of property-taxes needs marking up on two accounts, namely, for under-reporting and for the year

of reference (i.e., 1953-54). In the first instance, arbitrary addition of 40 per cent is made to account for under-coverage of tax-statistics. This gives us an estimate of Rs. 2106.27 lakh. Secondly, we note that the estimate of taxes on the average may be taken to represent the level of taxes in 1951-52. A further addition of 15 per cent is made to bring the level of taxes to 1953-54 partly in view of increasing rates of taxation and partly on account of new additions to residential property. Thus the aggregate of property taxes collected from all urban house property during 1953-54 is finally placed at Rs. 24.22 crore. A very rough check of this estimate may be made as follows. On page 376 of the Report of The Taxation Enquiry Commission, 1953-54, Vol. III it is mentioned "The present annual income of all municipalities and municipal corporations, in all the states, from property taxes is about Rs. 24.4 crore, representing 58.1 per cent of the total income of these bodies from all taxes". This estimate of Rs. 24.4 crore probably refers to the year 1953-54.

4.15.9. From what has been discussed above we get some clue to the upward adjustments of property-taxes collected by the panchayats. We have already seen that Rs. 11.39 crore of property taxes collected by village panchayats mostly refer to 1952-53, except in the case of some panchayats where data relate to 1951-52 in the absence of later information. On a conservative reckoning, we have decided to augment the level of taxes by another 40 per cent to represent the level of property-taxes collected by all panchayats during 1953-54. This adjustment results in the estimate of Rs. 15.95 crore and accounts for under-coverage as well as for higher rates of taxation prevailing in 1953-54 as compared to 1952-53. Thus we have finally accepted Rs. 15.95 crore as the level of property-taxes in 1953-54, representing the entire rural house property of India.

4.15.10. We now come to the more difficult task of arriving at average tax/rental proportions for urban and rural residential properties separately. The rental value of house property is the most commonly accepted basis for levy of taxes. In spite of the fact that imputation of rental is needed for premises occupied by owners, the rental value is generally recommended

to the capital value of the building as the basis of levy. The Report of the Taxation Enquiry Commission (TEC) has given details of tax-rates, which show that there is considerable discrepancy in rates imposed by municipalities of different states. From these rather incomplete statistics it is difficult to work out an average over-all tax-rate for all the states. The Final Report of the National Income Committee (1954) reveals a rate of 7.4 per cent for taxes levied expressed as a percentage of rents assessed by municipalities. In view of increasing rates of taxation we feel that the percentage is likely to be revised upwards and consequently we have used the rate of 8 per cent for 1953-54 to evaluate gross rental income from urban house property. (The table on page 389 of the TEC Report shows that for the Bombay State rates of tax on buildings and land vary according to the annual rent. For house property having annual rental of Rs. 400 to Rs. 2000, the rates range from 2 per cent to 3.5 per cent, and for those having annual letting value of more than Rs. 2000, the rates vary from 4 to 7 per cent.) Thus gross rental of entire urban house-property is estimated at Rs. 302.75 crore for 1953-54, the estimation being based on the total collection of property-taxes, which has been placed at Rs. 24.22 crore.

4.15.11. On coming to the estimation of gross rental from rural house-property, we observe that the percentage of tax to rental is likely to be on the lower side as compared to that for urban house-property. This is because of the fact that in general taxes are levied according to the gradation of rental value of buildings, which is on the average lower for rural than for urban residential property. Varying rates are observed starting from 2.5 per cent or 6 pias per rupee (i.e., about 3 per cent). On the higher side rates may go up to about 7.5 per cent. For our purposes we have arbitrarily assumed 5.5 per cent as the average rate. This applied on a property-tax collection of Rs. 15.95 crore gives rise to a rental value of Rs. 290.09 crore for the entire rural residential property of the country.

4.15.12. Summarising what we have discussed above, we notice that the gross rental income of the sector comes to Rs. 592.84 crore for 1953-54, built up as:

	<i>Rs. crore</i>
gross rental of rural house property ..	290.09
gross rental of urban house property ..	302.75
	<hr/>
all house property ..	592.84

A reference to Chapter Three on 'Commodity Taxes' reveals that a lot load of indirect taxes placed on this sector comes to Rs. 28.34 crore. This places the level of gross earnings without taxes at Rs. 564.50 crore.

4.15.13. The costs of current operations of the activity consist of outlays on repairs and maintenance of residential buildings. An examination of estimates made available to us by the National Income Unit (CSO) suggests that about 6.5 per cent of gross rental forms the total outlay on materials and services required for repairs and maintenance of buildings. Since we are interested in showing gross domestic product at factor cost, we do not make a deduction on account of depreciation. The aggregate outlay on materials and services thus comes to Rs. 38.53 crore.

4.15.14. The allocation of entire outlays on the different components of building materials (bricks, cement, timber etc.) is made in accordance with the type of information presented in the section 14 (Chapter Four) devoted to "Constructions". The costs incurred on the different items are available in the form of percentages of total costs. Labour payment is placed at 29.1 per cent of the total cost. The remaining 70.9 per cent on materials and services is further split up into materials (which account for 58.7 per cent) and services (accounting for 12.2 per cent of the total outlay). The details are presented in the next page.

4.15.15. The outlays as derived above are finally allocated to the different sectors of the inter-industry table in accordance with the sectors that supply the particular inputs. These are regarded as 'gross entries' in the sense that they are inclusive of distributive margins. The final or net entries as presented in the inter-industry transactions table are, however, net of

distributive margins. The sector allocations are presented in Table (4.15.1).

<i>items required for repairs and maintenance</i>		<i>outlay in Rs. lakh</i>
bricks	..	744
cement	..	405
iron and steel products	..	340
timber	..	258
other materials	..	517
hardware	.. 127	
glass fittings	.. 159	
sanitary wares	.. 37	
electricals	.. 55	
lime	.. 86	
sand	.. 53	
professions and services	..	471
labour	..	1123
total outlay		3858

TABLE (4.15.1) : SECTOR ALLOCATIONS OF GROSS ENTRIES

(figures in Rs. crore)

srl. no.	name of delivering sector	sector code	gross entries
(1)	(2)	(3)	(4)
1.	other mining (excluding coal)	5	1.39
2.	iron and steel: large scale	6	4.67
3.	engineering	8	0.55
4.	cement	10	4.42
5.	other building materials and wood manufactur- ing: large scale	11	7.44
6.	glass and ceramics: large scale	16	1.59
7.	building materials and wood manufacturing: small scale	21	2.58
8.	professions, services etc.	31	4.71
9.	all costs	—	27.35

4.15.16. It has been already observed that wage income of the sector comes to Rs. 11.23 crore (vide para 4.15.14 above). The 'non-wage income and depreciation' together comes to Rs. 525.92 crore as shown below:

		<i>Rs. crore</i>
		(1953-54)
gross earnings from rental	..	592.84
rural	..	290.09
urban	..	302.75
		<hr/>
commodity taxes etc.	..	28.34
value of output without taxes	..	564.50
operating costs	..	27.35
		<hr/>
gross domestic product at factor cost		537.15
wage income	..	11.23
non-wage income and depreciation		525.92

SECTION 16

SECTOR 34 : PUBLIC ADMINISTRATION

4.16.0. We may note in Section 2 of Chapter Five that wages and salaries of civil administrative and defence departments of the public authorities truly form the estimate of "value added" by the public sector. To maintain uniformity with the official procedure of income estimation, we have recorded this entire transaction through a dummy sector, namely, "Public Administration" (Sector no. 34). This procedure of reckoning transactions comprising wages, salaries, allowances and other benefits paid to employees of the government through a dummy sector is also suggested by the fact that we are interested in recording aggregate income generated in all sectors of the economy.

4.16.1. A few important points need some repetition here. Using the estimates available from the National Income Unit (NIU) of the Central Statistical Organisation (CSO) we have placed the aggregate figure for wages, salaries, etc., at Rs. 431.00 crore. This is built up as follows:

	<i>Rs. crore</i>
wages, salaries etc., in civil administrative departments ..	320.00
wages, salaries etc., in defence departments	111.00
all departments ..	431.00

The scope and coverage of the civil administrative departments are the same as those taken by the NIU for national income estimation, and include administrative departments of the central and state governments, municipalities, port-trusts, improvement trusts, village panchayats, district boards and

other local boards. As all current and capital outlays of the defence departments have been included under the current account of public authorities, the wages, salaries, etc., paid to employees of the defence departments are shown through the transactions of the sector "public administration". However, commercial departments and the entrepreneurial activities of the public authorities, namely, railways, communications, electricity and other schemes, forest departments, industries and so on, are completely excluded.

4.16.2. It is important to take notice of some deviations from the usual official procedure. In the inter-industry table, the row numbered 34 (i.e., the row relating to the public administration sector) records not only the earnings from government service but also a few other receipts, mainly those from large-scale industries in the form of water charges paid by the industries. An examination of the row reveals that these current outlays on water purchased are almost exclusively obtained from the analysis of costs of large-scale industries and are accordingly confined to columns 6 to 18.

4.16.3. It may be argued that an alternative treatment of water taxes could be to show these along with the flows of other commodity taxes. This question has been elaborately discussed in Section 6 of Chapter Four. To repeat, we have preferred to treat water charges as technologically connected with the process of production. Consequently, water charges per unit of output are considered as technological coefficients of the current process of production.

4.16.4. The aggregate earnings of the "public administration" sector are derived as the total of the row entries and come to Rs. 435.84 crore. The individual row-entries are shown in Table (4.16.1)

4.16.5. It is obvious that the column corresponding to sector 34 will be blank to the extent that current costs of operation of the sector are non-existent. An amount equalling the aggregate earnings of the sector appears three times in column 34 of the inter-industry transactions table, namely, once against each of the rows labelled as "gross domestic product at factor cost", "value of output with taxes" and "wage-income".

TABLE (4.16.1): AGGREGATE EARNINGS OF PUBLIC ADMINISTRATION SECTOR

<i>description of absorbing sectors</i>	<i>sector code</i>	<i>earnings (Rs. crore)</i>
coal mining and coke making ..	4	0.03
other mining ..	5	0.04
iron and steel ..	6	0.61
non-ferrous metals ..	7	0.05
engineering ..	8	0.22
chemicals etc. ..	9	0.24
cement ..	10	0.02
other building materials and wood manufacturing ..	11	0.90
food, drink, tobacco, oil etc. ..	12	1.28
cotton textiles ..	13	1.05
other textiles ..	14	0.09
jute and other fibre ..	15	0.02
glass and ceramics ..	16	0.11
leather and rubber ..	17	0.10
paper, printing and stationery ..	18	0.08
public authorities: current account ..		431.00
total earnings of sector 34 ..		435.84

SECTOR 35 : DEFENCE MATERIALS INCLUDING EXPLOSIVES

4.17.0. The scope and coverage of the present section include manufacture, processing and assembly activities of the defence departments of the public authorities. The confidential nature of data relating to these activities makes it difficult to get precise statistics of production etc., of the factories owned by the defence departments. We have, therefore, followed indirect methods of estimation to arrive at the final figures presented in the inter-industry transactions table. These are discussed in detail in the following paragraphs.

4.17.1. A reference to Section 2 of Chapter Five, dealing with current account of public authorities, reveals that an amount of Rs. 72.72 crore in the shape of outlays on goods and services have been charged to the sector 35. It is also clear that this aggregate outlay is exclusive of wages and salaries paid, outlays on new constructions undertaken during the year and outlays on repair and maintenance by defence departments. The entire outlay, therefore, consists of expenses incurred on goods and services absorbed for manufacture, processing and assembly activities of the defence departments. In analysing final demands of public authorities (on current account) the outlay shown against sector 35 has not been ultimately split up into different kinds of goods and services purchased by the defence departments. In the present section of the report we have precisely attempted this and the final outcome is shown in the column devoted to sector 35.

4.17.2. A special mention of explosives imported is essential at this stage. For the sake of convenience we have decided to include imported explosives along with indigenous defence materials. An examination of imported goods (vide section 2, chapter six) reveals that the total worth of imported guns, cartridges and explosives come to Rs. 2.02 crore. Reading along row 35 we find that out of imported explosives Rs. 0.57

crore and Rs. 0.85 crore have been absorbed by sector 4 (coal mining and coke making) and sector 5 (other mining) respectively. No other use has been directly estimated. In mining, therefore, value of explosives used as inputs comes to a total of Rs. 1.42 crore. The residual of Rs. 0.60 crore has been shown as the internal use of explosives by the defence departments. This amount consequently forms the diagonal entry in respect of sector 35. All other internal uses have been omitted.

4.17.3. One may be tempted to enquire into the reasons leading to the separate treatment of the activity covered by sector 35, that is to say, to analyse the outlays of this sector in the final demands of public authorities on current account. It is worthwhile to examine the effects if one follows an alternative procedure of splitting the outlays on goods and services purchased by the defence departments for their various activities, and of showing them against appropriate sectors in the column of current account of public authorities. This suggests that one may perhaps do away with the separate treatment of the present sectoral activity.

4.17.4. A closer examination of the alternative procedure reveals serious difficulties. The first one lies in showing outputs of defence materials as products of some sector. Since factories owned by defence departments are not covered by large scale manufacturing industries, it is essential to record defence materials as outputs of a separate sector. Secondly, unlike other activities these do not run on usual lines of production and therefore, this sector does not show any value added by manufacture. (It has been already mentioned that payments to labour employed in such factories are included in wages and salaries paid by the public authorities under current account.)

4.17.5. Coming to the task of classifying the aggregate outlay of Rs. 72.72 crore, we observe that the amount of Rs. 0.60 crore is treated as outlay on imported explosives. The remaining Rs. 72.12 crore, therefore, consists of inputs of factories producing and assembling arms and ammunitions along with outlays on provisions, garments, etc. for the army. An idea of the nature of purchases is obtained partly from the inputs of engineering plants and partly from the current

expenses of administrative departments of the public authorities. The estimates of expenditure are, however, more or less arbitrary. Table (4.17.1) shows the gross entries (inclusive of distributive margins) and their sector allocations.

TABLE (4.17.1) : SECTOR ALLOCATIONS OF GROSS ENTRIES

srl. no.	delivering sectors	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	3.31
2.	coal mining and coke making	4	2.25
3.	other mining	5	30.49
4.	iron and steel	6	2.50
5.	non-ferrous metals	7	1.87
6.	engineering	8	20.85
7.	chemicals, etc.	9	4.11
8.	cotton textiles	13	2.47
9.	other textiles	14	1.65
10.	printing and stationery	18	2.62
11.	defence materials (including explosives)	35	0.60
12	all sectors	—	72.72

SECTOR 36 : UNCLASSIFIED LARGE SCALE PRODUCTS

4.18.0. We have already discussed in Section 6 of this chapter that it is not possible to classify all the large scale enterprises enumerated under the SSMI into one or the other of the sectors 6 to 18. The industries reported under SSMI are found coded from 1 to 63, and out of these, industry code 63 is meant to include a few miscellaneous and unclassified industries which are not covered by industries 1-62. A further attempt to analyse the relevant schedules makes it possible to re-classify some of the industries and to group them under one or other of the sectoral activities 6 to 18 of the inter-industry transactions table. It remains to note that even this attempt is not enough to classify all the industries and, therefore, the few industries that escape final classification are grouped together. These constitute the sectoral activity of 'Unclassified Large Scale Production' which is sector no. 36.

4.18.1. The costs of materials and services required for current operations are analysed and estimated in exactly the same way as the other large scale industries. The detailed breakdown of costs and their allocations to sectors are exactly identical with the other large scale industries. It is, therefore, absolutely unnecessary to dwell on these details and reference may be made to section 6 of this chapter dealing with 'Large Scale Manufactures' for further details.

4.18.2. It may be noted that value of output of this sector comes to Rs. 20.83 crores. The load of unclassified commodity taxes charged to this sector is Rs. 6.07 crore (vide Chapter 2 on "Commodity Taxes"). The level of value of output with tax accordingly is placed at Rs. 26.90 crore. The wage-income corresponding to unclassified large scale industries is estimated at Rs. 2.23 crore. The 'gross domestic product at factor cost'

and 'non-wage income and depreciation' are obtained as residuals in the usual manner as shown below:

	<i>Rs. crore</i>
value of output with taxes	26.90
<i>less</i> commodity taxes	6.07
	<hr/>
value of output without taxes	20.83
<i>less</i> cost of inputs	7.34
gross domestic product at factor cost	13.49
<i>less</i> wage-income	2.23
non-wage income & depreciation	1.26

4.18.3. A few words may be added to explain how the entries along row 36 are derived. The entries along row 36 are not self-explanatory in the sense that one does not know the precise nature of outputs of this sector. The cost structures of the various economic activities (or sectors) have revealed that non-availability of information relating to the precise nature of the inputs is primarily responsible for the difficulties encountered in complete classification of itemised costs. Thus we see that some of the items of costs baffle classification. The current outlays on such unclassified inputs have been allocated to sector 36.

4.18.4. The aggregate of costs of materials and services used as inputs for maintaining current production activities of this sector has been estimated at Rs. 7.34 crore. The sectoral allocations of the gross entries inclusive of trade and transport margins have been presented in the table below. The net entries arrived at after deduction of distributive margins have been finally shown in the inter-industry transaction table.

TABLE (4.18.1) : ALLOCATION OF COST OF MATERIALS AND SERVICES BY DELIVERING SECTORS

srl. no.	description of sector	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	plantations	2	0.09
2.	animal husbandry, fishery and forestry	3	1.12
3.	coal mining and coke making	4	0.01
4.	other mining	5	0.34
5.	iron and steel	6	0.01
6.	non-ferrous metals	7	1.54
7.	chemicals, etc.	9	2.49
8.	food, drink, tobacco, oil, etc.	12	0.25
9.	cotton textiles	13	0.84
10.	jute and other fibre	15	0.01
11.	paper, printing and stationery	18	0.27
12.	electricity generation and transmission	19	0.01
13.	banks, insurance & co-operatives	30	0.15
14.	unclassified: large-scale products	36	0.21
15.	total	—	7.34

CHAPTER FIVE

FINAL DEMANDS: CONSUMPTION

SECTION 1

HOUSEHOLD CONSUMER EXPENDITURE

5.1.0. In the study of inter-industry relations, we have all along distinguished two main categories of flows of goods and services, namely, "inter-industry flows" and "final flows". The flows of goods and services required for maintaining the current production activities of the sectors into which the economy has been divided, consist of "inter-industry flows" or "intermediate-flows". The technological processes of production reveal that these inter-industry flows are more or less completely dependent on the activity-levels or outputs of the sectors.

5.1.1. The "final flows" arise in a system, which is often called an open-system of reckoning. In this system certain uses of outputs are determined outside the given system of transformations. In other words, 'final flows' are those uses of goods and services which are, in some sense, autonomous in character and are not dependent on levels of production of the sectors. (For certain purposes of analysis one may, however, consider a closed-system where the final flows are ultimately treated as dependent on one or the other of the primary factors of production. One may, for example, like to include "labour" as one of the sectors of the economy with labour services as outputs and household consumption as inputs).

5.1.2. Flows in the shape of household consumption form the most important component of all final flows. Much alike household consumer expenditure will be current outlays of public authorities. In this section of the report we shall, however, be concerned with household consumer expenditures during 1953-54. The current account of all public authorities will be discussed in details in Section 2 of this chapter.

5.1.3. The National Sample Survey (NSS) has systematically thrown out a vast wealth of information in the field of private consumer expenditure. In the surveys relating to household consumer expenditure a large number of households, spread over the entire geographical area of the country, have been interviewed. Different levels of income and tastes of the people reflecting different patterns of consumption have been adequately represented in the samples. The estimates of consumer expenditure derived from these samples are accordingly taken to be representative of the nation as a whole. It should be noted, however, that consumption of people living in hotels, boarding houses etc., has been subjected to a separate treatment in the present 'household consumption' account (A reference to Section 11 of Chapter Four reveals that hotels and catering activities have been included under activities of sector 29 i.e., "Trade & Distribution".)

5.1.4. For the present inter-industry studies we have used estimates made by the NSS from the data collected during the 6th and 7th rounds of its operations. These rounds spread over May '53 to September '53, and October '53 to February '54 respectively. The sample households, (both rural and urban), for consumer expenditure enquiry have been interviewed at different points of time within the survey period. In the absence of any other precise information, the estimates of the 6th and 7th rounds have therefore been taken to be representative of the years 1953 and 1954 respectively.* The 1953-54 estimates have been obtained by combining the estimates of 6th and 7th rounds in the ratio of three-fourths to one-fourth.

5.1.5. The unpublished data obtained from the NSS pertain to aggregate consumer expenditures of all households. These are available for 12 major items of consumption. Two independent series of estimates for both rural and urban India are

*It may be noted that the data for the 6th round were collected with one week as the period of reference and those for the 7th round with a month as the period of reference. The averages for the rounds with week as reference period are usually higher than those with month as the reference period. The pooling of the two rounds may have resulted in some over-estimation.

derived from two interpenetrating network of half-samples drawn from the rural and urban areas of the country. These contribute two fairly dependable sets of estimates. We are, however, concerned with the "combined" estimates only since these conveniently combine both the half-samples with the added advantage that the combined set of estimate is based on a sample of size almost double the size of the half-samples.

5.1.6. The 12 items of consumption referred to above comprise 7 items in the food group and 5 items in the non-food group as follows:

A. *Food group:*

(1) food grains, (2) milk and milk products, (3) oils and oilseeds, (4) meat, fish, egg, etc. (5) sugar, (6) salt, (7) other (food items).

B. *Non-food group:*

(8) clothings, (9) fuel and light, (10) rents, (11) taxes, and (12) miscellaneous (non-food items).

From these items we have omitted rents and taxes. Gross rentals charged to household consumption account have been independently assessed (vide Section 15 of Chapter Four, i.e., Residential Property) and include share of rentals for owner-occupied houses. No room has been made for showing direct taxes in the inter-industry transactions table and, therefore, taxes have also been ignored.

5.1.7. In Table (5.1.1) the estimate of aggregate consumer expenditures has been presented for 10 items (excluding rents and taxes). It should be noted that the estimates are available separately for rural and urban areas and pertain to an average period of 30 days.

5.1.8. In the next step these estimates are uniformly blown up to obtain annual estimates of consumer expenditures. Remembering that these represent an average of 30 days, a multiplier of 12.16 is used to arrive at annual estimates representing totals for 365 days. These have been presented in Table (5.1.2).

TABLE (5.1.1) : CONSUMER EXPENDITURE FOR A PERIOD OF 30 DAYS

(based on 6th and 7th rounds of NSS)

srl. no.	items of consumption	combined estimates (Rs. crore)		
		rural	urban	all India
(1)	(2)	(3)	(4)	(5)
1.	food grains	250.72	37.74	288.46
2.	milk and milk-products	39.19	12.41	51.60
3.	edible oils	16.45	5.01	21.46
4.	meat, fish, eggs etc.	12.74	4.83	17.57
5.	sugar	19.07	3.46	22.53
6.	salt	2.03	0.31	2.34
7.	other food items	75.37	22.59	97.96
8.	food-total	415.57	86.35	501.92
9.	clothing	45.40	11.83	57.23
10.	fuel and light	41.22	8.98	50.20
11.	miscellaneous	100.24	34.39	134.63
12.	non-food total	186.86	55.20	242.06
13.	grand total	602.43	141.55	743.98

5.1.9. In the present inter-industry studies we are primarily interested in obtaining breakdowns of consumer outlays on items in as detailed a manner as possible. The above items of consumption are rather aggregative in nature and therefore, our immediate task lies in obtaining a further breakdown of the grouped items like "other food items" in food group and "miscellaneous" in non-food group. This is rendered possible when we take the help of a more detailed distribution given in the 4th round estimates.

5.1.10. Since the 4th round operations of the National Sample Survey were spread over the period April to October of the year 1952, this procedure will introduce certain limitations. It is worthwhile examining this issue in somewhat

greater details. In the absence of any other recent data we have used the same proportions as in the 4th round for splitting the grouped items into a number of component items. The estimates thus obtained may hold true even if price indices are different at the two points of time, because the proportions depend on relative prices and not on absolute prices. It is difficult to ascertain to what extent prices of the split items relative to the total expenditure for the group have changed in the two periods, especially in view of non-availability of price data for mixes of rather heterogeneous items.

TABLE (5.1.2) : ANNUAL ESTIMATES OF CONSUMER EXPENDITURE DURING 1953-54

srl. no.	items of consumption	annual estimates (Rs. crore)		
		rural	urban	all India
(1)	(2)	(3)	(4)	(5)
1.	food grains	3040.43	459.17	3509.60
2.	milk and milk-products	476.81	150.99	627.80
3.	edible oils	200.14	60.96	261.10
4.	meat, fish, eggs, etc.	155.00	58.76	213.76
5.	sugar	232.02	42.10	274.12
6.	salt	24.70	3.77	28.47
7.	other food items	917.00	274.84	1191.84
8.	food total	5056.10	1050.59	6106.69
9.	clothings	552.37	143.93	696.30
10.	fuel and light	501.51	109.26	610.77
11.	miscellaneous	1219.59	418.41	1638.00
12.	non-food total	2273.47	671.60	2945.07
13.	grand total	7329.57	1722.19	9051.76

5.1.11. In Table (5.1.3) below is presented a more detailed classification of consumer expenditures which have been obtained in the manner discussed above. It can be seen that it is possible to further subdivide 'other food items' into 5 sub-items like (a) pulses, (b) vegetables, (c) fruits, (d) refreshments, and (e) spices; and 'miscellaneous' into another 16 sub-items

TABLE (5.1.3) : PER ANNUM ESTIMATES OF CONSUMER EXPENDITURES OF HOUSEHOLDS BY ITEMS DURING 1953-54

srl. no.	item of consumption	combined estimates (Rs. crore)		
		rural	urban	all India
(1)	(2)	(3)	(4)	(5)
1.	food grains	3040.43	459.17	3509.60
2.	milk and milk products	476.81	150.99	627.80
3.	edible oils	200.14	60.96	261.10
4.	meat, fish, eggs etc.	155.00	58.76	213.76
5.	sugar	232.02	42.10	274.12
6.	salt	24.70	3.77	28.47
7.	pulses	358.68	55.32	414.00
8.	vegetables	193.59	63.08	256.67
9.	fruits	102.85	40.10	142.95
10.	refreshments	95.94	76.39	172.33
11.	spices	165.94	39.95	205.89
12.	food total	5056.10	1050.59	6106.69
13.	clothing	552.37	143.93	696.30
14.	fuel and light	501.51	109.26	610.77
15.	pan	38.73	16.18	54.91
16.	tobacco	104.14	26.35	130.49
17.	intoxicants	33.71	5.89	39.60
18.	bedding	30.69	6.71	37.40
19.	footwear	32.20	9.98	42.18
20.	aumsements & musical instruments	24.15	17.17	41.32
21.	education	42.77	39.84	82.61
22.	medicines	84.03	39.45	123.48
23.	toilet	37.23	16.97	54.20
24.	petty articles	43.28	13.69	56.97
25.	conveyance	69.93	34.35	104.28
26.	services	280.24	89.77	370.01
27.	furniture	11.06	3.89	14.95
28.	domestic utensils	12.58	2.81	15.39
29.	sundry equipment & ornaments	67.43	30.75	98.18
30.	cereemonials	307.42	64.61	372.03
31.	non-food total	2273.47	671.60	2945.07
32.	grand total	7329.57	1722.19	9051.76

namely (a) pan, (b) tobacco, (c) intoxicants, (d) bedding, (e) footwear, (f) amusements, and musical instruments, (g) education, (h) medicines, (i) toilet, (j) petty articles, (k) conveyance, (l) services, (m) furniture, (n) domestic utensils, (o) sundry equipment and ornaments, and (p) ceremonials.

5.1.12. The final allocation of consumer expenditures derived in Table (5.1.3) to the sectors of the inter-industry table really involves a further breakdown of some of the items like 'refreshments', 'fuel and light', 'amusements and musical instruments', 'petty articles', 'sundry equipment and ornaments', 'ceremonials' etc. To do this an idea of availability of domestic products at market prices, i.e. (supply prices plus commodity taxes) is obtained from the entries made in the table in respect of other sectors. This is done as follows.

5.1.13. The net entries (i.e. gross entries net of distributive margins) in all the columns (1-36) depicting inter-industrial demands are first compiled. Similarly, entries net of distributive margins in all the forms of final demand except 'household consumption' and 'changes in inventory', namely,

- (a) public authorities: current account
- (b) public authorities: capital account
- (c) other capital accounts
- (d) exports (exfactory with duty).

are also ascertained. These enable one to assess inter-industrial demands completely and final demands partially. 'Availability of products for consumption, etc.' can now be estimated as below:

(availability of products for consumption etc.) = (value of output at market price)

- minus* (inter-industrial demands)
- minus* (public authorities: current and capital demands)
- minus* (demands on other capital accounts)
- minus* (exports: exfactory with duty)
- plus* (imports: c.i.f.)

These calculations are shown in Table (5.1.4) placed below. (The last column of the table in fact gives both imported and domestic goods available for consumption and changes in stocks).

TABLE (5.1.4) : AVAILABILITY OF SECTORAL OUTPUTS AT MARKET PRICES FOR CONSUMPTION ETC. 1953-54

(figures in rupees crore)

srl. no.	sector codes	output at market prices	inter-industrial demands	government current and capital accounts	other capital accounts	exports (ex-factory with duty)	imports (c.i.f.)	availability for consumption etc.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	1	5256.21	1707.21	19.06	—	44.53	89.28	3574.69
2.	2	57.29	55.38	—	—	0.03	0.09	1.97
3.	3	2125.41	1236.11	1.29	8.83	43.10	19.37	855.43
4.	4	69.95	57.51	0.42	—	4.20	0.72	8.54
5.	5	113.75	145.26	0.64	—	31.30	89.19	25.74
6.	6	109.64	118.10	0.85	15.88	5.23	23.68	-6.74
7.	7	30.28	40.12	0.04	5.13	1.53	14.46	-2.08
8.	8	162.00	133.98	43.11	110.41	3.64	136.50	7.36
9.	9	185.56	202.38	2.18	—	5.57	52.87	28.30
10.	10	28.46	42.21	—	—	0.75	0.77	-13.73
11.	11	60.30	67.42	0.10	7.34	0.81	1.18	-14.19
12.	12	762.25	167.21	—	—	106.24	30.64	519.44
13.	13	564.91	176.64	0.03	—	72.94	56.16	371.46
14.	14	62.91	31.04	3.95	—	4.65	23.88	47.15
15.	15	143.14	29.00	—	—	114.72	0.26	-0.32
16.	16	20.01	16.43	—	—	0.23	1.74	5.09
17.	17	55.89	24.21	0.03	—	3.74	1.85	29.76
18.	18	67.48	42.76	1.97	—	5.39	18.60	35.96
19.	19	49.14	36.50	3.75	—	—	—	8.89
20.	20	54.61	38.92	—	11.28	—	0.05	4.46
21.	21	77.46	54.41	—	31.64	—	—	-8.59
22.	22	149.55	5.01	—	—	13.08	—	131.46
23.	23	548.97	34.68	—	—	0.92	—	513.37
24.	24	13.06	5.88	—	—	—	—	7.18
25.	25	76.40	—	—	—	—	—	76.40
26.	26	307.40	119.32	—	11.30	6.34	0.26	170.70
27.	30	118.76	51.10	9.57	—	—	—	58.09
28.	31	784.64	152.58	45.08	—	—	—	586.98
29.	32	747.82	—	315.28	432.54	—	—	—
30.	33	592.84	—	5.86	—	—	—	586.98
31.	34	435.84	4.84	431.00	—	—	—	—
32.	35	72.72	2.02	72.72	—	—	2.02	—
33.	36	26.90	15.31	1.90	2.73	3.24	3.65	7.37

5.1.14. It may be noted that we prefer to use the term "availability of products for consumption, etc.", since availability calculated as above gives surplus of sectoral outputs after absorption by different sectors as well as after absorption in the form of final demands specified by (a) to (d). This surplus obviously may not tally with household consumer demands and consumer expenditure may either exceed or fall short of the surplus according as there is addition or depletion of stocks.

5.1.15. Another point of supreme importance should not be overlooked in this connection. This concerns the non-uniformity of prices entering into the value estimates. 'Availability for consumption, etc.' is determined from the production end and as such gives valuation at supply prices. The consumer outlays, therefore, have to be evaluated at supply prices.

5.1.16. For this purpose distributive (i.e. trade and freight transport) margins obtained from the seventh round NSS schedules on trading enterprises are used. Reference to tables appended to the chapter on 'Trade and Distribution' of the present report may be made. In this context we note that three sets of prices for different groups of commodities are available, from the schedules, namely,

producers' or exfactory price	(p_s)	
wholesale price	(p_w)	and
retail sale price	(p_r)	

The wholesale and retail sale margins are obtained as

$$\begin{aligned}\text{wholesale margin} &= (p_w)/(p_s) = m_w \\ \text{retail sale margin} &= (p_r)/(p_w) = m_r\end{aligned}$$

The wholesale margin evidently deals with passage of goods from producers to the wholesalers. The retail sale margin is similarly concerned with passage of goods from wholesalers to retail traders. In dealing with outlays on consumer items, however, we have to face with the entire passage of goods from the producer to the ultimate consumer. The corresponding total margin is given by

$$\begin{aligned}\text{total distributive margin} &= (p_r)/(p_s) \\ &= (m_w)(m_r) = m_t\end{aligned}$$

Having obtained the total distributive margins (m_t) in respect of the different groups of commodities it is possible to convert

consumer outlays at retail prices (c_r) to those at supply prices (c_s) with the help of the following relation

$$c_s = c_r(p_s)/(p_r) = c_r/m_t$$

where the total deduction on account of trade and distribution comes to

$$c_r - c_s = c_r - c_r/m_t = c_r \left(1 - \frac{1}{m_t} \right)$$

Thus consumer expenditures given in Table (5.1.3) are converted into producers' value.

5.1.17. It is necessary to mention some of the adjustments that have been made in order to arrive at the aggregate level of consumption shown in the inter-industry transactions table. Expenditure on conveyance has been placed at Rs. 219.51 crore built up as:

	<i>Rs crore</i>
passenger earnings of railways ..	101.35
passenger earnings of other transport ..	118.16
	<hr/>
	219.51

The expenditure on conveyance, so far as heads of consumer items in the N.S.S. classification are concerned, are also partly returned under ceremonials. Remembering this, a charge of Rs 115.23 crore is made to 'ceremonials' to account for expenses on transport. This together with the estimate of Rs. 104.28 crore as expenditure on conveyance meets an aggregate of Rs. 219.51 crore.

5.1.18. Besides, a few additional entries have to be considered. These are as follows:

(a) Gross rentals (vide Section 15, Chapter Four) amounting to Rs. 586.98 crore have been charged to household consumption and the entry appears against row 33 of the column 'household consumption'.

(b) The aggregate of expenses incurred by people staying in hotels and boarding houses has been placed at Rs. 249.00 crore. Since hotels and boarding houses have been considered under the activity of trade and distribution (vide Section 11, Chapter Four) the entire outlay of Rs. 249.00 crore is charged against row 29 representing the sector 'trade and distribution'.

(c) Payments by households to sector 30, i.e. banks, insurance companies and co-operatives for utilising their services have been placed at Rs. 58.09 crore. A reference to the relevant text (vide Section 12, Chapter Four) reveals that the same amount has been estimated as earnings of 'banks, insurance companies and co-operatives' from households and comprises insurance premia, banking charges, etc. Integrating above adjustments the aggregate level of consumption is placed at Rs. 9945.83 crore derived as under:

	<i>Rs. crore</i>
reported aggregate consumer expenditure (obtained from N.S.S. excluding rents and taxes) ..	9051.76
add gross rentals charged to households ..	586.98
add consumption of people staying in hotels and boarding houses ..	249.00
add payments to banks, insurance com- panies, and co-operatives ..	58.09
aggregated level of household consumption	9945.83

5.1.19. A few words should be added regarding allocation of consumer outlays to the different sectors of the inter-industry tables. From Table (5.1.3) it is evident that some of the items like 'milk and milk products', 'refreshments', 'fuel and light' 'amusements and musical instruments', 'petty articles', 'sundry equipment and ornaments', 'ceremonials', etc. include products and services originating from more than one sector of the inter-industry table. An examination of the schedules of enquiry

and the instructions to the field workers, however, provides some clues in respect of some of the constituent items falling under the various groups mentioned above. The sectors from which the goods originate are mentioned in brackets. The following points need a special mention:

(a) *fuel and light*: this group consists of a number of items, namely, coal and coke (sector 4), petrol and kerosene (sector 5), firewood and dung cakes (sector 3), electricity (sector 19), matches (sector 11), and other unclassified fuels and oils.

(b) *milk and milk products*: this group consists of milk (sector 3) and milk products (sector 23).

(c) *clothings*: this group comprises outlays on all types of clothings and garments, namely, cotton clothes and garments (sector 13 and 22) and woollen and silk clothes and garments (sectors 14 and 22).

(d) *amusements and musical instruments*: this is a heterogeneous group comprising expenses on cinema (sector 29), theatres (sector 31), and musical instruments (sector 8 and 26) like gramophone, radio, harmonium, flute, etc.

(e) *education*: this group records expenses on books, journals, stationery, newspapers, periodicals (sectors 18 and 26), along with fees for schools, colleges, etc. (sector 31).

(f) *petty article*: these consist of washing soaps, earthenwares, pictures, paintings, other works of art, and unclassified products (sectors 9, 16, 17, 24, 25 and 26).

(g) *drugs and medicines*: these include allopathic, homeopathic, ayurvedic and various other indigenous medicines (sectors 9 and 26).

(h) *sundry equipment and ornament*: these comprise expenses on consumer durables (motor cars, cycles, sewing machines, clocks, cameras, type-writers and so on), ornaments, etc. (sectors 8, 24, 25, and 26).

5.1.20. Further breakdown of grouped-outlays as suggested above is mainly guided by the estimates of 'availability for consumption, etc.' as presented in Table (5.1.4). We have already seen that these figures relate to value of both domestic and imported goods meant for consumption and changes in

stocks. If actual consumption falls short of these availability estimates, an addition to stocks of said consumer goods will result. If on the contrary, actual consumption exceeds the availability estimates, a depletion in stocks of said consumer goods will follow. In section 3 of Chapter Six (i.e. changes in inventory) it can be seen that we do not have direct estimates of changes in inventory in respect of all the sectors of the economy. In the case of sectors for which such estimates exist, availability for household consumption proper has been determined and these form bases for breaking up the grouped outlays. In all other cases the final allocations are made in accordance with estimates of 'availability for consumption, etc.' (unadjusted for changes in stocks) only with, however, a check on the total outlay on the group of commodities as given in Table (5.1.3). The final gross and net (i.e. exclusive of distributive margins) entries allocated to the sectors of the inter-industry table are assembled below in Table (5.1.5).

TABLE (5.1.5) : SECTORAL ALLOCATIONS OF HOUSEHOLD CONSUMER OUTLAYS (IN RUPEES CRORE) DURING 1953-54

srl. no.	description of sectors	sector codes	household consumption at	
			delivered value (gross)	producers' value (net)
(1)	(1)	(3)	(4)	(5)
1.	agriculture	1	4051.90	3554.30
2.	plantations	2	—	—
3.	animal husbandry, fishery & forestry	3	1188.92	831.41
4.	coal mining and coke making	4	20.92	10.46
5.	other mining	5	48.66	24.95
<i>large scale manufactures</i>				
6.	iron and steel	6	—	—
7.	non-ferrous metals	7	—	—
8.	engineering	8	27.82	20.61
9.	chemicals, etc.	9	57.23	37.65
10.	cement	10	—	—

TABLE (5.1.5) (*contd.*) : SECTORAL ALLOCATIONS OF HOUSEHOLD CONSUMER OUTLAYS (IN RUPEES CRORE) DURING 1953-54.

srl. no.	description of sectors	sector codes	household consumption at	
			delivered value (gross)	producers' value (net)
(1)	(2)	(3)	(4)	(5)
11.	other building materials & wood manufacture	11	13.84	9.89
12.	food, drink, tobacco, oil, etc.	12	789.48	544.47
13.	cotton textiles	13	456.32	359.31
14.	other textiles	14	77.96	56.09
15.	jute and other fibre	15	5.00	4.31
16.	glass and ceramics	16	15.62	11.16
17.	leather and rubber	17	34.31	26.80
18.	paper, printing and stationery	18	68.10	41.27
19.	electricity generation and transmission	19	8.89	8.89
<i>small scale manufactures</i>				
20.	metal and metal working	20	11.41	9.13
21.	building materials and wood manufacture	21	9.98	6.88
22.	textiles and textile products	22	185.75	134.60
23.	food, drink, tobacco, oil, etc.	23	819.78	546.52
24.	glass and ceramics	24	14.00	9.52
25.	leather and leather products	25	196.90	74.54
26.	miscellaneous	26	191.54	153.23
<i>other activities</i>				
27.	railways and communications	27	113.98	191.09
28.	other transports	28	118.16	358.62
29.	trade and distribution	29	284.88	1685.97
30.	banks, insurance companies and co-operatives	30	58.09	58.09
31.	professions, services, institutions, etc.	31	586.98	586.98
32.	constructions	32	—	—
33.	residential properties	33	586.98	586.98
34.	public administration	34 -	—	—
35.	defence materials (including explosives)	35	—	—
36.	unclassified	36	2.43	2.11
37.	all sectors	37	9945.83	9945.83

SECTION 2

PUBLIC AUTHORITIES : CURRENT ACCOUNT

5.2.0. The current account of 'Public authorities' in the inter-industry system of reckoning appears just like the account of household consumption. In conformity with the usual practice we propose to treat the current expenditures of public authorities as purely autonomous. Much like the consumer expenditures of the private households the current outlays of the public authorities will be recorded as draft on the outflows of goods and services from the different economic activities.

5.2.1. Public authorities, so far as current account is concerned, include all administrative departments of the state and union governments. Moreover, agencies like municipalities, district boards, port trusts, other local bodies and miscellaneous registered organisations for research and similar activities come under the purview of the sector. The current accounts of bodies of the government which carry on enterprise and/or commercial activities are excluded from the current account which we are going to present now since such accounts have already been included under one or other of the activities in terms of which the inter-industry transactions are depicted. The commercial departments of public authorities are usually revenue-earning activities, such as the Railways, Posts & Telegraph, Electricity Generation and Transmission undertakings, Forest departments, etc. and consequently fall under one or the other of the sectoral activities adopted for the purposes of inter-industry studies. Ordnance establishments and mints are a class apart and have not been treated as inter-industrial sectors of activities.

5.2.2. A special mention of the outlays by the defence departments needs be made. These properly come under the jurisdiction of the union government. It may be argued that all outlays (on both current and capital account) of the defence

departments are similar to the ordinary current outlays of the public authorities. A study of the purposes for which defence outlays are incurred reveal that the dispensing of goods and services is somewhat of a regular and continuing nature. Judged from this end the defence outlays bear a great resemblance to the current outlays of the administrative departments of the public authorities. Accordingly, therefore, both current and capital outlays of the defence departments are included in the current account of the public authorities. Of the aggregate outlays, again, those which are incurred on purchase of goods and services and do not represent formation of capital, are recorded under a separate activity, namely, "Defence materials (including explosives)". The activity comes under sector 34.

5.2.3. A few words in respect of the nature of transactions or outlays that we are going to consider may be helpful. It is needless to mention that only outlays that strictly refer to expenditures on goods and services are going to be taken account of. More concretely, we will not be interested in inter-governmental and inter-departmental transfers (which ultimately cancel out for the activity as a whole) and shall exclude, in the first instance, all book-payments and receipts between different organs of the government. In registering outlays on transactions we shall, therefore, try to exclude all such grants that are in the nature of inter-departmental transfers and shall include only direct disbursements in the shape of goods and services already available in the economy.

5.2.4. The sources of information used are numerous. These may be listed as follows: (a) "Estimates of National Incomes", 1948-49 to 1959-60, Central Statistical Organisation, (b) unpublished papers from the National Income Unit, (c) Statistical Abstract, 1955-56 and 1957-58, Central Statistical Organisation (d) Five Year Plan Progress Report: 1951-52, to 1954-55, Planning Commission, (e) Report of the Taxation Enquiry Commission, Vol. III, 1953-54, Ministry of Finance (Department of Economic Affairs), (f) Budgetary Statistics of India, 1951-52 to 1957-58, Ministry of Finance (Economic Wing), (g) Budget Accounts of Four Parts A States (Bombay, Uttar Pradesh, Bihar and Madras), 1951-52, and (h) National Sample

Survey Schedule 2.1, 7th round. It should be noted that some of the publications are used for reference only, while some others give indications of the nature of items on which outlays are incurred. For example, an idea of materials required for public health and conservancy services is obtained from (i) the summary of accounts of all municipalities as published in the "Statistical Abstract", and (ii) the cost of upkeep of animals derived from the analysis of data reported through Schedule 2.1 of the National Sample Survey (7th round). The most important source of materials in this regard is, however, provided by the data processed by the National Income Unit of the Central Statistical Organisation. These are published in "Estimates of National Income" issued by the Central Statistical Organisation. (We are thankful to the National Income Unit for making available to us certain unpublished details which were particularly helpful in our analysis).

5.2.5. The published accounts of public authorities do not clearly distinguish current and capital outlays. There are difficulties in making the distinction. We are fortunate that the National Income Unit has already processed the data and the accounts processed by them with slight modifications suit our purpose.

5.2.6. It may be useful at this stage to summarise our observations. In conformity with the procedures laid down above, we shall include all current account outlays of the administrative departments of the government. We shall exclude all capital accounts of the civil administrative departments. All outlays (i.e. entire outlays in the current and capital budgets) of the "Defence Departments" will be included under "Current Account of the Public Authorities". The current account of all commercial departments, such as, (i) railways, (ii) posts and telegraphs, (iii) forest, (iv) electricity schemes, (v) irrigation schemes, (vi) road transport, (vii) industries, and so on, has been excluded on the ground that these are already covered by the inter-industrial transactions on current account.

5.2.7. Data available from the National Income Unit (CSO) give the following details in respect of 1953-54:

	(Rs. crore)
A. Civil Administration:	
1. Current Account	
wages and salaries (including pensions)	320
other expenditure ..	115
repairs and maintenance ..	40
2. Capital Account	
capital expenditure on construction ..	94
other capital expenditure ..	5
net purchase of assets ..	—3
B. Defence:	
wages and salaries ..	111
other expenditure ..	98

We note that repair and maintenance outlays of Rs. 40 crore in the current account of administrative departments are mostly related to constructional activities undertaken by the civil works departments. This outlay is entirely charged to constructions against sector 32. Similarly, the item on 'other expenditure' of the defence department is also inclusive of repairs and maintenance outlays of the nature noted above. In the absence of data directly obtainable, we have estimated 'repairs & maintenance' outlays of the defence departments to be in the same proportion as in the case of the civil administration. Noting that 25.8 per cent of the expenditures other than 'wages and salaries' account for outlays on repair and maintenance in the case of civil administrative departments, we have—

	(Rs. crore)
Defence Outlays on:	
wages and salaries	111.00
repair and maintenance	25.28
all other expenditures	72.72
all outlays	209.00

5.2.8. We are now in a position to consolidate current

account outlays of the public authorities in the form given below:

<i>items</i>	<i>outlays of administrative departments (Rs. crore)</i>	<i>defence outlays (Rs. crore)</i>	<i>total (Rs. crore)</i>
wages and salaries ..	320.00	111.00	431.00
repairs and maintenance charged to construction	40.00	25.28	65.28
other expenditures ..	115.00	72.72	187.72
all items ..	475.00	209.00	684.00

The outlay of Rs. 431.00 crore on wages and salaries including pensions, etc. is recorded through a dummy sector of "public administration" which is sector 34. The entire outlay of Rs. 65.28 crore on repairs and maintenance, etc. is charged against sector 32 (i.e. constructions). The ultimate disbursement of this amount on goods and services is included in column 32 of the inter-industry table. Other expenditures are shown in two breakdowns, namely, outlay on defence materials (Rs. 72.72 crore) and outlay on other materials and services (Rs. 115.00 crore). The entire defence outlay of Rs. 72.72 crore for the present is allocated to sector 35 (i.e. defence materials including explosives) and is further analysed in column 35 of the inter-industry table.

5.2.9. We are now left with the outlay of Rs 115.00 crore in the shape of expenditures incurred by the civil administrative departments in purchasing goods and services. Any attempt at a breakdown of the outlay into its various components bristles with serious difficulties. We have, in fact, consulted various publications to find out which are the probable items on which the expenditures are incurred. For example, public health outlays on drugs, medicines, etc. are ascertained from balances standing unallocated against the items. A detailed analysis of accounts of four part A states, namely, Bombay, Uttar Pradesh, Bihar and Madras in respect of 1951-52 is also somewhat useful. Estimated costs of upkeep of animals is split up in accordance

with proportions derived from schedule 2.1 of 7th round, NSS. The accounts of local bodies (i.e. municipalities, etc.) also give certain broad classes of expenditure, which are helpful in deriving a more detailed breakdown. The following working notes give some indications:

	<i>Rs. crore</i>
(1) estimated expenditure on electricity (535.96 million kilowat-hours @ Rs. 0.07 per kwh) ..	3.75
(2) estimated expenditure on coal (129 thousand tons @ Rs. 32.4 per ton) ..	0.42
(3) estimated rentals of residential buildings ..	5.86
(4) estimated outlay on printing & stationery ..	2.62
(5) estimated expenditure on chemicals, medicines, etc. ..	2.01
(6) estimated outlay on upkeep of animals ..	2.24
(7) estimated expenditure on fuel oil, etc. ..	1.07
(8) estimated outlay on manures (chemical) ..	1.01
(9) estimated expenditure on seeds, etc. ..	0.66
(10) estimated outlay on milk supply schemes ..	4.68
(11) estimated outlay on provisions (food grains, livestock products, etc.) ..	21.46
(12) estimated expenditure on travelling (railways)	14.27
(13) estimated outlay on garments ..	4.98
(14) unallocated ..	49.97
all outlays	115.00

5.2.10. Reference to section 12 of Chapter Four (i.e. the section dealing with sector 30 or 'banks, insurance and co-operatives') reveals that we have evaluated services of financial intermediaries utilised by the public authorities at Rs. 9.57 crore. This amount is charged against unallocated outlay of Rs. 49.97 crore leaving a residual of Rs. 40.40 crore. Now, since current account outlays of public authorities include running costs of schools, hospitals, research institutions, etc. the receipts (of a recurring nature) by such organisations are expected to form a considerable part of the aggregate current outlay of public authorities. Such receipts, in the scheme of our inter-industry studies, are registered as flows out of

sector 31 (i.e. professions, services, institutions, etc.). Thus the entire residual outlay of Rs. 40.40 crore is treated as a payment to sector 31. This is because of the fact that this sector, namely, 'professions, services and institutions' includes schools, hospitals, research and other similar institutions. Further, on a closer examination, the outlay (Rs. 4.68 crore) on milk supply schemes is also allocated to sector 31. This augments payment to the sector 31 by another Rs. 4.68 crore and accordingly the total amount charged to sector 31 comes to Rs. 45.08 crore. This procedure is very much alike recording 'repair and maintenance' outlays against sector 32 and 'outlays on defence materials' against sector 35, since ultimately the concrete disbursements in the form of goods and services will be analysed in column 31 of the inter-industry transaction table.

5.2.11. Finally, the outlays are allocated to the sectors of the inter-industry table. Table (5.2.1) shows the outlays as gross of distributive margins. In the inter-industry table the entries are, however, shown net of distributive margins.

TABLE (5.2.1) : SECTORWISE ALLOCATIONS OF GROSS OUTLAYS

srl. no.	name of the sector	sector code	gross outlays (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	21.36
2.	animal husbandry, fishery, forestry	3	3.00
3.	coal mining and coke making	4	0.42
4.	other mining	5	1.07
5.	chemicals, etc.	9	3.02
6.	other textiles	14	4.98
7.	printing and stationery	18	2.62
8.	electricity generation and transmission	19	3.75
9.	railways and communication	27	14.27
10.	banks, insurance and co-operatives	30	9.57
11.	professions, services, institutions	31	45.08
12.	construction	32	65.28
13.	residential property	33	5.86
14.	public administration	34	431.00
15.	defence materials (including explosives)	35	72.72
16.	all sectors	—	684.00

CHAPTER SIX

FINAL DEMANDS : CAPITAL FORMATION

SECTION 1

PUBLIC AUTHORITIES : CAPITAL ACCOUNTS

6.1.0. Section 2 of Chapter Five gives a detailed account of current outlays by public authorities. This section will be devoted to the capital outlays by public authorities. Generally speaking, 'capital outlays' are taken to be those that are, directly or indirectly, concerned with installation of additional capacities for future production. Thus, while current outlays are concerned with levels of production, capital outlays are more or less related to changes in the level of production.

6.1.1. Public authorities, so far as capital outlays are concerned, have an altogether different coverage when compared to the departmental activities considered under the current account. We have already included all defence outlays (both current and capital) under the current account of public authorities and, therefore, all activities of the defence departments fall outside the scope of this section. The first major department accounting for the capital outlays is the civil administrative wing of the public authorities. Thus, capital accounts of the civil administrative departments are entirely included in the 'capital account of public authorities'. Next in the list are the capital accounts of the commercial and entrepreneurial activities of the government. These activities include railways, posts and telegraphs, forests, electricity schemes, road transport schemes and so on. The industries owned by the government need a special mention here. For some reasons, as stated below, the capital accounts of the industries owned by the government are excluded from the capital account of public authorities. It may be argued that to this extent there is an overlap between the two accounts, namely, 'capital account

of public authorities' and 'other capital accounts'. The reasons are mainly two-fold:

(a) reference to section 2 of this chapter reveals that it is really difficult to get separate capital accounts of industries coming under the public sector, and

(b) such outlays estimated by the National Income Unit (CSO) show that apart from addition to stocks of assets, capital outlays on construction of buildings and on purchase of machinery and equipment are practically negligible.

6.1.2. In analysing capital outlays by public authorities we shall be mostly concerned in getting a breakdown of (i) outlays on various types of new constructions as distinguished from (ii) capital outlays on other installations. It is worthwhile to note that type (ii) outlays are mostly in the nature of purchase and installation of machinery and equipment, including transport equipment.

6.1.3. The capital outlays as available from the National Income Unit (CSO) distinguish outlays on constructions from those on other installations. The capital accounts of the administrative departments give the following breakdowns for 1953-54:

		<i>Rs. crore</i>
Civil administration: capital account		
gross outlays on constructions	..	94
gross outlays on machinery and other equipment	..	5
		<hr/>
all outlays	..	99

6.1.4. On combining the above capital outlays of the civil administrative departments with those of the commercial and entrepreneurial departments, we arrive at the complete capital

account of the public authorities. This is shown in the summary statement given below:

<i>departments/activities</i>	<i>(Rs. crore)</i> <i>gross outlays on</i>		
	<i>construc- tion</i>	<i>transport equipment</i>	<i>machinery and other equipment</i>
civil administration ..	94	—	5
railways ..	27	36	5
posts and telegraphs ..	7	—	5
multipurpose river schemes	54	—	—
irrigation schemes ..	42	—	—
electricity schemes ..	25	—	—
road transport schemes ..	—	2	—
forests ..	1	—	—
all activities ..	250	38	15

The gross outlays indicate outlays inclusive of maintenance expenditures as and wherever they exist.

6.1.5. From the statement above we note that the aggregate capital outlays of public authorities come to Rs. 303 crore built up as:

	<i>Rs. crore</i>
gross outlays on constructions	250
gross outlays on other installations	53
all capital outlays	303

In conformity with the scheme of representation adopted for our inter-industry table, we have shown the entire outlay of Rs. 250.00 crore against sector 32 (i.e. constructions). This amount, therefore, represents the entry against row 32 of the column "Public Authorities: Capital Account". An analysis of the goods (building materials etc.) and services required for such constructions has, however, been included in column 32 of the inter-industry transactions table.

6.1.6. We next proceed to analyse the capital outlays (other than those on constructions) of the railways and the posts and telegraphs department. We note that out of the entire outlay of Rs. 41.00 crore by railways built up as:

Gross outlays on transport equipment: Rs. 36.00 crore, and, gross outlays on machinery and equipment: Rs. 5.00 crore, maintenance outlays account for Rs. 28.00 crore while Rs. 13.00 crore represent purchase value of equipment proper. The "Report by The Railway Board on Indian Railways for 1953-54" gives some idea of the nature of purchases. The following statement compiled from the report shows estimated outlays against different types of materials purchased.

<i>items purchased by the railways</i>	<i>outlays</i> <i>(Rs. crore)</i>
engineering plants and components ..	0.14
workshop machinery and components ..	0.68
rails ..	0.61
steel sleepers ..	0.09
cast iron sleepers ..	0.05
wooden sleepers ..	0.10
other materials ..	0.07
steam engines and parts ..	6.85
railway carriages and wagons ..	0.84
railway carriage components ..	0.71
automatic and vacuum brake ..	0.08
trimmings, floorings and sewing materials	0.03
signal and inter-locking materials ..	0.04
hardware, copper and zinc ware ..	0.04
leather, canvas and rubber goods ..	0.03
metal parts ..	0.12
paints, polishes, etc. ..	0.04
timber ..	0.05
electrical equipment ..	0.24
other stores (unclassified) ..	2.19
total outlays ..	13.00

Attempts are also made to get itemised breakdowns of outlays by the Posts & Telegraphs departments from the 'Annual Report of the Posts & Telegraphs Department: 1953-54': The estimates obtained are as follows:

		<i>Rs crore</i>
gross outlay by Posts & Telegraphs on:		
lines and wires	..	2.64
apparatus and equipments	..	2.36
all outlays	..	5.00

6.1.7. The next step consists of an enquiry into the nature of capital goods purchased by the commercial departments of the government. The aggregate gross outlay on this account comes to only Rs. 2.00 crore. This is traced as an outlay under the road transport schemes and consists of purchase value of vehicles for state transport. Capital outlays on machinery and other equipment by the administrative departments account for another Rs. 5.00 crore.

6.1.8. A few words regarding the nature of expenditures on maintenance of capital incurred by the railways may be in order here. We have observed that such outlays come to Rs. 28.00 crore for 1953-54. In the context of inter-industry studies, we shall be interested in ascertaining the extent to which such outlays relate to purchase of materials on the one hand and services on the other. From an examination of materials held in stock and also from the items detailed in para 6.1.6 (above), it is pretty clear that nearly all maintenance outlays on materials are likely to be met out of products of sector 8 (i.e. engineering goods). The expenditure on services is also likely to be out of work done for other concerns by engineering industries. Such considerations lead us to charge the entire outlay on maintenance against sector 8 (i.e. engineering).

6.1.9. The next step consists in allocating the various types of capital transactions (discussed above) to the different sectors

of the inter-industry table. From what has been outlined above, it is clear that most of the outlays other than construction refer to purchase of machinery, equipment, etc. which are all derived from sector 8 (i.e. engineering). The gross outlays on constructions, as already pointed out, are allocated to sector 32. All these outlays, are, however, inclusive of distributive margins. The quota of distributive margins is released from the entries to arrive at the net figures. Finally, it is the net figures that have been shown in the inter-industry table. The gross entries distributed sectorwise are given in Table (6.1.1).

TABLE (6.1.1) : SECTORWISE DISTRIBUTION OF GROSS ENTRIES

srl. no.	description of sectors	sector code	gross entries (Rs. crore)
(1)	(2)	(3)	(4)
1.	animal husbandry, fishery, forestry	3	0.05
2.	iron and steel	6	0.94
3.	non-ferrous metals	7	0.04
4.	engineering	8	49.58
5.	chemicals, etc.	9	0.04
6.	building materials and wood manufacture	11	0.10
7.	cotton textiles	13	0.03
8.	leather and rubber	17	0.03
9.	constructions	32	250.00
10.	unclassified: large scale	36	2.19
11.	all sectors	—	303.00

SECTION 2

OTHER CAPITAL ACCOUNTS

6.2.0. This section deals mainly with capital formation in the non-government sector of the economy. Its coverage does not, however, relate strictly to the non-government activities only. We have already discussed capital outlays by public authorities in Section 1 earlier. A close examination reveals that the capital-outlays by public authorities pertain to the capital accounts of the administrative departments and commercial activities of the public authorities. The commercial activities of the public authorities, however, cover railways, posts & telegraphs, forests, electricity schemes, road transport schemes, etc. but exclude industries owned by the government.

6.2.1. It is thus very difficult to draw a clear boundary between capital accounts of public authorities and those of private concerns. There is always some overlap so that enterprises or industries of the public authorities get included in the entrepreneurial activities of the private sector. An alternative method is to subdivide the entrepreneurial activities in the economy into two categories, namely, those owned privately and others. But such a division is rendered almost impossible in view of the nature of statistics available so far. This is why we have not followed this procedure in classifying the sectors for the present inter-industry table.

6.2.2. The nature of statistics available in this field makes it very difficult to proceed in a systematic way. Since capital outlays by the productive sectors mostly constitute purchase values of capital equipment, there should be a broad agreement between production and consumption of capital goods. However, three important points have to be remembered in this connection. These are:—

(a) purchase values of capital goods should be properly adjusted for internal trade and transport margins in order that these may tally with values of production;

(b) there is always a lag between production and absorption of the same capital goods and this is far more pronounced compared to goods entering as inputs into the current production activities of the sectors. As for example, capital goods produced during the year under study may not be absorbed in the same year and similarly, those absorbed during the particular year may have been produced earlier*, and

(c) construction of a capital account as detailed above will inevitably contain an appreciable element of stock piling. The current year's production of capital goods may mostly remain untouched during the year and consequently add to previous year's stock, whereas at the same time there is likely to be a depletion in stocks of capital goods to the extent they are absorbed during the year.

6.2.3. In our methods of estimation we have tried to make best use of all statistics that can be made available. We have used statistics in respect of both production and consumption of capital goods. In what follows, it will be clear that we have almost completely covered current year's production and therefore, it may be possible that we have included some changes in stocks of capital goods due to current year's production if they are not put to effective use during the year. We shall deal with this issue again in paras to follow.

6.2.4. In reviewing statistics available in this field, we note, that capital outlays are not obtainable for all sectors of the economy. In the case of even the most organised sectors like large scale manufacturing industries, gross capital formation is not directly estimable and the difference between value of fixed capital at two consecutive year-ends is taken to indicate the magnitude of formation of capital.

6.2.5. The non-feasibility of a complete count of outlays on new capital purchased makes it necessary to attempt (at least partly) estimation of gross capital formation from the production end. The transport sector is a typical example in

* This remark applies to both current and capital activities of the sectors. In the case of capital goods, however, the effect is far more pronounced. It is not out of place to mention here that inter-industry models suitably constructed can take account of differential lags for different sectors.

this connection. The statistics in respect of this sector are very poor and absolutely no information is available on value of purchase of vans, lorries, trucks, buses, and other vehicles. In this case there is no other alternative but to equate the demand to the supply of automobiles and mechanised transport equipment.

6.2.6. So far, we have not fully discussed how supply of capital goods can be properly estimated. The total supply of capital goods is derived from two sources, namely, (i) domestic output of capital goods, and (ii) imports from foreign countries. For both of these we have fairly good estimates. In respect of (i) production statistics of large scale and small scale industries are used and in respect of (ii) we have fairly detailed statistics on imports classified by types of goods. From these it is easy to pick up capital goods like plants, machinery, transport equipment, etc., (vide Section 2 on imports: Chapter Seven Foreign Trade).

6.2.7. For the sector agriculture, estimates of capital outlays by agricultural enterprises on items of fixed capital are available from 7th Round of NSS operations. The estimated outlay, however, includes both costs of construction and value of purchase of fixed capital items. The following estimates are recorded to start with:

<i>items</i>	<i>outlays in Rs. crore</i>
plough	.. 17.18
harrow	.. 4.53
sickles	.. 4.48
other instruments	.. 12.02
pumps	.. 0.07
persian wheels	.. 0.88
other irrigation applicances	.. 8.69
carts and boats	.. 35.22
containers	.. 1.00
	<hr/>
all items	.. 84.07

It can be noted that not all the items are likely to be produced in large scale industries and especially items like ploughs, sickles, etc. may be conveniently treated to be products of household small scale enterprises.

6.2.8. In respect of capital outlays by small scale manufacturing industries, gross capital formation is estimated by the indirect method. To start with, we note estimates of value of fixed capital at two different points of time given by the 7th and 4th round operations of NSS.

TABLE 6.2.1 : NSS ESTIMATES (IN RUPEES LAKH) OF FIXED CAPITAL

sri. no.	items	value of fixed capital		difference (3) - (4)
		7th Round	4th Round	
(1)	(2)	(3)	(4)	(5)
1.	power equipment	5415.00	440.71	4974.29
2.	other machinery and tools	6852.40	6372.54	479.86
3.	power animals	2153.37	576.13	1577.24
4.	all items	14420.77	7389.38	7031.39

6.2.9. Now, since the reference periods of the two surveys indicate a gap of 21 calendar months, it is necessary to scale down the estimated differences by the multiplying factor $4/7$. This practice, however, gives the following annual estimates, which may be interpreted to represent an average situation over one year. These estimates are taken to relate to the year 1953-54 and no further adjustment is made in this respect. Thus we finally get:

TABLE (6.2.2) : GROSS CAPITAL FORMATION IN SMALL SCALE ENTERPRISES

srl. no.	items	capital outlays (Rs. crore)
(1)	(2)	(3)
1.	power equipment	28.41
2.	other machinery and tools	2.74
3.	power animals	9.01
4.	all items	40.16

6.2.10. In the case of large scale manufacturing industries the position is not very satisfactory. The estimates furnished by SSMI (Sample Survey of Manufacturing Industries) and CMI (Census of Manufacturing Industries) vary widely as can be seen from Table (6.2.3).

TABLE (6.2.3) : CAPITAL FORMATION DURING 1953
(in Rs. crore)

srl. no.	items of fixed capital	SSMI estimates (all factories: with and without power)			CMI estimates (29 Industries only)		
		1952	1953	differ- ence	1952	1953	differ- ence
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	plant & machinery	449.19	471.48	22.29	172.62	187.60	14.98
2.	other fixed assets	71.95	82.21	10.26	23.85	25.73	1.88
3.	total	521.14	553.69	32.55	196.47	213.33	16.86
4.	total fixed capital (including land and building)	768.73	818.52	49.79	300.94	324.92	23.98

Some points of interest emerge from a consideration of this table. Value of fixed capital is reckoned at the end of the year,

so that the 'difference' gives amount of gross capital formation during 1953. The following points may be carefully noted:

(a) 'Total fixed capital' includes items like land and building. For our purpose we have to exclude land. In respect of investment in buildings, the estimates have been taken care of in the section devoted to 'constructions'. Hence, here we shall concern ourselves only with estimates of 'plant & machinery' and 'other fixed assets'.

(b) For 'plant and machinery' gross capital formation estimated from SSMI data comes to Rs. 22.29 crore. This value covers all factories including both power-using and non-power-using factories. The corresponding CMI estimate refers to 29 selected industries. Ratios between SSMI and CMI estimates of absolute values of 'plant and machinery' work out at 2.60 and 2.51 for 1952 and 1953 respectively. The same ratio for estimated 'gross capital formation' comes out as 1.49. For 'other fixed assets' the ratios are 3.02 and 3.19 for 1952 and 1953 respectively. For gross capital formation the ratio works out at 5.46, which seems to be out of proportion again and reflects an opposite trend compared to 'plant and machinery'. For the total of 'plant and machinery and other fixed assets' the ratios are 2.65 and 2.60, whereas the ratio between SSMI and CMI estimates of total gross capital formation is only 1.93. From these observations, it is doubtful to guess the correct level of 'gross capital formation' since SSMI estimates seem to underestimate the actual investment in 'plant and machinery' and 'other fixed assets'.

6.2.11. In the circumstances, we are forced to examine the estimates somewhat independently. The approach, in this case, is entirely different in that we try to estimate the value of the capital items from the supply end. We note that the total supply of fixed capital items during the year is derived from two sources, namely, from goods of indigenous and imported origin. The domestic production is usually recorded in ex-factory prices and therefore, we have to mark up the values by distributive margins applicable to plants, machinery, etc. in order to arrive at delivered values. In respect of imports the values are at c.i.f. prices and are primarily obtained from "Accounts Relating to Foreign (Sea, Air and Land) Trade"

(Ministry of Commerce & Industry) as summarised in the section devoted to "Imports". (The figures, however, relate to net imports or, in other words, imports net of re-exports). The import duties are next added to these c.i.f. values and the values inclusive of import duties subsequently marked up to delivered values by using internal distributive margins.

6.2.12. The values of domestic production in respect of capital goods are obtained from SSMI estimates (vide section: Large Scale Manufacture) as given below:

<i>items</i>	<i>ex-factory value of production (Rs. crore)</i>	<i>delivered value (Rs. crore)</i>
machinery and equipment ..	17.18	21.48
automobiles, transport equipment (including vessels, etc.) ..	24.20	30.25
iron and steel products for construction of capital equipment in agriculture (including products both from large scale and small scale manufacture) ..	5.00	6.25
all items ..	46.38	57.98

(note: delivered value is obtained by using 25 per cent margins).

6.2.13. The delivered values of imported capital goods are built up as shown below:

	<i>c.i.f. values (Rs. crore)</i>
(a) imported capital goods ..	108.02
machinery and equipment	81.62
agricultural tractors and parts	3.99
automobiles, aircrafts, railway carriages, vehicles, etc.	22.41
(b) add import duties ..	18.97
(c) c.i.f. value inclusive of import duties ..	126.99
(d) delivered value of imported capital goods ..	171.44

(note: delivered value, in the case of imported goods, is arrived at by using 35 per cent distributive margins).

By distributing import duties in proportion to c.i.f. values and then using distributive margins the delivered values for the different types of capital goods may be estimated as:

<i>imported capital items</i>	<i>c.i.f. values (Rs. crore)</i>	<i>values inclusive of import duties (Rs. crore)</i>	<i>delivered values (Rs. crore)</i>
machinery and equipment	81.62	95.95	129.53
agricultural tractors and parts	3.99	4.69	6.33
automobiles, aircraft, railway carriages, vehicles, etc. ..	22.41	26.35	35.58
all items ..	108.02	126.99	171.44

6.2.14. Thus the estimated availability of capital goods of both indigenous and imported origin works out to a total value of Rs. 229.42 crore with the following breakdowns:

	<i>Rs. crore</i>
imported capital goods ..	171.44
domestic capital goods ..	57.98
all items ..	229.42

(It is to be noted in this connection that the indigenous capital goods considered here are not exported and therefore, no allowance in this regard is to be made in order to arrive at the estimated value of availability of capital goods).

6.2.15. The next step lies in comparing the demand and supply position of capital goods during 1953-54. In order to

do this we compile a statement showing the total availability of the different types of capital goods, as shown below:

<i>items of fixed capital</i>	<i>delivered value (in Rs. crore) of</i>		
	<i>imported goods</i>	<i>indigenous goods</i>	<i>all items</i>
machinery and equipment	135.86	21.48	157.34
automobiles and transport equipment	35.58	30.25	65.83
iron and steel products used in agriculture	—	6.25	6.25
all items	171.44	57.98	229.42

From the utilisation end, we get a different picture. On examination of capital goods actually absorbed by the different sectors we have:

TABLE (6.2.4) : SECTORWISE UTILISATION OF FIXED CAPITAL

srl. no.	items of fixed capital	(in Rs. crore)			
		sector using			total use directly estimated
		agri-culture	small scale manu-facture	large scale manu-facture	
(1)	(2)	(3)	(4)	(5)	(6)
1.	machinery and equipment	38.84	31.15	22.29	92.28
2.	automobiles, transport equipment	—	—	—	—
3.	iron and steel products used in agriculture	9.01	—	—	9.01
4.	power animals	—	9.01	—	9.01
5.	carts and boats	35.22	—	—	35.22
6.	unclassified	1.00	—	10.26	11.26
7.	all items	84.07	40.16	32.55	156.78

The following important points should be noted:—(a) the dashes in the table do not in general denote non-existent entries and in fact denote data which are 'not available', (b) power animals (purchased by small scale oil manufacturing industries) form a separate item, and (c) carts and boats used in agriculture, animal husbandry, fishery, forestry and allied activities are partly constructed and partly purchased. These are distinguished from automobiles, and transport equipment, which are all mechanised vehicles produced in large scale factories.

6.2.16. From the estimates collected from different sources, it appears that there is a considerable gap in the total utilisation and total availability of capital goods. From the utilisation end items like power animals, carts and boats, etc. can be conveniently traced and these cannot be properly estimated from production ends. In general, however, we find that utilisation falls far short of the availability of the capital goods.

6.2.17. It should be noted in this connection that for items like automobiles and transport equipment (including railway carriages, aircrafts, other vehicles, etc.) information is only obtainable from the estimates of availability of capital goods and we have to use these as estimates of gross capital formation in the transport sector. Excluding items like 'automobiles and transport equipment' from the availability end and 'power animals' and 'carts and boats' from the utilisation end, we notice that the estimated use of capital goods, other than those mentioned, comes to only Rs. 112.55 crore as against the availability of Rs. 163.59 crore of the same goods for 1953-54.

6.2.18. We have argued above that estimates of capital formation in respect of items like 'automobiles and transport equipment' and 'machinery and other equipment' is obtainable only from availability end. But in the capital accounts of public authorities we have used estimates made available by the National Income Unit (CSO), which show that the outlays proper (excluding maintenance) on 'transport equipment' and 'machinery and tools' come to Rs. 12.00 crore and Rs. 7.00 crore respectively. Accordingly, availability of these items for other capital accounts are placed at Rs. 53.83 crore and Rs. 150.34 crore respectively.

6.2.19. Thus using information from both ends we accept the following estimates of gross capital formation for 1953-54:

<i>description of capital items</i>		<i>gross outlays in Rs. crore</i>
carts and boats	..	35.22
power animals	..	9.01
automobiles and transport equipment	..	53.83
machinery, tools and equipment	..	150.34
iron and steel products	..	6.25
total gross capital formation	..	254.65

6.2.20. Reference to section on "construction" immediately reveals that outlays on constructions undertaken during 1953-54 in the private sector amount to Rs. 432.54 crore. This amount excludes outlays on constructions by public authorities and therefore, is considered as a part of other capital formation. In accordance with the scheme of sector classification followed for inter-industry studies this is conveniently shown against row 32 (delivering sector: constructions) and column "other capital accounts" included in the final demands.

6.2.21. On coming to the problem of sector allocations of the outlays finally accepted for our purposes and shown in para 6.2.19 not much difficulty is faced when we remember that the gross outlays should finally concern with the nature of capital goods on which the costs are incurred. In fact, sector allocations can be regarded as irrespective of sectors where the capital formation takes place. In this connection, special mention of some items as stated below is essential.

6.2.22. Outlays on 'power animals' are shown against delivering sector 3 (animal husbandry, etc.). Automobile machinery tools, etc. form flows out of sector 8 (engineering). Outlays on 'carts and boats' present some difficulty in the sense that these are partly constructed within the sectors 1 and 3. 'Other

irrigation appliances' are also partly constructed by the farmers themselves. Hence such outlays are further broken up more or less arbitrarily and account for flows out of sectors 3, 6, 7, 26 and 36, etc. which supply the materials for construction of the capital equipment. No separate allowance for labour payments is made since it is likely that no cash payment for hired labour is involved in these cases. The gross transactions are thus finally obtained as shown below:

TABLE (6.2.5) : OTHER CAPITAL FORMATION (RUPEES CRORE):
1953-54

srl. no.	delivering sectors	sector code	gross capital transactions
(1)	(2)	(3)	(4)
1.	animal husbandry, fishery, forestry	3	12.18
2.	iron and steel	6	17.91
3.	non-ferrous metals	7	7.73
4.	engineering	8	143.53
5.	large scale: building materials and wood	11	10.50
6.	small scale: metal and metal ware	20	11.85
7.	small scale: other building materials and wood manufacture	21	34.81
8.	small scale: unclassified	26	13.00
9.	constructions	32	432.54
10.	large scale: unclassified	36	3.14
11.	all sectors	--	687.19

SECTION 3

CHANGES IN INVENTORY

6.3.0. The chief purpose of inter-industry transactions tables is to record flows of goods and services. The row corresponding to a particular sector displays the magnitudes and destinations of the money-flows in terms of values of outputs produced by the sector. In the last column of the table we have entered values of output at market prices, i.e. the ex-factory values of sectoral outputs enhanced by commodity taxes levied on such outputs. These values denote values of sectoral outputs at market prices.

6.3.1. We have so far discussed in detail how any row of the table records different inter-industrial uses along with different final uses of the outputs produced by the sector. The final uses have been distinguished under five components, namely, (a) household consumption, (b) public authorities, current account (or government consumption), (c) public authorities' capital account (or government capital formation), (d) other capital formation and (e) exports (ex-factory value with duty). We have further noted that since the entries are inclusive of imported goods, we make a deduction of aggregate imports (valued at c.i.f. prices) classed by types of products along the same row in order to arrive at the aggregate use of commodities. It is simple to see that these aggregate values of uses may exceed, equal or fall short of value of domestic output of the sector. Now, in two of these cases where the aggregate use does not equal the domestic output, there is change in inventory of goods produced by the sector under consideration. In the case of uses falling short of domestic production during the year of reference there is addition to stocks of the said goods. On the contrary, if uses exceed domestic output there is depletion in their stocks. Increases and decreases in stocks of commodities have been shown as changes in inventory preceded by positive and negative signs

respectively. Cases of uses exactly equalling domestic production are rare and if they at all exist, they do not result in changes in inventory of goods.

6.3.2. From the foregoing discussion it is clear now that by introducing another column for 'changes in inventory', complete accounting of flows is ensured. In other words, the row-sums over all the columns of the table are now exactly equal to the sectoral values of output at market prices recorded in the last column of the inter-industry transactions table. It may be noted that changes in inventory are only relevant for goods (either produced or imported) and do not apply to the flows of services.

6.3.3. A complete enumeration of changes in inventory of goods is practically impossible due to various difficulties involved in the procedure. Changes in stocks has to be reckoned both in terms of input and output. The production activities of a particular sector are concerned with a certain level of outputs produced during a particular period. All these outputs may not be ultimately sold to users resulting in increase of stocks of the said outputs at the production end. On the contrary, sales may exceed outputs produced resulting in depletion of stocks of the said outputs at the production end.

6.3.4. On the input side, the same commodities may be left unused by activities purchasing them as inputs. This leads to addition to stocks in the hands of users. It may, however, be argued that depletions of stocks of commodities occur when these are not purchased and are used out of stocks.

6.3.5. The role played by trade and distribution activity is the most significant in this connection. Traders usually hold a considerable stock of commodities in which they deal. Dearth of these statistics makes it absolutely impossible to approach the problem of estimation of changes in stocks held by traders and distributors.

6.3.6. For purposes of inter-industry studies we have made some use of data on inventories of fixed and working capital as reported in the Sample Survey of Manufacturing Industries. Differences between estimates of inventories at the end of 1952

and 1953 are used to give a rough indication of changes in stocks during 1953. These data also cannot be appropriately used since it is not possible to know precisely the commodity-wise breakdown of changes in inventories of working capital. In sectors other than large scale manufacturing industries practically no information is available except what has been given in the paper "The National Accounts of India" by B. K. Barpujari appearing in the Volume I of the selected papers on National Income and Allied Topics compiled by the Indian Conference on Research in National Income (1960). The author has tried his best to make use of all available official data in building up estimates of changes in stocks, though it is clearly stated that stocks at all different points could not be enumerated. Moreover, all commodities have not been systematically covered.

6.3.7. The statistics mentioned above have, however, not been directly used for inter-industry studies. This is because whatever estimates exist differ considerably among themselves. In a few cases of agreement of estimates of changes in stocks in respect of large scale manufactured goods these have been used. In most other cases changes in inventory of goods have been estimated as residuals balancing aggregate uses of commodities with domestic production of the same along each row of the inter-industry table.

6.3.8. The final entries in the column of 'changes in inventory' in the inter-industry transactions table have been obtained as shown below. These are recorded at the production end and are accordingly valued at ex-factory or ex-farm prices as the case may be.

TABLE (6.3.1) : SECTORWISE CHANGES IN INVENTORY, 1953-54

srl. no.	delivering sectors	sector code	changes in inventory (Rs. crore)
(1)	(2)	(3)	(4)
1.	agriculture	1	+20.39
2.	plantations	2	+ 1.97
3.	animal husbandry, fishery and forestry	3	+24.04
4.	coal mining and coke making	4	- 1.92
5.	all other mining	5	+ 0.79
<i>large scale manufactures :</i>			
6.	iron and steel	6	- 6.74
7.	non-ferrous metals	7	- 2.08
8.	engineering, etc.	8	-13.25
9.	chemicals, etc.	9	- 9.35
10.	cement, etc.	10	-13.73
11.	other building materials and wood manufacture	11	-24.08
12.	food, drink, tobacco, oil, etc.	12	-25.03
13.	cotton textiles	13	+12.15
14.	other textiles	14	- 8.94
15.	jute and other fibre	15	- 4.63
16.	glass and ceramics	16	- 6.07
17.	leather and rubber	17	+ 2.96
18.	paper, printing and stationery	18	- 5.31
19.	electricity generation and transmission	19	—
<i>small scale manufactures :</i>			
20.	metal and metal working	20	- 4.67
21.	building materials and wood manufacture	21	-15.47
22.	textile and textile products	22	- 3.14
23.	food drink, tobacco, oil, etc.	23	-33.15
24.	glass and ceramics	24	- 2.34
25.	leather and leather products	25	+ 1.86
26.	miscellaneous	26	+17.47
<i>other activities :</i>			
27.	unclassified: large scale products	36	+ 5.26
28.	all sectors	—	-93.01

CHAPTER SEVEN

FOREIGN TRADE

SECTION 1

EXPORTS : EX-FACTORY WITH DUTY

7.1.0. Exports out of a sector of the economy are outputs of the sector which are neither absorbed by industries nor consumed within the economy in any form. They are products of the economy available for earning foreign exchange.

7.1.1. In the inter-industry tables the value of output of a particular sector is measured as the aggregate of flows to the different users. Exports may be considered as the aggregate flow to foreign users outside the domestic economy. Thus without taking exports into account it is not possible to check up independently the domestic output of a particular sector as an aggregate of individual flows. This is the reason for having a separate column for exports among the final bill of goods.

7.1.2. The present inter-industry table for 1953-54, as has been already pointed out, records flows evaluated at market prices. Hence it is necessary to consider value of exports (evaluated at ex-factory prices) along with duty. A detailed classification of commodities exported is obtained from "Accounts Relating to Foreign (Sea, Air and Land) Trade and Navigation of India" relating to 1953-54. It may be observed that value of exports includes duties, cesses along with internal trade and transport margins. Hence appropriate trade and transport margins are deducted to arrive at "ex-factory value of exports with duties".

7.1.3. The statement appended to this section gives an account of important items of exports and their values at delivered prices (inclusive of duties and distributive margins) for the different sectors of the economy. The following table reveals sectorwise allocations of gross entries (derived on aggregation

of commodities exported out of a particular sector), i.e. values of exports at delivered prices. Distributive (i.e. internal trade and transport) margins are deducted to arrive at the 'net' entries (i.e. values of exports at ex-factory prices plus export-duties), which have been finally presented in the inter-industry transactions table.

TABLE (7.1.1.) : VALUE OF EXPORTS (AT DELIVERED PRICES WITH DUTY) FROM DIFFERENT SECTORS (1953-54)

srl. no.	description of sectors exporting	sector code	value of exports (Rs. crore)
(1)	(2)	(3)	(3)
1.	agriculture	1	47.65
2.	plantations	2	0.03
3.	animal husbandry, fishery and forestry	3	49.10
4.	coal mining and coke making	4	7.01
5.	all other mining	5	42.26
6.	iron and steel	6	5.75
7.	non-ferrous metals	7	1.78
8.	engineering, etc.	8	3.90
9	chemicals, etc.	9	6.68
10.	cement	10	0.83
11.	other building materials and wood manufacturing	11	0.97
12.	food, drink, tobacco, oil, etc.	12	112.66
13.	cotton textiles	13	81.69
14.	other textiles	14	5.10
15.	jute and other fibre	15	122.75
16.	glass and ceramics	16	0.29
17.	leather and rubber goods	17	4.67
18.	paper, printing and stationery	18	6.20
19.	small scale: textile and products	22	14.65
20.	small scale: food, drink, tobacco, etc.	23	0.97
21.	small scale: miscellaneous products	26	7.66
22.	large scale: unclassified products	36	3.56
23.	all sectors	—	526.16

APPENDIX TO SECTION 1: VALUE OF EXPORTS (F.O.B.) BY
IMPORTANT ITEMS (1953-54)

sector code	important items of exports by sectors of the economy	value of exports (Rs. crore)			
		land	sea & air	total	
(1)	(2)	(3)	(4)	(5)	
1. <i>agriculture</i>					
	vegetable and fruits	..	—	13.89	
	raw tobacco	..	0.15	11.95	
	spices (pepper, chillies, etc.)	..	0.08	16.87	
	oilseeds	..	0.06	2.28	
	hemp (raw)	..	—	1.14	
	others	..	0.08	1.15	
	total	..	0.37	47.28	47.65
2. <i>plantation</i>					
	rubber	..	—	0.03	0.03
3. <i>animal husbandry</i>					
	fish	..	—	1.30	
	leather and skin	..	—	30.46	
	wood and timber	..	0.76	1.23	
	wool (raw)	..	—	5.87	
	crushed bone	..	—	2.00	
	others	..	0.05	4.43	
	total	..	0.81	48.29	49.10
4. <i>coal and coke</i>					
	coal	..	2.74	4.13	
	coke	..	0.06	0.08	
	total	..	2.80	4.21	7.01
5. <i>all other mining</i>					
	ilmenite	..	—	1.09	
	mica and splittings	..	—	7.89	
	iron ore	..	—	5.53	
	manganese ore	..	—	24.25	
	paraffin wax	..	—	1.55	
	others	..	0.08	1.86	
	total	..	0.08	42.18	42.26

APPENDIX TO SECTION 1 (*contd.*) : VALUE OF EXPORTS (F.O.B.)
BY IMPORTANT ITEMS (1953-54).

sector code	important items of exports by sectors of the economy	value of exports (Rs. crore)		
		land	sea & air	total
(1)	(2)	(3)	(4)	(5)
6. iron and steel				
	pig iron, bars, pipes, etc.	.. 0.10	0.98	
	scrap iron and steel product	.. —	4.67	
	total	.. 0.10	5.65	5.75
7. non-ferrous metal				
	aluminium, copper, lead, tin, zinc, etc. products	.. —	1.78	1.78
8. engineering				
	hardwares and cutleries	.. 0.01	1.15	
	instrument and appliances (photo- graphic, musical, surgical, etc.)	.. 0.02	1.25	
	others	.. 0.24	1.23	
	total	.. 0.27	3.63	3.90
9. chemicals				
	drugs and medicines	.. 0.21	2.98	
	other chemicals	.. 0.02	1.36	
	others	.. 0.11	2.00	
	total	.. 0.34	6.34	6.68
10. cement				
	cement	.. 0.13	0.66	
	others	.. —	0.04	
	total	.. 0.13	0.70	0.83
11. other building materials and wood manufacture				
	furniture, cabinet, etc.	.. —	0.30	
	bricks, tiles, etc.	.. 0.06	0.61	
	total	.. 0.06	0.91	0.97

**APPENDIX TO SECTION I (contd.): VALUE OF EXPORTS (F.O.B)
BY IMPORTANT ITEMS (1953-54).**

sector code	important items of exports by sectors of the economy	value of exports (Rs. crore)		
		land	sea & air	total
(1)	(2)	(3)	(4)	(5)
12. food, drink, tobacco				
	tea	.. 0.57	101.61	
	coffee	.. —	1.45	
	salt	.. 0.14	0.52	
	castor oil	.. —	3.15	
	others	.. 0.08	5.14	
	total	.. 0.79	111.87	112.66
13. cotton textiles				
	cotton (ginned and baled)	.. —	19.28	
	cotton twist and yarn	.. 0.10	4.69	
	blanket manufactures	.. —	1.17	
	canvas, carpet and shawl	.. —	0.79	
	shirting, drill, etc. (bleached and un- bleached)	.. —	32.19	
	coloured and printed goods	.. 0.38	21.87	
	hosiery goods	.. —	1.22	
	total	.. 0.48	81.21	81.69
14. other textiles				
	silk manufactures	.. —	0.72	
	woollen goods	.. 0.03	4.35	
	total	.. 0.03	5.07	5.10
15. jute and other fibres				
	gunny bags	.. 0.03	40.26	
	gunny cloth	.. —	69.49	
	jute manufactures	.. 0.01	4.13	
	coir and coir matting	.. —	8.62	
	others	.. —	0.21	
	total	.. 0.04	122.71	122.75

APPENDIX TO SECTION 1 (*contd.*): VALUE OF EXPORTS (F.O.B)
BY IMPORTANT ITEMS (1953-54).

sector code	important items of exports by sectors of the economy	value of exports (Rs. crore)		
		land	sea & air	total
(1)	(2)	(3)	(4)	(5)
16.	<i>glass and ceramics</i>			
	glass and glass ware	0.05	0.22	
	earthen ware	—	0.02	
	total	0.05	0.24	0.29
17.	<i>leather and rubber</i>			
	boots and shoes	0.10	1.80	
	leather goods	0.04	0.46	
	rubber manufactures	0.01	1.74	
	others	0.08	0.44	
	total	0.23	4.44	4.67
18.	<i>paper, printing and stationery</i>			
	postal articles	—	3.96	
	books etc.	0.11	0.63	
	paper and boards	0.03	0.83	
	others	0.01	0.62	
	total	0.15	6.05	6.20
22.	<i>textile products (small scale)</i>			
	handloom clothes		9.90	
	bed covers, quilts, etc.		3.27	
	others		1.48	
	total		14.65	14.65
23.	<i>food, drink, tobacco, etc. (small scale)</i>			
	bidi		0.97	0.97
26.	<i>other products (small scale)</i>			
	lac (seed and shell)		6.12	
	jewellery products		0.72	
	toys and work of art		0.82	
	total		7.66	7.66
36.	<i>others (n.e.c.)</i>			
	unclassified articles (manufactured and unmanufactured)	0.73	2.83	3.56
	all commodities	7.46	518.70	526.16

SECTION 2

IMPORTS : C. I. F. VALUES

7.2.0. A picture of inter-industrial transactions covering the entire economy may be alternatively considered as an accounting of the national product, including a description of how the incomes are generated. The present table shows the products at market value, that is to say, products valued at supply prices of producers plus the indirect or commodity taxes which are imposed as and when the goods and services pass into the hands of buyers.

7.2.1. In the present inter-industry table, the transactions further include goods imported from foreign countries. We have already seen that the transactions table is almost entirely based on the analysis of cost-structures of the different production activities. In other words, the table is constructed by assembling the outlay-structures of the various processes of production. In so doing we have consistently found it difficult to segregate imported inputs from the inputs of indigenous origin. Moreover, it has been observed that an imputed deduction on account of imported inputs are likely to distort the input-output coefficients and to render them unstable. On the other hand, the statistics in respect of imports do not permit us to trace their destinations. This makes it almost impossible to ascertain the quota of imported goods in each cell of the inter-industry table.

7.2.2. For a more clear understanding of the role of imported goods in the context of present inter-industry studies, one can visualize a conceptual framework in which imports are portrayed in the form of a matrix having the same dimension as that of the parent inter-industry table. The columns of this matrix will represent the domestic sector of the economy classed by users of various imported goods, while the rows will denote similarly and identically classed foreign producing sectors. A typical entry m_{ij} of the matrix corresponding to the j th row and the i th column will then represent the imported goods

supplied by foreign producing sector i and absorbed by the domestic sector j .

7.2.3. It remains to note that the row-totals of the above import-matrix enter into the inter-industry transactions table under consideration. Since the transactions are inclusive of imported inputs, it is evident that the total of entries along the i th row (say) of the inter-industry table will be the indigenous output of the i th sector augmented by aggregate imports of i th origin. It is, therefore, essential to deduct aggregate imports of i th origin somewhere along the row in order to arrive at the domestic production level of the i th sector. This explains the logic behind the negative signs associated with each entry of value of imports in the relevant column*.

7.2.4. It is necessary to draw one's attention to a particular issue, namely, that the row-totals of the import-matrix are obtainable even without the construction of the import matrix proper. The task becomes a simple one in the sense that one has to classify the imports and allocate them to the sectors of the inter-industry table. Here, of course, one is working under the assumption that the foreign sectors producing the imported goods can be identified with one or the other of the domestic production sectors of the economy. Such a procedure immediately yields the aggregate value of imported goods by different origins. To be more precise, the row-total corresponding to the i th row will integrate all possible uses of imported goods of i th origin, namely, those flowing into (a) in industrial activities (as current inputs), (b) household consumption, (c) current account of public authorities, and (d) capital accounts of both government and non-government bodies. Those imports that do not enter into any of the uses outlined above add to the stocks of such goods and are included in the column labelled "Changes in inventory". (On the contrary, again, depletion of stocks of imported goods is a process which results when the various uses exceed the quota imported during the year).

* vide Planning Division (Indian Statistical Institute) working paper entitled "Role of Imports in the Economy" by A. K. Chakraverti for further details.

7.2.5. The principle of valuation of imports is an important issue in the context of inter-industry studies. The present inter-industry table, as already mentioned, records money-flows or transactions at market prices (i.e. value at exfactory or ex-farm prices together with the loads of commodity taxes existing on the goods transacted). Reference to Chapter Two on 'commodity taxes' reveal that import-duties form a part of the total load of commodity taxes. Under such premises, therefore, imports have been shown at c.i.f. values only and it is ensured that such values do not include import duties which are levied when the goods enter into the market.

7.2.6. At this stage it is worth mentioning that re-exports have also been similarly classified. The row-totals of re-exports are then deducted from the row-totals of imports (at c.i.f. values). The c.i.f. value of imports shown with negative signs in the relevant column of the inter-industry table, therefore, are 'net imports' in the sense that they are 'imports net of re-exports'.

7.2.7. The data relating to imports of different commodities are almost entirely obtained from the publication 'Accounts Relating to Foreign (Sea, Air & Land) Trade and Navigation of India' relating to 1953-54. The publication also presents data relating to imports by lands. In the statement appended with this section we have shown imports (at c.i.f. value) both by sea and air and by land. Important items falling under the different sectors have been separately shown. Values of re-exports as well as 'net imports' are also noted against each item. These are presented in the statement enclosed.

**APPENDIX TO SECTION 2 : SECTORAL ALLOCATION OF
IMPORTS (NET OF RE-EXPORTS) IN 1953-54 BY SEA,
AIR AND LAND**

(in Rs. crore)

commodities imported	value of imports		value of	net- imports
	by sea and air	by land	re-exports (negative)	
<i>sector 1: agriculture :</i>				
wheat	38.32	—	—	38.32
almonds, cashew nuts	5.70	—	—	5.70
dates	2.98	—	—	2.98
pulses, milo, sorghum	7.16	—	—	7.16
spices	5.60	0.05	0.01	5.64
oilseeds and other seeds	3.83	0.13	0.15	3.81
raw jute	—	14.25	—	14.25
others	6.78	4.65	0.01	11.42
all	70.37	19.08	0.17	89.28
<i>sector 2: plantation :</i>				
raw rubber	0.09	—	—	0.09
<i>sector 3: animal husbandry, fishery, etc.</i>				
horses	0.13	—	—	0.13
tallow, wax etc.	1.18	—	—	1.18
raw wool	1.64	—	0.85	0.79
wood and timber	2.06	0.02	—	2.08
others	11.99	3.40	0.20	15.19
all	17.00	3.42	1.05	19.37
<i>sector 4: coal mining and coke making :</i>				
by-products of coke-plants	0.72	—	—	0.72
<i>sector 5: all other mining :</i>				
motor spirit, lubricating, oil, etc.	84.73	—	—	84.73
others	4.51	—	0.05	4.46
all	89.24	—	0.04	89.19

**APPENDIX TO SECTION 2 (contd.) : SECTORAL ALLOCATION
OF IMPORTS (NET OF RE-EXPORTS) IN 1953-54 BY SEA,
AIR AND LAND**

(in Rs. crore)

commodities imported	value of imports		value of re-exports (negative)	net- imports
	by sea and air	by land		
<i>sector 6: iron and steel:</i>				
iron and steel products	24.24	—	0.56	23.68
<i>sector 7: non-ferrous metals:</i>				
aluminium, brass, copper, tin and zinc products	14.68	—	0.22	14.46
<i>sector 8: engineering:</i>				
clocks and watches	1.49	—	—	1.49
tools and implements (excl. agricultural implements)	1.25	—	—	1.25
insulators (excl. rubber)	4.77	—	—	4.77
electrical apparatus	3.36	—	0.13	3.23
electrical machinery	18.88	—	—	18.88
agricultural tractors and parts	3.99	—	—	3.99
boilers	4.60	—	—	4.60
excavating machinery	1.63	—	—	1.63
mining machinery	1.29	—	—	1.29
paper-mill machinery	1.43	—	—	1.43
pumping machinery	2.08	—	—	2.08
textile machinery	12.39	—	—	12.39
oil engine and parts	2.77	—	—	2.77
others machinery and parts	35.71	—	0.41	35.30
cycles and parts	1.91	—	—	1.91
aircrafts and parts	3.32	—	—	3.32
railway carriages, wagons and parts	5.98	—	—	5.98
motor cycles, cars, vans, lorries, etc.	6.73	—	0.11	6.62
other vehicles	7.64	—	1.15	6.49
others (n.e.c.)	17.33	—	0.25	17.08
all	138.55	—	2.05	136.50

**APPENDIX TO SECTION 2 (contd.) : SECTORAL ALLOCATION
OF IMPORTS (NET OF RE-EXPORTS) IN 1953-54 BY SEA,
AIR AND LAND**

(in Rs. crore)

commodities imported	value of imports		value of	net-
	by sea and air	by land	re-exports (negative)	imports
<i>sector 9: chemicals, etc.:</i>				
sulphate of ammonia	2.13	--	—	2.13
drugs and medicines	13.09	0.17	0.16	13.10
other chemicals and com- pounds	12.68	-	0.05	12.63
dyes, paints, tanning subs- tances	18.86	---	0.06	18.80
others	6.35	---	0.14	6.21
all	53.11	0.17	0.41	52.87
<i>sector 10: cement, etc.:</i>				
portland cement	0.20	0.02	---	0.02
asbestos cement and others	0.55	--	---	0.55
all	0.75	0.02	---	0.77
<i>sector 11: other building materials and wood</i>				
tea-chests	0.18	--	---	0.18
furniture and other wood manufacture	0.42	-	-	0.42
bricks and tiles	0.35	---	---	0.35
others	0.21	0.02	---	0.23
all	1.16	0.02	---	1.18
<i>sector 12: food, drink, tobacco, oil, etc.:</i>				
rice	13.30	0.01	---	13.31
wheat flour	3.47	--	---	3.47
tobacco and products	0.79	---	---	0.79
alcohol and spirit	1.54	---	---	1.54
sugar	2.33	---	---	2.33
coconut oil	3.90	---	---	3.90
others	5.25	0.07	0.02	5.30
total	30.58	0.08	0.02	30.64

**APPENDIX TO SECTION 2 (contd.) : SECTORAL ALLOCATION
OF IMPORTS (NET OF RE-EXPORTS) IN 1953-54 BY SEA,
AIR AND LAND**

(in Rs. crore)

commodities imported	value of imports		value of	net-
	by sea	by land	re-exports	imports
	and air		(negative)	
<i>sector 13: cotton textiles :</i>				
ginned cotton	52.75	—	—	52.75
cotton twists	1.37	—	0.07	1.30
cotton textile products	1.86	—	0.02	1.84
others	0.27	—	—	0.27
all	56.25	—	0.09	56.16
<i>sector 14: other textiles :</i>				
woollen manufactures	9.89	—	—	9.89
artificial silk yarn	12.04	—	—	12.04
others	1.88	0.10	0.03	1.95
all	23.81	0.10	0.03	23.88
<i>sector 15: jute textiles and other fibre :</i>				
flax manufactures	0.23	—	—	0.23
others	0.07	—	0.04	0.03
all	0.30	—	0.04	0.26
<i>sector 16: glass and ceramics :</i>				
glass and glassware	1.36	—	—	1.36
porcelain and earthenware	0.35	—	—	0.35
others	0.03	—	—	0.03
all	1.74	—	—	1.74
<i>sector 17: leather and rubber products :</i>				
belting for machinery	1.08	—	—	1.08
other leather goods	0.30	—	—	0.30
rubber manufacture	0.47	—	—	0.47
all	1.85	—	—	1.85

**APPENDIX TO SECTION 2 (contd.): SECTORAL ALLOCATION
OF IMPORTS (NET OF RE-EXPORTS) IN 1953-54 BY SEA,
AIR AND LAND**

(in Rs. crore)

commodities imported	value of imports		value of	net-
	by sea	by land	re-exports	imports
	and air		(negative)	
<i>sector 18: paper, printing and stationery:</i>				
paper and paste board	11.60	—	—	11.60
books and printed matters	0.90	—	0.04	0.86
others	6.17	—	0.03	6.14
all	18.67	—	0.07	18.60
<i>sector 20: small scale metalware:</i>				
jewellery and precious stone products	0.05	—	—	0.05
<i>sector 26: small scale miscellaneous:</i>				
unclassified	0.23	0.03	—	0.26
<i>sector 35: defence materials (incl. explosives):</i>				
cartridges	0.23	—	—	0.23
explosives	1.38	—	—	1.38
fire arms and parts	0.41	—	0.01	0.40
others	0.01	—	—	0.01
all	2.03	—	0.01	2.02
<i>sector 36: large scale unclassified:</i>				
others (n.e.c.)	3.70	0.01	0.06	3.65
all commodities (imported)	549.12	22.93	4.83	567.22

CHAPTER EIGHT

STRUCTURAL INTERDEPENDENCE OF THE INDIAN ECONOMY IN 1955-56

8.1. In the preceding chapters of the present publication we have attempted to give a detailed account of the estimational procedures that lead to the construction of the Inter-industry Transactions Table of the Indian Economy: 1953-54 (at market prices). The table, which is the final outcome of the project, has been presented in the Appendix of this report. Sectoral estimates needed to shape the Inter-industry Transactions Table have been built up from various sources of data, a sector-wise summary of which appears under BIBLIOGRAPHY.

8.2. The Inter-industry Studies in the Indian Statistical Institute were continued even after the completion of the 1953-54 Transactions Table and these resulted in another Table for the year 1955-56. The selection of the year 1955-56 was primarily dictated by a specific request from the Planning Commission. An Inter-industry Transactions Table for 1955-56 seemed to be useful since 1955-56 formed the last year of the First Five Year Plan. If attempts are made later on to study structural interdependence for the last year of the Second Five Year Plan, the studies would immediately reveal the extent of technological advance under planned allocations of investments. One would further be interested to measure the sectoral rates of growth which in turn would depend on the cross-sections of investment outlays over the Second Five Year Plan as also on the sectoral gestation lags that influence the gap between the executed investment outlays and actual increments in levels of production.

8.3. Keeping in view the needs of the Planning Commission the Inter-industry Transactions Table (at market prices) of the Indian Economy for 1955-56 has been prepared. This is the latest Inter-industry Table available so far and has been presented in the Appendix B of the present publication.

8.4. The procedures in regard to derivation of the sectoral estimates are almost similar to those of 1953-54, which have been detailed in the present publication. For the sake of brevity, the sectoral notes on estimation for the 1955-56 Inter-industry Transactions Table have not been presented here. The scope and coverage of the sectors remain practically the same. The sources of data relate to similar publications pertaining to the year 1955-56 instead of 1953-54, except that in a few cases some additional publications and/or unpublished data are also available.

8.5. It is, however, worth noting that for the study of 1955-56 a special effort is made to make a more thorough probe into the sectoral estimates of value of output, value of inputs (and their components) and income generated in respect of some sectors. The sectors cover plantations; coal mining; other mining; large scale industries; railways; banks, insurance companies and co-operatives; road transportation; professions and personal services; etc. The results of investigation were incorporated in some mimeographed papers*, five of which were presented to and discussed during the Second and the Third Indian Conferences on Research in National Income (ICRNI) held in Delhi (August-September, 1960) and Bombay (November, 1961) respectively.

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[Figures in Rupees Crore] One Crore \equiv 10 Mil

ities						inter-industrial uses	household consumption	public authorities	
	32	33	34	35	36			current account	capital account
	6.84	—	—	3.35	—	1708.97	2679.57	16.65	—
	—	—	—	—	—	58.67	—	—	—
	13.56	—	—	—	1.54	1220.77	953.74	1.98	0.23
	0.32	—	—	0.60	—	59.96	10.12	0.27	—
	15.03	0.76	—	13.95	0.37	130.28	23.25	0.79	—
	71.40	2.51	—	2.57	—	201.47	—	—	4.33
	5.57	—	—	2.19	—	67.56	—	—	0.39
	52.66	1.10	—	22.44	0.06	191.80	17.92	—	85.64
	11.50	—	—	3.32	0.12	195.70	67.08	1.31	—
	34.90	2.76	—	—	—	40.40	—	—	—
	16.26	4.36	—	—	0.02	33.28	9.79	—	—
	—	—	—	—	—	288.73	374.84	—	—
	—	—	—	—	0.06	194.84	382.19	—	—
	—	—	—	—	—	38.45	65.60	2.01	—
	—	—	—	—	0.02	56.20	3.72	—	—
	5.93	0.99	—	—	—	15.81	5.33	—	—
	—	—	—	—	—	26.10	25.60	—	—
	—	—	—	1.94	0.04	48.70	49.79	5.55	—
	—	—	—	—	0.02	39.66	19.32	4.15	—
	12.78	—	—	—	—	42.12	8.98	—	—
	33.48	1.43	—	—	0.27	60.80	7.10	—	—
	—	—	—	—	—	5.54	169.97	—	—
	—	—	—	—	—	43.77	704.55	—	—
	—	—	—	—	—	0.09	31.74	—	—
	—	—	—	—	—	5.88	42.05	—	—
	30.48	—	—	—	—	127.13	246.73	—	—
	14.04	1.19	—	3.32	0.10	120.72	216.23	19.11	1.07
	23.26	0.45	—	2.51	0.17	102.94	365.58	0.70	1.55
	32.75	2.82	—	14.01	1.10	547.06	1367.34	4.37	11.77
	—	—	—	—	0.02	42.88	83.10	5.03	—