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Input-output Table Indonesia, 1971 Volume 1

M. Abdulmadjid

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INPUT - OUTPUT
JOINT RESEARCH PROJECT
INDONESIA, 1971

INPUT-OUTPUT TABLE INDONESIA, 1971

VOLUME I

GENERAL FRAMEWORK
CONCEPTS AND DEFINITIONS

DEVELOPMENT STUDIES PROJECT

CENTRAL BUREAU OF STATISTICS
BANK INDONESIA
INSTITUTE OF DEVELOPING ECONOMIES
CENTER FOR SOUTH-EAST ASIAN STUDIES, KYODAI
TOKYO, 1977

PREFACE

Certainly planners, observers and analysts of the Indonesian economy have long desired a more detailed picture of the process of economic activities in this country. The comprehensive data compiled in the 1971 Input-Output Table in the present report will partially serve that purpose.

The arrangement of data in a matrix form in this Input-Output Table reveals the complex inter-relationships of the economic activities of the producers. At the same time it also serves as a tool to see how a change in demand for a given industry's output affects producers. As a system, the Input-Output Table is an integral part of a larger system known as the System of National Accounts.

The completion of the Input-Output Table presented here is an important step forward. It will aid in the economic analysis and projections necessary for development planning, as well as in the evaluation of existing statistical data and their inherent limitations which will serve to develop an overall national statistical system.

A special note of acknowledgement should be made here of the support given by Dr. Arifin M. Siregar (Managing Director, Bank Indonesia) and Mr. Noboru Kanokogi (President, Institute of Developing Economies, Japan) which has helped make possible the completion of the present Input-Output Table. In addition, Bank Indonesia and the Institute of Developing Economies have given financial aid and the government of Japan through Japan International Cooperation Agency (JICA) has provided technical advisors and equipment.

Finally, thanks are due to many participants from the Indonesian Ministries and other government agencies and from private business circles and to the participants in the Panel Discussion for their contribution of data, comments, and suggestions. They helped make possible the successful completion of the 1971 Input-Output Table of Indonesia according to schedule.

Jakarta, October 1976

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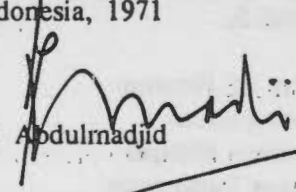
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CHAPTER 1

INTRODUCTION

On January 22nd, 1973 the "Agreement on a Joint Project of Inter-Industrial Relations Study in Indonesia" was signed between Indonesia, represented by the Central Bureau of Statistics (CBS) and Bank Indonesia (BI), and Japan, represented by the Institute of Developing Economies (IDE) and Kyoto University's Center for South-East Asian Studies (SEAS). This project is hereafter called the "Input-Output Joint Research Project, Indonesia, 1971". For this project both parties agreed to make a joint study of inter-industrial relations of the Indonesian economy in order to compile "The Input-Output Table of Indonesia, 1971". The year 1971 was taken as a base because statistical data in 1971 was considered more complete than in other years. Preparations for this project were commenced by CBS and BI in April 1973.

1.1. SUMMARY OF THE 1971 INPUT-OUTPUT TABLE

The "1971 Input-Output Table, Indonesia", was compiled in order to present an over-all picture of the Indonesian Economy with emphasis on the transactions of goods and services. In this section, the main findings about gross value added, final demand, and foreign trade are summarized. The detailed explanation and analysis of the findings are given in Chapter 4.

1.1.1. Gross Value Added

The 1971 Input-Output Table shows that the Indonesian economy generated 4,270 billion rupiahs of gross value added: This was composed of 1,495 billion rupiahs (35.0% of the total gross value added) from the agricultural sector, 310 billion rupiahs (7.3%) from the mining and quarrying sector, 517 billion rupiahs (12.1%) from the manufacturing sector, 196 billion rupiahs (4.6%) from the construction sector, 754 billion rupiahs (17.6%) from the trade sector, 329 billion rupiahs (7.7%) from the transport sector, and 669 billion rupiahs (15.7%) from the other sectors. The gross value added was allocated in wages and salaries of 1,246 billion rupiahs (29.2% of total gross value added), in operating surplus of 2,663 billion rupiahs (62.4%), in depreciation of 228 billion rupiahs (5.3%) and in net indirect taxes of 133 billion rupiahs (3.1%).

1.1.2. Final Demand

The total final demand in 1971 amounted to 5,076 billion rupiahs. This consisted of 3,178 billion rupiahs in private consumption expenditures (62.6% of the total final demand), 323 billion rupiahs of government consumption expenditures (6.4%), 937 billion rupiahs in fixed capital formation (18.5%), 68 billion rupiahs towards a change in inventories (1.3%) and 570 billion rupiahs in exports (11.2%). Expressed at purchaser's prices, final demand for output of the agricultural sector was 1,559 billion rupiahs (30.4%), of the mining and quarrying sector 210 billion rupiahs (4.1%), of the manufacturing sector 1,735 billion rupiahs (34.2%), of the construction sector 503 billion rupiahs (9.9%), of the transport and communication sector 227 billion rupiahs (4.4%), and of the other sectors 842 billion rupiahs (16.6%). Since these values are given at purchaser's prices, the trade margins and transport costs are, of course, included in each value. In the table at producer's prices the final demand by sector was 1,196 billion rupiahs for the output of the agricultural sector (23.5%), 201 billion rupiahs for the mining and quarrying sector

(4.0%), 1,382 billion rupiahs for the manufacturing sector (27.2%), 503 billion rupiahs for the construction sector (9.9%), 584 billion rupiahs for the commerce sector (11.5%), 368 billion rupiahs for the transport and communication sector (7.2%) and 842 billion rupiahs for the other sectors (16.6%).

1.1.3. Imports

Indonesia imported, in 1971, 711 billion rupiahs (at C.I.F. prices) worth of goods and services. These imports consisted of 22.0 billion rupiahs in agricultural products (3.1% of the total imports), 3.3 billion rupiahs in mining and quarrying products (0.5%), 622 billion rupiahs in manufactured products (87.5%), and 64 billion rupiahs in other services (9.0%).

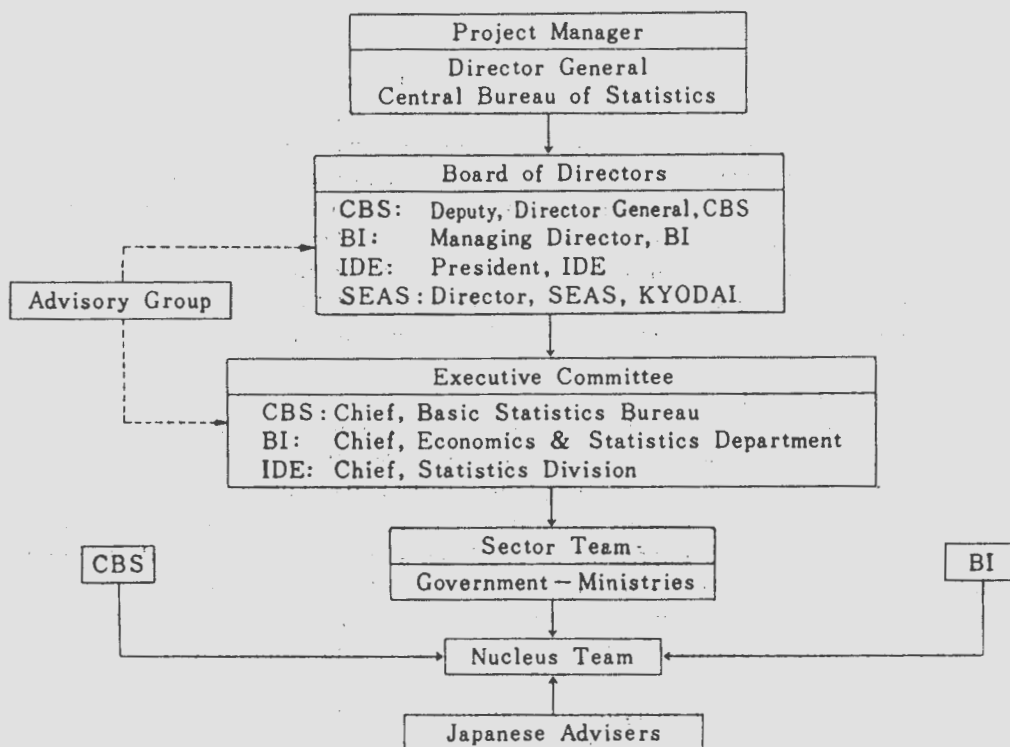
1.1.4. Exports

Total export of goods and services in 1971 amounted to 570 billion rupiahs (at F.O.B. prices). These consisted of 187 billion rupiahs in agricultural products (32.8% of total exports), 192 billion rupiahs in mining and quarrying products (33.7%), 60 billion rupiahs in manufactured products (10.5%), and 131 billion rupiahs in other services (23.0%).

1.2. ORGANIZATION

Many institutes and government agencies assisted in this project by working on the Input-Output Team. For the actual implementation and day to day activities, a Nucleus Team was set up from officials of CBS and BI. Other members (outside CBS-BI) contributed to the project by becoming members of the various Sector Teams. Each Sector Team was directly responsible to the Executive Committee. A rough sketch of the organization follows:

Chart 1 : Organization



The obligations and responsibilities of the respective posts were:

- Project Manager: responsible for the implementation of the project.
Board of Directors: establish guidelines, supervise general activities of the project, and assist the Project Manager.
Advisory Group: supply suggestions and advice in the project at all stages.
Executive Committee: responsible for the daily management of the project.
Sector Team: responsible for all research in its respective sector of study.
Nucleus Team: implementation of the technical aspects of the project.

The Indonesian Government Ministries which were members of the Sector Team, were: The Ministry of Finance, Ministry of Agriculture, Ministry of Trade, Ministry of Industry, Ministry of Transport and Communication, Ministry of Public Works and Electric Power, and Ministry of Mining.

1.3. SEQUENCE OF ACTIVITIES

From the signing of the agreement four years ago until the publication of this report, the following activities had been undertaken:

First Year (April 1973 – March 1974)

- (1) Preliminary studies (April – June, 1973)
 - (i) Setting up of a working group whose members were representatives of Indonesian Governmental Ministries and other Agencies. Introductory courses were held for this group by the Advisory Group.
 - (ii) Studies on "The Input-Output Table of Indonesia, 1969", undertaken by LEK-NAS (Indonesian side) and SEAS-KYODAI (Japanese side).
- (2) Drafting of working manual (July – September, 1973)
 - (i) Drawing up of a working procedure and time schedule for the whole project.
 - (ii) Taking inventories of related statistical material and information.
 - (iii) Discussion and determination of concepts, definitions, commodity classification, and standardization.
- (3) Compilation of preliminary domestic supply table (October 1973 – March 1974)
 - (i) Compilation of production statistics.
 - (ii) Compilation of import and export statistics.
 - (iii) Estimation of domestic supply.

Second Year (April 1974 – March 1975)

- (1) Evaluation, correction and adjustment of preliminary domestic supply table.
- (2) Special sample surveys aimed at getting data on input structures, output structures, trade margins, transport costs, etc.

Third Year (April 1975 – March 1976)

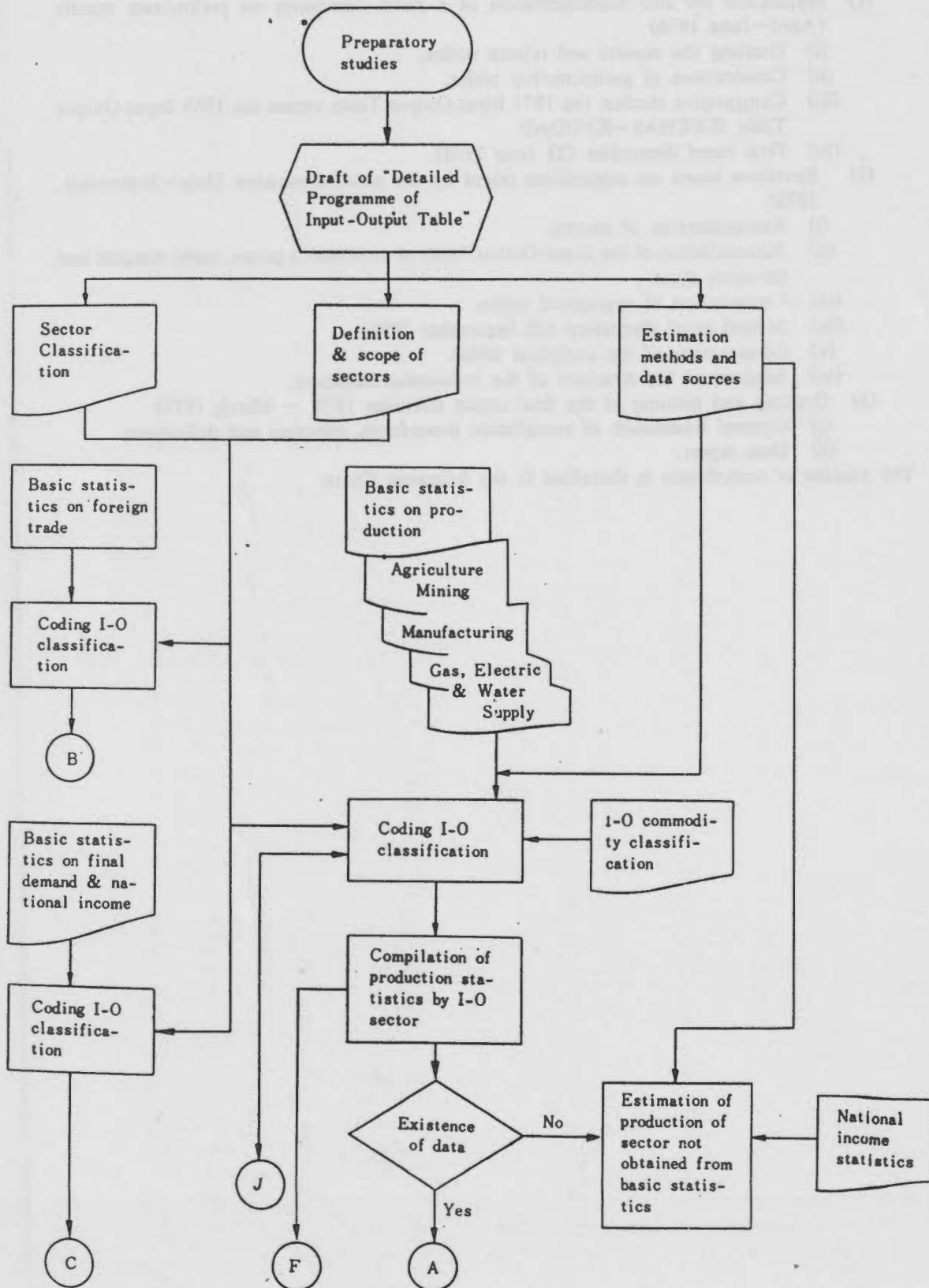
- (1) Evaluation of special survey results (April–August, 1975)
- (2) Check surveys (August–September, 1975)
- (3) Constructing preliminary input-output table from the input point of view (October 1975)
- (4) Preparatory work for reconciliation (November–December, 1975)
- (5) Reconciliation (January–March, 1976)
 - (i) The Input-Output Table at purchaser's prices.
 - (ii) The Input-Output Table at producer's prices.
 - (iii) Construction of tables on trade margins and transport costs.
 - (iv) The construction of aggregated tables (66 and 19 Sector Classifications).

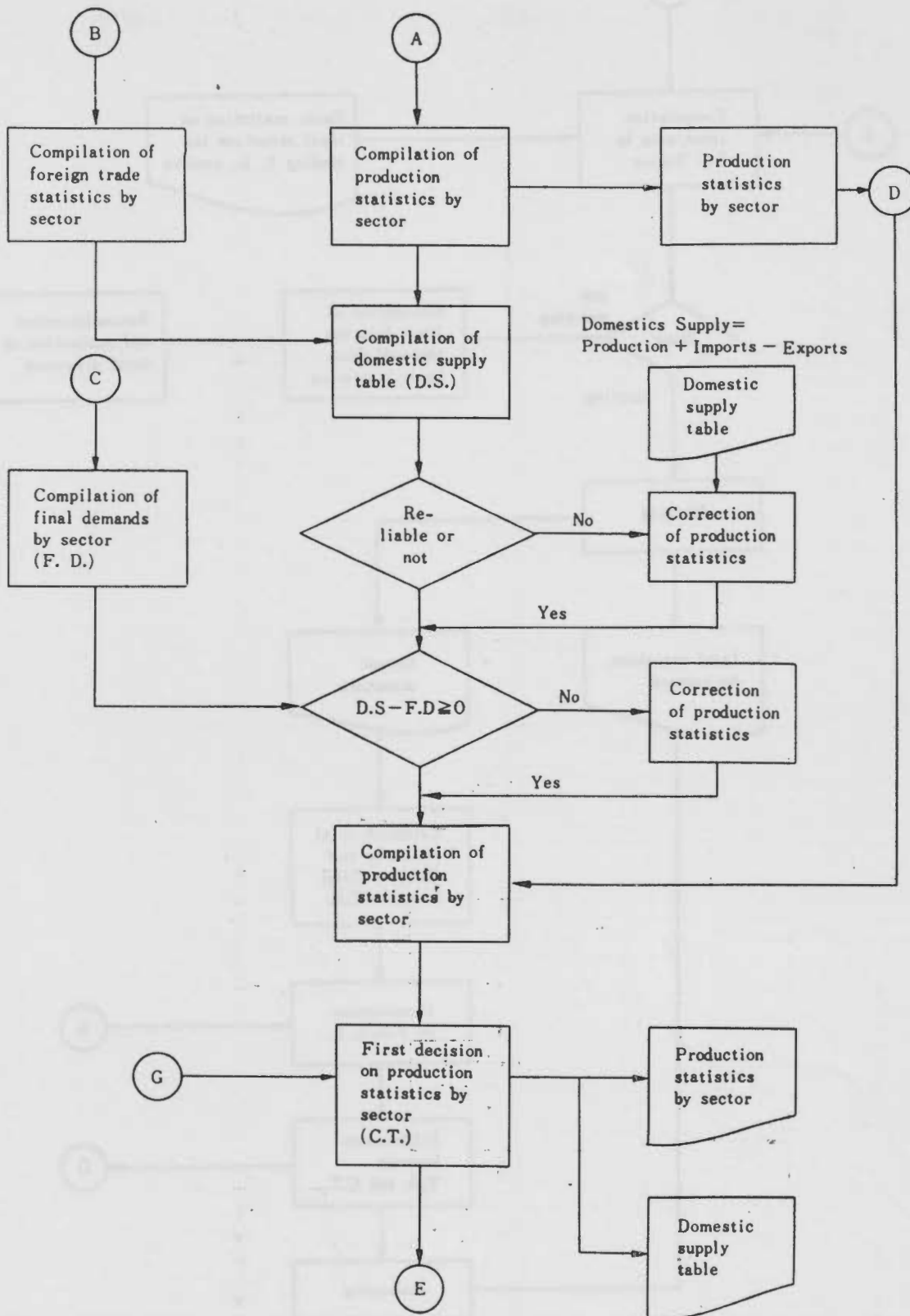
Fourth Year (April 1976 - March 1977)

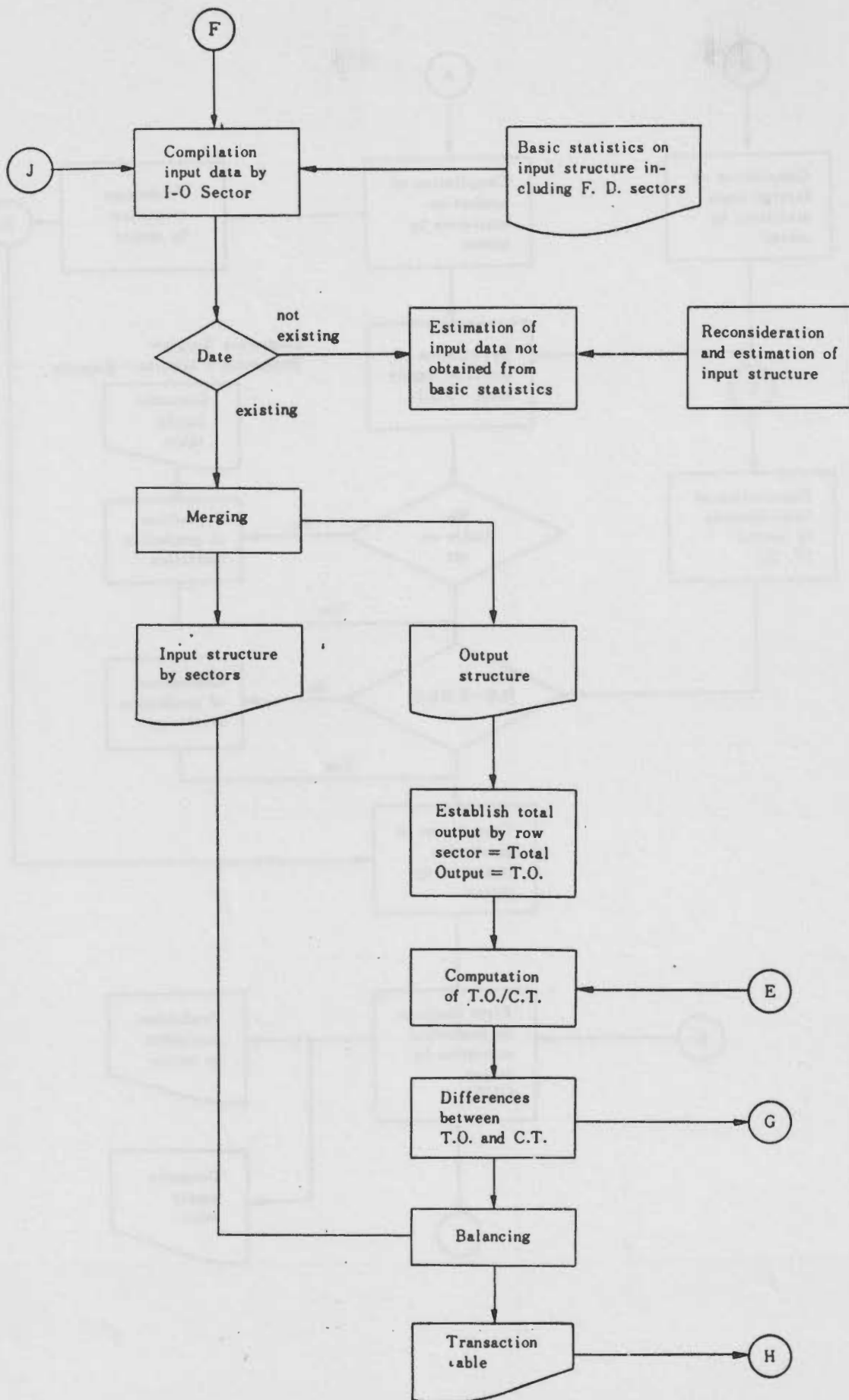
- (1) Preparation for and implementation of a panel discussion on preliminary results (April-June 1976)
 - (i) Drafting the reports and related tables.
 - (ii) Construction of guideline/key tables.
 - (iii) Comparative studies: the 1971 Input-Output Table versus the 1969 Input-Output Table (LEKNAS-KYODAI).
 - (iv) First panel discussion (23 June 1976).
- (2) Revisions based on suggestions raised by the panel discussion (July-September, 1976)
 - (i) Reclassification of sectors.
 - (ii) Reconciliation of the Input-Output Table at purchaser's prices, trade margins and transport costs.
 - (iii) Construction of aggregated tables.
 - (iv) Second panel discussion (20 September 1976).
 - (v) Construction of the analytical tables.
 - (vi) Analysis of the structure of the Indonesian economy.
- (3) Drafting and printing of the final report (October 1976 - March 1977)
 - (i) General framework of compilation procedures, concepts and definitions.
 - (ii) Data report.

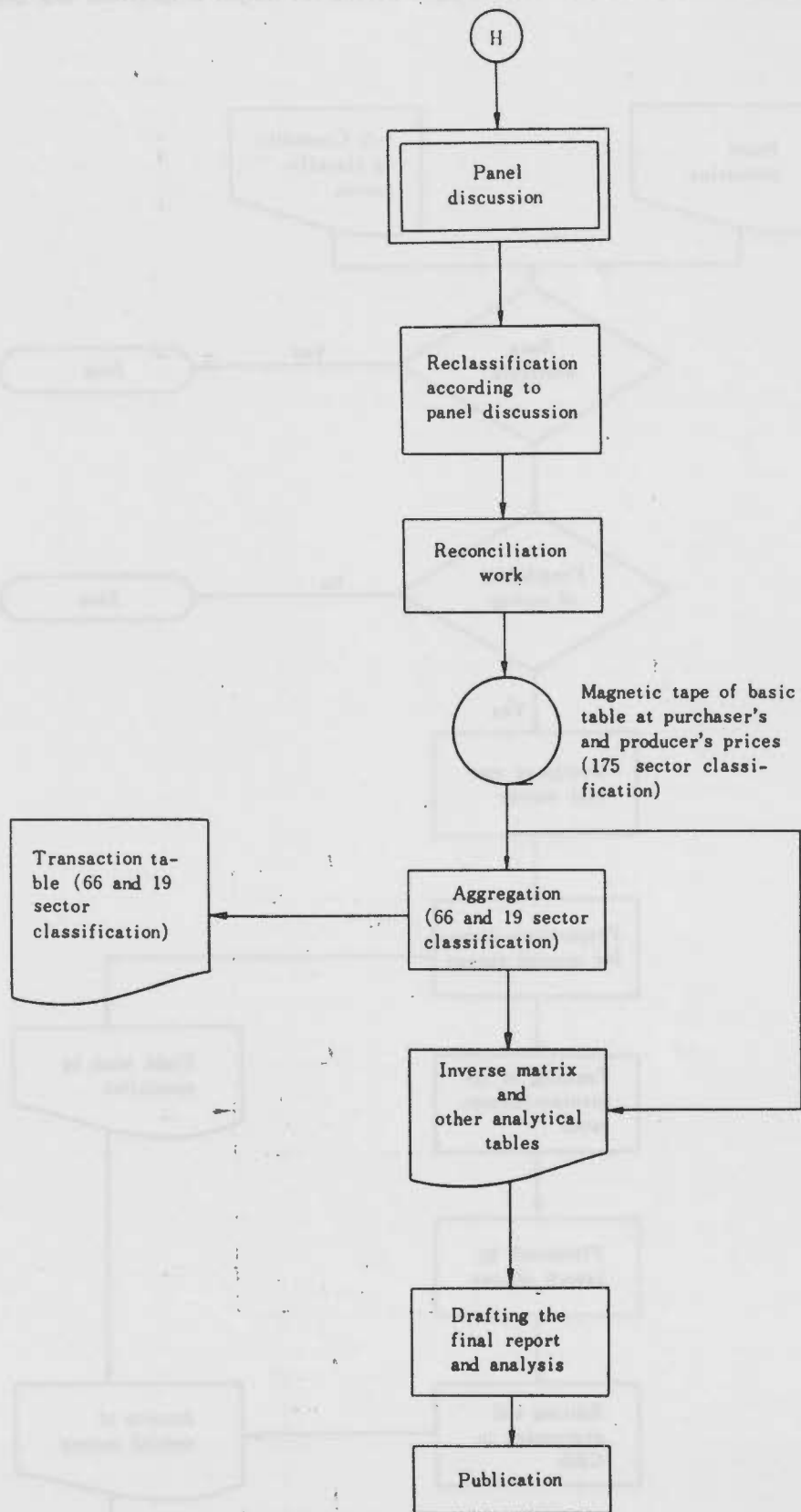
The process of compilation is described in the following Chart;

Chart 2: Flow Chart of the Compilation Procedure for the Input-Output Table

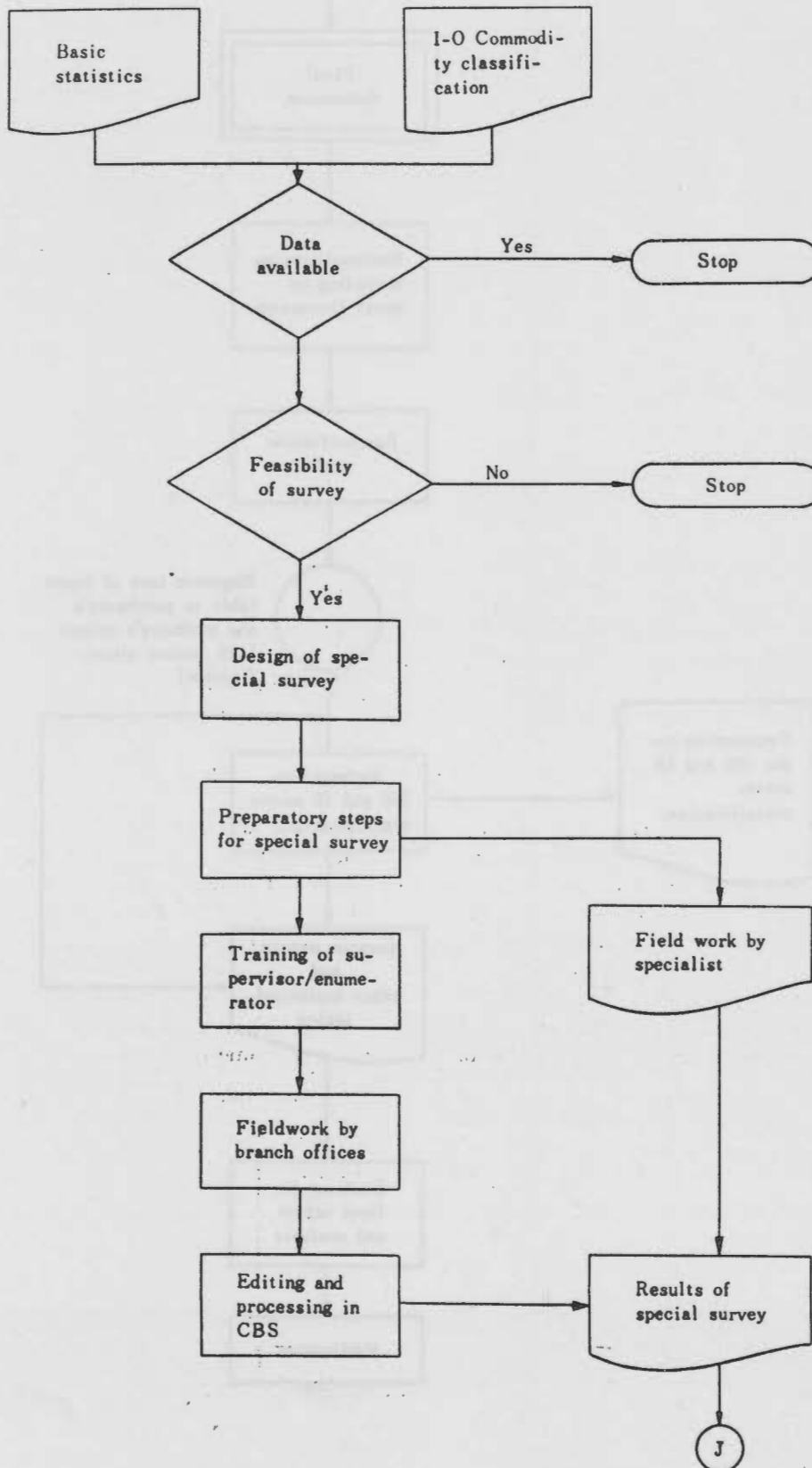








Special Surveys on Production, Input Structure, Output Allocations and Others



CHAPTER 2

CONCEPTUAL FRAMEWORK OF THE INPUT-OUTPUT TABLE

2.1. INTRODUCTION

The present Input-Output Table presents a picture of the interrelationship between different kinds of economic activities, hereafter called sectors. Through this study of interrelationship of sectors, it is intended to develop a picture of the Indonesian economy as a whole.

The following pages outline the basic framework and describe the aim of the 1971 Table. This chapter explains the basic features of the table and should be of assistance in understanding the scope and reliability of the data contained in the table. The concepts and definitions described in this chapter are particularly important when making international comparisons and other analytical purposes using the input-output table. Of course, such definitions should also facilitate comparisons between economic estimates based on this table and those derived from other sources and procedures.

2.2 FEATURES OF AN INPUT-OUTPUT TABLE

2.2.1. Transaction Table

An input-output table is a statistical description, in a matrix form, that shows the transactions of goods and services and the interrelationship of the activities of each sector to the others, in a given area over a specified period of time. As a quantitative method of analysis of economic activities, the main problem is to identify and measure the diverse and numerous transactions between sectors.

In the case of an input-output model which is open and static, the following basic assumptions are made in respect to the transactions under study.

- (1) Each sector produces a single output, with a single input structure, and there is no automatic substitution between the outputs of different sectors.
- (2) The inputs into each sector are a linear function only of the level of output of that sector; i.e., the amount of each kind of input absorbed by any particular sector goes up or down in direct proportion to the increase or decrease in that sector's total output.
- (3) The total effect of carrying out production in several sectors is the sum of the separate effects.

To clarify how the input-output table is constructed, an example is presented below, depicting an economic system consisting of three sectors of production, namely, sectors 1, 2, and 3.

Table 2.1: Illustrative Input-Output Table

Input Structure \ Output Allocation			Intermediate Demand			Final Demand	Total Output
			Production Sectors				
			1	2	3		
Intermediate Input	Production Sectors	1	x_{11}	x_{12}	x_{13}	F_1	X_1
		2	x_{21}	x_{22}	x_{23}	F_2	X_2
		3	x_{31}	x_{32}	x_{33}	F_3	X_3
Primary Input			V_1	V_2	V_3		
Total Input			X_1	X_2	X_3		

In the table, entries along the rows represent the allocation of output of a given sector, partly going to intermediate demand, and partly to final demand. The entries in the columns show intermediate inputs and primary inputs used in production.

From the method of entering figures in a matrix system, it can be seen that each figure in each cell plays a double role. For example, figures in the intermediate transactions (the x_{ij} values in the center of the table), if observed along the rows, a figure in each cell represents the allocation of output disposed of by a sector to another, and at the same time, if observed by columns, the figure in each cell represents an input of one sector acquired from another.

It can be seen from the illustration above that the arrangement of figures in a matrix form shows an interwoven interdependence of activities between sectors. By taking the example from the illustrative input-output table in money term, X_1 , the total output of sector 1, is distributed horizontally by the amounts of x_{11} , x_{12} and x_{13} to sectors 1, 2 and 3, respectively, representing the intermediate demands, and the remaining to F_1 representing final demand. The outputs X_2 and X_3 of sectors 2 and 3 respectively can be observed in the same manner as in the allocation of output X_1 of sector 1. The allocation of these outputs can be written down in algebraic equations, as shown below:

$$\begin{aligned} x_{11} + x_{12} + x_{13} + F_1 &= X_1 \\ x_{21} + x_{22} + x_{23} + F_2 &= X_2 \\ x_{31} + x_{32} + x_{33} + F_3 &= X_3 \end{aligned} \quad (1)$$

These equations can be shown in a general expression below:

$$\sum_{j=1}^3 x_{ij} + F_i = X_i \quad , \quad i = 1, 2, 3 \quad (2)$$

where x_{ij} = intermediate transaction from sector i to sector j ,
 F_i = final demand of sector i ,
 X_i = total output of sector i .

In reading the figures by columns, especially in the intermediate transactions, the figures in a given column represent the inputs needed for production of that sector. Using the same illustration above, algebraic equations for inputs for all the sectors may also be written down as follows:

$$\begin{aligned} x_{11} + x_{21} + x_{31} + V_1 &= X_1 \\ x_{12} + x_{22} + x_{32} + V_2 &= X_2 \\ x_{13} + x_{23} + x_{33} + V_3 &= X_3 \end{aligned} \quad (3)$$

These equations can be rewritten as follows:

$$\sum_{i=1}^3 x_{ij} + V_j = X_j \quad j = 1, 2, 3 \quad (4)$$

where V_j = value added of sector j .

These equation systems are important in making economic analyses. This will be further elaborated in Chapter 3.

2.2.2. Transaction Table at Purchaser's Prices and at Producer's Prices

Transactions expressed in monetary units in an input-output table can be measured in two ways, namely, at producer's prices and at purchaser's prices. The basic difference between the two tables may be attributed to the treatment of distributive margins, consisting of various elements of trade margins and transport costs. In the table at purchaser's prices, these trade margins and transport costs are included in each cell. On the other hand, in the table at producer's prices, trade margins and transport costs are excluded. In the latter, these elements are treated as if they were purchased from the trade and transport sectors.

In practice, the construction of an input-output table is made easier when transactions are based on purchaser's prices, because most statistics about transactions are measured at purchaser's prices rather than at producer's prices. However, tables at purchaser's prices have limited uses. For analytical purposes, tables at producer's prices are preferred, because estimates at producer's prices are expected to have more stable input coefficients.

2.2.3. Economic Units

In the compilation of an input-output table, the initial task is to clarify and define the concept of economic units. The data on output can be compiled according to the following statistical units: (1) Commodity units, in which the statistical units are defined on the basis of one or more related commodities; (2) Establishment units, in which statistical units are defined on the basis of a single location; (3) Activity units, in which statistical units are defined on the basis of the same kind of production activity; (4) Institutional units, in which statistical units are defined as all kinds of activities under one organization.

In compiling the input-output table, the measure of output based on commodity units is perhaps the most useful in view of homogeneity of output. However, economic units with a single commodity output are rare, except perhaps in agriculture and mining. Allocation of output based on commodities is rather easy to determine, but it is difficult to obtain adequate data on the input structure, because there are few economic units that may readily provide information about this aspect. On the other hand, under the classification based on establishment units, as in manufacturing, data on the structure of inputs can easily be obtained. However, it is very difficult to separate the inputs for an individual commodity if the establishment produces more than one commodity.

2.2.4. Treatment of Imports

Imports form a part of the domestic supply of commodities for intermediate and final consumption, and as such, also have a role in the input-output table. There are two possible methods of treating imports in the table, namely, competitive imports and non-competitive imports. With competitive imports, all imported commodities are treated on an equal basis with commodities that are domestically produced. In the case of non-competitive imports, the imported commodities are treated differently from the domestically produced, and separate rows are provided for commodities from the two different sources. In the 1971 Input-Output Table of Indonesia, imports have been treated as competitive imports, due to the limitation of available data.

2.3. SECTOR CLASSIFICATION

The main purpose of grouping the economic activities into sectors is to make the output of each sector as homogeneous as possible. The two main criteria taken into account in the grouping of these economic activities into sectors are:

- (1) Economic activities should be grouped according to similarities in the input structures, even though the utilization of the output may be different. Conversely, economic activities producing output for similar uses, but having different input structures should not be classified under the same sector.
- (2) Several economic units that are consecutive steps in the production process may be grouped under one sector, provided that a change in one output is always followed or preceded by changes in the other outputs in the same proportion. This may be especially true for such economic activities as the carding of cotton, spinning of yarn, textile weaving, dyeing, finishing and printing of textiles.

In working out a classification system for the 1971 Input-Output Table of Indonesia, the existing Indonesian industrial classifications and the International Standard Industrial Classification had been taken as a base. However, the sector classification in the I-O table was extended to include identification of given sectors by their characteristic products (or commodities).

In the 1971 Input-Output Table of Indonesia, most economic units were, in principle, grouped on the basis of commodity and activity. Therefore, the measure of output based on activity unit dealt with the production of one or more than one related commodities or activities.

For the agricultural and mining sectors, the sector classification used for the I-O table is based on and identical with the classification of commodities produced. For the activities under manufacturing industries, the selection of commodities was based mainly on the itemization of output contained in the "Report of Annual Survey of Manufacturing Establishments". For the other sectors such as trade, transport, construction, etc., except for the government sector, the sector classification is based on the activities undertaken. For the government sector, the institutional unit concept has been applied for measuring output. For exports and imports, the available commodity classification is designed for foreign trade statistics. However, in this table, the commodities have been directly linked to their corresponding sectors.

The basic input-output table consists of 175 sectors of production. The number of commodities or groups of commodities composing the sectors is more than 600 items.

For specific purposes, based on this basic table, two aggregated tables have been prepared. One table consists of 66 sectors and the other of 19 sectors. The relationship between the 175 sector classification and their commodities in the basic table, in the 66 sector aggregated table, and in the 19 sector aggregated table, is shown in Appendix A.

2.4. INTERMEDIATE TRANSACTIONS

Industrial sectors use commodities in their economic activities as intermediate inputs and combine them with primary inputs to produce output. The producing sectors have to be distinguished from the final demand sectors, and they are called the intermediate sectors. The transactions taking place between these intermediate sectors are called intermediate transactions. Entries along the rows represent the allocation of output to meet the intermediate demand, while the entries by columns show the composition of inputs into production activities. These intermediate transactions form a matrix enabling the computation of input coefficients and their inverse matrix useful in economic analyses. The intermediate transactions reflect current expenditures for production activities. However, the purchase of capital goods (such as machinery and equipment), the construction of building, etc., are not included in these intermediate transactions, instead they are treated as capital formation which is a component of final demand.

2.5. FINAL DEMAND

Final demand consists of private consumption expenditures, government consumption expenditures, fixed capital formation, change in inventories, exports.

Definitions of these concepts follows:

2.5.1. Private Consumption Expenditures

The private consumption expenditures consist of outlays which households and private non-profit institutions make for goods and services (i.e., new durable goods such as furniture, radios and automobiles, and non-durable goods such as rice, vegetables, meat, and beverages), less net sales of second-hand goods and scraps. Also included in the private consumption expenditures are goods and services received from abroad.

Some special points to be noted regarding private consumption expenditures are:

- (1) Purchases of new dwellings by households are treated as gross fixed capital formation of the construction sector. So, the imputed rent of owner occupied dwellings is part of the gross output of the real estate sector and is included in private consumption expenditures. In same way, purchases of materials for repair and maintenance of dwellings by households are treated as construction activity consumed in the real estate sector as

intermediate input. This part is finally consumed by households from the real estate sector.

- (2) The products of agriculture, forestry, fishing and quarrying, which are produced by households for their own consumption, are outputs of those sectors and so regarded as private consumption expenditures. Payments for domestic services such as maid services, cooking, child-care, gardening, etc., are the outputs of the personal services sector and are regarded as private consumption expenditures.

2.5.2. Government Consumption Expenditures

The consumption expenditures by the government (the central as well as the local) comprises the purchase of goods and services which are not capital in nature. Purchases of capital goods are not included in this sector.

2.5.3. Fixed Capital Formation

Fixed capital formation covers the purchases of new capital goods by sectors. Second-hand capital goods, that are imported from abroad, are also included. Capital formation consists of the following items:

- (1) Purchases of capital goods which are durable for more than one year.
 - (2) Expenditures for renovation of existing capital stock that have the effort of increasing the productivity and/or extending the life time of that capital stock.
 - (3) Expenditures for the reclamation of land, development and extension of forest land, mines, and new planting and replanting of commercial and other perennial crops.
 - (4) Purchases of productive animals for such purposes as breeding, milking, transportation, etc.
 - (5) Trade margins and transport costs connected with the purchases of the above items.
- Capital formation by the armed forces for national defense purposes is not included.

2.5.4. Change in Inventories

Change in inventories is the difference between the values of the inventory of a certain commodity at the beginning and at the end of a given period. This can be grouped as follows:

- (1) Change in inventories of finished goods and work in progress, held by producers, including change in livestock and poultry, and materials held by the government.
- (2) Change in inventories of intermediate goods that consist of raw materials and supplies held by producers but not yet used in production.
- (3) Change in commercial inventories held by the trade sectors. These consist of all kinds of goods up for sale but still unsold, whether held by wholesalers or retailers.

2.5.5. Exports and Imports

Exports and imports are goods and services transacted between residents of Indonesia and other countries. These transactions may include merchandise, transportation, communication, insurance and other services. Export transactions are expressed in F.O.B. prices, which include domestic transportation costs, export taxes, loading costs paid in the exporting country, irrespective of whether the exporter or the foreign importer bears the expenses. In the input-output table, imported goods are valued at C.I.F. prices with the addition of import duties and other related taxes. The freight and insurance costs paid for by foreign countries to domestic companies are regarded as exports of services.

2.6. PRIMARY INPUTS

The rewards to productive factors are called the primary inputs, or gross value added. The gross value added can be calculated by deducting all costs of intermediate inputs from the value of

output. The primary inputs consist of four components, (1) wages and salaries, (2) operating surplus, (3) depreciation of fixed assets, and (4) net indirect taxes. Net indirect taxes are obtained by deducting total indirect taxes paid by the amount of subsidies received by producers.

2.6.1. Wages and Salaries

Wages and salaries are the payments to employees for participation in productive activity. They are paid in money as well as in kind, except the case of the unpaid family workers. The payments in kind are valued at market prices.

2.6.2. Operating Surplus

The value of the operating surplus is obtained by deducting wages and salaries, net indirect taxes and depreciation from the gross value added.

2.6.3. Depreciation of Fixed Assets

This component of value added consists of allowances for the consumption of fixed assets that are used in the process of production. In the case of those assets that are made available on lease, the depreciation of these assets is included in the sector leasing that is owning them.

2.6.4. Net Indirect Taxes

Net indirect taxes are obtained by deducting subsidies from total amount of indirect taxes. Indirect taxes are levied on the production, sales of goods and services. Concrete examples of these taxes are import duties, export taxes, sales taxes, performance taxes, license and transaction fees, real estate taxes, etc. In the present table with the competitive import type, the import duties (with negative signs) are not included here, but treated as a part of import.

In an input-output table, the indirect taxes are, in principle, allocated to the sectors paying these taxes. But, if these taxes are collected from the trade sector, these are entered in the column of the trade sector. Taxes which are assessed on capital goods are allocated to the sector using the capital assets, except in the case of leasing of these assets.

2.7. VALUATION

2.7.1 Valuation of Domestic Outputs

Domestic outputs are valued at producer's prices which are defined, in principle, as the shipment price from producer to purchaser. It should be noted here that the selling price by the producers does not include the transportation and other distribution costs when the output is directly distributed by the producers. In the case of a sector where units of activities operate without a fixed location, as in forestry and fisheries, the price in the nearest market is regarded as the producer's price. Commodity taxes which form a part of the indirect taxes are included in the output of the sector to which the taxes are levied, while the indirect taxes levied at the distribution stage are charged to the trade sector. Semi-finished products and goods in the process of production are, in principle, valued at the average price of the products during a given period. The value of change in inventories is covered under the output of the sector.

2.7.2. Valuation of Exports and Imports

In the input-output table at producer's prices, exports are valued at producer's prices, while in the table at purchaser's prices, these are valued at F.O.B. prices. Since the F.O.B. prices includes domestic trade margins and transport costs, adjustments for these two components have to be made in order to arrive at producer's prices.

In recording transactions in the table both at producer's prices and purchaser's prices, imports are valued at C.I.F. prices.

2.8. DOMESTIC OUTPUT

The value of the total output by sector is used to check the distribution of the output values along the rows and input values along the columns in the table. For this reason, it is called a "Control Total" (C.T.). The reliability of these estimates is a decisive factor in producing an input-output table. Total output is the domestic output resulting from production activities within the boundaries of the country, irrespective of whether the activities are undertaken by nationals or foreigners. The inventories of semi-finished goods and work in progress are also included in the total output by sector.

The control totals are estimated by adding the change in inventories to the values of shipments. Also included are the values of goods produced for own consumption. In general, the control totals of the service sectors are estimated on the basis of receipts. Most of these service sectors are not covered in currently available statistical information. Hence, special ad-hoc surveys of establishments were undertaken to arrive at estimates of the output of these service sectors. The estimation methods adopted for the trade, banking, government as well as the dummy and unspecified sectors are discussed below.

2.9. TREATMENT FOR SPECIAL SECTORS

2.9.1. Trade and Transport Sectors

If every transaction through the trade sector is recorded in the transaction table, it does not give a clear picture of the inter-sectoral transactions. To prevent this, an evaluation was made regarding additional activities undertaken by the trade sectors in serving as the connecting link between producers and consumers in the distribution of outputs.

The output derived from this distribution activity of the trade sector is measured in terms of trade margins. In recording transactions at purchaser's prices, these trade margins are included in the price of the purchased commodity so that there are no entries in the rows for the trade sector. However, at a producer's prices, the trade margins are not included in transactions, so that these trade margins are recorded along the rows for the trade sector.

The activities of the transport sector differ from those of the trade sector in the sense that the transport sector does not conduct any purchasing or sale of goods. The control total of the transport sector is treated in the same way as the trade sector. On the other hand, in the case of transport activities directly serving the process of production, the transport costs are treated as a part of the production costs of the goods and services in question.

2.9.2. Imputation Method

The sectors for which imputation procedures are needed in the estimation of outputs are banking, other financial intermediaries, and a part of the real estate sector (for example, dwellings provided free by the government or other employers and owner-occupied dwellings). It should be noted that there are no actual transactions. If the values of these outputs are not included, the control totals will be under-estimated.

In case of the output of dwellings, the imputation is made on the basis of actual transactions at market prices.

2.10. BY-PRODUCTS, SUBSIDIARY PRODUCTS, AND SCRAP AND WASTE

Take the case of a production activity where two products are produced, say product A and B. Consider product A as main product. Product B may be classified into three:

2.10.1. By-Products

This is the case if product B is simultaneously produced in a single technical process of product A.

2.10.2 Subsidiary Products

Product B is produced side by side in a technologically independent process.

2.10.3 Scrap and Waste

Scrap and waste are an unusable product B created during the production process (e.g., iron scrap) or simply used and discarded items (e.g., old newspapers and used bottles).

2.10.4. Treatment of By-products, Subsidiary Products, and Scrap and Waste

The three methods of entering by-products, subsidiary products, and scrap and waste are explained below. Suppose sector 1 produces product A and product B. Product B is the same as the characteristic product of sector 2.

Method 1: Output Transfer Method (See Table 2.2.)

In column 1, showing the input structure in producing product A, the total input of sector 1 is shown without any specific treatment of product B. The value of product B is then transferred out to sector 2. In other words, the value of B is entered in the cell representing the intersection of the row of sector 1 and the column of sector 2 initially, and then allocated to other sectors in the row of sector 2. In this method, the value of product B is included in sector 1 as well as in sector 2.

Method 2: Negative Input Method (See Table 2.3.)

In this method, the column of Sector 1 which produces product A, is treated in the same way as in the transfer method above but product B is entered as the negative input from sector 2 to sector 1. The value (with a negative sign) of the product B is entered initially in the cell representing the intersection of the row of sector 2 and the column of sector 1, and then allocated to other sectors from sector 2. This method is also called the Stone Method.

Method 3: Input and Output Transfer Method (See Table 2.4.)

In this method, product B is assumed to be produced as a subsidiary product, but not always in the same proportion to product A. The input used for producing product B is separated out from total inputs of the sector, and is transferred to sector 2.

In the compilation of the 1971 Input-Output Table the negative input method (Method 2) was used for the treatment of scrap and waste, and the input and output transfer method (Method 3) for by-products and subsidiary products.

Table 2.2: Output Transfer Method

From \ To	1	2	Others	Output
1		10	90	100
2			10	10
Others	100			100
Input	100	10	100	210

Table 2.3: Negative Input Method

From \ To	1	2	Others	Output
1			90	90
2	-10		10	0
Others	100			100
Input	90	0	100	190

Table 2.4: Input and Output Transfer Method

From \ To	1	2	Others	Output
1			90	90
2			10	10
Others	90	10		100
Input	90	10	100	200

2.11. RELATION BETWEEN THE INPUT-OUTPUT TABLE AND GROSS DOMESTIC PRODUCT

To derive the gross domestic product (GDP), the value of intermediate consumption is deducted from the total output. Another approach is to sum up all expenditures for final consumption and then deduct imports.

By using the algebraic equations in paragraph 2.2.1., the relationship between the figures in the input-output table and national accounts can be shown as follows:

$$\sum_{j=1}^n x_{ij} + F_i - M_i = X_i \quad i = 1, 2, \dots, n \quad (5)$$

where, x_{ij} = intermediate transaction from sector i to sector j ,

F_i = final demand of sector i ,

M_i = imports of sector i ,

X_i = total output of sector i .

$$\sum_{i=1}^n x_{ij} + V_j = X_j \quad j = 1, 2, \dots, n \quad (6)$$

where, V_j = value added of sector j

Since $\sum_i X_i = \sum_j X_j$, the following relationships can be obtained

$$\sum_i \sum_j x_{ij} + \sum_i F_i - \sum_i M_i = \sum_j \sum_i x_{ij} + \sum_j V_j$$

or, $\sum_i F_i - \sum_i M_i = \sum_j V_j \quad (7)$

From above equation (7), gross domestic product is theoretically equivalent to the gross domestic expenditure (total final demand less imports).

The derivation will become clearer if the 5 sector aggregated input-output table is used as illustration (See Table 2.5 and 2.6 below). This table was derived from 19 sector input-output table. The grouping of sectors is as follows:

Sector 1 : Food Crops, Livestock, Forestry, and Fishery.

Sector 2 : Mining and Quarrying.

Sector 3 : Manufacturing, Electricity, Gas and Water Supply, and Constructions.

Sector 4 : Trade, Restaurant and Hotel, and Transport.

Sector 5 : Financial Institutions, Banking, Business Services, Public Administration, Other Services and Activities not elsewhere classified.

The code numbers in Table 2.5. and 2.6. show:

190 : Total Intermediate Input and Total Intermediate Demand.

209 : Gross Value Added.

210 : Total Input.

309 : Total Final Demand.

310 : Total Intermediate Demand and Final Demand.

409 : C.I.F. Value of Imports plus Import Duty plus Sales Tax.

509 : Total of Trade Margins and Transport Costs.

600 : Domestic Output or Control Total.

Table 2.5: Transaction Table at Purchaser's Prices
(5 Sector Classification)

(Billion Rp.)

	1	2	3	4	5	190	309	310	409	509	600
1	614	...	469	117	11	1211	1559	2770	-25	-504	2241
2	3	2	163	168	210	378	-3	-35	340
3	95	19	675	304	98	1191	2257	3448	-714	-583	2151
4	17	4	39	36	14	110	453	563	-33	1127	1657
5	17	5	53	48	35	158	597	755	-31	-5	719
190	746	30	1399	505	158	2838	5076	7914	-806	0	7108
209	1495	310	752	1152	561	4270					
210	2241	340	2151	1657	719	7108					

Table 2.6: Transaction Table at Producer's Prices
(5 Sector Classification)

(Billion Rp.)

	1	2	3	4	5	190	309	310	409	509	600
1	559	...	400	101	10	1070	1196	2266	-25	0	2241
2	2	2	139	143	200	343	-3	0	340
3	77	17	525	258	83	960	1905	2865	-714	0	2151
4	91	6	283	99	32	511	1179	1690	-33	0	1657
5	17	5	52	47	33	154	596	750	-31	0	719
190	746	30	1399	505	158	2838	5076	7914	-806	0	7108
209	1495	310	752	1152	561	4270					
210	2241	340	2151	1657	719	7108					

CHAPTER 3

THE SUPPORTING AND ANALYTICAL TABLES

3.1. INTRODUCTION

Several auxiliary tables are usually attached to an input-output table. In the case of the 1971 Input-Output Table of Indonesia, two sets of tables are attached; the first set represents the supporting tables and the second set represents the analytical tables. The supporting tables, which give the statistical information in terms of actual values, were prepared during the compilation of the input-output table. The analytical tables, which give information for analytical purposes, were calculated after the compilation. In this chapter, brief explanations about such tables as the trade margins matrix, transport costs matrix, employment table, transaction of capital goods, input coefficients table, inverse matrix, etc., are given. The actual tables on the import matrix and on transaction of capital goods, however, could not be presented at this time because of an absence of adequate data.

3.2. TRADE MARGINS AND TRANSPORT COSTS MATRICES (TABLES A-3, A-4, B-3, B-4, C-3 and C-4 in Volume II)

The trade margins and transport costs matrices play an important role in the derivation of the producer's prices from the purchaser's prices in the input-output table. Values in each cell of the two matrices showing the trade margins and transport costs respectively, represent the distribution costs of each transaction from the row sectors to the column sectors. It should be noted that transport costs for the production activity within its own sector are excluded.

A simplified explanation of the role of the two matrices can be made through the following example, which indicates the procedure of deriving the input-output table at producer's prices. In the example, 'C' and 'T' denote the trade and transport sectors respectively; while 'TM' and 'TC' denote trade margins and transport costs respectively. 'A' and 'B' in the example denote other sectors.

Now, consider the numerical entries in this example. The entry of 5 units in the matrix of trade margins and of 3 units in the matrix of transport costs at the intersection cells of row sector A and column sector B represent the costs for distributing 12 units of output from sector A to sector B. The entry of 12 units in the input-output table at producer's prices represents the value of output of sector A purchased by sector B, at producer's price. This is obtained by subtracting the total of trade margins and transport costs from the value of 20 units in the input-output table at purchaser's prices.

The method of compiling these matrices is as follows: (1) Each transaction in the input-output table at purchaser's prices is distinguished whether or not the trade margins and the transport costs are charged. (2) The rates of trade margins and transportation costs are estimated. (3) The amounts of trade margins and transport costs of each cell are calculated, only for the transaction on which the trade margins and transport costs are charged, as the product of the values at purchaser's prices and their corresponding rates.

When compiling a matrix of trade margins, tables of wholesale and retail trade margins are

Chart 3: Example of Trade Margin and Transport Cost Matrices

Input-Output Table at Purchaser's Prices

	A	B	TM	TC
A	1	20	5	3
B	5	40	4	4
C	-	-	9	-
T	0	2	-	7

Matrix of Trade Margins

	A	B	TM	TC
A	0	5	0	0
B	0	4	0	0
C	0	9	0	0
T	-	-	-	-

	A	B	TM	TC
A	1	15	0	3
B	5	36	0	4
C	0	9	0	-
T	0	2	0	7

Matrix of Transport Costs

	A	B	TM	TC
A	0	3	0	0
B	0	4	0	0
C	-	-	-	-
T	0	7	-	0

Input-Output Table at Producer's Prices

	A	B	TM	TC
A	1	12	0	0
B	5	32	0	0
C	0	9	0	0
T	0	9	0	0

initially prepared separately, and then, the two are aggregated to arrive at the trade margin matrix. In the same manner, for the transport cost matrix, separate tables of costs of different types of transportation, such as railways, road transport, ships, etc., were initially prepared and then the transport cost matrix was compiled by the aggregation of these tables.

When a wholesale trade sector or a retail trade sector bears the transport costs, two methods are possible. One is to enter the cost, in the matrix of trade margins, as the cost of the trade sector and the other is to enter it in the matrix of transport costs. The output of the trade sector in the latter treatment would be smaller than in the former one reflecting the amount of transport costs. One of the merits of the former approach is that the figures would show the actual value of payments. But, the ratio of transport cost to trade margins differs from commodity to commodity. Since it is desirable to keep the ratio stable for each commodity, transport costs were not included in trade margins, but entered it in the matrix of transport costs.

Trade margin matrices and transport costs matrices in the three kinds of sector classifications (175 sectors, 66 sectors and 19 sectors) were compiled following the above procedure. (See Tables A-3, A-4, B-3, B-4, C-3 and C-4 in Volume II).

The following aspects of trade margins should be noted:

- (1) In the input-output table at purchaser's prices, the values in row of trade sectors are zero, though all trade margins are included in each transaction figure.
- (2) Margins on second-hand goods are not covered. The assumption is that trading activities in second-hand goods are not carried out by commercial establishments (second-hand stores, etc.).

Attention should also be given to the following points regarding transport costs:

- (1) Transport costs are defined as the transport cost only for the distribution of goods from producers to consumers. Transport facilities in Indonesia are: railways, road freight transport, sea and river transport, air transport, and storage and services allied to transportation.
- (2) Since the estimation of transport cost is based on output by sector multiplied by the rate of transport cost, the table at transport cost reflects only transport cost on production, while transportation of household goods and the like are not included here. These are included under intermediate sectors.

3.3. IMPORT MATRIX

This table, compiled from the input-output table at producer's prices, shows the distribution of imported goods into the intermediate and final demand sectors. In other words, it consists of import portion of each transactions. Through this table, it becomes clear which sectors are consuming which kinds of imported goods.

It is also possible to draw up a transaction table of domestic products by deducting these imports from the input-output table at producer's prices. The transactions in this table would be valued at C.I.F. plus custom duties and sales taxes. However, since adequate information is not available at the present time, it was not possible to compile this Import Matrix.

3.4. EMPLOYMENT TABLE (TABLE B-5 in Volume II)

The input-output technique is applicable in the estimation of demand for labor. This approach is very useful in estimating the interindustrial repercussions of labor requirements. For example, in introducing a new industry the needed manpower input can be estimated. For such analytical purposes a table of labor input by sectors was compiled.

One desirable aspect of this table is the cross classification of occupations and industries. In such a table the relationship between industrial categories and kinds of occupations can be observed. For example, such a table can present a breakdown of each sector by occupational

categories like professional and technical workers, administrative and managerial workers, clerical workers, sales workers, craftsmen, etc. However, in the present effort, information was limited only to the number of employees in each sector.

3.5. TABLE ON TRANSACTIONS OF CAPITAL GOODS

Although the table on transactions of capital goods has not been compiled because of the limited available information, the idea of this table is introduced here.

This table may be compiled by breaking down the column of fixed capital formation into sectors purchasing them. For analytical purposes, it is recommended that the fixed capital formation should be classified into two groups, one of production activity and one of social overhead.

3.6. INPUT COEFFICIENT TABLE (TABLES A-5, B-6 and C-6 in Volume II)

The input coefficient table should be read vertically. Each column shows the coefficient values of intermediate inputs and primary inputs required in the production of one unit of output in that sector.

The derivation of this input coefficient table from each transaction table can be explained as follows:

In the transaction table, let us denote:

- X_j = Output of sector j
- x_{ij} = Output of sector i consumed as input in sector j to produce the output X_j
- v_{hj} = Value added of sector j of primary input h.

In the input coefficient table, let us denote:

- a_{ij} = Intermediate input coefficient of sector j from sector i.
- δ_{hj} = Primary input coefficient (or value added coefficient) of sector j about primary input h.

Then, intermediate input coefficient and primary input coefficient are calculated as follows:

$$a_{ij} = \frac{x_{ij}}{X_j} \quad i, j = 1, 2, \dots, n \quad (3.1)$$

$$\delta_{hj} = \frac{v_{hj}}{X_j} \quad j = 1, 2, \dots, n; h = 201, \dots, 204 \quad (3.2)$$

3.7. INVERSE MATRIX (TABLES B-7, B-8, C-7 and C-8 in Volume II)

An inverse matrix of input-output table is the most fundamental analytical tool. It is, in principle, a function which links a certain level of final demand to a certain level of production. Therefore, by using this matrix in impact analysis, if a certain level of final demand is assumed, the production in each sector required to meet that level of demand can be computed.

Several kinds of inverse matrices are defined according to the treatment of imports in the input-output model. The inverse matrices based on non-competitive imports and competitive imports are different from one another. In the 1971 Input-Output Table of Indonesia, the compilation was made only on the basis of the competitive type of treatment, due to the lack of adequate information.

The inverse matrix, used with competitive imports, and treating imports as an exogenous variable, can be derived through the following model. The equations of supply and demand in the input-output table are first expressed by

$$\begin{array}{ccccccccc}
 x_{11} & + & x_{12} & + & \dots & + & x_{1n} & + & F_1 & = & X_1 & + & M_1 \\
 x_{21} & + & x_{22} & + & \dots & + & x_{2n} & + & F_2 & = & X_2 & + & M_2 \\
 \vdots & & \vdots & & \vdots & & \vdots & & \vdots & & \vdots & & \vdots \\
 x_{n1} & + & x_{n2} & + & \dots & + & x_{nn} & + & F_n & = & X_n & + & M_n
 \end{array} \quad (3.3)$$

Here F_i and M_i respectively show final demand and imports of sector i . By using the assumption (3.1), the equations (3.3) becomes:

$$\begin{array}{ccccccccc}
 a_{11}X_1 & + & a_{12}X_2 & + & \dots & + & a_{1n}X_n & + & F_1 & = & X_1 & + & M_1 \\
 a_{21}X_1 & + & a_{22}X_2 & + & \dots & + & a_{2n}X_n & + & F_2 & = & X_2 & + & M_2 \\
 \vdots & & \vdots & & \vdots & & \vdots & & \vdots & & \vdots & & \vdots \\
 a_{n1}X_1 & + & a_{n2}X_2 & + & \dots & + & a_{nn}X_n & + & F_n & = & X_n & + & M_n
 \end{array} \quad (3.4)$$

Equation (3.4) can be expressed in matrix form as follows:

$$\begin{pmatrix} a_{11} & \dots & a_{1n} \\ \vdots & & \vdots \\ a_{n1} & \dots & a_{nn} \end{pmatrix} = A, \quad \begin{pmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{pmatrix} = X, \quad \begin{pmatrix} F_1 \\ F_2 \\ \vdots \\ F_n \end{pmatrix} = F, \quad \begin{pmatrix} M_1 \\ M_2 \\ \vdots \\ M_n \end{pmatrix} = M \quad (3.5)$$

Then the equation becomes:

$$AX + F = X + M \quad (3.6)$$

which can be written as:

$$(I - A)X = F - M$$

and the solution of X is obtained.

$$X = (I - A)^{-1} (F - M) \quad (3.7)$$

$(I - A)^{-1}$ is the inverse matrix, and this was computed in respect to the 175, 66 and 19 sectors (See Tables B-7 and C-7 in Volume II).

Equation (3.7) shows that, by assuming a certain level of $(F - M)$, the level of output required for the $(F - M)$ can be estimated. However, when this inverse is used, attention must be paid that the final demand and the level of imports are given exogenously. Therefore, if $(I - A)^{-1}$ is computed by using F instead of $(F - M)$, the solution for X would be only an approximation of output level, assuming that all commodities are domestically produced.

Considering such imports as an endogenous variable, another inverse matrix may be defined. Here, it is assumed that imports by each sector are proportionate to the level of domestic consumption in that sector. If this proportion is defined as import coefficient μ_i for each sector, μ is computed as

$$\mu = \frac{\text{Imports}}{\text{Intermediate Demand} + \text{Final Demand} - \text{Exports}} \quad (3.8)$$

Denoting (Final Demand - Exports) by F^e , we get

$$\mu_i = \frac{M_i}{\sum_j x_{ji} + F_i^e} \quad i = 1, 2, \dots, n \quad (3.9)$$

or
$$M_i = \mu_i (\sum_j x_{ji} + F_i^e) \quad (3.10)$$

Now, equation (3.6) can be modified as follows:

$$X = AX + F^c + E - \hat{M}(AX + F^c) \quad (3.11)$$

Here, the notations are

$$E = \begin{pmatrix} E_1 \\ E_2 \\ \vdots \\ E_n \end{pmatrix} = \text{exports}, \quad \hat{M} = \begin{pmatrix} \mu_1 & 0 & \dots & 0 \\ 0 & \mu_2 & \dots & \vdots \\ \vdots & \vdots & \ddots & 0 \\ 0 & \dots & 0 & \mu_n \end{pmatrix} \quad (3.12)$$

where \hat{M} represents import coefficient matrix.

Therefore, the solution of X from equation (3.11) would be

$$X = [I - (I - \hat{M})A]^{-1} [(I - \hat{M})F^c + E] \quad (3.13)$$

where $[I - (I - \hat{M})A]^{-1}$ is the inverse matrix which is used in the analytical tables. As is clear from equation (3.13), this equation is composed of two parts:

$$X = [I - (I - \hat{M})A]^{-1} (I - \hat{M})F^c \quad (3.14)$$

and $X = [I - (I - \hat{M})A]^{-1} E \quad (3.15)$

So, to know the level of output required for a certain level of final demand (except exports), equation (3.14) can be used, and for exports equation (3.15) can be used. In equation (3.14), the leak of F^c to foreign countries in the form of imports is also taken into account.

In case the effect of F^c and E are both observed at the same time, of course, equation (3.13) should be used.

The inverse matrix $[I - (I - \hat{M})A]^{-1}$ was computed for 175, 66 and 19 sectors (See Tables B-8 and C-8 in Volume II).

3.8. DOMESTIC OUTPUT INDUCED BY EACH FINAL DEMAND COMPONENT (TABLES A-6, B-9 and C-9 in Volume II)

In the previous section, it was mentioned that there is a one-to-one correspondence between the level of final demand and the level of output. In a similar manner, the extent of the domestic production (output) induced by each final demand component can be computed. The equation is as follows:

$$X_k = [I - (I - \hat{M})A]^{-1} (I - \hat{M})F_k \quad k = 301, \dots, 304 \quad (3.16)$$

$$X_{305} = [I - (I - \hat{M})A]^{-1} E \quad (3.17)$$

For example, in equation (3.17), the output induced by the present export level is calculated. In other words, this shows the extent of output to be produced if the exports reach their present level. This was computed for 175, 66 and 19 sectors. Also at the bottom of this table, "index of output induced by each final demand sector" is calculated. This index, denoted by ρ , indicates the degree of impacts by each final demand component on direct and indirect production (output). Thus, this can be called a multiplier which gives the output level according to a specified level of each final demand. The index for final demand component k is defined as,

$$\rho_k = \frac{\text{Total Output Induced by } F_k}{\text{Total of } F_k} \quad k = 301, \dots, 305 \quad (3.18)$$

3.9. IMPORTS INDUCED BY EACH FINAL DEMAND COMPONENT (TABLES A-7, B-10 and C-10 in Volume II)

Like the computation of induced output in the previous section, imports generated by each final demand component can be calculated. This table clarifies what portion of imports are induced by each final demand component. A table is computed according to the following equations for 175, 66 and 19 sectors:

$$M_k = \hat{M}A[I - (I - \hat{M})A]^{-1}(I - \hat{M})F_k + \hat{M}F_k \quad k = 301, \dots, 304 \quad (3.19)$$

$$M_{305} = \hat{M}A[I - (I - \hat{M})A]^{-1}E \quad (3.20)$$

3.10. TOTAL IMPORT COEFFICIENT (TABLES B-11 and C-11 in Volume II)

This coefficient is usually defined separately for exports and the rest of final demand. The total import coefficient of final demand (except exports) denoted as λ^f , indicates the direct and indirect imports which are induced by one unit of final demand (except exports) for sector i . For example, suppose that the direct import coefficient is 0.5 and the indirect import coefficient is 0.1, with respect to sector i . This means that one unit of final demand (except exports) for sector i directly generates 0.5 unit of imports, and indirectly 0.1 unit of imports of raw materials for the production of the commodity. Naturally, the total import coefficient is the total of direct and indirect import coefficients. This coefficient is computed with respect to the 66 and 19 sector classifications, according to the following equation:

$$\lambda^f = i \hat{M}A[I - (I - \hat{M})A]^{-1}(I - \hat{M}) + i\hat{M} \quad (3.21)$$

A total import coefficient of exports denoted as λ^e , is calculated with respect to the 66 and 19 sector classifications, by the following equation:

$$\lambda^e = i \hat{M}A[I - (I - \hat{M})A]^{-1} \quad (3.22)$$

This coefficient shows the indirect imports induced by one unit of export of sector i . Since there are no re-exports, except in the case of enterpôt trade, the total import coefficient of exports is equal to its indirect import coefficient.

3.11. GROSS VALUE ADDED INDUCED BY EACH FINAL DEMAND COMPONENT (TABLES B-12 and C-12 in Volume II)

The gross value added induced by each final demand component is derived in a similar manner as induced output. These tables show the value added for each producing sector generated by the present level of its final demand. The computation has been undertaken for 175, 66 and 19 sectors according to the following equations:

$$V_k = \hat{V}[I - (I - \hat{M})A]^{-1}(I - \hat{M})F_k \quad k = 301, \dots, 304 \quad (3.23)$$

$$V_{305} = \hat{V}[I - (I - \hat{M})A]^{-1}E \quad (3.24)$$

where

$$V = \begin{pmatrix} V_1 \\ V_2 \\ \vdots \\ V_n \end{pmatrix} = \text{value added by sector,} \quad (3.25)$$

$$\hat{V} = \begin{pmatrix} \delta_1 & 0 & \dots & 0 \\ 0 & \delta_2 & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & \dots & 0 & \delta_n \end{pmatrix} \quad (3.26)$$

where δ_j denotes value added coefficient as follows:

$$\delta_j = \frac{\text{Value Added of Sector } j}{\text{Output of Sector } j} \quad (3.27)$$

3.12. TOTAL GROSS VALUE ADDED COEFFICIENT (TABLES B-13 and C-13 in Volume II)

The derivation of the coefficient of total gross value added is done in almost the same manner as the total input coefficient. This coefficient is computed for tables with 66 and 19 sector classifications with the following equation:

$$\theta = \hat{V}[I - (I - \hat{M})A]^{-1} \quad (3.28)$$

Here θ is the matrix of coefficient of total and each component of gross value added and

$$\hat{V} = \begin{pmatrix} \delta_1 & \delta_2 & \dots & \delta_n \\ \delta_{11} & \delta_{12} & \dots & \delta_{1n} \\ \delta_{21} & \delta_{22} & \dots & \delta_{2n} \\ \delta_{31} & \delta_{32} & \dots & \delta_{3n} \\ \delta_{41} & \delta_{42} & \dots & \delta_{4n} \end{pmatrix} \quad (3.29)$$

where

- δ_j = Ratio of "value added" to output of sector j
- δ_{1j} = Ratio of "wage and salaries" to output of sector j
- δ_{2j} = Ratio of "operating surplus" to output of sector j
- δ_{3j} = Ratio of "depreciation" to output of sector j
- δ_{4j} = Ratio of "net indirect taxes" to output of sector j

These coefficients show the total and each component of value added, induced by one unit of final demand for sector j. For example, suppose that there is one unit of final demand for the domestic output of sector j and that δ_j (total value added coefficient) is 0.9, δ_{1j} (wage and salary coefficient) is 0.25 and so forth. This means that 0.25 unit of wages and salaries, and 0.9 of total value added were induced by one unit of final demand for this sector. In this case, 0.1 is the leak to foreign countries in the form of imports.

3.13. EMPLOYMENT INDUCED BY EACH FINAL DEMAND COMPONENT (TABLES B-14 and C-14 in Volume II)

This table shows the number of employees induced by the present level of each final demand component. So, if the intersection of a producing sector and household consumption sector is 2,000, this indicates that the household consumption induces the employment of 2,000 workers in the producing sector.

Computation was made with respect to 66 and 19 sector classifications with the following equations:

$$L_k = \hat{L}[I - (I - \hat{M})A]^{-1}(I - \hat{M})F_k \quad k = 301, \dots, 304 \quad (3.30)$$

$$L_{305} = \hat{L}[I - (I - \hat{M})A]^{-1}E \quad (3.31)$$

where

$$L_k = \begin{pmatrix} L_{1k} \\ L_{2k} \\ \vdots \\ L_{nk} \end{pmatrix} = \text{Vector of the number of employees} \quad (3.32)$$

$$\hat{L} = \begin{pmatrix} \gamma_1 & 0 & \dots & 0 \\ 0 & \gamma_2 & \dots & \vdots \\ \vdots & \vdots & \ddots & 0 \\ 0 & \dots & 0 & \gamma_n \end{pmatrix} \quad (3.33)$$

where γ_j denotes employment coefficient of sector j as follows:

$$\gamma_j = \frac{\text{Number of Employees in Sector } j}{\text{Output in Sector } j} \quad (3.34)$$

3.14 TOTAL EMPLOYMENT COEFFICIENT (TABLES B-15 and C-15 in Volume II)

This total employment coefficient, denoted by ϵ , was computed for 66 and 19 sectors with the following equation:

$$\epsilon = i\hat{L}[I - (I - \hat{M})A]^{-1} \quad (3.35)$$

This coefficient shows the number of employees induced by one unit of final demand for domestic output of sector j . For example, suppose that ϵ of sector j is 19.5. Then, this 19.5 workers are required for one unit of final demand for this sector, directly and indirectly.

3.15 NET FOREIGN EXCHANGE EARNINGS BY EXPORTS (TABLES B-16 and C-16 in Volume II)

This table was also computed for 66 and 19 sectors, by using the following equation:

$$Z = E - i\hat{M}[I - (I - \hat{M})A]^{-1}E \quad (3.36)$$

where

$$Z = \begin{pmatrix} Z_1 \\ Z_2 \\ \vdots \\ Z_n \end{pmatrix} = \text{Net foreign exchange earnings by exports} \quad (3.37)$$

$$\hat{E} = \begin{pmatrix} E_1 & 0 & \dots & 0 \\ 0 & E_2 & \dots & \vdots \\ \vdots & \vdots & \ddots & 0 \\ 0 & \dots & 0 & E_n \end{pmatrix} \quad (3.38)$$

where E_i is exports of sector i . The index of net foreign exchange earnings of sector i , x , was computed by the following equation:

$$x = Z_i/E_i \quad i = 1, 2, \dots, n \quad (3.39)$$

This table shows the net foreign exchange earnings from exports of each sector. Net foreign exchange earnings are defined as the balance of the direct foreign exchange earnings by the exports of sector i and the imported inputs required for the production of the exported goods. This table also shows the ratio of net foreign exchange earning to export by sector.

3.16. POWER OF DISPERSION AND DEGREE OF SENSITIVITY (TABLES B-17 and C-17 in Volume II)

The indices of the power of dispersion, α_j , and the degree of sensitivity, β_i , are defined as follows:

$$\alpha_j = \frac{\sum_i b_{ij}}{\frac{1}{n} \sum_j \sum_i b_{ij}} \quad j = 1, 2, \dots, n \quad (3.40)$$

$$\beta_i = \frac{\sum_j b_{ij}}{\frac{1}{n} \sum_i \sum_j b_{ij}} \quad i = 1, 2, \dots, n \quad (3.41)$$

where b_{ij} = element of the inverse matrix.

In this analysis, the above indices were computed by using the inverse matrix, $[I - (I - \hat{M})A]^{-1}$. The column sum of the inverse matrix, $\sum_i b_{ij}$, shows the output induced by one unit of final demand for sector j , and the power of dispersion, α_j , is the normalised index of the column sum to the total sum ($\sum_j \sum_i b_{ij}$). The row sum of the inverse matrix, $\sum_j b_{ij}$, shows the output induced by one unit of final demand of each sector, and the degree of sensitivity, β_i , is the normalised index of the row sum to the total sum.

If α_j is high, it means that the influence of sector j to other sectors is large. If β_i is high, then the sector i is sensitive to the impact from other sectors. α_j and β_i are similar concepts with the "backward linkage effect" and the "forward linkage effect" in A.O. Hirshman's terminology.

CHAPTER 4

THE STRUCTURE OF THE INDONESIAN ECONOMY

4.1. INTRODUCTION

The 1971 Input-Output Table is a good analytical tool that, by showing the interrelation of economic activities, can aid in anticipating economic forecasting, structural analyses and development planning for the Indonesian economy in the future. In this chapter, input-output analytical techniques are employed to show the structure of economic activities in Indonesia. There are however still some limitations to this Input-Output Tabel due to lack of statistical data for certain sectors.

4.2. SUPPLY AND DEMAND

In 1971, total supply was Rp 7,914.3 billion which consisted of Rp 7,107.9 billion of total domestic output and Rp 806.4 billion of total imports. Total demand, which equals to total supply, consisted of Rp 7,344.0 billion of total domestic demand and Rp 570.3 billion of total exports.

Table 4.1 and Figure 4.1 are provided to explain the structure of supply and demand by sector. Looking at the manufacturing sectors, the other manufacturing industries (sector 09) depends heavily upon imports. That is, 45% of the demand for this sector is supplied by imports and it occupies 80% of the total imports. On the other hand, domestic supplies in the other sectors almost completely meet domestic demands. The other agricultural crops (sector 03), forestry (sector 05) and mining (sector 07) differ from other sectors in that these sectors are highly export-oriented. 25% of the domestic output of other agricultural products, 27% of forestry and 56% of mining are exported. These exports occupy 63% of the total exports.

Table 4.1: Supply and Demand at Producer's Prices
(19 Sector Classification)

(Billion Rupiahs)

Code	Input-Output Sectors Description	Domestic Demand	Exports (F.O.B.)	Domestic Output	(1) Imports (C.I.F.)
01	Paddy	463.8	0.0	463.8	0.0
02	Other Farm Food Crops	721.5	11.2	731.6	1.1
03	Other Agricultural Crops	389.0	121.4	487.8	22.6
04	Livestock & Products	162.5	2.6	164.0	1.1
05	Forestry	125.3	45.8	170.9	0.2
06	Fisheries	217.3	5.6	222.8	0.1
07	Mining & Quarrying	151.5	192.0	340.0	3.5
08	Food, Beverages & Tobacco Industries	584.9	36.1	560.1	61.0
09	Other Manufacturing Industries	1,400.6	14.0	771.2	643.5
10	Petroleum Refining	189.7	10.1	190.8	9.1
11	Electricity, Gas & Water Supplies	82.7	0.0	82.7	0.0
12	Construction	546.7	0.0	546.7	0.0
13	Trade	835.1	34.9	870.0	0.0
14	Restaurants & Hotels	261.3	0.0	261.3	0.0
15	Transport & Communication	464.3	94.3	525.5	33.1
16	Financial, Real Estate & Business Services	234.7	0.0	216.9	17.9
17	Public Administration	185.9	0.0	185.9	0.0
18	Other Services	279.0	0.0	278.6	0.4
19	Unspecified	48.0	2.2	37.4	12.7
Total		7,344.0	570.3	7,107.9	806.4

Note: (1) Including import duties and import sales taxes.

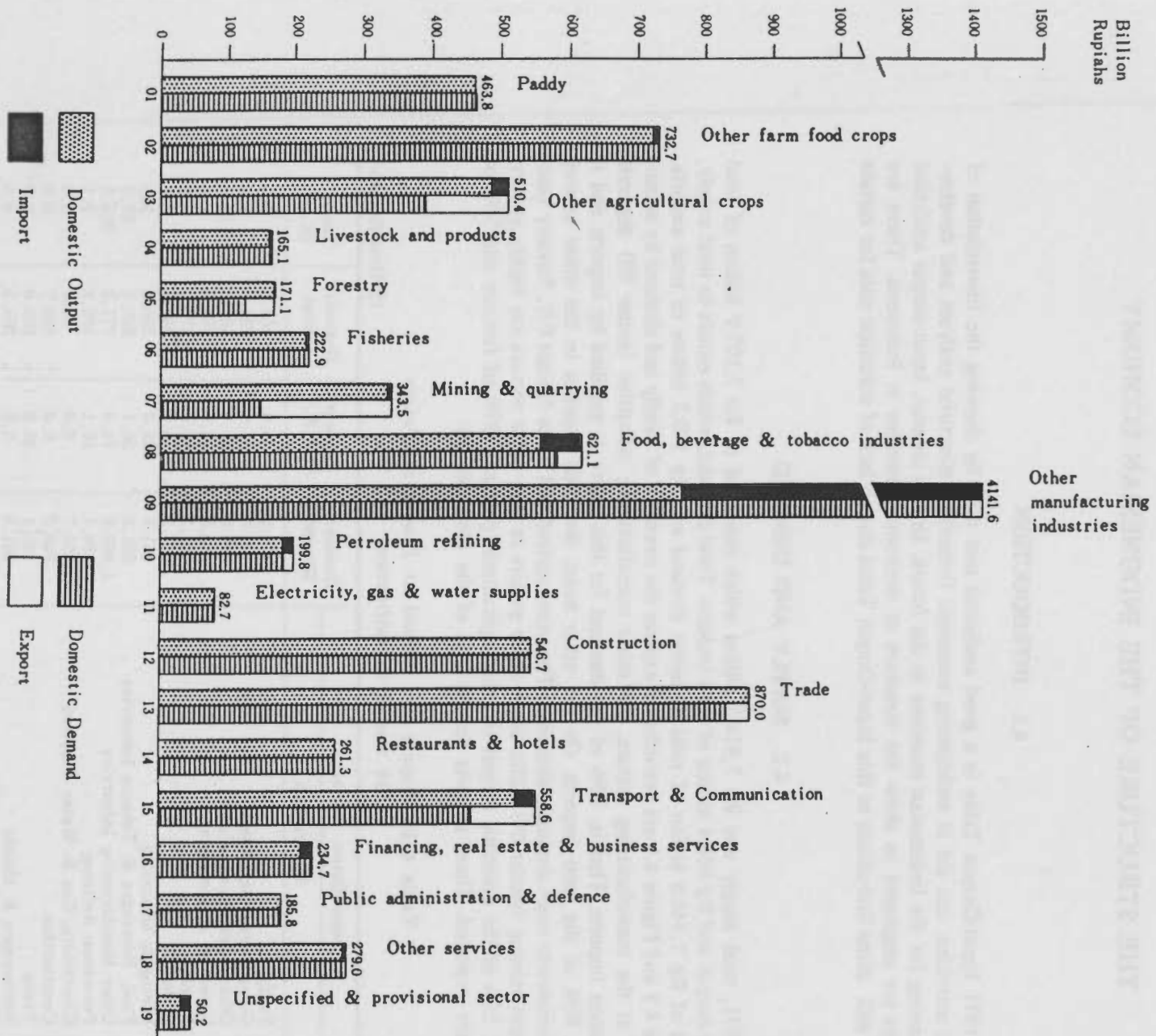


Figure 4.1: Supply and Demand (19 Sector Classification)

4.3. DOMESTIC OUTPUT

As is seen from Table 4.1, the five biggest sectors of domestic output are: trade sector (Rp 870.0 billion, 12.2% of total output); other manufacturing industries (Rp 771.2 billion, 10.8%); other farm food crops (Rp 731.6 billion, 10.3%); food, beverages and tobacco (Rp 560.1 billion, 7.9%); and construction (Rp 546.7 billion, 7.7%).

In the 66 sector classification, the ten biggest sectors are shown in Table 4.2 below.

Table 4.2: Major Output Sectors (66 Sector Classification)

Rank	Sector		Output (Billion Rp)	Percentage (%)
	Code	Description		
1.	53	Trade	870.0	12.2
2.	52	Construction	546.7	7.7
3.	01	Paddy	463.8	6.5
4.	02	Hand-pounding of rice	379.8	5.3
5.	56	Road Transport	325.0	4.6
6.	25	Petroleum & Natural Gas Mining	279.3	3.9
7.	54	Restaurants & Hotels	261.3	3.7
8.	36	Textile, Leather & Wearing Apparel	325.1	3.3
9.	23	Fisheries	222.8	3.1
10.	29	Rice Milling, Cleaning & Polishing	213.0	3.0
Other Sectors			3,311.0	46.6
Total Output			7,107.9	100.0

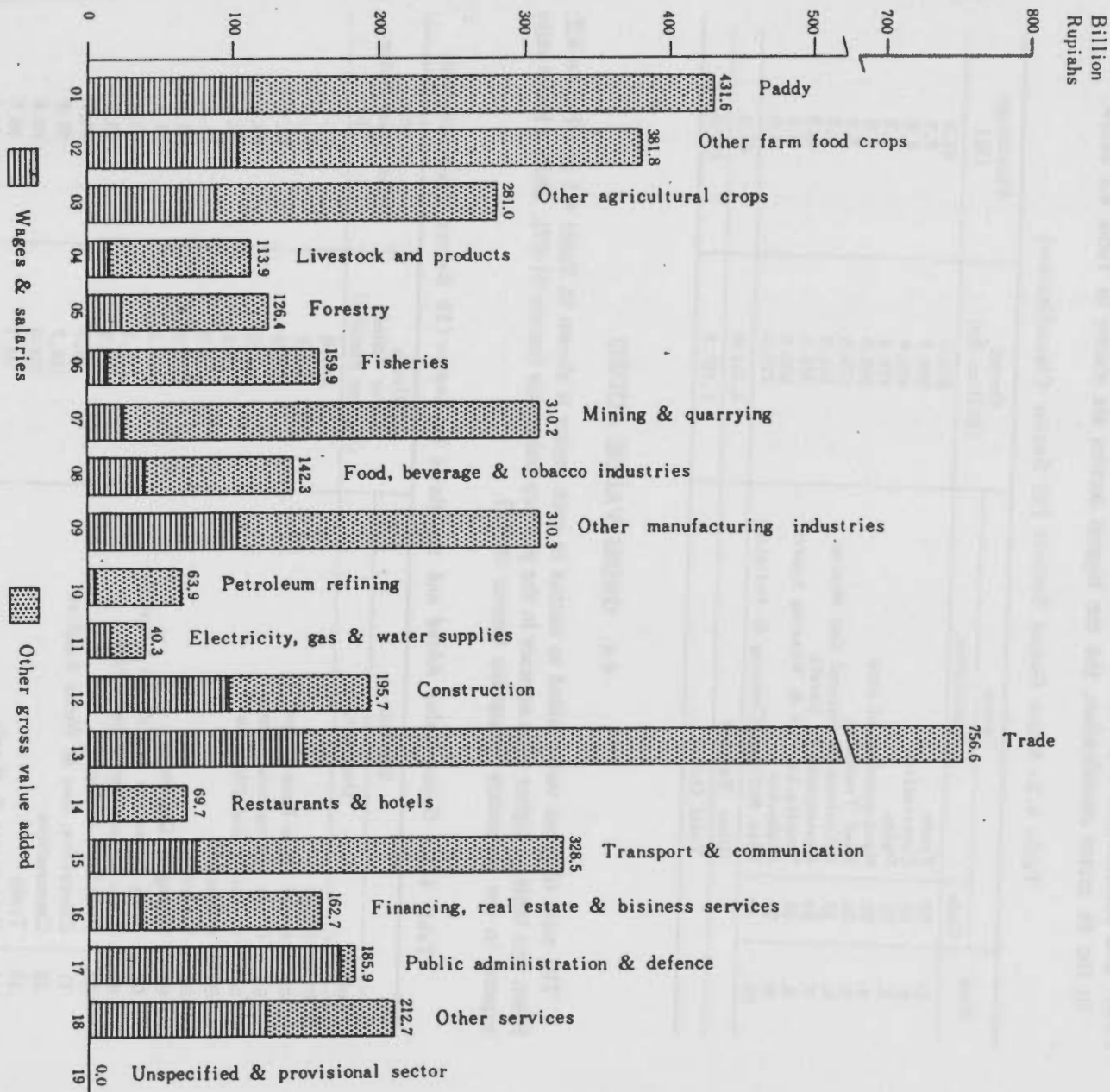
4.4. GROSS VALUE ADDED

The ratio of gross value added to output in each sector is shown in Table 4.3 and Figure 4.2. From this table, a higher ratio appears in the primary industries (sector 01-07), while a lower ratio appears in the secondary industries (sector 08-12).

Table 4.3: Gross Value Added and the Ratio by Sector (19 Sector Classification)

Sectors		Gross Value Added (Billion Rupiahs)	Gross Value Added Ratio (%)
Code	Description		
01	Paddy	431.6	93.1
02	Other Farm Food Crops	381.8	52.2
03	Other Agricultural Crops	281.0	57.6
04	Livestock and Products	113.9	69.5
05	Forestry	126.4	74.0
06	Fisheries	159.9	71.8
07	Mining & Quarrying	310.2	91.2
08	Food, Beverages & Tobacco Industries	142.3	25.4
09	Other Manufacturing Industries	310.3	40.2
10	Petroleum Refining	63.9	33.5
11	Electricity, Gas & Water Supplies	40.3	48.7
12	Construction	195.7	35.8
13	Trade	753.6	86.6
14	Restaurants & Hotels	69.7	26.7
15	Transport & Communication	328.5	62.5
16	Financial, Real Estate & Business Services	162.7	75.0
17	Public Administration	185.9	—
18	Other Services	212.7	76.3
19	Unspecified	0.0	0.0
Total		4,270.4	60.1

Figure 4.2: Gross Value Added and Wages and Salaries (19 Sector Classification)



In order to provide a clear picture of the major sectoral contributions to value added, the ten largest sectors are taken from the Input-Output Table (66 sector classification) and arranged in the descending order of magnitude as follows:

Table 4.4: Major Gross Value Added Sectors (66 Sector Classification)

Rank	Sectors		Gross Value Added (Billion Rp)	Percentage
	Code	Description		
1.	53	Trade	753.6	17.7
2.	01	Paddy	431.6	10.1
3.	25	Petroleum & Natural Gas Mining	262.5	6.2
4.	56	Road Transport	211.6	5.0
5.	52	Construction	195.7	4.6
6.	63	Public Administration	185.9	4.4
7.	23	Fisheries	159.9	3.7
8.	05	Vegetables & Fruits	155.7	3.7
9.	65	Recreational, Cultural, Personal & Household Services	148.7	3.5
10.	62	Real Estates & Business Services	122.8	2.9
		Others	1,642.5	38.5
		Total	4,270.4	100.0

The composition of gross value added and the each component's percentage to the total are shown in Table 4.5.

Table 4.5: Value Added by Item

Code	Value Added Component	Value Added (Billion Rp)	Percentage
201	Wages and Salaries	1,246.4	29.2
202	Operating Surplus	2,662.9	62.4
203	Depreciation	227.8	5.3
204	Indirect Taxes (net)	133.3	3.1
209	Total	4,270.4	100.0

4.5. FINAL DEMAND

Table 4.6 shows the value and percentage of each component of final demand sector. Total final demand in 1971 amounted to Rp 5,076.8 billion, of which 62.6% was expended for private consumption, 18.5% for the purchase of fixed capital goods, 11.2% was exported and 6.4% went to government consumption.

Table 4.6: Final Demand by Item

Code	Final Demand Sectors	Final Demand (Billion Rupiahs)	Percentage
301	Private Consumption Expenditures	3,177.6	62.6
302	Government Consumption Expenditures	323.2	6.4
303	Gross Fixed Capital Formation	937.4	18.5
304	Change in Inventories	68.3	1.3
305	Exports	570.3	11.2
309	Total	5,076.8	100.0

It is also possible, in Table 4.7 to examine the characteristic breakdown of each final demand component. For example, more than 40% of private consumption expenditure was allocated to food consumption. About 60% of government consumption expenditures were made for labour cost; more than half of gross fixed capital formation was shared by construction; and about 70% of all exports come from other agricultural crops (26.1%), forestry (11.4%), and mining and quarrying (33.6%).

Table 4.7: Composition of Final Demands at Purchaser's Prices
(19 Sector Classification) (Percent)

Final Demand Sectors		301	302	303	304	305	309
Sector		Private Consumption Expenditures	Government Consumption Expenditures	Gross Fixed Capital Formation	Change in Inventories	Exports	Total
Code							
01	Paddy	0.0	0.0	0.0	0.0	0.0	6.0
02	Other Farm Food Crops	25.4	0.0	0.0	18.7	2.2	11.8
03	Other Agricultural Crops	4.6	0.1	0.0	3.7	26.1	8.0
04	Livestock & Products	2.8	0.0	1.1	0.0	0.5	2.3
05	Forestry	1.3	0.0	0.0	1.3	11.4	3.1
06	Fisheries	6.6	0.0	0.0	7.3	1.1	3.9
07	Mining & Quarrying	0.4	0.0	0.0	5.9	33.6	4.7
08	Food, Beverages & Tobacco Industries	18.2	0.0	0.0	14.3	7.1	9.2
09	Other Manufacturing Industries	15.0	11.5	46.1	44.1	3.1	22.8
10	Petroleum Refining	2.9	2.1	0.0	4.7	2.4	3.7
11	Electricity, Gas & Water Supplies	0.4	1.8	0.0	0.0	0.0	1.0
12	Construction	0.0	2.5	52.8	0.0	0.0	6.9
13	Trade	0.0	0.0	0.0	0.0	0.0	0.0
14	Restaurants & Hotels	6.6	4.8	0.0	0.0	0.0	0.0
15	Transport & Communication	4.6	4.1	0.0	0.0	12.1	3.8
16	Financial, Real Estate & Business Services	4.2	2.5	0.0	0.0	0.0	3.0
17	Public Administration	0.0	57.5	0.0	0.0	0.0	2.3
18	Other Services	6.9	11.9	0.0	0.0	0.0	3.5
19	Unspecified	0.1	1.2	0.0	0.0	0.4	0.7
Total		100.0	100.0	100.0	100.0	100.0	100.0

Since private consumption expenditure is the biggest component, it would be interesting to know what are the major items involved. The information derived from the input-output table of 175 sector classification at purchaser's prices is presented in the following table.

Table 4.8: Composition of Private Consumption Expenditures

Components of Private Consumption Expenditures	Value (Billion Rupiahs)	Percentage
1. Rice (2,61)	681.6	21.5
2. Other Food	891.2	28.0
3. Clothing and Footwear(74-84)	261.5	6.8
4. Gas, Water & Electricity (133, 134)	14.0	0.4
5. Restaurants & Hotels (144, 145)	210.2	6.6
6. Road & Air Transport (147, 152)	117.9	3.7
7. Housing Rent (159)	128.9	4.1
8. Education (163)	27.1	0.9
9. Others	890.1	28.0
Total	3,177.6	100.0

From the above table it is observed that food consumption accounts for almost 50% of the total private consumption expenditures.

4.6. EMPLOYMENT

Figure 4.3 shows the sector distribution of employment as derived from the "1971 Population Census". There are seven sectors among the 19 sectors which provide employment to more than one million persons. The biggest three are: other farm food crops (16.7 million persons or 40% of the total employment); paddy (7.5 million persons or 18%); and trade (3.3 million persons or 8%). Manufacturing sectors still provide relatively few employment opportunities (0.6 million persons or 1.5% in the food, beverages and tobacco industries, and 2.0 million persons or 5% in the other manufacturing sector).

More detailed information on employment is given in Input-Output Table of 66 sector classification. The ten sectors which have the highest capacity of absorbing man power (labour intensive sectors) are arranged in descending order of magnitude in the Table 4.9 below:

Table 4.9: Number of Employees by Sector
(66 Sector Classification)

Rank	Code	Sectors	Employment (persons)	Percentage
1.	01	Paddy	7,489,982	18.15
2.	05	Vegetables & Fruits	7,020,266	17.02
3.	04	Root Crops	5,954,602	14.43
4.	53	Trade	3,323,070	8.05
5.	65	Recreational, Cultural, Personal & Household Services	1,803,413	4.37
6.	02	Hand-pounding of Rice	1,717,440	4.16
7.	63	Public Administration	1,325,666	3.21
8.	03	Maize	1,054,739	2.56
9.	64	Social & Community Services	990,473	2.40
10.	06	Other Farm Food Crops	969,778	2.35
Other			9,611,787	23.30
Total			41,261,216	100.00

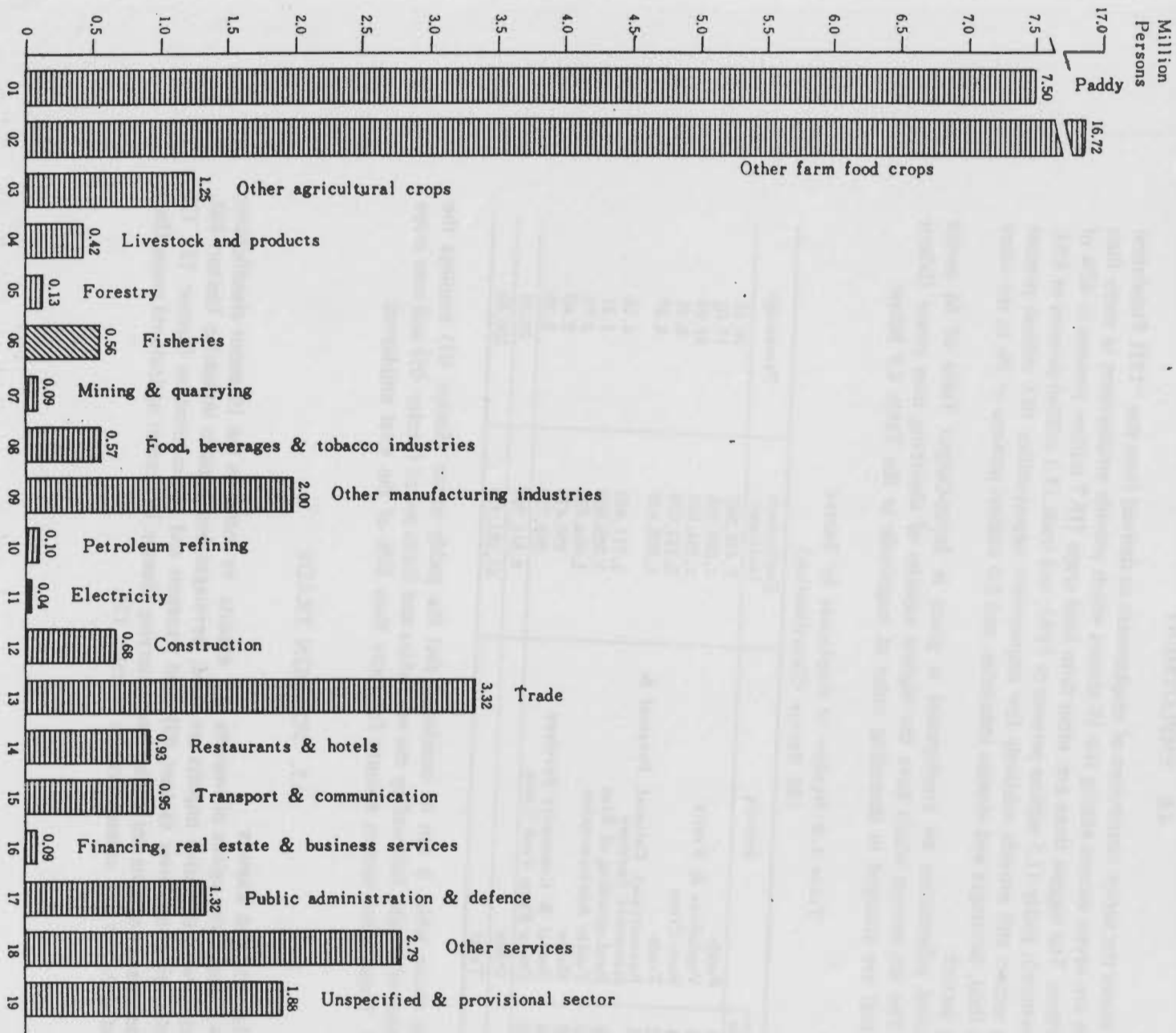
From the above table, it can be concluded that the paddy sector (Sector: 01) employs the greatest number of people, followed by the vegetables and fruits sector (Sector: 05) and root crops (Sector: 04). These three sectors account for more than 50% of the total employees.

4.7. FOREIGN TRADE

4.7.1. Imports and Exports

Figure 4.4 shows the values of imports and exports by sector in the 19 sector classification: (1) The sectors with extensive imports are food, beverages and tobacco industries (sector: 08), other manufacturing industries (Sector: 09), and transport and communication (Sector: 15). (2) Significant sectors for exports are mining and quarrying (Sector: 07), other agricultural crops (Sector: 03) and transport and communication (Sector: 15).

Figure 4.3: Number of Employees by Sector (19 Sector Classification)



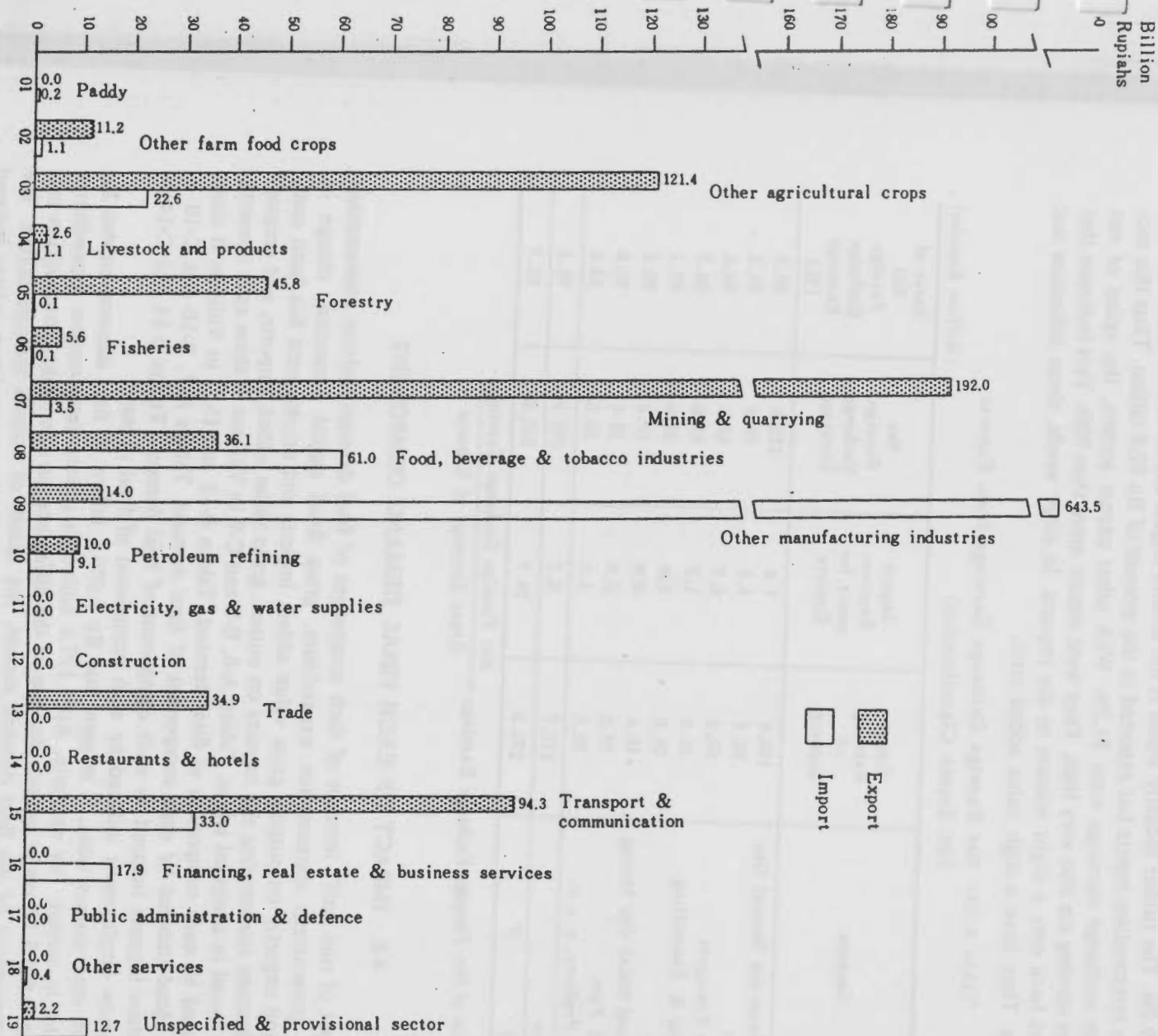


Figure 4.4: Imports and Exports by Sector (19 Sector Classification)

4.7.2. Net Foreign Exchange Earnings from Exports

Exports earn foreign exchange that finances imports of capital goods, raw materials and consumer goods. However, the production of export goods requires imported raw materials. Therefore, the effect of exports on foreign currency earnings should be measured on a net basis. Table 4.10 shows the net foreign exchange earnings of exports by sector in the 66 sector classification. The petroleum mining sector, which is the largest export industry, imported only Rp 1.4 billion in intermediate inputs but exported Rp 173.6 billion. Thus, its net foreign exchange earnings were 99.2%. The rubber industry which is the second largest export sector, imported only Rp 4.8 billion in intermediate inputs but exported to the amount of Rp 82.6 billion. Thus this sector's net foreign exchange earnings were 94.2%. With other export sectors, the ratios of net foreign exchange earnings are also very high. They were almost more than 90%. This indicates that export industries have only a slight relation to the imports. In other words, these industries use domestic inputs. They have a high value added ratio.

Table 4.10: Net Foreign Exchange Earnings from Exports
(66 Sector Classification)

(Billion Rupiahs)

Code	Sectors	Gross Earning of Exports	Import Requirements for Exports	Net Foreign Exchange Earnings	Ratio of Net Foreign Exchange Earnings (%)
25	Petroleum and Natural Gas	173.6	1.4	172.2	99.2
07	Rubber	82.6	4.8	77.8	94.2
57	Water Transport	69.8	6.7	63.1	90.4
21	Logging & Sawmilling	45.3	1.7	43.6	96.2
53	Trade	34.9	1.0	33.9	97.1
24	Coal and Metal Ore Mining	18.4	0.9	17.5	95.2
28	Oil & Fats	17.5	0.9	16.6	94.8
32	Food Products, n. e. c.	16.5	1.1	15.5	93.6
	Others	111.7	6.2	105.5	94.4
	Total	570.3	24.7	545.6	95.7

Note : Ratio of Net Foreign Exchange Earnings = $\frac{\text{Net Foreign Exchange Earnings}}{\text{Gross Earnings of Exports}}$

4.8. IMPACT OF EACH FINAL DEMAND COMPONENT

The impact of one unit's increase of each component of final demand (private consumption expenditure, government consumption expenditure, gross fixed capital formation, change in inventories and exports) on output, gross value added, imports and employment has been computed. The figures representing the impacts on output, gross value added, imports, and employment can be found in analytical tables. Tables A-6, B-9 and C-9 in Volume II show each domestic product induced by each component of final demand. Tables B-12 and C-12 in Volume II show gross value added induced by each component of final demand. Tables A-7, B-10 and C-10 in Volume II show imports induced by each component of final demand. Tables B-14 and C-14 in Volume II show employment induced by each component of final demand.

From the input-output table, it is seen that Rp 5,076.8 billion of final demand creates Rp 7,107.9 billion in output. For example, Rp 3,177.6 billion in private consumption expenditures generated Rp 4,564.5 billion in output. Because of the differences in commodity composition between each component of the final demand sectors, the extent of outputs induced differs. The inducement of output is greatest in the case of private consumption expenditure, where induced output is 1.4365 times that of private consumption expenditures. In the case of government con-

sumption expenditures, gross fixed capital formation, change in inventories and exports, the inducement coefficients with respect to output are 1.1598, 1.3681, 1.2622 and 1.4026, respectively.

The same analysis was made with respect to gross value added, imports and employment. The results are summarised in Table 4.11 below:

Table 4.11: The Impact of Each Final Demand Component on Output, Imports, Gross Value Added and Employment

Code	Components of Final Demand	Final Demand		Induced Output		Induced Imports		Induced Gross Value Added		Induced Employment	
		Billion Rp	%	Billion Rp	%	Billion Rp	%	Billion Rp	%	1,000 Men	%
301	Private Household Consumption Expenditures	3,177.6	62.6	4,564.5	64.2	430.9	53.3	2,746.7	14.3	33,415	81.0
302	Government Consumption Expenditures	323.2	6.4	374.9	5.3	29.0	3.6	294.2	6.9	2,310	5.6
303	Gross Fixed Capital Formation	937.4	18.5	1,282.4	18.0	297.5	36.8	639.9	15.0	2,891	7.0
304	Change in Inventories	68.3	1.3	86.2	1.3	17.2	2.1	51.1	1.2	567	1.4
305	Exports	570.3	11.2	799.9	11.2	31.8	4.0	538.5	12.6	2,079	5.0
Total		5,076.8	100.0	7,107.9	100.0	806.4	100.0	4,270.4	100.0	41,261	100.0

The main conclusions that can be derived from the above table are:

- (1) Gross fixed capital formation has a greater impact on imports than other components of final demand.
- (2) Private consumption expenditures have the strongest ability to generate employment.

4.9. THE FEATURES OF PRODUCTION SECTORS

4.9.1. Intermediate Demand Ratio and Intermediate Input Ratio

The intermediate demand ratio is defined as

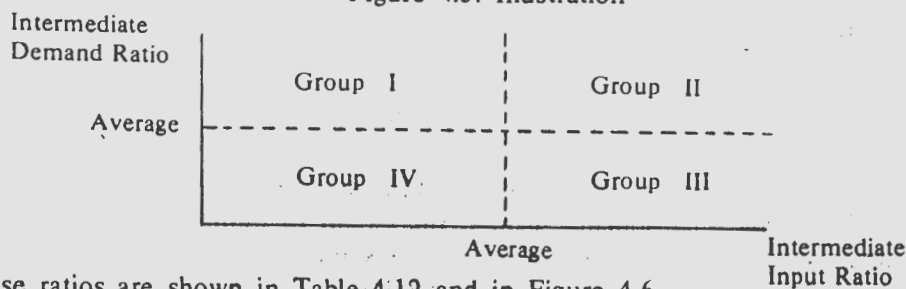
$$\text{Intermediate Demand Ratio} = \frac{\text{Intermediate Demand}}{\text{Supply}} \dots \dots \dots (4.1)$$

And, the intermediate input ratio is also defined as

$$\text{Intermediate Input Ratio} = \frac{\text{Intermediate Input}}{\text{Output}} \dots \dots \dots (4.2)$$

The average intermediate input ratio in 1971 was 0.4394, and the average intermediate demand ratio was 0.4719. These ratios were also calculated for each sector. Based on these results, sectors are grouped into four categories. Group I: high intermediate demand and low intermediate input; Group II: high intermediate demand and high intermediate input; Group III: low intermediate demand and high intermediate input; and Group IV: low intermediate demand and low intermediate input.

Figure 4.5: Illustration

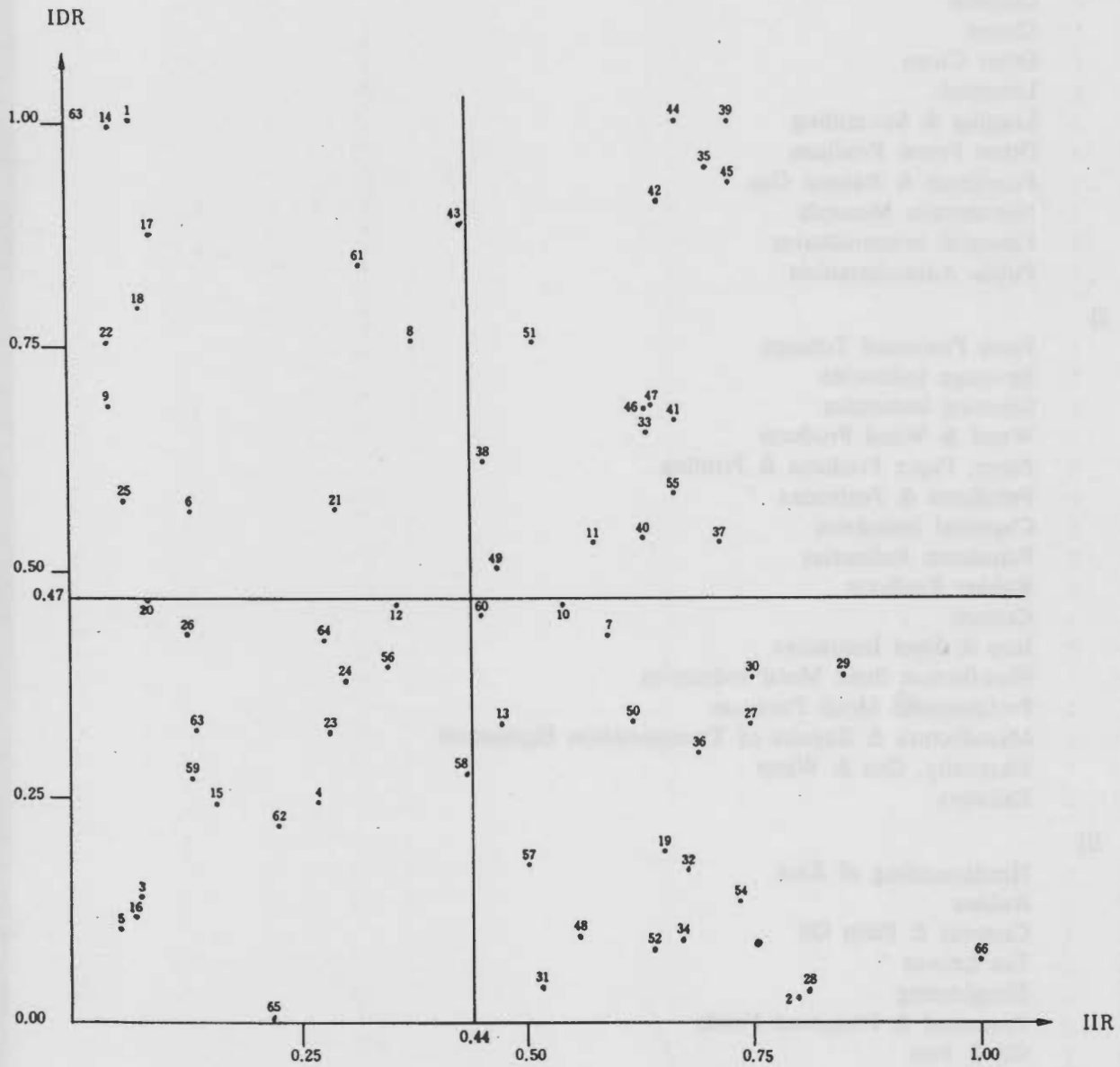


These ratios are shown in Table 4.12 and in Figure 4.6.

Table 4.12: Intermediate Input Ratio and Intermediate Demand Ratio (66 Sector Classification)

Code	Sectors	Intermediate Input Ratio	Intermediate Demand Ratio
01	Paddy	0.0694	1.0000
02	Hand-pounding of Rice	0.7986	0.0294
03	Maize	0.0742	0.1219
04	Root Crops	0.2695	0.2475
05	Vegetables & Fruits	0.0568	0.1006
06	Other Farm Food Crops	0.1288	0.5656
07	Rubber	0.5787	0.4255
08	Sugar Cane & Brown Sugar	0.3772	0.7549
09	Coconut	0.0441	0.6809
10	Coconut & Palm Oil	0.5396	0.4660
11	Tobacco Leaves and Tobacco Processed	0.5723	0.5309
12	Roasted Coffee	0.3566	0.4627
13	Tea Leaves & Farm Processed Tea	0.4729	0.3330
14	Cloves	0.0490	0.9980
15	Nutmeg	0.1573	0.2443
16	Other Spices	0.0652	0.1155
17	Other Crops	0.0931	0.8745
18	Livestock	0.0829	0.7921
19	Slaughtering	0.6491	0.1905
20	Poultry & Products	0.0873	0.4696
21	Logging & Sawmilling	0.2919	0.5694
22	Other Forest Products	0.0459	0.7579
23	Fisheries	0.2823	0.3217
24	Coal & Metal Ore Mining	0.3023	0.3749
25	Petroleum & Natural Gas	0.0603	0.5752
26	Other Quarrying	0.1282	0.4281
27	Processing & Preserving of Foods	0.7498	0.3377
28	Oil & Fats	0.8068	0.0369
29	Rice Milling, Clearing & Polishing	0.8472	0.3850
30	Wheat Flour & Products	0.7477	0.3837
31	Sugar Refining	0.5655	0.0397
32	Food Products, not elsewhere classified	0.6744	0.1711
33	Beverages Industries	0.6370	0.6532
34	Cigarettes	0.6733	0.0898
35	Spinning Industries	0.7044	0.9484
36	Textile, Leather & Wearing Apparel	0.6857	0.3034
37	Wood & Wood Products	0.7154	0.5294
38	Paper, Paper Products & Printing	0.4548	0.6236
39	Fertilizers & Pesticides	0.7301	0.9993
40	Chemical Industries	0.6320	0.5360
41	Petroleum Refining	0.6649	0.6634
42	Rubber Products	0.6511	0.9100
43	Non-metallic Mineral Products	0.4372	0.8875
44	Cement	0.6968	1.0000
45	Iron & Steel Industries	0.7338	0.9303
46	Non-ferrous Basic Metal Industries	0.6326	0.6759
47	Prefabricated Metal Products	0.6359	0.6779
48	Machinery, Electrical Appliances & Accessories	0.5588	0.0950
49	Manufacture & Repairs of Transport Equipment	0.4701	0.5007
50	Other Manufacturing Industries, not elsewhere classified	0.6204	0.3384
51	Electricity, Gas & Water Supplies	0.5130	0.7528
52	Construction	0.6421	0.0799
53	Trade	0.1338	0.3284
54	Restaurants & Hotels	0.7332	0.1356
55	Railways	0.6672	0.5846
56	Road Transport	0.3489	0.3906
57	Water Transport	0.4982	0.1762
58	Air Transport	0.4341	0.2764
59	Services Allied to Transport	0.1828	0.2699
60	Communication	0.4494	0.4475
61	Financial Services	0.3205	0.8427
62	Real Estate & Business Services	0.2235	0.2197
63	Public Administration	0.0000	1.0000
64	Social & Community Services	0.2788	0.4195
65	Recreational, Cultural, Personal & Household Services	0.2168	0.0045
66	Unspecified	1.0000	0.0717
	Total	29.0015	31.1460
	Average	0.4394	0.4719

Figure 4.6: Intermediate Input Ratio (IIR) and Intermediate Demand Ratio (IDR) (66 Sector Classification)



GROUPING OF SECTORS FOR FIGURE 4.6

Group I

- 01 : Paddy
- 06 : Other Farm Food Crops
- 08 : Sugar Cane & Brown Sugar
- 09 : Coconut
- 14 : Cloves
- 17 : Other Crops
- 18 : Livestock
- 21 : Logging & Sawmilling
- 22 : Other Forest Products
- 25 : Petroleum & Natural Gas
- 43 : Non-metalic Minerals
- 61 : Financial Intermediaries
- 63 : Public Administration

Group II

- 11 : Farm Processed Tobacco
- 33 : Beverage Industries
- 35 : Spinning Industries
- 37 : Wood & Wood Products
- 38 : Paper, Paper Products & Printing
- 39 : Fertilizers & Pesticides
- 40 : Chemical Industries
- 41 : Petroleum Refineries
- 42 : Rubber Products
- 44 : Cement
- 45 : Iron & Steel Industries
- 46 : Non-ferrous Basic Metal Industries
- 47 : Prefabricated Metal Products
- 49 : Manufacture & Repairs of Transportation Equipment
- 51 : Electricity, Gas & Water
- 55 : Railways

Group III

- 02 : Handpounding of Rice
- 07 : Rubber
- 10 : Coconut & Palm Oil
- 13 : Tea Leaves
- 19 : Slaughtering
- 27 : Processed & Preserved Foods
- 28 : Oil & Fats
- 29 : Rice Milling, Cleaning & Polishing
- 30 : Wheat Flour & Products
- 31 : Sugar Refining
- 32 : Food Products, not elsewhere classified
- 34 : Cigarettes
- 36 : Textile, Leather & Wearing Apparel
- 48 : Machinery, Electrical Appliances & Accessories
- 50 : Other Manufacturing Industries, not elsewhere classified
- 52 : Construction

- 54 : Restaurants & Hotels
- 57 : Water Transport
- 60 : Communication
- 66 : Unspecified Sector

Group IV

- 03 : Maize
- 04 : Root Crops
- 05 : Vegetables & Fruits
- 12 : Roasted Coffee
- 15 : Nutmeg
- 16 : Other Spices
- 20 : Poultry (& Products)
- 23 : Fisheries
- 24 : Coal & Metal Ore Mining
- 26 : Other Quarrying
- 53 : Trade
- 56 : Road Transport
- 58 : Air Transport
- 59 : Services Allied to Transport
- 62 : Real Estate & Business Services
- 64 : Social & Community Services
- 65 : Culture & Amusement Services

From another point of view, intermediate input ratio is the reverse of the value added ratio. The sector which has the highest value added ratio in 19 sector classification is paddy (sector 01) which has a ratio of 0.9306. In 66 sector classification, coconut (sector 09) has the highest ratio at 0.9559. The other value added ratios for all sectors can be found in the following Table 4.13.

Table 4.13: Value Added Ratio (19 and 66 Sector Classification)

19 Sector Classification		66 Sector Classification					
Sector	Ratio	Sector	Ratio	Sector	Ratio	Sector	Ratio
01	0.9306	01	0.9306	23	0.7177	45	0.2662
02	0.5218	02	0.2014	24	0.6977	46	0.3674
03	0.5760	03	0.9258	25	0.9397	47	0.3641
04	0.6943	04	0.7305	26	0.8718	48	0.4412
05	0.7385	05	0.9432	27	0.2502	49	0.5299
06	0.7177	06	0.8712	28	0.1932	50	0.3776
07	0.9125	07	0.4213	29	0.1528	51	0.4870
08	0.2541	08	0.6228	30	0.2523	52	0.3579
09	0.4024	09	0.9559	31	0.4345	53	0.8662
10	0.3351	10	0.4604	32	0.3256	54	0.2668
11	0.4878	11	0.4277	33	0.3630	55	0.3327
12	0.3579	12	0.6434	34	0.3267	56	0.6511
13	0.8662	13	0.5271	35	0.2956	57	0.5018
14	0.2668	14	0.9510	36	0.3143	58	0.5659
15	0.6252	15	0.8427	37	0.2846	59	0.8172
16	0.7502	16	0.9348	38	0.5452	60	0.3306
17	1.0000	17	0.9069	39	0.2699	61	0.6795
18	0.7635	18	0.9171	40	0.3680	62	0.7765
19	0.0000	19	0.3509	41	0.3351	63	1.0000
Average	0.6008	20	0.9127	42	0.3489	64	0.7213
		21	0.7081	43	0.5628	65	0.7832
		22	0.9541	44	0.3032	66	0.0000
		Average	0.6008				

4.9.2. Total Gross Value Added Coefficients, Total Employment Coefficients, and Total Import Coefficients

In Volume II, the total gross value added coefficient in Tables B-13 and C-13, the total employment coefficient in Tables B-15 and C-15 and the total import coefficient in Tables B-11 and C-11 show the direct and indirect impact of one unit increase in final demand for a given sector on its gross value added, employment and imports. These coefficients are useful in economic planning. Table 4.14 shows the total gross value added coefficients, total employment coefficients and total import coefficients.

Tabel 4.14: Total Gross Value Added Coefficients,
Total Employment Coefficients,
and Total Import Coefficients
(19 Sector Classification)

Code	Sectors	Total Gross Value Added Coefficients	Total Employment Coefficients (Persons/ Million Rp)	Total Import Coefficients
01	Paddy	0.977	16.5	0.023
02	Other Farm Food Crops	0.978	30.1	0.023
03	Other Agricultural Crops	0.935	4.4	0.119
04	Livestock and Products	0.987	3.2	0.020
05	Forestry	0.962	1.6	0.040
06	Fisheries	0.977	3.8	0.024
07	Mining & Quarrying	0.985	0.6	0.038
08	Food, Beverages & Tobacco Industries	0.929	9.2	0.167
09	Other Manufacturing Industries	0.784	4.9	0.576
10	Petroleum Refining	0.946	1.4	0.099
11	Electricity, Gas & Water Supplies	0.927	2.7	0.072
12	Construction	0.830	3.2	0.170
13	Trade	0.969	4.6	0.031
14	Restaurants & Hotels	0.931	10.0	0.069
15	Transport and Communication	0.881	2.9	0.182
16	Financial, Real Estate & Business Services	0.946	1.3	0.126
17	Public Administration	1.000	7.1	0.000
18	Other Services	0.929	11.9	0.072
19	Unspecified	0.765	60.6	0.438

4.9.3. Net Foreign Exchange Earning Coefficients by Exports

These coefficients can be obtained from Table B-16 and C-16 in Volume II, which show net foreign exchange earnings by exports. As already known, exports earns foreign exchange, but a certain amount of imported inputs are required for the production of exported goods. This coefficient gives the foreign exchange earning on a net basis. In other words, the sector which has a higher coefficient is more effective in earning foreign exchange.

Exports of primary goods usually have high coefficients, but for manufactured goods it is rather low. Among manufactured goods, the goods which use more domestic inputs also have a higher coefficient.

4.9.4. Power of Dispersion and Degree of Sensitivity

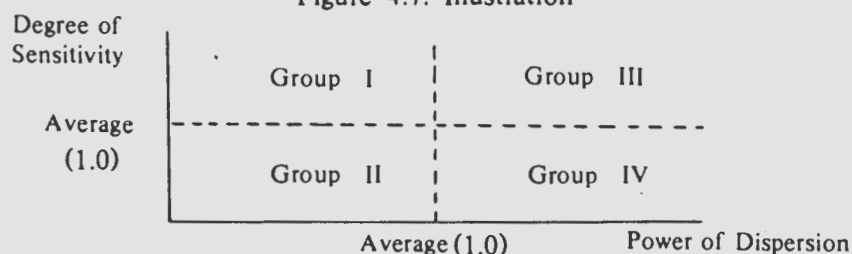
The following is the table which shows the power of dispersion and degree of sensitivity.

Table 4.15. Power of Dispersion and Degree of Sensitivity (66 Sector Classification)

Code	Sectors	Power of Dispersion	Degree of Sensitivity
01	Paddy	0.6429	1.6328
02	Hand-pounding of Rice	1.0929	0.6496
03	Maize	0.6414	0.6999
04	Root Crops	0.8129	0.7940
05	Vegetables & Fruits	0.6840	0.6650
06	Other Farm Food Crops	0.6747	0.8244
07	Rubber	1.2367	1.2763
08	Sugar Cane & Brown Sugar	0.9555	1.0500
09	Coconut	0.6173	1.1176
10	Coconu & Palm Oil	0.9615	0.9941
11	Tobacco Leaves and Tobacco Processed	1.2351	1.1074
12	Roasted Coffee	0.8924	-0.8631
13	Tea Leaves, Farm Processed Tea	1.0300	0.7990
14	Cloves	0.6229	0.8002
15	Nutmeg	0.7121	0.5766
16	Other Spices	0.6307	0.5835
17	Other Crops	0.6715	0.9117
18	Livestock	0.6470	1.0089
19	Slaughtering	1.0076	0.6555
20	Poultry & Products	0.6362	0.7141
21	Logging & Sawmilling	0.8455	1.1623
22	Other Forest Products	0.6151	0.6992
23	Fisheries	0.8166	1.0883
24	Coal & Metal Ore Mining	0.8898	1.1702
25	Petroleum & Natural Gas	0.6317	1.9286
26	Other Quarrying	0.7241	0.7575
27	Processing & Preserving of Foods	1.3408	0.7855
28	Oil & Fats	1.2985	0.8947
29	Rice Milling, Cleaning & Polishing	1.1420	0.6709
30	Wheat Flour & Products	1.3144	0.7625
31	Sugar Refining	1.1436	0.6639
32	Food Products, not elsewhere classified	1.1337	0.7437
33	Beverage Industries	1.2592	0.6452
34	Cigarettes	1.1144	0.6308
35	Spinning Industries	1.1745	0.8327
36	Textile, Leather & Wearing Apparel	1.3898	1.2421
37	Wood & Wood Products	1.2128	0.7875
38	Paper, Paper Products & Printing	1.0207	1.3424
39	Fertilizers & Pesticides	1.2377	0.7773
40	Chemical Industries	1.2671	1.5399
41	Petroleum Refining	1.0487	2.1462
42	Rubber Products	1.3292	0.7379
43	Non-metallic Mineral Products	0.9919	0.7232
44	Cement	1.2706	0.6547
45	Iron and Steel Industries	1.4323	1.3831
46	Non-ferrous Basic Metal Industries	1.1478	0.9650
47	Prefabricated Metal Products	1.3183	1.0161
48	Machinery, Electrical Appliances & Accessories	1.1802	1.0931
49	Manufacture & Repair of Transport Equipment	1.0960	1.8670
50	Other Manufacturing Industries, not elsewhere classified	1.0630	0.6566
51	Electricity, Gas & Water Supplies	1.1012	1.4402
52	Construction	1.1915	1.0696
53	Trade	0.7121	3.6145
54	Restaurants & Hotels	1.2509	1.0699
55	Railways	1.2642	0.6539
56	Road Transport	0.9360	1.9621
57	Water Transport	1.0956	0.7323
58	Air Transport	1.0228	0.7140
59	Services Allied to Transport	0.7559	0.7842
60	Communication	1.0319	0.6953
61	Financial Services	0.8958	1.1147
62	Real Estate & Business Services	0.8076	0.9408
63	Public Administration	0.5711	0.5711
64	Social & Community Services	0.8708	0.6410
65	Recreational, Cultural, Personal & Household Services	0.8108	0.7656
66	Unspecified	1.6870	1.1382

To get a comprehensive picture of the relationship between the power of dispersion and the degree of sensitivity, sectors are classified into 4 groups.

Figure 4.7: Illustration



Group I includes sectors with low power of dispersion and high degree of sensitivity. Group II includes sectors with low power of dispersion and low degree of sensitivity. Group III includes sectors with high power of dispersion and high degree of sensitivity, and finally, Group IV includes sectors with high power of dispersion and low degree of sensitivity. In general, Group I and II are made up of the primary and service sectors, and Group III and IV the heavy and light manufacturing sectors. Detailed information about the relationship between power of dispersion and degree of sensitivity can be obtained from Figure 4.8. The grouping of sectors is as follows:

Group I

- 01 : Paddy
- 08 : Sugar Cane & Brown Sugar
- 09 : Coconut
- 18 : Livestock
- 21 : Logging & Sawmilling
- 23 : Fisheries
- 24 : Coal & Metal Ore Mining
- 25 : Petroleum & Natural Gas
- 53 : Trade
- 56 : Road Transport
- 61 : Financial Services

Group II

- 03 : Maize
- 04 : Root Crops
- 05 : Vegetables & Fruits
- 06 : Other Farm Food Crops
- 10 : Coconut & Palm Oil
- 12 : Roasted Coffee
- 14 : Cloves
- 15 : Nutmeg
- 16 : Other Spices
- 17 : Other Crops
- 20 : Poultry & Products
- 22 : Other Forest Products
- 26 : Other Quarrying
- 43 : Non-metallic Minerals
- 59 : Services Allied to Transport
- 62 : Real Estate & Business Services
- 63 : Public Administration
- 64 : Social & Community Services
- 65 : Recreational, Cultural, Personal & Household Services

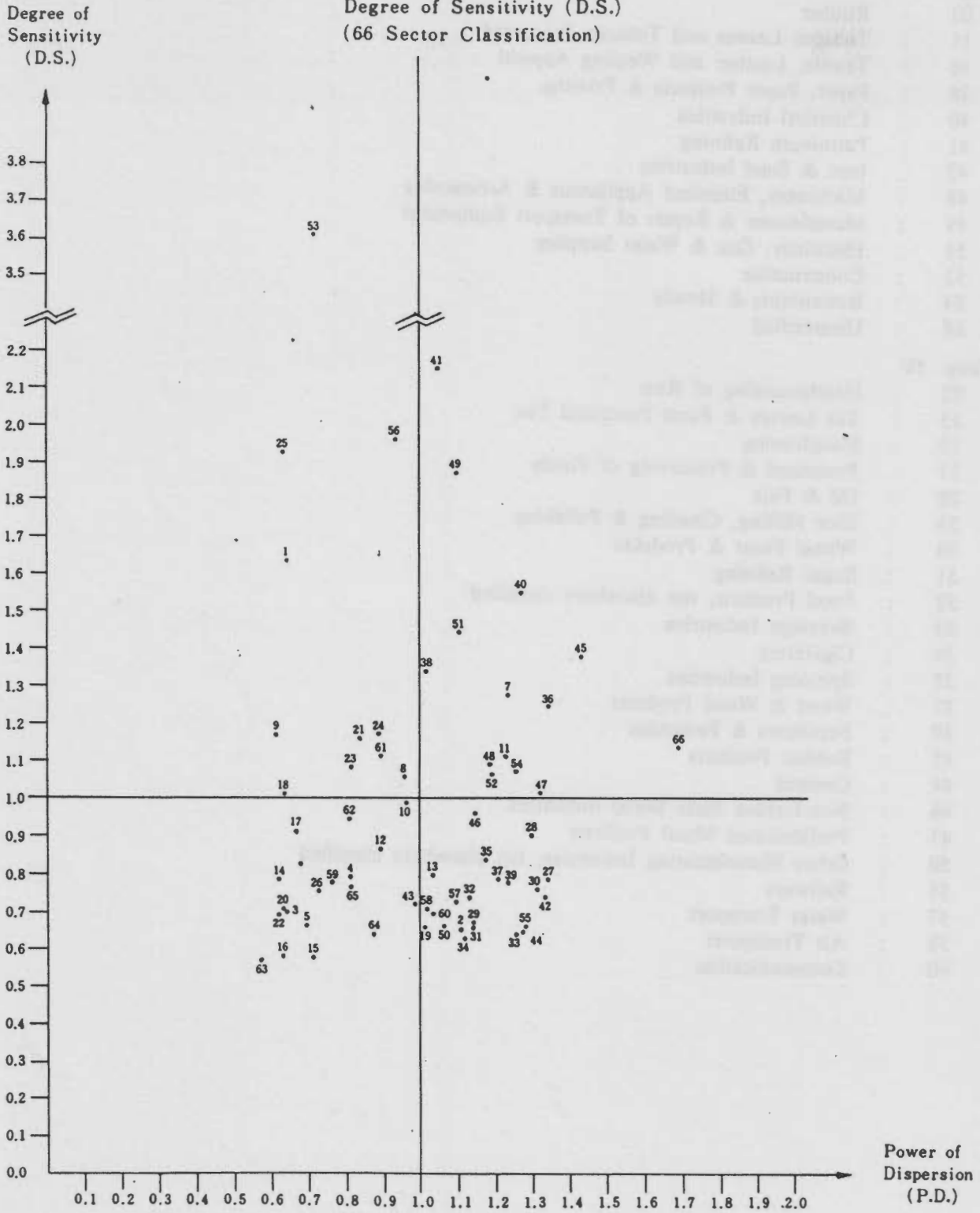
Group III

- 07 : Rubber
- 11 : Tobacco Leaves and Tobacco Processed
- 36 : Textile, Leather and Wearing Apparel
- 38 : Paper, Paper Products & Printing
- 40 : Chemical Industries
- 41 : Petroleum Refining
- 45 : Iron & Steel Industries
- 48 : Machinery, Electrical Appliances & Accessories
- 49 : Manufacture & Repair of Transport Equipment
- 51 : Electricity, Gas & Water Supplies
- 52 : Construction
- 54 : Restaurants & Hotels
- 66 : Unspecified

Group IV

- 02 : Handpounding of Rice
- 13 : Tea Leaves & Farm Processed Tea
- 19 : Slaughtering
- 27 : Processed & Preserving of Foods
- 28 : Oil & Fats
- 29 : Rice Milling, Cleaning & Polishing
- 30 : Wheat Flour & Products
- 31 : Sugar Refining
- 32 : Food Products, not elsewhere classified
- 33 : Beverage Industries
- 34 : Cigarettes
- 35 : Spinning Industries
- 37 : Wood & Wood Products
- 39 : Fertilizers & Pesticides
- 42 : Rubber Products
- 44 : Cement
- 46 : Non-ferrous Basic Metal Industries
- 47 : Prefabricated Metal Products
- 50 : Other Manufacturing Industries, not elsewhere classified
- 55 : Railways
- 57 : Water Transport
- 58 : Air Transport
- 60 : Communication

Figure 4.8: Power of Dispersion (P.D.) and Degree of Sensitivity (D.S.) (66 Sector Classification)



APPENDIX A: SECTOR AND COMMODITY CLASSIFICATION FOR
1971 INPUT - OUTPUT TABLE OF INDONESIA

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1110-01-1 2	Padi/Paddy Jerami/Straw	1-001	Padi/Paddy	1-01	Padi/Paddy	1-01	Padi/Paddy
3116-01-1 2 3	Beras tumbuk/Handpounded rice Dedak/Rice bran Merang/Straw	1-002	Penumbukan padi/ Handpounding of rice	1-02	Penumbukan padi/ Handpounding of rice	1-02	Tanaman bahan makanan lainnya/Other farm food crops
1110-02-1 2 3 4 5	Jagung/Maize Jagung muda/Young maize Klobot/Klobot Batang/Stem Jonggol/Jonggol	1-003	Jagung/Maize	1-03	Jagung/Maize		
1110-03-1 2 3	Ketela pohon/Cassava Daun singkong/Cassava leaves Batang singkong/Cassava stem	1-004	Ketela pohon/ Cassava	1-04	Tanaman umbi- umbian/Root crops		
3116-03-1 2 3 4	Gaplek/Dried cassava Tepung tapioka/Tapioca flour Ampas tapioka/Tapioca cake Sagu/Sago	1-005	Gaplek dan tepung tapioka/Dried cassava and tapioca flour				
1110-04-1 2 9	Ketela rambat/Sweet potatoes Kentang/Potatoes Umbi-umbian lainnya & hasil-hasilnya/ Other root crops & products thereof	1-006	Umbi-umbian lainnya/ Other root crops				
1110-05-1 2 3 4 5 6 7 8 9	Bawang/Onion Wortel/Carrot Kobis/Cabbage Ketimun/Cucumber Cabe/Chili Tomat/Tomato Bayam/Spinach Kacang panjang/String beans Lainnya/Others	1-007	Sayur-sayuran/ Vegetables	1-05	Sayur-sayuran & buah-buahan/ Vegetables & fruits		
1110-06-1 2 3 4 5 6 7 8 9	Pisang/Banana Pepaya/Papaya Mangga/Manggoes Jeruk/Orange Nanas/Pineapple Durian/Durian Advokat/Avocado Rambutan/Rambutan Lainnya/Others	1-008	Buah-buahan/Fruits				
1110-07-1 2 3	Kacang tanah dikupas/Peanut shelled Kulit kacang tanah/Peanut shell Daun kacang tanah/Peanut leaves	1-009	Kacang tanah/ Peanuts	1-06	Tanaman bahan makanan lain- nya/Other farm food crops		
1110-08-1 2 3	Kacang kedele dikupas/Soy bean shelled Kulit kacang kedele/Soy bean shell Daun kedele/Soy bean leaves	1-010	Kacang kedele/ Soy beans				
1110-09-1 2 3 9	Kacang hijau/Green beans Kulit kacang-kacangan/Beans & nut shell Batang kacang-kacangan/Bean & nut stem Kacang-kacangan lainnya/Other beans & nuts	1-011	Kacang-kacangan & biji-bijian lainnya/ Other beans & nuts				
1110-10-1	Lateks/Latex	1-012	Lateks/Latex	1-07	Karet/Rubber	1-03	Tanaman pertanian lainnya/Other agricultural crops
3552-01-1 2	Karet asapan/Smoked rubber Karet remiling/Remilled rubber	1-013	Pengasapan & remil- karet/Smoking & remilling of rubber				
1110-11-1 2	Tebu/Sugarcane Daun tebu/Cane leaves	1-014	Tebu/ Sugar cane	1-08	Tebu gula & gula rakyat/ Sugar cane & brown sugar		
3118-01-1	Gula merah/Brown sugar	1-015	Gula merah/Brown sugar				
1110-12-1 2 3 4 5 6 9	Kelapa/Coconut Kopra/Copra Daun kelapa/Coconut leaves Lidi/Leaf ribs Sabut kelapa/Coconut fibres Tempurung/Coconut shell Lainnya/Others	1-016	Kelapa/Coconut	1-09	Kelapa/Coconut		
3115-01-1 2	Minyak kelapa/Coconut oil Bungkil kopra/Copra cake	1-017	Minyak kelapa rakyat/ Farm coconut oil	1-10	Minyak kelapa rakyat & sawit/ Coconut & palm oil		
1110-13-1 2	Minyak sawit/Palm oil Biji sawit/Palm kernel	1-018	Kelapa sawit/Palm oil				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19		
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1110-13-3 4	Sabut kelapa sawit/Palm fibres Tempurung/Palm shell	1-018	Kelapa sawit/Palm oil	1-10		1-03	Tanaman pertanian lainnya/Other agricultural crops	
1110-15-1 2	Daun tembakau/Tobacco leaves Biji tembakau/Tobacco seeds	1-020	Tembakau/Tobacco	1-11	Tembakau daun & olahan/ Tobacco leaves & tobacco processed			
3140-01-1 2 9	Tembakau lempeng/Processed tobacco Tembakau iris/Cut tobacco Lainnya/Others	1-021	Tembakau olahan/ Processed tobacco					
1110-16-1	Kopi biji kering/Coffee seeds (dry)	1-022	kopi/Coffee	1-12	Kopi & kopi goreng/Roasted coffee			
3121-01-1	Kopi goreng/Roasted coffee	1-023	Kopi olahan rakyat/ Farm processed coffee					
1110-17-1	Teh daun/Tea leaves	1-024	Teh daun/Tea leaves	1-13	Teh daun & teh olahan rakyat/ Tea leaves & farm processed tea			
3121-01-1	Teh hitam/Black tea	1-025	Teh olahan rakyat/ Farm processed tea					
1110-18-1	Cengkeh/Cloves	1-026	Cengkeh/Cloves	1-14	Cengkeh/Cloves			
1110-19-1 2 3	Pala/Nutmeg Biji pala/Mace Fulli/Fulli	1-027	Pala/Nutmeg	1-15	Pala/Nutmeg			
1110-20-1 2 3 4 5 9	Lada/Pepper Kulit kayu manis/Cinnamon Vanili/Vanilla Kemiri/Kemiri Pinang/Aracanut Lainnya/Others	1-028	Rempah-rempah lainnya/Other spices	1-16	Rempah-rempah lainnya/Other spices			
1110-14-1 2 3 4 5 6 7 9	Kapas/Cotton Kapok/Kapok Serat rosella/Rosella fibre Serat manila/Manila fibre Serat pandan/Pandan fibre Serat sisal/Hard rope Serat rami/Rami fibre Lainnya/Others	1-019	Tanaman serat/Crops for matting & textiles	1-17	Tanaman lainnya/Other crops			
1110-14-1 2 3 4 5 6 7 8 9	Coklat/Cocoa Minyak serih/Citronella oil Minyak kayu putih/Kayu putih oil Kelembak/Kelembak Piretrum/Pirethrum Gambir/Gambir Kulit kina/Cinchona bark Bunga/Flowers Lainnya/Others	1-029	Tanaman lainnya/Other crops					
1110-22-1 2	Sapi/Cattle Kotoran sapi/Manure	1-030	Peternakan sapi/ Cattle raising	1-18	Peternakan/ Livestock	1-04		Peternakan & hasil-hasilnya/ Livestock and products
1110-23-1	Susu segar/Fresh milk	1-031	Peternakan sapi perah/milk cow raising					
1110-24-1 2 3 4 5 6 9	Kerbau/Buffalo Kambing/Goat Domba/Sheep Babi/Pig Kuda/Horse Kotoran lainnya/Other manure Lainnya/Others	1-032	Peternakan lainnya/ Other livestock					
3111-01-1 2 3 4 5 6 7	Daging sapi/Beef Daging kerbau/Buffalo Daging kambing/Mutton Daging babi/Pork Daging unggas/Poultry Jeroan/Offals Kulit/Hides	1-033	Pemotongan ternak/ Slaughtering	1-19	Pemotongan ternak/ Slaughtering			
1110-25-1 2 3 4 9	Ayam/Chicken Itik/Duck Kalkun/Turkey Angsa/Goose Lainnya/Others	1-034	Perunggasan/Poultry	1-20	Perunggasan & hasil-hasilnya/ Poultry & products			
1110-26-1 9	Telur/Eggs Lainnya/Others	1-035	Hasil-hasil unggas/ Poultry products					
1220-01-1 2 3 4 5	Kayu rimba/Forest woods Kayu jati/Teak wood Kayu bakar/Fire wood Kayu gabus/Cork Arang/Charcoal	1-036	Penebangan kayu hutan logging	1-21	Penebangan & penggergajian kayu/Logging & saw milling	1-05	Kebutuhan/ Forestry	

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3311-01-1 2 9	Kayu jati gergajian/Teak wood, sawm Kayu rimba gergajian/Forest wood, sawm Kayu lainnya/Other woods	1-037	Penggergajian kayu di hutan/Sawmilling in forests	1-21	Penebangan & penggergajian kayu/Logging & saw milling	1-05	Kehutanan/ Forestry
1220-02-1 2	Bambu/Bamboo Rebung/Bamboo shoot	1-038	Bambu/Bamboo	1-22	Hasil hutan lainnya/Other forest products		
1220-02-1 2	Hasil hutan lainnya/Other forest products Hasil perburuan/Hunting, trapping & game propagation	1-039	Hasil hutan lainnya/ Other forest products				
1301-01-1	Ikan laut/Marine fishes	1-040	Perikanan laut/ Marine fishing	1-23	Perikanan/ Fisheries	1-06	Perikanan/ Fisheries
1302-01-1 2 3	Ikan empang/Pond fishes Ikan peliharaan lainnya/Other cultivated fishes Ikan darat lainnya/Other inland fishes	1-041	Perikanan darat/ Inland fishing				
3114-01-1 2 9	Ikan kering/Dried fish Ikan asin/Salted fish Pengawetan hasil laut lainnya/ Other preserved sea food	1-042	Penggaraman & pen- geringan ikan/Fish salting and drying				
2100-01-1 2	Lignit dan batubara/Lignite and coal Antrasit & bituminous/Anthracite & bituminous coal	2-043	Penambangan batu- bara/Coal mining	2-24	Penambangan batubara & bijih logam/ Coal & metal ore mining	2-07	Pertambangan & penggalian/ Mining & quarrying
2301-01-1	Pasir besi/Iron sand	2-045	Penambangan bijih besi/Iron ore mining				
2302-01-1	Bijih timah/Tin ore	2-046	Penambangan bijih timah/Tin ore mining				
2302-02-1	Bijih nikel/Nickel ore	2-047	Penambangan bijih ni- kel/Nickel ore mining				
2302-03-1	Bauksit/Bauxites	2-048	Penambangan bauksit/ Bauxite mining				
2302-04-1 2 3 4 9	Bijih tembaga/Copper ore Bijih emas/Gold ore Bijih perak/Silver ore Bijih mangan/Manganese Lainnya/Others	2-049	Penambangan bijih logam bukan besi lainnya/Other non- ferrous metal ore mining				
2200-01-1 2	Minyak bumi/Crude petroleum Gas alam/Natural gas	2-044	Penambangan minyak mentah & gas bumi/ Crude petroleum & natural gas mining	2-25	Penambangan minyak & gas bumi/Petroleum & natural gas mining		
2901-01-1 2 3 4 5 6 9	Batu galian/Stone Tanah liat/Clay Pasir/sand pits Gamping/Limestone Koral/Gravels Marmar/Marbles Lainnya/Others	2-050	Penggalian/Quarrying	2-26	Penggalian lainnya/Other quarrying		
2902-01-1 2 3 9	Belerang/Sulphur Yodium/Iodine Fosfor/Phosphorus Lainnya/Others	2-051	Penambangan bahan kimia & pupuk/ Chemical & fertiliser mineral mining				
2903-01-1	Garam kasar/Crude salt	2-052	Garam kasar/Salt evaporation				
2909-02-1	Aspal/Asphalt	2-053	Penambangan aspal/ Asphalt mining				
2909-02-1 2 3 4 9	Gips/Cypsum Batu api/Flints Intan/Diamonds Asbes/Abestos Lainnya/Others	2-054	Penggalian mineral lainnya/Other non metallic mineral mining				
3111-02-1 2 3 4 5 9	Dendeng & abon/Prepared meat Daging kornet/Corned beef Daging babi kaleng/Corned pork Sosis/Sausages Daging olahan lainnya/Other meat preparation Lainnya/Others	3-055	Industri pengolahan & pengawetan daging/ Canning & preserving meat	3-27	Industri pengolahan & pengawetan makanan/ Processing & preserving of foods	3-08	Industri makanan, minuman, & tembakau/Food, beverages & tobacco industries
3112-01-1 -2	Susu & kepala susu, cair/Milk & cream, liquid Susu & kepala susu, bubuk/Milk & powder	3-056	Industri makanan dari susu/Dairy products				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3112-01-3 4	cream, powder Es krim/Ice cream Mentega & keju/Butter & cheese	3-056	Industri makanan dari susu/Dairy products	3-27	Industri pengolahan & pengawetan makanan/ Processing & preserving of foods	3-08	Industri makanan, minuman & tembakau/Food, beverages & tobacco industries
3113-01-1 2 3 4 5 9	Buah-buahan & sayur-sayuran dikeringkan & dibekukan/Fruits & vegetables, dried & frozen Buah-buahan & sayur-sayuran dalam kaleng & botol/Canned or bottled fruits & vegetables Selai & sejenisnya/Jam, marmalades, jellies & similar products Sari buah-buahan & sayur-sayuran/Fruit & vegetable Juices Buah-buahan & sayur-sayuran yang diawetkan dengan cara lainnya/Fruit & vegetables prepared or preserved by method not elsewhere classified Lainnya/Others	3-057	Industri pengolahan & pengawetan buah-buahan & sayur-sayuran/Canning & preserving of fruits & vegetables				
3114-01-4 9	Ikan dalam kaleng/Canned fish Olahan & awetan ikan & hasil laut lainnya/Other processed & preserved fish & other sea foods	3-058	Industri pengalengan & pengawetan ikan & hasil laut lainnya/Canning & preserving fish & other sea foods				
3115-01-1 2	Minyak goreng dari kelapa/Coconut cooking oil Bungkil kopra/Copra cake	3-059	Industri minyak kelapa/Coconut oil & cooking oil	3-28	Industri minyak & lemak/Oil & fats		
3115-02-1 2 3 4 5 6 7 9	Minyak sawit/Palm oil Margarin/Margarine Bungkil sawit/Palm cake Minyak kacang/Peanut oil Mentega kacang/Peanut butter Minyak & lemak dari sayur-sayuran/Vegetable oil & fats Minyak & lemak dari hewan/Animal oil & fats Lainnya/Others	3-060	Industri minyak & lemak nabati lainnya & hewani/Other vegetables and animal oils & fats				
3116-01-1 2 3	Beras sosohan/Polished rice Dedak/Rice bran Merang/Siraw	3-061	Penggilingan & penyosohan beras/Rice milling, cleaning & polishing	3-29	Penggilingan & penyosohan beras/Rice milling, cleaning & polishing		
3116-02-1 9	Tepung terigu/Wheat flour Tepung yang berasal dari sereal lain-lainnya/Other grain flour	3-062	Industri tepung terigu & biji-bijian lainnya/Wheat flour & other grain mill products	3-30	Industri tepung terigu & biji-bijian lainnya/Wheat flour & products		
3117-01-1 2	Roti/Bread Biskuit & kueh, segala jenis/Other bakery products, all kinds	3-064	Industri roti, biskuit & sejenisnya/Bread & bakery products				
3117-02-1	Mie, makaroni & sejenisnya/Noodle, macaroni & similar products	3-065	Industri mie, makaroni & sejenisnya/Noodle, macaroni & similar products				
3118-01-1 2 3 4	Gula pasir/Cane sugar Gula tetes/Molasses Ampas tebu/Sugar waste Lainnya/Others	3-063	Industri pemurnian gula/Sugar refining	3-31	Industri pemurnian gula/Sugar refining		
3119-01-1 2 3 4 9	Coklat bubuk/Cocoa powder Coklat & hasil-hasilnya/Chocolate & chocolate products Mentega coklat/Cocoa butter Kembang gula, segala macam/Sugar confectionary Lainnya/Others	3-066	Industri coklat & kembang gula/Cocoa, chocolate & sugar confectionary	3-32	Industri makanan lainnya/Foods products not elsewhere classified		
3121-01-2	Kopi bubuk/Coffee powder	3-067	Industri penggilingan kopi/Coffee grinding				
3121-02-1	Teh/Tea	3-068	Industri pengolahan teh/Tea processing				
3121-03-1 2 3 9	Kecap/Soya sauce Tahu/Bean cake Tempe/Tempe Lainnya/Others	3-069	Industri pengolahan kacang kedelai/Soy-bean products				
3121-04-1 2 3	Krupuk, segala krupuk/Krupuk, all kinds Garam meja/Table salt Es batu/Ice	3-070	Industri makanan lainnya/Other food products, not elsewhere classified				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3121-04-4 5 6 9	Kacang goreng/ <i>Peanut, roasted</i> Saus, segala macam/ <i>Sauce, all kinds</i> Dodol/ <i>Dodol</i> Lainnya/ <i>Others</i>	3-070	Industri makanan lain- nya/ <i>Other food</i> products, not elsewhere classified	3-32		3-08	Industri makanan, minuman & tembakau/ <i>Food,</i> <i>beverages &</i> <i>tobacco</i> <i>industries</i>
3128-01-1	Makanan ternak/ <i>Prepared animal feed</i>						
3131-01-1 2 3 9	Etil alkohol/ <i>Ethyl alcohol</i> Arak/ <i>Arrack</i> Whisky/ <i>Whisky</i> Lainnya/ <i>Others</i>	3-071	Industri minuman mengandung alkohol/ <i>Alcoholic beverages</i>	3-33	Industri minu- man/ <i>Beverage</i> industries		
3132-01-1 2	Anggur/ <i>Wine</i> Tuak & sejenisnya/ <i>Native alcohol</i> beverages						
3133-01-1 9	Bir/ <i>Beer</i> Lainnya/ <i>Others</i>						
3134-01-1 2 9	Minuman ringan/ <i>Soft drinks</i> Air soda/ <i>Carbonated water</i> Lainnya/ <i>Others</i>	3-072	Industri minuman tak mengandung alkohol/ <i>Soft drinks &</i> <i>carbonated water</i>				
3140-02-1 2 3 9	Rokok putih/ <i>White cigarettes</i> Rokok kretek/ <i>Clove cigarettes</i> Cerutu/ <i>Cigars</i> Hasil tembakau lainnya/ <i>Other</i> <i>tobacco products</i>	3-073	Industri rokok/ <i>Cigarettes</i>	3-34	Industri rokok/ <i>Cigarettes</i>		
3211-01-1 2 3 4 9	Benang kapas/ <i>Cotton yarn</i> Benang sutera/ <i>Silk yarn</i> Serat sisal/ <i>Sisal yarn</i> Serat sabut kelapa/ <i>Coconut yarn</i> Serat lainnya, berasal dari tanaman serat/ <i>Others, from fibre crops</i>	3-074	Industri pemintalan/ <i>Spinning industries</i>	3-35	Industri pemintal- an/ <i>Spinning</i> <i>industries</i>	3-09	
3211-02-1 2 3 4 9	Serat buatan polyamide/ <i>Polyamide synthetic fibre</i> Serat buatan polyvinil/ <i>Polyvinil synthetic fibre</i> Rayon selulosa/ <i>Regenerated</i> <i>cellulose rayon</i> Rayon kuat kenyal/ <i>High</i> <i>tenacity viscose</i> Serat buatan lainnya/ <i>Other synthetic fibre</i>						
3211-03-1	Benang kapas campuran/ <i>Mixed</i> <i>cotton yarn</i>						
3211-04-1	Benang jahit, segala jenis/ <i>Threads, all kinds</i>						
3212-01-1 2 3 4 9	Bahan cita, seluruhnya dari kapas/ <i>Apparel fabrics, wholly of cotton</i> Bahan cita dari campuran kapas/ <i>Apparel fabrics, of mixed cotton</i> Bahan cita, seluruhnya dari serat buatan/ <i>Apparel fabrics, wholly of</i> <i>synthetic fibre</i> Cita penutup, tirai & hias lainnya/ <i>Fabrics for upholstery, drapery &</i> <i>decoration</i> Lainnya/ <i>Others</i>	3-075	Industri tenun/ <i>Weaving industries</i>	3-36	Industri tekstil, kulit & pakaian/ <i>Textile, leather</i> <i>& wearing</i> <i>apparel</i>		
3213-01-1 2 3 9	Pengerjann & penyelesaian benang & cita, terbuat dari kapas/ <i>Processing</i> <i>& finishing cotton yarn & fabrics</i> Pengerjaan & penyelesaian benang & cita, terbuat dari serat alam lainnya/ <i>Processing & finishing of other</i> <i>natural fibre yarn & fabrics</i> Pengerjaan & penyelesaian benang & cita, terbuat dari serat campuran kapas/ <i>Processing & finishing of</i> <i>mixed cotton yarn & fabrics</i> Lainnya/ <i>Others</i>	3-076	Industri pencelupan, pengelantangan & pencetakan tekstil, kecuali batik/ <i>Textile bleaching,</i> <i>printing, dyeing &</i> <i>finishing excluding</i> <i>batik</i>				
3213-02-1	Batik/ <i>Batik</i>	3-077	Industri batik/ <i>Batik industries</i>				
3213-01-1 2 3 4 5 7 8 9	Kaos oblong/ <i>T-shirt</i> Single/ <i>Athletic shirt</i> Kaos nilon/ <i>Nylon shirt</i> Kaos banlong/ <i>Banlon shirt</i> Kaos kaki, dari nilon/ <i>Nylon socks</i> Celana dalam/ <i>Underwear</i> Pakaian anak, segala jenis/ <i>Children cloths, all kinds</i> Lainnya/ <i>Others</i>	3-078	Industri perajutan/ <i>Knitting industries</i>				
3215-01-1 2	Kain kasur/ <i>Mattress covers</i> Hunduk/ <i>Towels</i>	3-079	Industri barang tekstil jadi, kecuali				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3215-01-3 4 5 6 7 8 9	Selimut/Blankets Seprei/Bed sheets Kelambu/Mosquito nets Kain tirai/Draperly & laces Kain layar/Sails Taplak/Table cloths Lainnya/Others	3-079	pakaian/Made-up textile goods, excluding wearing apparel	3-36	Industri tekstil, kulit & pakaian/ Textile, leather & wearing apparel	3-09	Industri nya/Other manufacturing industries
3220-01-1 2 3 4 5 6 7 8 9	Jas pria/Suits & coats, men Jaket pria/Jacket & sweaters, men Calana pria & anak/Trousers, men & boys Kemeja pria & anak/Shirts, men & boys Pakaian wanita & anak/ Dresses, women & girls Rok, celana & shorts wanita & anak/Skirts, slacks & shorts Blus/Blouses & shirts Tutup kepala/head wares Lainnya/Others	3-080	Industri pakaian jadi kecuali alas kaki/ Wearing apparel, excluding footwear				
3221-01-1 2 3 3222-01-1 2 3 9	Permadani, dari wol/Carpets, woolen Permadani, dari bahan lainnya/ Carpets, not woolen Keses, segala jenis/Rugs, all kinds Karung/Gunny bags Tali, segala jenis/Ropes all kinds Jaring ikan, segala jenis/ Fish nets, all kinds Lainnya/Others	3-081	Industri permadani, babut, tambang, dan sebagainya/Carpets, rugs, ropes & others				
3231-01-1 2 3 4 5 9	Kulit sol, sapi/Cow sole leather Kulit sol, kerbau/Bufalo sole leather Kulit domba/Sheep leather Kulit kambing/Goat leather Kulit penutup/Upper leather Lainnya/Others	3-082	Industri penyamaan & pengerjaan kulit/ Tanneries & leather finishing				
3233-01-1 2 3 9	Ban kulit untuk industri/ Industrial belts Tas wanita/Women's purses & handbags Koper/Luggages Lainnya/Others	3-083	Industri barang dari kulit kecuali alas kaki/ Leather products, excluding footwear industries				
3240-01-1 2 3 4 9	Sepatu pria/Shoes, men Sepatu wanita/Shoes, women Sepatu anak/Shoes, children Sandal/Sandals & slippers Lainnya/Others	3-084	Industri alas kaki dari kulit/Footwear of leather				
3311-01-1 2 3 4 5 9	Kayu jati gergajian/Teak wood, sawn Kayu hutan gergajian/Forest wood, sawn Kayu diawetkan segala jenis/Woods, preserved all kinds Kayu lapis/Plywood Kerangka bangunan dari kayu/ Wooden building materials Lainnya/Others	3-085	Industri penggergajian & pengolahan kayu/ Sawmills, planing & other wood processing	3-37	Industri kayu & barang dari kayu/wood & wood products		
3312-01-1 2 3 9	Kotak & peti dari kayu/ Wooden boxes & containers Keranjang dari bambu & rotan segala jenis/Rattan & bamboo baskets, all kinds Barang dari gabus/Cork products Lainnya/Others	3-086	Industri barang dari kayu & gabus/Wood & cork products				
3320-01-1 2 3 4 5 9	Meja & meja tulies, segala jenis/ Tables & desks, all kinds Lemari & rak, segala jenis/ Wardrobes & shelf, all kinds Kursi segala jenis/Chairs, all kinds Kursi sofa/Sofas Tempat tidur/Beds Lainnya/Others	3-087	Industri perabot rumah tangga, kecuali yang terbuat dari logam/Furniture & fixtures, excluding primarily of metal				
3411-01-1 2 3 4 5	Bahan kertas/Pulp Kertas tulis & cetak/ Writing & printing paper Kertas pembungkus & sejenisnya Wrapping paper, and the like Karton/Curdboard Lainnya/Others	3-088	Industri pulp, kertas & karton/Pulp, paper & carboard	3-38	Industri kertas, barang dari kertas & percet- takan/Paper & paper products & printing		
3412-01-1 2 9 3419-01-1	Kotak karton/Cardboard boxes Kantong kertas/Paper bags Lainnya/Others Barang dari kertas & karton, segala jenis/Paper & paperboard articles,	3-089	Industri barang dari kertas/Paper products				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>all kinds</i>	3-089		3-38	Industri kertas, barang dari kertas & percetakan/Paper & paper products & printing	3-09	Industri nya/Other manufacturing industries
3420-01-1 2 3 4 5 6 7 9	Buku, segala jenis/Books, all kinds Buku catatan & tulis lainnya/ Writing pads & stationeries Etiket, segala jenis/Labels, all kinds Surat kabar/Newspaper Majalah/Magazines Formulir & daftar/Business forms Amplop/Envelopes Lainnya/Others	3-090	Percetakan, penerbitan & industri sejenisnya/Printing, publishing & allied industries				
3512-01-1 2 3 4 9	Pupuk amonia/Nitrogenous fertilizer Pupuk fosfat/Phosphatic fertilizer Pupuk urea/Potassic fertilizer Pestisida, segala jenis/ Pesticides, all kinds Pupuk jenis lainnya/Other fertilizer	3-092	Industri pupuk & pestisida/Fertilizers & pesticides	3-39	Industri pupuk & pestisida/ Fertilizer & pesticides		
3511-01-1 2 3 4 5 6 7 8 9	Zat asam/Oxygen Asam karbonat/Carbonic acid Karbon dioksida, gas & es/ Carbon dioxide, gas & ice Kaporit/Caporit Amonia/Ammonia Soda kaustik/Caustic soda Asam chlorida/Chloric acid Zat lemas/Nitrogen Spiritus bakar & lainnya/ Methyl alcohol & others	3-091	Industri kimia dasar, kecuali pupuk/ Basic industrial chemicals, excluding fertilizers	3-40	Industri kimia/ Chemical industries		
3521-01-1 2 3 9	Cat cellulosa/Paints, cellulose Cat air/Paints, water Cat lainnya/Other paints Lainnya/Others	3-093	Industri cat, vernis & lak/Paints, varnishes & lacquers industries				
3522-01-1 2 3 4 5 6 7 8 9	Obat-obatan, tablet/Medicines, tablets Obat-obatan, kapsul/Medicines, capsul Obat-obatan, cair/Medicines, liquid Obat-obatan, injeksi/Medicines, for injection Obat-obatan, bubuk/Medicines, powder Obat-obatan, sirup/Medicines, syrup Obat gosok/Analgesics Jamu/Native medicines Lainnya/Others	3-094	Industri obat-obatan/ Drugs & medicines industries				
3523-01-1 2 3 4 9	Sabun cuci/Washing soap Sabun mandi/Toilet soap Sabun bubuk/Detergents, all kinds Tapal gigi/Tooth pasts Lainnya/Others	3-095	Industri sabun & soap & cleaning preparations industries				
3523-02-1 2 3 4 9	Parfum/Perfumes Minyak rambut/Hair cream Pembersih rambut/Shampoo Bedak & bahan perawat kulit lainnya/ Face powder & other preparation for skin-care Lainnya/Others	3-096	Industri kosmetika/ Cosmetics industries				
3529-01-1	Korek api/Matches	3-097	Industri korek api/ Matches industries				
3529-02-1 2 3 4 5 6 7 9	Pembasmi hama/Desinfectants Semir sepatu/Shoe polish Semir lainnya/Other polishes Film & kertas foto/Photographic film & paper Tinta/Ink Kertas karbon/Carbon paper Bahan pewangi/Essence Lainnya/Others	3-098	Industri kimia lainnya/Other chemical industries				
3540-01-1 2 3	Parafin/Parafine Ter/Tar Lainnya/Others	3-100	Industri hasil minyak bumi & batubara dan lainnya/ Other petroleum & coal products				
3560-01-1 2 3 4 5 6 7 8	Alas kaki plastik/Plastic footwear Sikat gigi/Tooth brush Tali plastik/Plastic ropes Kantong plastik/Plastic bags Perabot/alat dapur/Utensils Barang plastik untuk keperluan industri/ Plastic wares for industrial use Barang mainan/Toys Lembaran & lempengan plastik/	3-103	Industri barang plastik/ Plasticware				

	Komoditi/Commodity	Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3560-01-9	Plastic plates & sheets Lainnya/Others	3-103	Industri barang plastik/ Plastic ware	3-40	Industri kimia/ Chemical industries	3-09	
3530-01-1 2 3 4 5 6 7 8 9	Bensin/Gasoline Minyak tanah/Kerosene Avigas & avtur/Avigas & avtur Minyak diesel/Diesel oil Pelumas & pelincir/Lubricant & grease LPG Lilin/Waxes Aspal/Asphalt Lainnya/Others	3-099	Pengilangan minyak/ Petroleum refining	3-41	Pengilangan minyak/ Petroleum refining	3-10	Pengilangan minyak/ Petroleum refining
3551-01-1 2 3	Ban luar kendaraan di luar jalan raya/ Tyre for off-the road vehicles Ban luar truk, mobil, sepeda, sepeda motor/ Type for truck, car, bicycles, motorcycles, etc Ban dalam segala jenis/Tubes, all kinds	3-101	Industri ban/ Tyres and tubes industries	3-42	Industri barang dari karet/ Rubber products	3-09	Industri lainnya (lanjutan) Other manufacturing industries
3559-01-1 2 3 4 5 6 9	Alas kaki dari karet/Rubber footwear Karet busa/Foam rubber Karet compound, segala macam/ Rubber compound, all kinds Lembaran & lempengan karet/ Rubber plates & sheets Pipa & tabung karet/Rubber pipes & tubes Ebonit/Ebonite Lainnya/Others	3-102	Industri barang karet lainnya/ Other rubber products				
3610-01-1 2 3 4 9	Perabot rumah tangga dari keramik/ Household wares of ceramics Perabot rumah tangga dari tanah liat/ Earthen household wares Barang keramik & tanah liat untuk keperluan industri/ Ceramic & earthen wares for industrial use Barang keramik untuk keperluan sanitasi/ Sanitary ceramic fittings Lainnya/Others	3-104	Industri barang dari keramik & tanah liat/ Ceramics & earthen wares	3-43	Industri barang yang terbuat dari mineral bukan logam/ Non-metallic mineral products		
6320-01-1 2 3 4 9	Botol & wadah dari gelas segala jenis/ Glass bottles & other container of glass Gelas minum/Drinking glass Kaca lembaran/Sheet glasses Semprong lampu/Lamp chimneys Lainnya/Others	3-105	Industri kaca & gelas/ Glass & glass products				
3691-01-1 2 3 4 9	Batubata/Bricks Genteng/Roofs, including slates Ubin/Tiles Pipa saluran/Sewage pipes Lainnya/Others	3-106	Industri bahan bangunan dari tanah liat/ Structural clay products				
3699-01-1 2 3 4 5 9	Gips/Gypsum Eternit/Eternite Batako/Concrete blocks Pipa beton/Concrete pipes Asbes/Asbestos Lainnya/Others	3-108	Industri barang dari mineral bukan logam lainnya/ Other non-metallic mineral products				
3692-01-1 2 9	Semen/Cement Kapur/Lime Lainnya/Others	3-107	Industri semen/ Cement	3-44	Industri semen/ Cement		
3710-01-1 2 3 4 5 6 7 8 9	Besi coran/Pig Iron Besi tua/Iron scrap Beja batangan/Steel ingot Besi campuran/Ferro alloy Baja gulungan/Hot rolled steel Pipa & tabung baja/Steel pipes & tubes Besi lampengan/Cold finished & plated steel Besi & baja tuangan & tampaan/ Iron & steel casting & forging Lainnya/Others	3-109	Industri besi & baja dasar/ Iron & steel basic industries	3-45	Industri besi & baja dasar/ Iron & steel basic industries		
3720-01-1 2 3 4 5 6 7	Tembaga dasar/Copper basic metal Timah dasar/Tin basic metal Seng dasar/Zinc basic metal Aluminium dasar/Aluminium basic metal Logam bekas bukan besi/ Non-ferrous metal scraps Logam dasar lainnya bukan besi/ Other non-ferrous metal Tembaga gulungan/Rolled copper	3-110	Industri logam dasar bukan besi/ Non-ferrous basic metal industries	3-46	Industri logam dasar bukan besi/ Non-ferrous basic metal industries		

Komoditi/Commodity		Tabel dasar/ 175 x 175 Basic table		Tabel diperingkas/ 66 x 66 Aggregated table		Tabel diperingkas/ 19 x 19 Aggregated table	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3720-01-8 9	Aluminium gulungan/Rolled aluminium Lainnya/Others	3-110		3-46		3-09	Industri lainnya (lanjutan) Other manufacturing industries
3811-01-1 2 3 4	Peralatan & perkakas pertanian/ Agricultural implement & tools Alat-alat potong/Cutleries Perkakas tangan/Hand tools Lain-lain peralatan & perkakas/ Other implements & tools	3-111	Industri alat-alat potong & perkakas pertanian/Cutlery hand tools & general hardware	3-47	Industri barang dari logam/ Prefabricated metal products		
3812-01-1 2 3 4 5 9	Meja & meja tulis, segala jenis/ Tables & desks, all kinds Lemari & rak segala jenis/ Wardrobes & shelf, all kinds Kursi segala jenis/Chairs, all kinds Kursi sofa/Sofas Tempat tidur/Beds Lainnya/Others	3-112	Industri perabot rumah tangga, teru- tama dari logam/ Furniture & fixtures, primarily of metal				
3813-01-1 2 3 9	Rangka jembatan & bangunan/ Structural components of bridges, building and the like Tangki & ketel/Tanks & boilers Kisi-kisi jendela & pagar/Lattice Lainnya/Others	3-113	Industri bahan bangunan dari logam/ Structural metal products				
3819-01-1 2 3 4 5 6 9	Paku/Nails Kaleng/Tin containers Kabel & kawat/Cables & wires Sekrup, baut & mur/Screws, bolts & nuts Teko, panci & piring/Cans, pans & plates Drum/Drums Lainnya/Others	3-114	Industri barang logam lainnya/ Other fabricated metal products				
3821-01-1 2 3822-01-1 3823-01-1 3824-01-1 3825-01-1 3829-01-1	Mesin, segala jenis/Engines, all kinds Turbin, segala jenis/Turbines, all kinds Mesin pertanian, segala jenis/ Agricultural machinery, all kinds Mesin untuk mengerjakan logam & kayu/ Metal & wood working machinery Mesin industri khusus, kecuali untuk mengerjakan logam & kayu/Special industrial machinery, except metal & wood working machinery Mesin-mesin kantor, hitung & sejenis- nya/Office, computing & accounting machineries Mesin-mesin lainnya/ Other machineries	3-115	Industri mesin, kecuali mesin listrik/ Non-electrical machinery	3-48	Industri mesin, mesin listrik, alat-alat dan perlengkapan listrik/ Machinery, electrical appliances, apparatus and accessories		
3831-01-1 2 3 4 9	Pembangkit listrik/Generators Transformator/Transformers Motor listrik/Electric motors Perlengkapan listrik untuk keperluan industri/Industrial electrical apparatus Lainnya/Others	3-116	Industri mesin-mesin listrik untuk keperluan industri/Industrial electrical machinery & apparatus				
3832-01-1 2 3 4 5 6 7 9	Pesawat radio/Radio receivers Pesawat televisi/Television sets Pesawat tilpon/Telephone sets Alat-alat komunikasi, segala jenis/ Communication equipment, all kinds Perekam pita & kaset/ Tape & cassette recorder Pesawat penguat suara, lengkap/ Sound systems Spare-parts alat-alat diatas/ Spare parts for assembly or repair Lainnya/Others	3-117	Industri radio, tele- visi & alat komunikasi serta perlengkapan- nya/Radio, television & communication equipment and apparatus				
3833-01-1 2 3 4 5 6 7 8 9	Kipas angin/Electric fans Kompor listrik/Electric stoves Mesin pendingin & pembeku/ Refrigerators & freezers Penanak nasi/Rice cookers Setrika listrik/Electric irons Pesawat pengatur hawa/ Air conditioners Perkakas listrik, segala jenis/ Electric tools, all kinds Pompa listrik/Electric pumps Lainnya/Others	3-118	Industri alat-alat listrik untuk keperlu- an rumah tangga/ Electrical appliances & housewares				
3839-01-1 2	Aki/Accumulators Batu baterai/Dry batteries	3-119	Industri aki & batu ba- terai/Accumulator & dry battery Industries				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3839-02-1 2 3 4 5 9	Bola lampu/Light bulbs & lamps Kabel & kawat, segala jenis/ Cables & wires, all kinds Tombol pemutus & penyambung listrik/Switches & fittings Pesawat, perlengkapan & persediaan lainnya/Apparatus, appliances & supplies Perbaikan segala pesawat & pereng- kapan listrik/Repair of all electric apparatus & appliances Lainnya/Others	3-120	Industri alat listrik lainnya, spare parts & perlengkapan listrik serta reparasinya/ Other electrical apparatus & supplies & repairing	3-48	Industri mesin, mesin listrik, alat-alat dan perlengkapan listrik/ Machinery, electrical appliances, apparatus and accessories	3-09	Industri lainnya (lanjutan)/ Other manufac- turing industries
3841-01-1 2 3 4 9	Kapal laut/Sea-going carriers Kapal tangki/Tankers Kapal sungai/Inland water vessels Perbaikan kapal & perahu/ Repair of ships & boats Lainnya/Others	3-121	Galangan kapal & perahu dan perbaikannya/Ship & boat building & repairing	3-49	Industri alat pengangkutan & perbaikannya/ Manufacture & repair of trans- port equipment		
3842-01-1 2 3 4 9	Lokomotif, segala jenis/ Locomotives, all kinds Kereta penumpang/ Passenger railroad cars Kereta barang/ Freight railroad cars Perbaikan segala jenis/ Repairs, all kinds Lainnya/Others	3-122	Industri perlengkapan kereta api/Railroad equipment				
3843-01-1 2 3	Mobil penumpang/Passenger cars Bus & sejenisnya/Buses & the like Truk & sejenisnya/Trucks & the like	3-123	Industri kendaraan bermotor/ Motor vehicles				
3844-01-1 2 3 4 5 3849-01-1 9	Sepeda motor/Motor cycles Skuter/Scooters Helicak & sejenisnya/Helicak & the like Sepeda/Bicycles Becak/Becaks Dokar/Carts Lainnya/Others	3-124	Industri sepeda motor, sepeda & kendaraan lainnya/Motor cycles, bicycles & other vehicles				
3844-02-1	Perbaikan segala jenis kendaraan bermotor & tak bermotor/ Repair of all kinds of motorized & non-motorized vehicles	3-125	Perbengkelan ken- daraan bermotor & tak bermotor/ Repairing of motorized non-motorized vehicles				
3845-01-1 2 3 4	Pesawat terbang untuk penumpang & barang/Commercial passenger & cargo planes Mesin pesawat terbang/ Engines of aircraft Turbin pesawat terbang/ Turbines for aircraft Perbaikan pesawat terbang/ Repairs of aircraft	3-126	Industri pesawat terbang/ Aircraft industry				
3851-01-1 2 3 4 9	Perkakas ilmu pengetahuan/ Scientific instruments Alat-alat pengukur/ Measuring instruments Perkakas & peralatan kedokteran/ Medical instruments Perbaikan perkakas & peralatan diatas/ Repair thereof Lainnya/Others	3-127	Industri alat & perka- kas profesional & ilmu pengetahuan/ Professional & scientific equipment	3-50	Industri barang lain yang tidak dapat digolongkan dimana-mana/ Other manu- facturing indus- tries, not elsew/ classified		
3852-01-1 2 3 9	Peralatan optik & analitik/ Optical & analytical instruments Kamera foto/Still cameras Kamera film/Cine cameras Lainnya/Others	3-128	Industri alat-alat fotografi & optik/ Photographic & optical goods				
3901-01-1	Perhiasan & permata dan lainnya/ Jewelry and related articles & others	3-129	Industri barang per- hiasan & permata/ Jewelry & related articles				
3902-01-1	Alat-alat musik, segala jenis/ Musical instruments, all kinds	3-130	Industri alat-alat musik segala jenis/ Musical instruments				
3903-01-1	Alat-alat olah raga, segala jenis/ Sporting & athletic goods, all kinds	3-131	Industri alat-alat olah raga segala jenis/Sporting & athletic goods				
3909-01-1	Pensil & sejenisnya/Pencils & the like	3-132	Industri pengolahan				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3909-01-2 3 4 5 9	Pena & sejenisnya/Pens & the like Kancing & sejenisnya/ Fasteners & the like Mainan anak, bukan terbuat dari plastik/Toys, other than plastics, all kinds Barang kesenian & kerajinan/ Art & handicrafts Lainnya/Others	3-132	lainnya/ Other manufacturing industries	3-50		3-09	Industri lainnya (lanjutan)/ Other manufac- turing industries
4101-01-1 2 3 4 5	Listrik, tenaga air/ Hydro-electric energy Listrik, tenaga uap/ Steam-electric energy Listrik, tenaga mesin diesel/ Diesel-electric energy Listrik, tenaga gas/Gas-electric energy Listrik perorangan/Privatey Generated electric energy	4-133	Listrik/Electricity	4-51	Listrik, gas & air minum/ Electricity, gas & water supplies	4-11	Listrik, gas & air minum/ Electricity, gas & water supplies
4102-01-1 4200-01-1	Gas kota/City gas Air minum/Pipe water	4-134	Industri gas & air minum/Gas & water supply				
5000-01-1 2 3	Rumah permanen/Permanent dwelling units Rumah semi permanen/ Semi permanent dwelling units Rumah sementara/ Temporary dwelling units	5-135	Bangunan tempat tinggal/ Residential buildings	5-52	Bangunan/ Construction	5-12	Bangunan/ Construction
5000-02-1 2	Bangunan permanen/Permanent buildings Bangunan semi-permanen/ Semi permanent buildings	5-136	Bangunan bukan tempat tinggal/Non- residential buildings				
5000-03-1 2	Bangunan irigasi, oleh pemerintah/ Irrigation works, by government Lainnya/Others	5-137	Pekerjaan umum untuk pertanian/ Public works, in the agriculture sector				
5000-04-1 2	Jalan raya/Road Jembatan/Bridges	5-138	Pekerjaan umum untuk jalan dan jembatan/Public works on roads and bridges				
5000-05-1 2 3 9	Bangunan pembangkit listrik/ Electric plant Jaringan transmisi/Transmissions lines Terminal transmisi/ Transmission terminals Lainnya/Others	5-139	Bangunan listrik & transmisinya/ Installation of electricity				
5000-06-1 2 3 4 9	Pelabuhan laut/Harbour Pelabuhan udara/Airport Lintasan kereta api/Railroad Saluran air/Serwage Bangunan lainnya, segala jenis, sepe- ti jaringan pipa untuk minyak, gas & air pertamanan, tempat parkir, ban- gunan & jaringan tilpon, dan sebagainya/Other construction works, all kinds, such as pipe lines, for petroleum, gas & water, parks, parking lots, communication utilities, etc.	5-140	Bangunan & kon- struksi lainnya/ Other construction				
5000-07-1 2 3	Perbaikan bangunan tempat tinggal/ Repairs of residential buildings Perbaikan bangunan bukan tempat ting- gal/Repairs of non-residential buildings Lainnya/Others	5-141	Perbaikan bangunan/ Current repairs and maintenance of buildings				
6100-01-1	Perdagangan besar/Wholesale trade	6-142	Perdagangan besar/ Wholesale trade	6-53	Perdagangan/ Trade	6-13	Perdagangan/ Trade
6200-01-1	Perdagangan eceran/Retail trade	6-143	Perdagangan eceran/ Retail trade				
6310-01-1	Rumah makan & tempat minum/ Restaurants & drinking places	6-144	Rumah makan & tempat minum/ Restaurants & drinking places	6-54	Rumah makan & hotel/Restau- rants & hotels	6-14	Rumah makan & hotel/Restau- rants & hotels
6320-01-1 2	Hotel/Hotels Tempat penginapan lainnya/ Other lodging places	6-145	Perhotelan/Hotels & lodging places				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19		
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
7111-01-1 2	Angkutan penumpang kereta api/ Railways passenger transport Angkutan barang kereta api/ Railways freight transport	7-146	Kereta api/Railways	7-55	Kereta api/ Railways	7-15	Pengangkutan & komunikasi/ Transport & communication	
7112-01-1 2 9	Angkutan bus antar kota/ Intercity bus transport Angkutan bus kota/City bus transport Lainnya/Others	7-147	Pengangkutan darat, penumpang/Road passenger transport	7-56	Pengangkutan darat/Road transport			
7114-01-1 2	Angkutan truk/Truck transport Lainnya/Others	7-148	Pengangkutan darat, barang/Road freight transport					
7121-01-1 2	Pelayaran samudra/Ocean shipping Pelayaran nusantara, lokal & ferry/ Interisland and local shipping	7-149	Pelayaran/Shipping	7-57	Pengangkutan air/Water transport			
7122-01-1	Angkutan sungai & danau/ Inland water transport	7-150	Pengangkutan sungai & danau/Inland water transport					
7123-01-1	Jasa pelabuhan/Port services	7-151	Jasa pelabuhan/ Port services					
7131-01-1 2 7132-01-1 9	Angkutan udara penumpang/ Passenger air transport Angkutan udara barang/ Freight air transport Jasa pelabuhan udara/ Airport services Lainnya/Others	7-152	Pengangkutan udara/ Air transport	7-58	Pengangkutan udara/Air transport			
7191-01-1 2	Keagenan, ekspedisi & biro perjalan- an/Agencies, expedition & travel bureau Parkir kendaraan/Parking Services	7-153	Jasa penunjang angkutan/Services allied to transport	7-59	Jasa penunjang angkutan/ Services allied to transport			
7192-01-1 2	Pergudangan/Storage & warehousing Bongkar muat/Loading & unloading	7-154	Pergudangan & bongkar muat/Loading/unload- ing and storages & warehousing					
7200-01-1 2	Jasa pos/Postal services Telekomunikasi/Telecommunication	7-155	Komunikasi/ Communication	7-60	komunikasi Communication			
8101-01-1 2 3 4 5 6	Bank Sentral/Central Bank Bank Umum/Commercial Bank Bank Pembangunan/Develop- ment bank Bank Tabungan/Saving Bank Bank Rural/Rural Bank Lembaga keuangan lainnya/ Other financial institutions	8-156	Perbankan & lembaga keuangan lainnya/ Banking & other fi- nancial institutions	8-61	Lembaga keuangan/ Financial services	8-16	Lembaga keuangan, usaha bangunan & jasa perusaha- an/Financing, real estate & business services	
8200-01-1	Asuransi jiwa/Life insurance	8-157	Asuransi jiwa/ Life insurance					
8200-01-1 2 3 8200-02-9	Asuransi kebakaran/Fire insurance Asuransi pengangkutan/ Freight insurance Asuransi kesehatan/Health insurance Asuransi kerugian lainnya, termasuk dana pensiun/Other casualty insurance, including pension funds	8-158	Asuransi bukan jiwa/ Non-life insurance					
8310-01-1 2	Sewa rumah/Dwelling real estate Sewa bangunan usaha/ Business real estate	8-159	Usaha bangunan & tanah/Real estate	8-62	Usaha ban- gunan & jasa perusahaan/ business services			
8321-01-1 8322-01-1 8323-01-1 8324-01-1 8325-01-1 8329-01-1 8330-01-1	Jasa penasihat hukum/Legal services Jasa akuntansi/Accounting services Jasa pengolahan & tabulasi data/ Data processing & tabulating services Jasa konsultan permesinan, arsitektur & teknik/Engineering, architectural & technical services Jasa periklanan/Advertising services Lainnya/Others Persewaan mesin & peralatan/ Machinery & equipment rental & leasing	8-160	Jasa perusahaan/ Business services					
9100-01-1 2	Pemerintah pusat/ Central government Permerintah daerah/ Local government	9-161	Permerintahan umum & pertahanan/ Public administration & defence	9-63	Pemerintahan umum & per- tahanan/ Public adminlstration & defence	9-17		Pemerintahan umum & per- tahanan/ Public adminlstration & defence

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
9200-01-1 9	Kegiatan pembuangan sampah/ Garbage & sewage disposal Lainnya/Others	9-162	Kegiatan pembersihan & sejenisnya/Sanitary & similar services	9-64	Jasa sosial & kemasyarakatan/ Social and community services	9-18	Jasa-jasa/Other services
9310-01-1 2 3	Sekolah negeri/Public school Sekolah swasta/Private school Pendidikan lainnya/Others	9-163	Pendidikan/ Educational services				
9320-01-1 2	Lembaga penelitian pemerintah/ Government research institutions Lembaga penelitian swasta/ Private research institutions	9-164	Lembaga penelitian/ Research & scientific institutions				
9331-01-1 2 9	Rumah sakit negeri/Public hospital Rumah sakit swasta/Private hospital Lainnya/Others	9-165	Jasa kesehatan/ Medical, other health services				
9350-01-1	Kegiatan perkumpulan-perkumpulan & perhimpunan, segala jenis/ Activities of associations, all kinds	9-166	Perkumpulan dunia usaha, profesi & per- buruhan/Business, professional & labour associations				
9340-01-1 9391-01-1 9399-01-1	Kegiatan palang merah & lembaga sosial lainnya/Red cross & other charitable organizations Organisasi keagamaan/ Religious organizations Lainnya/Others	9-167	Jasa kemasyarakatan lainnya/Other social and related communi- ty services				
9411-01-1 9412-01-1	Produksi film/Motion picture production Distribusi film/Motion picture distribution	9-168	Produksi & distribusi film/Motion picture production & distribution	9-65	Jasa hiburan, kebudayaan, perorangan & rumah tangga/ Recreational, cultural, per- sonal & house- hold services		
9412-02-1 9414-01-1	Bioskop/Movie houses Gedung kesenian/Theatres	9-169	Gedung kesenian & bioskop/Theatres & movie houses				
9413-01-1 2 9	Studio radio/Radio broadcasting Studio televisi/Television broadcasting Lainnya/Others	9-170	Studio radio & tele- visi/Radio, television & related services				
9420-01-1 2 9	Perpustakaan/Libraries Museum, kebun binatang & tumbuhan/ Museum, botanical & zoological gardens Lainnya/Others	9-171	Perpustakaan, museum, kebun binatang & jasa kebudayaan lainnya/ Libraries, museum, natural gardens & other cultural services				
9490-01-1	Jasa hiburan & rekreasi, segala jenis/ Amusement & recreational services, all kinds	9-172	Jasa hiburan & rekreasi/ Other recreational services				
9510-01-1	Perbaikan, yang tak termasuk dimana- mana/ Repairs, not elsewhere classified	9-173	Perbaikan, yang tidak termasuk dimana-mana/ Repairs services, not elsewhere classified				
9520-01-1 9530-01-1 9591-01-1 9599-01-1	Jasa binatu/Laundry & cleaning services Jasa rumah tangga/Domestic services Cukur rambut & salon kecantikan/ Barber & beauty parlour Lainnya/Others	9-174	Jasa perorangan/ Personal services				
9900-02-1	Kegiatan yang tidak jelas batasannya/ Unspecified & provisional sector	9-175	Kegiatan yang tidak jelas batasannya/ Unspecified & provisional sector	0-66	Kegiatan yang tidak jelas batasannya/ Unspecified & provisional sector	0-19	Kegiatan yang tidak jelas batasannya/ Unspecified & provisional sector
9900-01-1	Produksi barang bekas & produk tercecer/Scrap & wastes	0-176	Produksi barang bekas & produk tercecer/ Scrap & wastes				
		190 201 202 203 204 209 210 301 302 303 304	Jumlah input-antara/Total intermediate input (untuk baris/for the row) Jumlah permintaan antara/Total intermediate demand (untuk kolom/for the column) Upah & gaji/Wages & salaries Surplus usaha/Operating surplus Penyusutan/Depreciation Pajak tak langsung/Indirect taxes, net Nilai tambah bruto/Gross value added Jumlah input/Total input Pengeluaran konsumsi rumah-tangga/Private consumption expenditures Pengeluaran konsumsi pemerintah/Government consumption expenditures Pembentukan modal tetap/Gross fixed capital formation Perubahan stok/Change in inventories				

Komoditi/Commodity		Tabel dasar/ Basic table 175 x 175		Tabel diperingkas/ Aggregated table 66 x 66		Tabel diperingkas/ Aggregated table 19 x 19	
Kode/Code	Uraian/Description	Kode/Code	Judul/Title	Kode/Code	Judul/Title	Kode/Code	Judul/Title
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		305	Ekspor (harga f.o.b.)/Export (f.o.b. price)				
		309	Jumlah permintaan akhir/Total final demand				
		310	Jumlah permintaan/Total demand				
		401	Impor (harga c.i.f.)/Import (c.i.f. price)				
		402	Pajak penjualan impor/Import sales tax				
		403	Bea masuk/Import duties				
		409	Jumlah impor (harga di darat)/Total imports (at landed cost)				
		501	Margin perdagangan besar/Wholesale trade margins				
		502	Margin perdagangan eceran/Retail trade margins				
		503	Margin pengangkutan/Transport costs				
		509	Jumlah margin perdagangan & pengangkutan/ Trade margins and transport costs				
		600	Jumlah output (output pengontrol)/Total output (Control Total)				
		700	Jumlah persediaan/Total supply				

APPENDIX B

EXPLANATION OF THE SECTORS

1. INTRODUCTION

Chapter 2 outlines the basic principles or concepts and definitions which describe the conventions that have to be followed when measuring the transactions in the transaction table in order to calculate the basic estimates consistently and uniformly. However, these conventions cannot, in practice, always be strictly followed and should therefore be applied with some flexibility as dictated by the availability of the basic statistical data.

The problem of the availability of statistical data is not the only limiting factor in the compilation of an input-output table. It has been a general experience in this kind of work that many basic problems have to be dealt with in the sector classification in order to secure a clear breakdown of the activities, to determine the basic statistical units of such activities and to handle the subsidiary products and by-products. In addition, consideration has to be given such matters as the method of recording transactions in the table, the special treatment of imports, and the procedures for computing the trade margins and transport costs in order to have the fewest possible defects in the final results.

In the following pages, there is some description of the method of estimation of data for each sector with an explanation of the scope of activities covered, the type and sources of data used for that purpose and any special treatments required. But, before proceeding to the sectoral description, it is necessary to explain how statistical data are to be organized into the consolidated system of an input-output table.

The steps which should be followed in the recording of transactions in the input-output table may be listed as follows:

- (1) For each sector, the input structure is estimated.
- (2) The distribution of each sector's output along the row in the intermediate demand and the final demand sectors is estimated.
- (3) The results obtained in (1) and (2) should be compared, analyzed and adjusted.
- (4) These figures are balanced with the output, final demand, imports and value added. It should be noted that these steps are not all applicable to all sectors as depending on the availability of statistical data.

In the following sections, explanations are given on the scope and coverage, sources of data, and methods of estimation for each sector.

2. AGRICULTURE, LIVESTOCK, FORESTRY AND FISHERIES (Input-Output Code: 1-001 to 1-042)

The agricultural division is divided into 29 sectors which cover the cultivation of field crops, fruits, nuts, seeds, trees (with the exception of forest trees), bulbs, vegetables, flowers (both in the open and under glass), tea, coffee, cocoa and rubber. Also included are the processing of agricultural products on farms and estates. But, when this processing can be separated from farms and estates, it is defined as a manufacturing sector. For example, rice milling, sugar refining, coconut oil extraction in factories, coffee roasting in factories, tea processing in factories, etc., are classified in the manufacturing sector.

The livestock division is divided into 6 sectors which cover the raising of livestock, poultry, and furbearing or other animals and the production of milk, wool, fur and eggs.

The forestry division is divided into 4 sectors which cover the operation of timber tracts and forest tree nurseries, the planting, replanting and conservation of forests, the gathering of uncultivated materials, charcoal burning, timber cutting, and the production of rough, round, hewn or riven forest wood. Also included are saw mills located in forests.

The fisheries division is divided into 3 sectors which cover commercial fishing in ocean, coastal, off-shore, estuary and inland waters. Also included are fishery services.

1-001. Paddy

Scope and definition:

The main product in this sector is dry stalked paddy. By "dry" is meant godown-dry, i.e., paddy which has been such dried for a couple of days. By stalks is meant the stems to which the paddy grains are attached, normally 20 to 30 centimeters in length. The straw is covered as a by-product of the sector.

Source of data and method of estimation:

The source of data for the main product was the CBS, while the estimate for straw was derived from the Special Agricultural Survey (SAS). The figure for the output was derived from production data on dry stalked paddy and the price data available from the survey on cost structure in agriculture undertaken by the CBS in 1971 within the framework of the National Socio Economic Survey (NSES). The NSES also presented the cost structure and producer's prices by provinces for Java and Madura and by islands for outside Java and Madura. The value of by-product straw was estimated at 0.75% of the value of the main product, this percentage was from the SAS.

Note: In fact, there are many varieties of paddy in Indonesia, especially new high-yielding varieties. In general, short stalked paddy belonging to high-yielding varieties, the grains drop easily from the stalk. This is not the case with most of the local tall varieties which retain the grain firmly on the stalk. So, in practice, there are two methods of harvesting paddy. One is to cut the base of the paddy stalk, the other is to harvest just only paddy grains. There were problems in estimating production figures for stalked paddy. This was not only for quantity but also for prices, because price data in some regions was available only for grain (gabah).

1-002. Handpounding of Rice

Scope and definition:

This sector covers the manual processing of paddy into rice by households. The main product of the sector is hand-pounded rice; the by-product is husk.

Source of data and method of estimation:

Due to the scarcity of the available information concerning this activity, it was not possible to estimate the output of this sector directly. Hence the indirect method of starting with output information on rice mill production derived from the industrial sector was adopted. The other independent estimate used was that of total rice production derived from total production of paddy. An estimate of hand-pounded rice was derived as the difference between total production and the output of rice mills. The estimate so derived was subjected to further adjustments to insure consistency. The source of information on rice milling factories is the CBS publication "Industrial Statistics, 1971" (IS-1971-CBS).

1-003. Maize

Scope and definition:

The main product of this sector is dry grain maize, i.e., corn grains separated from the cob and then dried in the sun. Corn broken down into smaller pieces (beras jagung) is not included here, but in the industrial sector. The by-products of this sector are the leaves, stalks, cobs and young maize.

Source of data and method of estimation:

The source of information for quantity of production and prices as well as the valuation method of the production and the input structure were the same as in the case of paddy. The value of the by-products, young maize, leaves, stalks and cobs were respectively considered as 0.80%, 1.50%, 0.60% and 0.70% of the value of the main product. These percentages were derived from the results of the SAS.

Note: The output of corn is expressed here in dry grain maize. It is to be noted that in daily life in Indonesia, a significant quantity of corn is consumed in the form of cob-maize which is roasted or boiled and consumed as a vegetable, especially the young maize and nearly ripe corn. In some areas, the farmers even store the corn in the form of cob-maize.

1-004. Cassava

Scope and definition:

The main product of cassava is fresh cassava, while the young leaves and stalks are considered as by-products. The dry roots, or dry cassava, and also dry cassava-flour are included in sector 1-005.

Source of data and method of estimation:

The source of data and the method of evaluating the cassava production was the same as in the case of paddy; the output of by-products was estimated as 1.50% for leaves and 4.60% for stalks in relation to the value of the main product (source: SAS).

1-005. Dried Cassava and Tapioca Flour

Scope and definition:

This sector covers drying cassava and the production of flour from cassava and sago. The output consists of dry cassava flour, sago flour, dry cassava, and the residue of tapioca flour production.

Source of data and method of estimation:

The estimation of quantity of production was based on the data of consumption. For this purpose, IS-1971-CBS and NSES undertaken by the CBS in 1971 were used. The producer's price was used for the valuation except for sago, for which price was available from IS-1971-CBS.

1-006. Other Root Crops

Scope and definition:

This sector includes all edible roots (except cassava) such as: potatoes, sweet potatoes, black potatoes, and other roots. The main product is the fresh root, while the leaves are considered as the by-products.

Source of data and method of estimation:

The data source and estimation method of production of sweet potatoes are the same as in the case of paddy; the value of by-products, leaves and stalks, was estimated at 0.20% of value of the main product. The quantity data of potato production were supplied by the Directorate General of Agriculture and the retail prices in several localities were obtained from the CBS. To get the producer's prices, the trade margins and transport costs, which were 115.10% of the producer's prices (source: SAS), were deducted from the retail price. The same method could not be applied to the other root crops due to lack of data. In that case, the output was estimated as 11.24% of the total output of sweet potatoes and potatoes, based on information from the Directorate General of Agriculture, the Institute of Agriculture in Bogor (IPB), and the CBS.

1-007. Vegetables

Scope and definition:

In this sector are included various kinds of leaves, branches, stalks, and fruits which are usually consumed as vegetables. The main products are those in fresh condition. Two groups of vegetables were considered:

- a) Low-land vegetables
 - i. onions
 - ii. chillies
 - iii. cucumbers
 - iv. string beans
 - v. spinach
 - vi. eggplants
 - vii. kangkung
 - viii. others
- b) High-land vegetables
 - i. sawi
 - ii. tomatoes
 - iii. cabbages
 - iv. carrots
 - v. radishes
 - vi. bush-beans
 - vii. others

Source of data and method of estimation:

Production of vegetables was estimated from consumption based on the Household Consumption Expenditure Surveys III and IV. In this case, it might be mentioned that NSES indicates a per capita consumption of vegetables in Java and Madura of 0.4977 kg per week and of 0.7300 kg per week outside Java and Madura. To those figures, an additional 0.08217 kg per capita per week was added because the NSES figures do not cover the consumption of onions and chillies. To take into account the consumption outside of households (e.g., in restaurants), 1.20% of the total household consumption of vegetables was also added (source: NSES).

The production data described above covers all kinds of vegetables in total. To arrive at separate production figures for the thirteen kinds of vegetables, the production data collected by the Directorate General of Agriculture was used. The gross output of each kind of vegetable was estimated by using the weighted average of retail prices. The calculation of producer's price was made by deducting the trade margins and transport costs at the rate of 139.36%. The percentages of trade margins and transport costs and input structure were based on data from SAS.

1-008. Fruits

Scope and definition:

This sector covers all kinds of fruits, fresh and unpeeled, as follows:

banana (pisang)	mangosteen (manggis)
papaya (papaya)	pineapple (nanas)
mango (mangga)	durio zibethinus (durian)
orange (jeruk)	avocado (advokat)
bread fruit (sukun)	duwet
sour sop (sirsak)	Averoa bilimbi (belimbing)
nephelium lappacum (srikaya)	bonea (jambu)
lansium domesticum (rambutan)	macrophylla (gandaria)
zalacca edulis (duku)	pace
Phyllantus acidus (cereme)	gowok
pomegranate (delima)	marquissa (markisa)
wuni	jack fruit (nangka)
achras zapota (sawo)	kesemak
apple (apel)	others

Source of data and method of estimation:

Production data on 12 kinds of fruits was obtained from the Directorate General of Agriculture. The production of each kind of fruit was valued by using the weighted average of retail prices (source: CBS). To arrive at the producer's prices the trade margins and transport costs were deducted at 17.95% of the producer's prices for papaya and 98.43% for the others (source: SAS). Values of by-products were also calculated; for banana at 8.60% of the total value of banana production and for pineapple at 0.70%. To avoid underestimation caused by the coverage of items of fruits and planted area, a mark-up of 10% of the initial estimate of total fruit production was made. The input structure was based on data from the SAS.

1-009. Peanuts

Scope and definition:

The main product of this sector is the dry shelled nuts. The by-products are the shells, the stems, and the leaves.

Source of data and method of estimation:

The total value of production and input structure of peanuts were calculated in the same way as in the case of paddy; the value of the shells and leaves as by-products was estimated as 0.40% of the value of the main product (source: SAS).

1-010. Soy-beans

Scope and definition:

The main product here also is the dry shelled beans. Here too, the by-products are the shells and the leaves.

Source of data and method of estimation:

The source of data as well as the method of calculating the value of production and also the input structure of the soy-beans sector were the same as in the case of paddy. The value of the shells and the leaves was estimated at 0.40% of the value of the main product (source: SAS).

1-011. Other Beans and Nuts

Scope and definition:

This sector covers all types of plants within the family of pulses and leguminous plants that

produce beans such as green beans, red beans, green peas, etc. The main products are the dry peeled beans, and the by-products are the shells and the leaves.

Source of data and method of estimation:

There are in fact many varieties of leguminous plants producing beans and peas; but due to lack of data, separate calculation could be made for only one variety of these plants. The others have been grouped into the family of green beans, and calculated at 10% of the output of green beans (source: Directorate General of Agriculture, IPB and CBS). The production of dry peeled green beans was obtained from the Directorate General of Agriculture, while the weighted average of wholesale prices was calculated by using data from the CBS and from publications on regional income estimates. To get the value at producer's prices, the trade margins and transport costs of 27.46% of the producer's price were deducted (source: SAS). The value of by-products was estimated at 0.40% of the main products. The data on input structure was also obtained from the SAS.

1-012. Latex

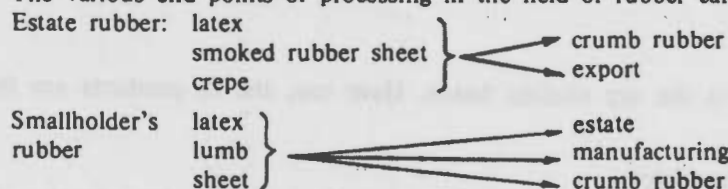
Scope and definition:

The main product of this sector is latex, i.e., the white milky juice from the rubber trees before coagulation of other processing.

Source of data and method of estimation:

Production data on the smallholders' rubber is from the Directorate of Smallholders' Plantations, while that on the estate rubber is from the CBS. The latter is only in the form of sheets and crepes. From the production figures of this dry form of rubber, figures on latex production were calculated by adopting a conversion factor of 25.10% for smallholder's latex (converted into dry sheets) and that of 27.80% for estate production. Then, the price of latex has to be estimated. However, data for this price was only available for 1974 (source: SAS). So that, a backward projection was made for the 1971 price of latex by assuming a parallel trend with the wholesale prices for sheets collected by the CBS. The trade margins and the transport costs of latex were estimated as the difference between the producer's price of latex and the purchaser's price of rubber products. The resulting rate was 16.31%. The rate was applied only to transactions between the smallholders and the manufacturing units. The trade margins and transport costs between the estate enterprises and the manufacturing units were not calculated, as the estate enterprises usually process their own latex into sheets and/or crepe. The input structure was also obtained from SAS.

Note: The various end points of processing in the field of rubber can be summarised as follows:



In the case of estate rubber processing units, the quality of products is normally standardized by the government. The form of production can be smoked rubber sheets or crepe of various types. Almost every rubber estate has its own processing unit, and, in general, a clear cut distinction is not made between estate activity and processing activity. To avoid complications, all processing units, both those of estates as well as those of smallholders, are included in sector 1-013. The output of the smallholders is heterogeneous; some produce only latex which is sold to nearby estates, while others produce lumps or sheets of inferior quality. Therefore, the output of smallholders is calculated in terms of latex.

1-013. Smoking and Remilling of Rubber

Scope and definition:

This sector covers the processing of latex by the smallholders and the estates into dry rubber forms such as crepe, sheet and lumb. The activities referred to here are coagulation, smoking, remilling, etc.

Source of data and method of estimation:

Data on production, prices and input structure were all obtained from IS-1971-CBS and NSES. The lack of data in these sources has been adjusted for the supply of latex and also for the demand for smoked and remilled rubber going to manufacturing industries and exports.

1-014. Sugar Cane

Scope and definition:

The main product of this sector is fresh cane and the by-product is the leaves. Neither refined sugar nor brown sugar are included as products of this sector.

Source of data and method of estimation:

The cultivation of cane is divided into two groups, i.e., that by the smallholders and that by the estates. The smallholders generally produce brown sugar, and estates produce refined sugar. The data on smallholders was obtained from the Directorate of Smallholders Plantations, and data on estates was obtained from the CBS. Both brown sugar and refined sugar, in this calculation, were assumed to have been produced from sugar cane. The conversion rates derived from the SAS are 16.40% for cane into brown sugar and 10.60% for cane into refined sugar. Since wholesale prices and retail prices for the cane were not available, the cane price was obtained from the SAS (producer's price) and used in the valuation. To arrive at the 1971 cane price, the price obtained from the SAS was extrapolated backwards to 1971 on the basis of the trend in the wholesale prices of refined sugar and brown sugar. The trade margins and transport costs were calculated for the smallholders' cane only at 19.62% of the producers' price (source: SAS). Those for the estates were not taken into account, as cane from the estates is normally processed into cane-sugar by the estates themselves. The by-products of the smallholders' cane are leaves and sprouts estimated at 6.00% of the value of the main product.

Note: There are some cane processing factories that do not have farm. The cane that comes into those factories is from cooperatives or smallholders. Thus, there are cane factories that stand completely autonomous as an industrial unit and there are cane factories as units in estates. The main product of both the estates and the smallholders is cane.

1-015. Brown Sugar

Scope and definition:

This sector includes the production of various kinds of brown sugar, usually at the village level. The raw materials for this kind of sugar production are the unfermented juices from palms like the arenga palm and the coconut palm, as well as sugar cane.

Source of data and method of estimation:

Data on quantity was obtained from the IS-1971-CBS and also from the annual publication of the Directorate General of Plantations. The prices used for valuation were producers' prices obtained from the Special Trade Survey (STS) and the SAS. The data for the cost structure was based on data from the IS-1971-CBS with some adjustments.

1-016. Coconut

Scope and definition:

The main products of this sector are coconut and copra. Activities from the plucking of the nuts from the tree to the production of copra including peeling and drying are covered in this sector. The by-products are the leaves, leaf-ribs, shells, the unfermented palm juice and milk.

Source of data and method of estimation:

As in the case of rubber and sugar cane, the coconut is also cultivated by both smallholders and estates. The estate coconut production is in the form of copra only, while the smallholders' production is in the forms of both copra and nuts. Data on the smallholders' coconut production compiled by the Directorate General of Plantations and data on estate coconut production compiled by the CBS are both expressed in copra.

To arrive at production data for fresh nuts, the per capita coconut consumption based on NSES was used. This was multiplied by the mid-year population data to arrive at the figure of total production. This data on per capita consumption turned out to be equal to 0.329 coconuts per week in Java and Madura, while that for outside Java and Madura was 0.499. The mid-year population was 75,854,000 for Java and Madura and 42,955,000 for outside Java and Madura. The production figure of fresh nuts calculated above was deducted from the production data of the smallholders' copra. Based on the SAS, the conversion factor used was 450 fresh nuts to 100 kg of copra. The retail price of fresh nuts in Java and Madura was obtained from the CBS's "Economic Indicators", while prices outside Java and Madura were calculated on the basis of the ratio of the copra prices of Java and Madura to other islands. Both the smallholder's as well as the estate copra was evaluated at wholesale prices compiled by the CBS. For Java and Madura the copra was valued on the basis of the SAS results and adjusted to 1971. This adjustment was necessary as the available data was not complete.

The trade margins, transport costs, and input structure were estimated from the SAS, with the weighted average of trade margins and transport costs of fresh coconuts being 19.25% and that of copra was 72.02%, and that of the by-products estimated at 10.45% of the producers' price. The by-products for which estimates could be calculated were the leaves (estimated at 0.70%); leaf-ribs (0.50%); fibre (2.40%); and shells (1.00%) and others (1.00%). The source was the SAS.

Note: As a consequence of the above definition, the production of copra by copra-mills, despite the use of machines, is included in the coconut sector rather than in manufacturing. Since coconut production is expressed in copra, it might seem that Indonesia's production in this sector is only copra. This is misleading since coconuts are often consumed directly before being dried as copra; both ripe and young coconut meat, milk and water are used for snacks and for various Indonesian dishes. As a result, the data on total production is not consistent with that of the allocation of production, because if all products are expressed in copra there should be no consumption in the form of fresh nuts. To overcome this problem, the following procedure has been adopted. Though all production is in terms of copra, care was taken to allocate output to other sectors (for example, coconut or copra for cooking oil, for exports, for direct consumption, etc.). All were converted to copra by using the conversion factor obtained from the SAS. Among the by-products, the unfermented palm juice can be consumed directly as a drink, and can also be processed into brown sugar. Although the method of processing is quite simple, this activity is not included here but under the sector of brown sugar.

1-017. Farm Coconut Oil

Scope and definition:

This sector covers the production of coconut oil by the smallholders. The process of production is simple and done in the traditional way. The main product is coconut oil, the by-product is the oil cake.

Source of data and method of estimation:

The total production of coconut oil was estimated based on the copra production (source: Directorate General of Plantations). Then the production of coconut oil produced by factories and input structure were estimated from the IS-1971-CBS and "Survey on Small Scale Manufacturing and Handicraft, 1971" (SSMH-1971-CBS). The coconut oil produced by the smallholders is derived as a residual of the production in factories.

1-018. Palm Oil

Scope and definition:

The main products of this sector are palm oil and palm kernel, and the by-products are fibre and shells. The major part of the cultivation of these palms is undertaken by estate enterprises which also operate the processing units. So the processing of the kernels into palm oil belongs to this sector.

Source of data and method of estimation:

In general, the oil is processed by the processing units of respective estate enterprises. Production is in the form of oil as well as kernels. The data used in the calculation is from the CBS. For valuating the oil and kernel products, the prices were derived from the SAS by adjusting it to the year 1971 based on the trend of the F.O.B. prices of palm oil and palm kernels. The value of the by-products was estimated at 0.05% of the main products (source: SAS).

1-019. Crops for Matting and Textiles

Scope and definition:

This sector covers all production of basic materials for making thread, yarn and other raw materials for textiles, such as cotton, kapok, and various kinds of fibers (agave, mendong, pandan, manilla fibers). The main products are dried fibers. The by-products are kapok seeds and cotton seeds. Simple processing like peeling and drying is also included in this sector.

Source of data and method of estimation:

Of the different products of this sector, separate estimates could be made for kapok fiber and kapok seeds, cotton and cotton seeds, rosella fiber and hardrope fibers. Production data concerning the smallholders' production of cotton and kapok fiber were obtained from the Directorate General of Plantations, while production data on the estates' cotton and kapok fiber were from the CBS. The production of kapok fiber was valued on the basis of the wholesale price, while the production of cotton fiber was valued on the basis of the input price of the manufacturing sectors because the wholesale price was not available. Production data for hardrope fiber and rosella fiber was from the CBS. For valuation of both hardrope and rosella fiber, the export prices were used. Since production data for cotton seeds and for kapok seeds was not available, the quantity was derived from the export and domestic consumption. Information on domestic consumption is limited to that part entering large and medium scale industries as input. So the domestic consumption was underestimated, especially in the case of kapok seeds. Therefore a mark up of 10% of the initial production figure of kapok seeds was made. The trade margins and transport costs were estimated at 17.10% of the producers' price for kapok and at 83.15% for the others. The input structure was from the SAS.

1-020. Tobacco

Scope and definition:

The main product of this sector is dried tobacco leaves, either cut or not. The cutting and drying processes are usually simple without the blending with any other ingredient or sauce. Drying and cutting with the use of machines are not included here. Also further processing, like smoking which usually increase the tobacco's value, is not included in this sector.

Source of data and method of estimation:

The production data of tobacco cultivated by the smallholders is divided into tobacco leaves (or smallholders' tobacco) and virginia tobacco, while that of the estates is only available in total. The production data on smallholders is obtained from the Directorate General of Plantations and the production data on estate is from the CBS. In calculating the value, the wholesale price is obtained from the CBS, and the regional income estimation is also used. The trade margins and transport costs are estimated as 29.00% of the producers' price for smallholders (source: SAS), but those of estates are not calculated because the estates usually process their own tobacco leaves. The by-product is estimated as 2.60% of the main product. The input structure was from the SAS.

1-021. Processed Tobacco

Scope and definition:

The products of sector 1-020 are dry tobacco leaves and cut tobacco leaves, usually processed by smallholders' household. These products normally need further processing like better drying with machines, blending with tobacco sauce made from sugar, perfume and spices, to give better aroma, or special drying for cigar making. These kinds of processing are included in this sector.

Source of data and method of estimation:

The data used for estimating the output was derived from NSES and IS-1971-CBS. Some adjustments were made to fit the total domestic supply with the total domestic demand.

1-022. Coffee

Scope and definition:

The main products of this sector is the dry unshelled coffee bean. What is meant here by dry is the simple drying by the sun or by a simple heating system to eliminate water content. Heating in the sense of roasting is covered in sector 1-023 (Farm Processed Coffee).

Source of data and method of estimation:

The production data on smallholders' coffee was obtained from the Directorate of Smallholders' Plantations, and production data on estate coffee was from the CBS. For the evaluation of both the smallholders' and the estate coffee, the wholesale prices compiled by the CBS were used. The trade margins and transport costs of coffee were estimated at 29.09% of the producer's price, those percentages and input structure were from the SAS.

1-023. Farm Processed Coffee

Scope and definition:

The activities covered in this sector are the further drying, roasting and grinding of coffee beans by the smallholders without using modern machinery. The processing done by factories using modern machinery is included in the manufacturing sector.

Source of data and method of estimation:

The data used was obtained from the Directorate General of Plantations and the CBS (Agricultural Statistics, NSES, Industrial Statistics and Foreign Trade Statistics). To get the output of this sector, the total output of all coffee bean processing was first estimated. By using IS-1971-CBS, the output of the factories was calculated. Then the output of this sector was obtained by subtracting the output by factories from the output. The input structure of this sector was derived from the data on that of factories with some adjustments.

1-024. Tea Leaves

Scope and definition:

The main product of this sector is dry green leaves. The drying process here is limited to a simple drying of the young fresh leaves. The heating and breaking process of producing balck tea is not covered in this sector.

Source of data and method of estimation:

Data on production of the smallholders' tea was from the Directorate of Smallholders' Plantations and that on the estate tea from the CBS. The total value of tea was obtained by multiplying the production by the wholesale price collected by the CBS. The trade margins and transport costs of tea were estimated at 48.61% of the producer's price (source: SAS). The input structure was also based on the special survey.

Note: The above distinction in production may appear to lack clarity because in practice both smallholders' as well as estates' tea is available in the form of black (or red) tea ready for consumption. In fact the difference between dry green tea and red tea is not significant. The green tea is produced through a drying process while black (or red) tea is produced through a drying and breaking process. In places where fragrant tea is produced, the dry green leaves from either the smallholders or the estates or both are further processed by the factory by heating them again and blending them with perfume until the tea becomes black. The green tea leaves used as the raw material for fragrant tea are defined as a product of this sector.

1-025. Farm Processed Tea

Scope and definition:

This sector includes the further drying and breaking of the tea leaves and branches as well as the mixing of the sauce by the smallholders as a household activity, without the use of machinery. The products are red or black tea processed by the smallholders.

Source of data and method of estimation:

The source of data as well as the method of estimation were the same as in the sector of farm processed coffee.

1-026. Cloves

Scope and definition:

The output of this sector is dry cloves. The drying process is limited to that done in the traditional manner.

Source of data and method of estimation:

Production data on smallholders' cloves was obtained from the Directorate of Smallholders' Plantations. Data on the wholesale price was from the CBS. Trade margins and transport costs were 23.25% of the producer's price (source: SAS). The input structure was derived from the SAS.

1-027. Nutmeg

Scope and definition:

The outputs of this sector are the flesh of the nutmeg, the hard seeds, and the mace (flower).

Source of data and method of estimation:

Production data on the dried fruit was from the Directorate of Smallholders' Plantations. Production data on the mace and the nutmeg were not available. These were derived from export statistics, the input of large and medium scale manufacturing industries, and the quantity

of household consumption. The quantity of mace consumption by households was assumed to be proportionate to the quantity of seed consumption by households. The calculation of the production of the flesh was based upon the conversion factor between the seeds and the flesh; this factor being obtained from the SAS. The prices used were wholesale prices for the valuation of nutmeg, while those for the mace and flesh were derived from the ratio of the input price of mace and flesh to that of nutmeg in the manufacturing sectors. The trade margins and transport costs of this sector were 23.42% of the producers' price (source: SAS). The input structure of this sector was also based on the SAS.

1-028. Other Spices

Scope and definition:

This sector covers primary agricultural products customarily used as flavouring ingredients such as pepper, cinnamon, vanilla, and kemiri. The production is expressed in terms of the dried products.

Source of data and method of estimation:

Production data for pepper and cinnamon were from the Directorate of Smallholders' Plantations. Since production data for vanilla and kemiri were not available, they were estimated from the figures of export and domestic consumption. For pepper and cinnamon, the valuations were based on the wholesale prices (source: CBS). For vanilla, the value of output was taken to be equal to the input value of large and medium scale manufacturing industries. For the other items, F.O.B. prices were used. The trade margins and transport costs were 13.72% for pepper and 35.54% for cinnamon, vanilla, and the other spices. Those percentages and the input structure were derived from the SAS. A mark-up of 10% was made due to the exclusion of the other spices from the calculations (source: Directorate General of Agriculture).

1-029. Other Crops

Scope and definition:

This sector covers all crops not included in the previous sectors. The activities involved here are peeling, drying, etc. The items covered here are:

Cocoa	(dry unshelled beans)
fragrant grass (sereh)	(leaves)
kayu-putih	(leaves)
fragrant wood (kelembak)	(dry wood)
cubebs	(dry seeds)
gambir	(dry fruit)
cinchona bark	(dry bark)
flowers	(decorations/ornaments)
caster seeds	(dry seeds)

Source of data and method of estimation:

Production data for cinchona dry bark and cocoa were from the CBS, while data on caster seeds was available from the Directorate of Smallholders' Plantations. Production data on the other items was not available and was therefore estimated from the export statistics and from domestic consumption (input of factories). To avoid under-estimation (partly due to the above method of calculation and partly due to crops that might not have been included), 10% was added to the total value. The value of cocoa production was calculated based on the wholesale price, and the values of the other items were based on F.O.B. prices. To arrive at the value of the producer's prices, 32.20% of trade margins and transport costs were used for cocoa; for the other items this percentage was 35.54% (source: SAS).

The trade margins transport costs, and input structure were based on data from the SAS.

1-030. Cattle Raising

Scope and definition:

The main products of this sector are cattle breeding and the gain in weight; while the by-product is cattle dung.

Source of data and method of estimation:

The production of cattle is equal to the number of cattle slaughtered (without distinction between milk cows and others), plus change in inventories (i.e., the difference in the cattle population at the end and the beginning of the year), plus net export of cattle. Data on slaughtering and the cattle population were available from the Directorate General of Livestock and Animal Husbandry, and export data came from the CBS. The above product was valued at wholesale prices (source: CBS). The trade margins and transport costs were 25.91% (source: SAS). To avoid underestimation and to cover the by-products, a mark-up of 5% of the value of production was added.

1-031. Milk Cows Raising

Scope and definition:

The main product of this sector is fresh milk. To make calculations easier, the production of young stock, dung, etc., are covered in the previous sector (Cattle Raising).

Source of data and method of estimation:

Data on the production of fresh milk was obtained from the Directorate General of Livestock and Animal Husbandry, and the data on retail prices was from the CBS. The trade margins and transport costs were estimated at 85.49% of the producers' price (source: SAS). The input structure of this sector was based on the results of surveys undertaken by the Directorate General of Livestock and Animal Husbandry.

1-032. Other Livestock

Scope and definition:

This sector covers the breeding of buffaloes, goats, sheep, pigs, horses, etc. The main products are the breeding stock and the by-products are the dung.

Source of data and method of estimation:

Data on the slaughtering of buffaloes, pigs and that on the population of buffaloes, goats, sheep, pigs, and horses was from the Directorate General of Livestock and Animal Husbandry. This data on the slaughtering of sheep and goats were underestimates compared with information on hides exported, so the slaughtering data was derived from the export data on hides. The prices used here were generally wholesale prices compiled by the CBS. The trade margins and transport costs were 16.18% of the producer's prices for buffaloes, 26.26% for sheep and goats, 21.29% for pigs, and 20.86% for horses. The data was obtained from the Price Survey for National Income Estimation (PSNI). To cover any under-estimation and also the by-products, a 5% mark-up was made for buffaloes, pigs, sheep and goats, these percentages and input structure were from the SAS, Directorate General of Livestock and Animal Husbandry and IPB.

1-033. Slaughtering

Scope and definition:

Included in this sector are all activities relating to slaughtering. The output covers fresh meat, intestines, bones, hides, etc.

Source of data and method of estimation:

The sources of data were IS-1971-CBS, "Food Balance Sheet, 1971", NSES, and the Direc-

torate General of Livestock and Animal Husbandry. The calculations of output were based on the domestic consumption, i.e., the consumption of fresh meat and the intermediate consumption by the canned (corned) beef industry, dried and fried meat industries, etc.

The input structure was from the IS-1971-CBS and some other animal husbandry surveys, with some adjustments.

1-034. Poultry

Scope and definition:

This sector includes the breeding of various kinds of fowls such as domestic chickens, imported chickens, ducks, manila ducks, swans, etc. The main product is the population growth during the year. The by-products are not included here, but in the next sector on poultry products.

Source of data and method of estimation:

The types of fowls which could be covered in the calculations are chickens and ducks. The number of chickens slaughtered was estimated from consumption (source: NSES). It was assumed that the weight of one living fowl is 1 kg and that the stock is equal to the difference between the number of fowls in 1970 and 1971 (source: Directorate General of Livestock and Animal Husbandry).

The valuation of chickens was based on retail prices (source: CBS), and trade margins and transport costs of 32.49% were used (source: SAS). Slaughtering and the stock of ducks were obtained from the Directorate General of Livestock and Animal Husbandry, the valuation here was also based on retail prices (CBS) with trade margins and transport costs of 32.44% (source: SAS). The intermediate input of this sector was obtained from Directorate General of Livestock and Animal Husbandry. To avoid under-estimation a mark-up of 5% was made.

1-035. Poultry Products

Scope and definition:

This sector covers all products resulting from the raising of fowls except for the young fowls and their growth. The products are eggs, feathers and excreta.

Source of data and method of estimation:

Data on chicken and duck eggs and the input structure were from the Directorate General of Livestock and Animal Husbandry. The by-products were calculated to be 5% of the value of the output and of the increase in stock for chicken and ducks. To assign a value to egg production, retail prices (CBS) were used, with trade margins and transport costs of 45.74%.

1-036. Logging

Scope and definition:

This sector covers logging done outside as well as in the forest. The main products are logs, firewood, and charcoal. Sawmilling, i.e., making boards, rafters, roof-laths, etc., is not included in this sector.

Source of data and method of estimation:

Production data on wood from forest areas was obtained from the Directorate General of Forestry, but no data was available for that outside the forests. Hence, for the latter, indirect methods of estimation was adopted. One method adopted was based on data of wood production by smallholders collected by the Forest Service in 1964 when it amounted to 2,271,000 cubic meters. The figure for 1971 was estimated by using data on the number of households (source: Population Census, 1971), with the assumption that the production of wood by smallholders in Java and Madura is inversely related to the number of households; if the latter is n times larger,

the production of wood by smallholders is n times smaller. This, however, is not the case outside Java and Madura, where the relationship seems to be directly proportional. To arrive at the value of production, data on wholesale prices (CBS) collected for the Regional Income Estimation and from Perhutani (State Enterprise on Forestry) were used. Trade margins and transport costs were 79.72% of the producer's price (SAS). The calculation of the value of production for firewood was almost the same as for wood production, but a slight adjustment was made by taking into account the consumption of kerosene. The value of kerosene consumption was derived from the domestic sales statistics of Pertamina (the State Oil Enterprise). The production of charcoal was estimated from consumption and assumed to be equal to the per capita value of consumption multiplied by the population. To value the production, the producer's price obtained from Perhutani was used. The input structure was also based on information from Perhutani.

1-037. Sawmilling in Forests

Scope and definition:

This sector covers various logging activities, such as the splitting and sawing of wood, by wood factories within the forest boundaries. The products are blocks, boards, rafters, roof-laths, flattened wood for floors, etc. Splitting and sawing activities which occur outside the forest boundaries are not included here.

Source of data and method of estimation:

Data obtained from the Directorate General of Forestry, Perhutani, and IS-1971-CBS have been used. The output as well as input structure were both adjusted.

1-038. Bamboo

Scope and definition:

The main product of this sector is bamboo stalk grown both outside and inside forest boundaries. The by-product is the bamboo sprout.

Source of data and method of estimation:

A problem in estimating the value of bamboo production was raised by a lack of information, especially for bamboo produced outside forest areas. The 1963 figure for production from the Forestry Service (350,000,000 stalks of smallholder's bamboo) has been used as a base for further projection, using a set rate of growth of bamboo cutting (Bamboo Survey, March 1973). The 1973 survey also supplied the information that the ratio of sprout consumption to sprouts left alive is 8.10% for Java and Madura and 4.80% for outside Java. Both the bamboo from the jungle and that from the smallholders were valued at the wholesale price (CBS) with trade margins and transport costs of 22.75% for bamboo and 47.06% for the sprouts (SAS). The price of bamboo sprouts was estimated at 50% of the price of bamboo (source: Bamboo Survey 1973). These percentages and input structure were from the SAS.

1-039. Other Forest Products

Scope and definition:

This sector covers forest products not classified elsewhere. The products are rattan, all kinds of resins (benzoin, torch, turpentine, incense, etc.), various kinds of leaves such as nipah and nibung (*oncosperma filamentosum*), barks, roots, etc. The non-recreational hunting of deer, pigs and crocodiles is also included.

Source of data and method of estimation:

In fact, there are many products to be considered as other forest products and products of hunting, but due to lack of information a complete calculation could be made only for rattan

and the other products have been lumped together under "others".

Production data on rattan was obtained from the Directorate General of Forestry, and data on price is from the Regional Income Estimates (CBS). Trade margins and transport costs for rattan were estimated at 79.72% (source: SAS). Data on prices as well as on production for items under "others" were obtained from export statistics and the national income estimates. The input structure of this sector was obtained from the Directorate General of Forestry and from Perhutani.

1-040. Marine Fishing

Scope and definition:

The products of this sector are fresh fish and other sea products.

Source of data and method of estimation:

The Directorate General of Fishery compiles production statistics on marine fishing every year, including 1971. The data for 1972 provided not only for the quantity of production of various fishes by province but also the values at producer's prices. To arrive at the 1971 prices, the price index of salted fish in various cities was used and extrapolated. The input structure was from Fishery Census 1973.

Note: The problem in this sector is that fishing is done not only within the boundaries of a country but also on the open sea. To avoid ambiguity and to adhere to the definition above, production covers not only fish from Indonesian territorial waters whether caught by Indonesians or not but also activities by Indonesians on the open sea outside Indonesian territorial waters. Fish that are directly canned (sardines) or otherwise preserved, as in dried or salted fish, are not included in this sector.

1-041. Inland Fishing

Scope and definition:

This sector covers fishing and raising fish in inland waters. The main products are fresh fish, fresh frogs, etc. Inland fishery is divided into the following three groups according to location:

- (1) Fish culture in fresh water such as ponds and wet paddy fields.
- (2) Fish culture in seawater.
- (3) Fishing in open waters such as rivers, swamps, reservoirs, etc.

Source of data and method of estimation:

The source of data, as well as the method of estimation, was the same as those for marine fishery.

1-042. Fish Salting and Drying

Scope and definition:

What is meant here by the preservation of fish is the drying and salting of fish and the like. The products consists of dried fish, salted fish, dried shrimp, dried jelly-fish, etc. The canning of fish and the preparation of fish-paste (terasi) are not included in this sector.

Source of data and method of estimation:

The source of data is IS-1971-CBS. The input structure as well as the output deviate slightly from the original information due to adjustments which were made.

3. MINING AND QUARRYING (Input-Output Code: 2-043 to 2-054)

Mining and quarrying covers drilling, quarrying, washing, grading, and extracting all minerals occurring naturally in the form of solids, liquids or gases. The activities excluded from the scope of mining and quarrying are:

- (1) Crushing, pulverizing, smelting, and other processing of primary mineral products not undertaken in conjunction with mining and quarrying activities (these are included under manufacturing).
- (2) Development and preparation of mining sites performed on a contract or fee basis (these are included under construction).
- (3) The purification and distribution of water (these are included under water supply and works).
- (4) The exploration and prospecting for minerals usually carried out by consultant organizations (these are included under business services).

The output of mining and quarrying is generally valued at the producer's price, as follows:

$$x_i = q_i \times p_i$$

where: x_i = Value of output of mining sector i.

q_i = Quantity of output of sector i.

p_i = Producer's price of output of sector i.

The method above has been adopted except for stone quarrying, sand quarrying, salt evaporation and the like where there is an absence of production information.

The input structure of mining and quarrying activities was generally valued at the purchaser's prices based on the Annual Mining Survey (AMS), the Industrial Census in 1974 and the Special Quarrying Survey (SQS).

In the present table, mining and quarrying activities are classified into 12 sectors.

2-043. Coal Mining

Scope and definition:

This sector covers mining for coal and its concentrates to produce coal, anthracite, lignite and natural coke. Also included here is the agglomeration of coal and lignite into briquettes and other package fuels at the mining sites. Excluded from this sector is the manufacture of briquettes.

Source of data and method of estimation:

Quantity of output was obtained from the "Annual Report of Mining, Indonesia" (ARMI) published by the Ministry of Mining, and the price used is the shipment price.

The input structure was derived from the AMS.

2-044. Crude Petroleum and Natural Gas Mining

Scope and definition:

Included in this sector are the production of crude petroleum and natural gas: the drilling, completing and equipping of wells on own account; the operation of separators, emulsion breakers, and distilling equipment; and topping and other activities involved in making oil and gas marketable up to the point of shipment from the production area

Source of data and method of estimation:

The quantity of crude petroleum production has been obtained from the "Annual Report of Pertamina", which covers production by Caltex, Stanvac, Pertamina, and others. The price of

crude petroleum used here is the average transaction price of each enterprise.

The quantity of natural gas has also been obtained from the "Annual Report of Pertamina", and the Stanvac domestic sales price was used for valuation.

The input structure of crude petroleum and natural gas were derived from the AMS.

2-045. Iron Ore Mining

Scope and definition:

This sector covers the extraction of iron sand.

Source of data and method of estimation:

The quantity of production was obtained from the ARMI, and the F.O.B. price was used for valuation.

The input structure was derived from the AMS.

2-046. Tin Ore Mining

Scope and definition:

This sector covers extracting, dredging, and squirting of deposits which contain tin concentrate. The production is tin ore. The smelting of tin ore to produce metal by tin smelting establishments is not covered here, but rather under manufacture.

Source of data and method of estimation:

The quantity of production was obtained from the ARMI, and the valuation was based on the F.O.B. price and the input price of tin manufacturing.

The input structure was derived from the AMS.

2-047. Nickel Ore Mining

Scope and definition:

This sector covers the extraction of deposits containing nickel concentrate. The product is nickel ore.

Source of data and method of estimation:

The quantity of production was obtained from the ARMI, and the F.O.B. price was used for valuation.

The input structure was derived from the AMS.

2-048. Bauxite Mining

Scope and definition:

This sector covers the extraction and dredging of deposits which contain bauxite concentrate. The product is bauxite ore.

Source of data and method of estimation:

The quantity of production was obtained from the ARMI, and the F.O.B. price was used for valuation.

The input structure was derived from the AMS.

2-049. Other Non-Ferrous Metal Ore Mining

Scope and definition:

Included in this sector are mining for gold, silver, manganese, platinum and other ores.

- (1) Gold ore: The extraction of sediments which contain gold concentrate. The product is gold ore.
- (2) Silver ore: The extraction of sediments which contain silver concentrate.

- The product is silver ore.
- (3) Manganese ore: The extraction of manganese ore. The product is manganese ore containing high-bearing ore.
- (4) Copper ore: The extraction of deposits which contain copper concentrate. The product is copper ore.
- (5) Platinum ore: The extraction of mineral ores which contain platinum concentrate. The product is platinum ore.

Source of data and method of estimation:

Of the commodities in this sector, complete information is available only for gold, silver, and manganese ore. The quantities of gold, silver, and manganese ore produced were obtained from the ARMI. The prices of gold and silver ores were the input prices of the manufacturing sectors. For manganese ore the F.O.B. price was used.

The input structure of these ores were derived from the AMS.

2-050. Quarrying

Scope and definition:

This sector covers the quarrying and extraction of stone, sand, limestone, clay, marble, which occurs underground or on the surface.

Source of data and method of estimation:

Due to the lack of production information, the output of this sector was estimated from demand.

The input structure was obtained from the SQS.

2-051. Chemical and Fertilizer Mineral Mining

Scope and definition:

This sector covers the extraction of minerals which contain chemical and fertilizer materials such as iodine, sulphur, and phosphate.

Source of data and method of estimation:

Due to the lack of production information for this sector, the output was estimated on the basis of the inputs of the manufacturing sectors.

The input structure was based on the SQS.

2-052. Salt Evaporation

Scope and definition:

This sector covers the evaporation, screening of sea water. The product is crude salt (evaporated salt). The refining of crude salt for edible purposes, as in the production of brick salt, table salt, and the like, which is not done in conjunction with evaporation is not included here, but under manufacturing.

Source of data and method of estimation:

There is no information on production for this sector. Hence, the output was estimated from demand.

The input structure was based on the SQS.

2-053. Asphalt Mining

Scope and definition:

This sector covers the extraction of deposits which contain bitumen. The product is natural asphalt.

Source of data and method of estimation:

The quantity of production was obtained from the ARMI, and the domestic shipment price was used for valuation.

The input structure was derived from the AMS.

2-054. Other Non-Metallic Mineral Mining

Scope and definition:

This sector covers the quarrying and extraction of minerals not covered in the sectors above. The main products are diamonds, gypsum, and asbestos.

Source of data and methods of estimation:

Since production information for this sector was not available, output was estimated from demand.

The input structure was based on the SQS.

4. MANUFACTURING

(Input-Output Codes: 3-055 to 3-132)

Manufacturing is defined as the mechanical or chemical transformation of organic or inorganic substances in the form of either raw materials or semi-finished goods into new products. This transformation process covers all activities whether the work is performed by power-driven machines or by hand. Included is production carried out by large, medium and small scale establishments as well as households.

Included in the manufacturing sector are the processing and preserving of meat, fish, fruit and vegetables; the processing of tea, coffee and coconut oil; sugar refining, rice milling and polishing performed by machinery in factories; petroleum refining; smelting of metal ore; the assembling and repair of motor vehicles; and industrial machinery. Also included are sawmills and wood processing in factory units using machinery, separate from wood cutting in forests.

The main sources of information on manufacturing are the "Report of the Annual Survey of Large and Medium Manufacturing Establishments" and the "Report of the Survey on Small Scale Manufacturing and Handicraft" which are periodically published by the CBS. In addition, supplementary information was obtained from various government or private agencies in the form of publications, bulletins or other printed materials, both published and unpublished. Further, several documents of the Industrial Census of 1974 were used to obtain the input structure for some of the sectors.

Information available from the two main sources cited above is essentially based on establishment as the reporting unit. Since classifications are based on activities in this Input-Output Table of Indonesia 1971, especially in respect to the manufacturing sectors, adjustments were made from establishment information into the corresponding activities.

The output of the manufacturing sectors also includes by-products which are technologically produced together with the characteristic products. Processing services rendered to others and other revenues are also included in the output of the sector. This treatment was adopted due to the limited details of information on miscellaneous revenue.

By-products and subsidiary products were transferred to other sectors where they are the characteristic product. For example, coconut cake is a by-product which is produced as a result of the production of coconut oil or cooking oil from copra; and therefore it is placed in the coconut oil sector. On the other hand, if some of these establishments also produce soap as a secondary product, this soap is transferred to the sector of soap manufacture.

By adoption of the above treatment, detailed input structures of the group of establishments were carefully examined to arrive at the proper input structures of the different sectors.

The control total of output as well as that for input structure derived from the above procedures were further revised and adjusted taking into account the supply and demand of manufactured products and exports and imports.

The manufacturing activities are grouped into 78 sectors from input-output sector 3-055 up to 3-132. Following are the detailed sectoral descriptions of scope and definition, source of data, and the method of estimation which were adopted.

3-055. Canning and Preserving Meat

Scope and definition:

The processing and preserving of meat, except an output of the slaughtering sector, are included in this sector. The products of the sector are dendeng (dried meat), abon, canned beef, canned pork, sausages and other preserved meats.

Source of data and method of estimation:

The value of output and the input structure were obtained from the CBS publication, "Re-

port of the Annual Survey of Large and Medium Manufacturing Establishments 1971" (IS-1971-CBS).

3-056. Dairy Products

Scope and definition:

This sector covers the production of food items from milk. Products are milk and cream, condensed or powdered, butter and cheese.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS.

3-057. Canning and Preserving of Fruits and Vegetables

Scope and definition:

This sector covers the processing and preserving of fruits and vegetables by canning, freezing, drying and bottling. The products of the sector are dried, frozen and canned fruits and vegetables; bottled fruits and vegetables; fruit and vegetable juices; jams, marmalades, jellies and so forth.

Source of data and method of estimation:

The value of output and the input structure were obtained from IS-1971-CBS.

3-058. Canning and Preserving of Fish and Other Sea Food

Scope and definition:

This sector covers the freezing, canning and preserving of seafood. The products are canned fish, salted and dried fish, terasi (fish paste), petis (fish sauce), frozen shrimps, and other processed and preserved seafood.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS.

3-059. Coconut Oil and Cooking Oil

Scope and definition:

This sector covers the extraction of coconut oil and the production of refined cooking oil in factories. The products are cooking oil, coconut cake, and residue of coconut oil. (glendo/blendo).

Source of data and method of estimation:

The value of output and the input structure were obtained from IS-1971-CBS.

3-060. Other Vegetables and Animal Oils and Fats

Scope and definition:

This sector covers the factory production of cooking oil from raw materials other than copra. Also included here is the production of all animal oils and fats. The products of the sector are the refined palm oil, margarine, peanut oil, peanut butter, other vegetable and animal oils and fats, and their by-products.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS.

3-061. Rice Milling, Cleaning and Polishing

Scope and definition:

This sector covers rice milling, cleaning and polishing carried out in factories with machinery. The products are polished rice, rice bran, broken rice and husk.

Source of data and method of estimation:

The quantity of rice production was obtained from IS-1971-CBS and SSMH-1971-CBS. For valuation, the producer's price was used. The estimates of household consumption expenditure from NSES were also taken into account. The input structure was then obtained from these sources with suitable adjustments.

3-062. Wheat Flour and Other Grain Mill Products

Scope and definition:

This sector covers the grinding of wheat and other grains and other grain milling. The products are wheat flour, maize flour, milled corn, corn-husks and other flour and other grain mill products.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS.

3-063. Sugar Refining

Scope and definition:

This sector covers the manufacture of refined sugar cane in factories as well as the production of other kinds of sugar. The products of this sector are cane sugar, molasses, powdered sugar, crude sugar, raw sugar, crystal sugar, syrups of all kinds, and sugar waste.

Source of data and method of estimation:

Value of output and the input structure were both derived from IS-1971-CBS.

3-064. Bread and Bakery Products

Scope and definition:

In this sector, the production of bread and bakery products are covered. The products of the sector are bread, biscuits and other bakery products.

Source of data and method of estimation:

Value of output was obtained from IS-1971-CBS and SSMH-1971-CBS. The input structure was derived from IS-1971-CBS.

3-065. Noodle, Macaroni and Similar Products

Scope and definition:

This sector covers the production of dry or wet noodles, macaroni, and similar products.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS. Adjustments were made on the basis of the results of the Special Survey on Trade, Hotels and Restaurants.

3-066. Cocoa, Chocolate and Sugar Confectionery

Scope and definition:

This sector covers the production of all food items made from cocoa as well as sugar confectionery. The products consist of cocoa powder, chocolate and chocolate products, cocoa butter, sugar confectionery, and the like.

Source of data and method of estimation:

Value of output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS.

3-067. Coffee Grinding

Scope and definition:

This sector covers coffee processing (roasting, grinding, etc.) carried out by factories. The products are roasted coffee and coffee powder, both fine and coarse.

Source of data and method of estimation:

Estimates of value of output and the input structure for this sector were derived from IS-1971-CBS.

3-068. Tea Processing

Scope and definition:

This sector covers tea processing carried out by factories. The product of this sector is factory processed tea, either packed or loose. Simple household processed tea is excluded from this sector and included in the agricultural sector.

Source of data and method of estimation:

Both value of output and the input structure were obtained from IS-1971-CBS, and adjustments to the total output were made to account for underreporting.

3-069. Soybean Products

Scope and definition:

This sector covers the production of food items from soya beans. The products consist of soya sauce, bean cakes (tahu, tempe), etc.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS and SSMH-1971-CBS. To compensate for the underestimation of production, adjustments were made based on domestic consumption.

3-070. Other Food Products, not elsewhere classified

Scope and definition:

This sector covers the production of food articles not elsewhere classified. The products consist of krupuk of all kinds, table salt, ice, ice cream, sauces of all kinds such as tomato and chilli sauce, dodol, roasted peanuts, prepared animal feed, etc.

Source of data and method of estimation:

The output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS, and adjustments to the output were made on the basis of information on private domestic consumption from NSES.

3-071. Alcoholic Beverages

Scope and definition:

This sector covers the production of alcoholic beverages. The products consist of ethyl alcohol, arrack, whisky, wine, beer, etc.

Source of data and method of estimation:

Value of output of this sector was based on information from IS-1971-CBS and SSMH-1971-CBS. The input structure was also obtained from these sources.

3-072. Soft Drinks and Carbonated Water

Scope and definition:

The production of non-alcoholic beverages for direct consumption without dilution or mixing are included in this sector. The products of this sector are soft drinks of all kinds, carbonated soda water, etc.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS and SSMH-1971-CBS. The output was also based on information on private consumption expenditure.

3-073. Cigarettes

Scope and definition:

Included in this sector are the production of cigarettes and other tobacco products such as white cigarettes, clove cigarettes (kretek), and cigars. Also included here is tobacco processing carried out by factories. The products consist of white cigarettes and clove cigarettes, cigars and other tobacco products.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS and SSMH-1971-CBS.

3-074. Spinning Industries

Scope and definition:

This sector covers the spinning of fibers such as cotton, sisal, cocoon, and silk. Also included is the spinning of synthetic and artificial fibers such as polyamide and polyvenil. The products consist of cotton yarn, silk yarn, synthetic yarn, mixed cotton yarn, thread of all kinds, etc.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS and SSMH-1971-CBS.

3-075. Weaving Industries

Scope and definition:

The weaving industry covers the transformation of yarn into cloth and textiles. The use of automatic and semi-automatic machinery in factories as well as traditional handicrafts using handlooms in the household are covered here. The products are all kinds of textiles.

Source of data and method of estimation:

To obtain the value of total output of this sector, upward adjustments were made to the information available from IS-1971-CBS and SSMH-1971-CBS since both of these sources were considered to have a downward bias. The input structure was derived from IS-1971-CBS.

3-076. Textile Bleaching, Printing, Dyeing and Finishing, excluding Batik

Scope and definition:

This sector covers the bleaching, printing, dyeing and finishing of uncolored textile goods or yarn. The products are all kinds of bleached, colored, and finished yarn and fabrics.

Source of data and method of estimation:

Value of output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS with adjustments made upward.

3-077. Batik Industries

Scope and definition:

The batik industry involves the production of batik. All kinds of batik products, whether usable directly or indirectly, are covered in this sector.

Source of data and method of estimation:

Value of output and input structure were derived from IS-1971-CBS and SSMH-1971-CBS. Considering the large scope of this activity in Indonesia, it was felt that the information from both sources was underestimated. Based on the observed inequality between domestic demand and supply, upward adjustments were made to the output.

3-078. Knitting Industries

Scope and definition:

The knitting industry covers the production of knitted wearing apparel. The products of this sector are athletic shirts, T-shirts, other knitted shirts, socks, men's briefs, etc.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS and SSMH-1971-CBS.

3-079. Made-up Textile Goods, excluding Wearing Apparel

Scope and definition:

This sector covers the production of finished textile goods, excluding wearing apparel. The products of this sector consist of mattress covers, towels, blankets, bed-sheets, mosquito nets, pillow covers, draperies and laces, sails, table cloths, linens, etc.

Source of data and method of estimation:

Both IS-1971-CBS and SSMH-1971-CBS underestimate the total output of this sector. Therefore, the output was adjusted based on the supply of raw materials available for this sector and the demand for the goods produced. The input structure was derived from the two sources cited above.

3-080. Wearing Apparel, excluding Footwear

Scope and definition:

This sector covers the production of wearing apparel, excluding footwear, for men, women and children. The products consist of suits, coats, jackets, sweaters, trousers, shirts, dresses, blouses, slacks, shorts, underwear, skirts, caps, hats, and so forth.

Source of data and method of estimation:

The sources of data for this sector also were IS-1971-CBS and SSMH-1971-CBS.

3-081. Carpets, Rugs, Ropes and Others

Scope and definition:

This sector covers the production of carpets, rugs, ropes, and the like. The products consist of carpets of wool or other materials, rugs of all kinds, gunny bags, ropes, fish nets, etc.

Source of data and method of estimation:

Value of output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS.

3-082. Tanneries and Leather Finishing.

Scope and definition:

The tanning and processing of animal hides and skins are included here. The products of this sector are leather of cow, buffalo, sheep, goat, and other kinds of leather.

Source of data and method of estimation:

The input structure was obtained from IS-1971-CBS. The value of output was estimated based on the supply of raw hides from the animal slaughtering sector and on the demand for processed leather.

3-083. Leather Products, excluding Footwear

Scope and definition:

This sector covers the production of leather goods except for footwear. The products consist of belts, purses and handbags, luggage and similar items.

Source of data and method of estimation:

The sources for the input and the output of this sector were IS-1971-CBS for large and medium establishments and SSMH-1971-CBS for small-scale establishments and cottage industries.

3-084. Footwear of Leather

Scope and definition:

Included in this sector is the production of footwear from leather for men, women and children. The products consist of shoes, sandals, slippers, and the like.

Source of data and method of estimation:

The estimate of the total output was from demand, with suitable allowance made for the import and export of these commodities. The input structure was derived from IS-1971-CBS.

3-085. Sawmills, Planning and Other Wood Processing

Scope and definition:

This sector covers the sawing and processing of wood performed in factories using machinery and independent of the cutting of wood in the forest. The products consist of all kinds of sawn wood, plywood, and preserved wood.

Source of data and method of estimation:

Information on value of output and the input structure was initially derived from IS-1971-CBS, and adjustments were made on the basis of demand by manufacturing, construction, and so on.

3-086. Wood and Cork Products

Scope and definition:

This sector covers the production of wood and cork products of all kinds. Also included here are handicraft products made of bamboo, rattan, cork, etc. The products of this sector are wooden boxes and containers; rattan and bamboo baskets; wood, rattan and bamboo handicrafts; cork products; and similar items.

Source of data and method of estimation:

Value of output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS, with some minor adjustments.

3-087. Furniture and Fixture, excluding Primarily of Metal

Scope and definition:

This sector covers the production of furniture and fixtures, excluding those made primarily of metal. The products consist of tables and desks, chairs, wardrobes and shelves, sofas, beds, etc.

Source of data and method of estimation:

Value of output and the input structure were obtained from IS-1971-CBS and SSMH-1971-CBS with some minor adjustments.

3-088. Pulp, Paper and Cardboard

Scope and definition:

This sector covers the production of pulp, paper, and cardboard. The products of the sector are pulp, writing and printing paper of all kinds, wrapping paper, cardboard, and the like.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS.

3-089. Paper Products

Scope and definition:

This sector covers the production of paper and cardboard finished products of all kinds. The products consist of all kinds of paper and cardboard boxes, bags and containers, etc.

Source of data and method of estimation:

Estimates of value of output and the input structure were derived from IS-1971-CBS, and adjustments were made to the total output based on information on consumption and imports to compensate for undercoverage in this survey.

3-090. Printing, Publishing and Allied Industries

Scope and definition:

This sector includes printing, bookbinding, printing the publication of books and mass publications, and the production of business forms. The products of this sector are books, stationery, labels, newspapers, magazines, business forms, envelopes, etc.

Source of data and method of estimation:

Information available from IS-1971-CBS on value of output was found to be inadequate, particularly in respect of medium and small establishments, so adjustments were made to it. The input structure was derived from IS-1971-CBS.

3-091. Basic Industrial Chemicals, excluding Fertilizers

Scope and definition:

This sector covers the production of basic industrial chemicals in the form of solids, liquids or gases. The products consist of oxygen, carbonic acids, carbon dioxide as a gas form or as dry ice, caporit, ammonia, caustic soda, chloric acid, methyl alcohol, resins, etc.

Source of data and method of estimation:

Both total value of output and the input structure were derived from IS-1971-CBS.

3-092. Fertilizers and Pesticides

Scope and definition:

This sector covers the production of all kinds of chemical fertilizers and pesticides. The pro-

ducts of this sector are urea (potassic fertilizer), phosphate fertilizers, nitrogenous fertilizers, and pesticides of all kinds.

Source of data and method of estimation:

Total value of output and the input structure were derived from IS-1971-CBS.

3-093. Paints, Vernishes and Lacquers Industries

Scope and definition:

Included in this sector is the production of paints, varnishes, lacquers and similar products. The products consist of water and cellulose paints, oil paints, varnishes, lacquers, and all other kinds of paints.

Source of data and method of estimation:

Value of output and the input structure were derived from IS-1971-CBS, and adjustments were made to the output based on the demand for production.

3-094. Drugs and Medicines Industries

Scope and definition:

This sector includes the production of drugs and medicines including traditional medicines. The products of this sector consist of tablets, capsules and liquid medicines; medicines for injection; powder, syrup and analgesic medicines; and traditional medicines of all kinds.

Source of data and method of estimation:

Value of output was obtained from IS-1971-CBS and SSMH-1971-CBS, while the input structure was derived from IS-1971-CBS. An upward adjustment of the estimates for output was made particularly for native or traditional medicines, which are mostly produced by cottage industry.

3-095. Soap and Cleaning Preparations Industries

Scope and definition:

This sector covers the production of soaps, tooth paste and detergents. The products consist of bath and toilet soaps, washing soaps, detergents, tooth paste, etc.

Source of data and method of estimation:

IS-1971-CBS and SSMH-1971-CBS were the main sources of information for the value of output and the input structure. Adjustments were made since many establishments are producing these items as subsidiary products.

3-096. Cosmetics Industries

Scope and definition:

This sector covers the production of cosmetic articles. The products consist of perfumes, pomade, hair lotion, shampoo, face powder, talcum powder, and other cosmetic articles in liquid or solid form.

Source of data and method of estimation:

The main source of data for value of output and the input structure was IS-1971-CBS. Adjustments were necessary based on information on demand for the products of this sector.

3-097. Matches Industries

Scope and Definition:

This sector covers the production of matches. The products consist of all kinds of matches

made of wood or paper.

Source of data and method of estimation:

Information on value of output and the input structure of this sector were derived from IS-1971-CBS.

3-098. Other Chemical Industries

Scope and definition:

This sector covers the production of chemical products not covered in the other sectors. The products of this sector are disinfectants such as carbolic, creolin, shoe and other polishes, photographic films and paper, carbon paper, essences, etc.

Source of data and method of estimation:

The source of data for value of output and the input structure was IS-1971-CBS.

3-099. Petroleum Refining

Scope and Definition:

This sector covers the processing and refining of crude oil. The products of the sector are gasoline, kerosene, aviation fuel, diesel oil, lubricants and greases, LPG, residues oil, asphalt and other residues of oil refining.

Source of data and method of estimation:

The quantities of commodities produced were obtained from PERTAMINA, the oil state enterprise carrying out oil refining in Indonesia. The price used here was the reported price at the first stage of transaction from the refinery to the distributors. The input structure was derived from the same source and adjusted on the basis of comparisons with the input structures of other refineries.

3-100. Other Petroleum and Coal Products

Scope and definition:

This sector covers the production of such items as paraffin and tar from crude petroleum and coal.

Source of data and method of estimation:

Data for the output and the input structure was obtained from the processing factories.

3-101. Tyres and Tubes Industries

Scope and definition:

This sector covers the production of all kinds of tyres and tubes. The products are tyres and tubes for cars, trucks, motorcycles, bicycles and for other kinds of vehicles, made of natural rubber or synthetic rubber.

Source of data and method of estimation:

IS-1971-CBS was the main source of information both for value of output and the input structure.

3-102. Other Rubber Products

Scope and definition:

The production of other rubber products is covered here. The products of this sector consist of rubber footwear, foam rubber, rubber compounds of all kinds, rubber sheets and plates, rubber pipes and tubes, ebonite, etc. Products made of synthetic rubber are also included here.

Source of data and method of estimation:

Information on both the value of output and the input structure was obtained from IS-1971-CBS and SSMH-1971-CBS and suitable adjustments were made.

3-103. Plasticware

Scope and definition:

This sector covers the production of plasticware. The products are tooth brushes, plastic ropes, plastic bags, utensils, plasticware for industrial use, plastic toys, plastic sheets and plates, cloth hangers, hair combs, and all other kinds of plasticware.

Source of data and method of estimation:

As in the case of the sectors above, the main source of the value of output and the input structure was IS-1971-CBS. However, adjustments were made to insure consistency between the demand for the products of the sector and the supply of raw materials for production.

3-104. Ceramics and Earthenwares

Scope and definition:

This sector covers the production of ceramic and earthenwares. The products are ceramic household wares, earthen household wares, ceramic and earthenwares for industrial use, sanitary ceramic fittings, ceramic electrical goods, etc.

Source of data and method of estimation:

Total value of output and the input structure were derived from IS-1971-CBS.

3-105. Glass and Glass Products

Scope and definition:

This sector covers the production of glass and glass products for household, industrial or construction use. The products of this sector consist of bottles and other glass containers, drinking glasses, sheet glass, chimneys for lamps, and other glass products.

Source of data and method of estimation:

Information on value of output was taken from IS-1971-CBS and then adjustments were made to compensate undercoverage. The input structure was also derived from IS-1971-CBS.

3-106. Structural Clay Products

Scope and definition:

This sector covers the production of structural products of clay and cement. The products consist of bricks, roof and floor tiles, slates, pipes and similar products.

Source of data and method of estimation:

IS-1971-CBS and SSMH-1971-CBS were the basic sources of information for value of output and the input structure. However those sources are subject to undercoverage, so adjustments in the value of output were made based on the input of the construction sector.

3-107. Cement

Scope and definition:

The production of cement and lime is covered here. The products are cement and lime.

Source of data and method of estimation:

The quantity of cement production was obtained from the Ministry of Industries, while the producer's price and the input structure were derived from IS-1971-CBS. Value of output and

the input structure of lime production were derived from IS-1971-CBS and SSMH-1971-CBS, with the estimate of output adjusted upward based on information on input in the construction sector.

3-108. Other Non-Metallic Mineral Products

Scope and definition:

This sector covers the production of non-metallic mineral products not elsewhere classified. The products consist of gypsum, asbestos, caolin, eternite sheets, and the like.

Source of data and method of estimation:

Information from IS-1971-CBS and SSMH-1971-CBS on value of output were adjusted for undercoverage. The input structure was also derived from these sources.

3-109. Iron and Steel Basic Industries

Scope and definition:

This sector covers the smelting and processing of iron and steel. The products include pig iron, processed iron scrap, steel ingots, ferro-alloys, steel pipes and tubes, steel plates, iron and steel castings and forgings.

Source of data and method of estimation:

Information for this sector was not readily available. Hence, the total output was estimated based on the demand for production.

3-110. Non-Ferrous Basic Metal Industries

Scope and definition:

This sector covers the smelting and processing of non-ferrous metal ores for the production of metal. The products consist of tin bars; the precious metals, gold and silver; and other non-ferrous metals such as zinc, aluminium, and copper.

Source of data and method of estimation:

IS-1971-CBS was the main source of information for the value of output of this sector, except for tin smelting and gold and silver refining. The quantity of production of tin, gold and silver was obtained from 'Mining Statistics' (periodically published by the Ministry of Mining), while prices available from the CBS were used for valuation. The input structure was derived from the returns of the Industrial Census of 1974.

3-111. Cutlery, Hand Tools and General Hardware

Scope and definition:

This sector covers the production of cutlery, hand tools, and other implements and tools made of iron, steel or other metals. The products of this sector consist of agricultural implements, cutlery, hand tools and other implements and tools.

Source of data and method of estimation:

Total value of output and the input structure were derived from IS-1971-CBS with supplementary information from the CBS.

3-112. Furniture and Fixtures Primarily of Metal

Scope and definition:

This sector covers the production of furniture and fixtures made primarily of metal. The products consist of tables, chairs, desks, wardrobes, shelves, beds and other metal items.

Source of data and method of estimation:

The basic sources of information were the IS-1971-CBS and supplementary information available from the CBS.

3-113. Structural Metal Products

Scope and definition:

This sector covers the production of structural metal products. The products of this sector are the structural components of bridges and buildings, tanks and boilers, lattices, and other structural metal products made of iron or steel.

Source of data and method of estimation:

The main sources of data are IS-1971-CBS and SSMH-1971-CBS with necessary adjustments.

3-114. Other Fabricated Metal Products

Scope and definition:

Included under this sector is the production of other fabricated metal products such as nails, tin containers, cables and wires, screws, bolts and nuts, drums, cans, pans, and plates.

Source of data and method of estimation:

The basic information was from IS-1971-CBS and SSMH-1971-CBS. The value of output and the input structure were derived through procedures similar to those described above.

3-115. Non-Electrical Machinery

Scope and definition:

This sector covers the production of all non-electrical machinery. The products consist of engines and turbines; agricultural machinery; metal, wood working and other industrial machinery; office, computing and accounting machinery; spare parts, etc.

Source of data and method of estimation:

The only source of information is IS-1971-CBS. Due to the limitations of this information, adjustments were made for the estimates of the value of output and the input structure.

3-116. Industrial Electrical Machinery and Apparatus

Scope and definition:

Included in this sector is the production of electrical machinery and apparatus. The products consist of generators, transformers, electric motors, and other electrical machinery and apparatus for industrial use.

Source of data and method of estimation:

Basic information for the estimation of the value of output and the input structure were derived from IS-1971-CBS with some adjustments to take into account its underestimation.

3-117. Radio, Television and Communication Equipment and Apparatus

Scope and definition:

This sector covers the production of radio, television sets, telephone sets, communication equipments, tape and cassette recorders, stereo components, and parts and spare parts. Assembling and repairing of the above items is also included in this sector.

Source of data and method of estimation:

Both the value of output and the input structure were derived from IS-1971-CBS. This was

supplemented by other information available from CBS, such as that on the import of spare parts and components.

3-118. Electrical Appliances and Housewares

Scope and definition:

Included under this sector are the production of electrical appliances and housewares. The products include electric fans, electric stoves and ranges, refrigerators and freezers, electric irons, air conditioners, electrical pumps, and electric tools.

Source of data and method of estimation:

The source of data and method of estimation of this sector were similar to those for the earlier sectors.

3-119. Accumulator and Dry Battery Industries

Scope and definition:

This sector covers the production of accumulators and dry batteries. The products are all kinds of accumulators and dry batteries.

Source of data and method of estimation:

The output and the input structure were derived from IS-1971-CBS.

3-120. Other Electrical Apparatus and Supplies and Repairing

Scope and definition:

Included under this sector is the production of electrical apparatus and supplies such as light bulbs and lamps; electrical cables and wires; switches and fittings; and repairs thereof.

Source of data and method of estimation:

The value of output and the input structure were derived from IS-1971-CBS.

3-121. Ship and Boat Building and Repairing

Scope and definition:

This sector covers the building and repairing of ships, boats and other water transport vehicles. The products consist of ships, tankers, motor vessels, and inland water vessels. Repairs and services of ships and boats are also included.

Source of data and method of estimation:

The value of output and the input structure were basically derived from IS-1971-CBS. These figures were supplemented by other information such as that for the import of machinery for ships and boats and for the demand for products by other sources.

3-122. Railroad Equipment

Scope and definition:

The production and repairing of railroad equipment are included here. Products of this sector are railroad passenger cars, locomotives, spare parts and components. Repair work is also included.

Source of data and method of estimation:

The value of output and the input structure were basically derived from the reports of Railways State Enterprise and IS-1971-CBS.

3-123. Motor Vehicles

Scope and definition:

This sector covers the producing and assembling of motor vehicles. The products consist of trucks, passenger cars, buses, and spare parts.

Source of data and method of estimation:

IS-1971-CBS was the basic source of information for estimating the value of output and the input structure.

Data on imports of parts for completely knock-down motor vehicles as supplementary information on the number of cars assembled was used in estimating the output.

3-124. Motorcycles, Bicycles and Other Vehicles

Scope and definition:

This sector covers the producing and assembling of motorcycles, bicycles and other vehicles. The products consist of motorcycles, scooters, helicaks and similar vehicles, becaks, bicycles, carts, and other non-motorized vehicles.

Source of data and method of estimation:

The source of information and estimation method were similar to those for the previous sector.

3-125. Repairing of Motorized and Non-Motorized Vehicles

Scope and definition:

This sector covers repairs of motorized and non-motorized vehicles.

Source of data and method of estimation:

The activities under this sector were not covered by the annual survey of manufacturing establishments. To obtain the value of output and the input structure, the initial estimation was made based on demand side, and attempts were also made to use various kinds of input indicators relevant to the activity of this sector, such as the consumption of tyres, spare parts, and components.

3-126. Aircraft Industry

Scope and definition:

Included here are the production of aircraft and spare parts and their repair. The products consist of commercial passenger and cargo planes, and engines and turbines for aircraft. Repairs of the above items are also included.

Source of data and method of estimation:

Data on this sector is very limited. Initial estimates were made for the output and the input structure by using the method of estimation of the previous sector (3-125).

3-127. Professional and Scientific Equipment

Scope and definition:

Included here are the production of professional and scientific equipment and their repairs. The products consist of scientific and medical equipment, measuring instruments, and spare parts for these. Repairs of the above items are also included.

Source of data and method of estimation:

The initial estimates of the value of output and the input structure were obtained through an appraisal of the relationship between supply and demand for the products of this sector, with

the use of other supplementary information and adjustments.

3-128. Photographic and Optical Goods

Scope and definition:

The production of photographic and optical goods is included here. The products consist of spectacle and photographic lenses, optical and analytical instruments, movie and still cameras, and the like.

Source of data and method of estimation:

IS-1971-CBS was the only source of information available for this sector. The estimates of the output and the input structure were derived from this publication.

3-129. Jewelry and Related Articles

Scope and definition:

Included here is the production of jewelry of all kinds and diamond cutting. The products consist of jewelry made of gold, silver and other metals; souvenirs; badges, trophies and medals; diamonds; and precious stones.

Source of data and method of estimation:

Information from IS-1971-CBS and SSMH-1971-CBS was used in estimating the value of output and the input structure, with adjustments based on supplementary information from other sectors.

3-130. Musical Instruments

Scope and definition:

This sector covers the production of musical instruments. The products consist of all kinds of musical instruments of different materials and the parts.

Source of data and method of estimation:

Estimates of the output and the input structure were derived from various kinds of notes and scattered information and adjusted suitably.

3-131. Sporting and Athletic Goods

Scope and definition:

This sector covers the production of sporting and athletic goods. The products consist of sporting and athletic goods made of rubber, leather, wood, plastic, metal, textiles, chemicals, animal feathers, etc.

Source of data and method of estimation:

IS-1971-CBS and SSMH-1971-CBS were the basic sources of information for the estimation of the value of output and the input structure. These were supplemented by various kinds of scattered information available from the CBS.

3-132. Other Manufacturing Industries

Scope and definition:

This sector covers the production of goods not classified elsewhere. The products of this sector consist of pencils, pens, fasteners and zippers, non-plastic toys, art objects, rulers, brushes, brooms, etc.

Source of data and method of estimation:

Information from IS-1971-CBS and SSMH-1971-CBS was used as the basic sources for the initial estimation of the value of output and the input structure with necessary adjustments and revisions.

5. ELECTRICITY, GAS AND WATER SUPPLIES
(Input-Output Code: 4-133 and 4-134)

4-133. Electricity

Scope and definition:

This sector covers the generation, transmission and distribution of electricity carried out by the Electricity State Enterprise (PLN) as well as that by local governments and other industrial sectors. The electric power is generated by water, steam, diesel, gas or other fuels. The production is defined in terms of total kilo-watt-hours (kwh) produced, to include quantity sold as well as losses during transmission.

Source of data and method of estimation:

Data on the value of production and the input structure for PLN was obtained from the Annual Report of PLN. Information on the value of output and the input structure outside PLN was derived from the data collected in the 1974 Industrial Census. Data on electric power generated by manufacturing establishments was obtained from the annual survey of manufacturing establishments.

4-134. Gas and Water Supply

Scope and definition:

This sector covers the production and distribution of gas and drinking water. The production of gas in gas works from coal and its distribution to industries and households is included here. The refining and bottling of natural gas is not included here. The by-products of gas production such as coke and tar are also included here. Water supply only covers activities carried out under the auspices of local governments (municipalities).

Source of data and methods of estimation:

Information on the value of output and the input structure of the gas sector was obtained from the annual report of the gas companies. The value of output of water supply was estimated based on information contained in the report of the meeting of Water Supply Companies in 1972, while the input structure was derived from the 1974 Industrial Census data with some adjustments.

6. CONSTRUCTION (Input-Output Codes: 5-135 to 5-141)

(1) *Scope and definition:*

The construction activity includes new construction, the extension, alteration, and repairs of dwellings and non-residential buildings; irrigation projects and the like; roads and bridges; electric plants; harbours; airports; railways; sewers; telephone and telegraph lines; etc. For the input-output table estimation, the total construction activity has been classified into seven sectors as described below.

5-135. Residential Buildings

A residential building is defined as a building used for household residential purposes. The total value of residential buildings covers value of work put in place on the construction of residential buildings during 1971. Also included here are outlays for extension, alteration, addition and capital repairs of residential buildings, as well as expenditures on the installation of electricity, air conditioning and other fittings usually installed before dwellings are occupied. Excluded is the value of the land where the buildings are constructed.

5-136. Non-Residential Buildings

A non-residential building is defined as a building not used for residential purposes. Examples are mosques, churches, offices, shops and other non-residential buildings. The total value of non-residential buildings constructed during 1971 includes expenditures on extension, additions, alterations and capital repairs. Also included are outlays for the installation of electricity, air conditioning and other fittings usually installed before the building is put into use. The value of the land where the buildings are constructed is excluded.

5-137. Public Works in the Agricultural Sector

This sector includes new construction, extension, and repairs of irrigation projects, river dredging and the like financed by central and local governments.

5-138. Public Works on Roads and Bridges

Included here are new construction, extensions, and repairs of roads and bridges by central and local governments.

5-139. Installation of Electricity

This sector covers electric installation in buildings after the buildings are used or occupied, as well as the transmission and distribution of electricity. The repairs are also included.

5-140. Other Construction

New construction, extensions, alterations, and repairs of harbours, airports, railroads, sewers, telephone and telegraph lines, and other kinds of construction are covered in this sector.

5-141. Current Repairs and Maintenance of Buildings

Current repair of buildings is defined as repair and maintenance which does not lengthen the expected normal lifetime and only maintains normal conditions; for example, the painting of walls, doors and windows, the replacement of broken tiles, etc.

(2) *Sources of data and method of estimation:*

(i) Output

The method of estimation of the output of the construction sector was based on the commodity flow approach, i.e., through information on imports and domestic production of construction materials, on the installation of machinery and equipment before the buildings are used on administration costs and on gross value added. Information on the imports of construction materials was derived from import statistics classified by commodity (CBS). Sales tax, import duty, and other taxes were added to the C.I.F. value. The trade margins and transport costs derived from the Special Survey for Trade Margins and Transport Costs (STT) were also added to the value of imported construction materials to arrive at the value at purchaser's prices. The value of domestically produced construction materials at producer's price was estimated on the basis of IS-1971-CBS, while the corresponding trade margin and transport costs were also derived from the STT. The percentages of administrative cost and value added were derived from the survey on construction enterprises conducted in six cities by the CBS.

Residential (5-135) and non-residential buildings (5-136):

The method of estimation for these sectors was based on the expenditure approach. Information on output was obtained from the 1973 survey of building construction which was undertaken through a supplementary questionnaire under the 1974 Industrial Census. The information covers the value of new buildings, extensions, alterations and capital repairs of residential and non-residential buildings. The value at 1971 prices was estimated by using the price index and the total population as indicators.

Public works in the agricultural sector (5-137), public works on roads and bridges (5-138) and the installation of electricity (5-139):

The method of estimation in these sectors was also based on the expenditure approach. Information on output was derived from the central government development budget and the actual receipts and expenditures of construction activities at provincial, regency, municipal, and village level.

Other construction (5-140):

The value of other construction was obtained as a residual, i.e., as the difference between the total output of the construction sector and the total of the outputs of the other six sectors.

Current repairs of residential and non-residential buildings (5-141):

The value of current repair of residential and non-residential buildings was derived from the results of the 1973 survey of building construction. The value of current repairs at 1971 prices was estimated by using the price index and figures of the total population.

(ii) The input structure

The input structure of each construction sector was obtained from the survey on construction enterprises in six cities. The input structure in each sector was obtained by multiplication of input coefficients and output. Subsequently, adjustments were made for each cell within the sectors.

7. TRADE, RESTAURANTS AND HOTELS

(Input-Output Codes: 6-142 to 6-145)

This division covers wholesale and retail trade, restaurants and hotels, following the International Standard Industrial Classification (ISIC).

6-142. Wholesale Trade and

6-143. Retail Trade

Scope and definition:

These sectors cover wholesale and retail trading activities. Wholesale trade is the providing of distribution services in conveying commodities from producers to purchasers; the purchasers being (1) those consuming the commodities as raw materials for the production of other commodities (here the consumer is the non-household consumer), (2) traders who sell the commodities as the next step in the chain of transaction. Included here are the activities of exporters, importers, large and medium traders and auctioneers, to the extent that they serve non-household consumers. Included under retail trade are the activities of businesses serving households (such as shops, stores, kerosene retailers, gasoline pumps, other pumps, and other small traders).

Sources of data and method of estimation:

The output of these sectors is the wholesale and retail trade margin which is generated by the trade of commodities. Therefore, the estimation of the total output was made by multiplying the output of each commodity sold by the ratio of the trade margin. The calculations were made separately for the wholesale trade margin and the retail trade margin. The ratios used were obtained from miscellaneous sources: (1) for some agricultural products, special surveys were undertaken and supplemented by the results of the Agro-Economic Survey conducted by the Ministry of Agriculture, (2) for cattle, a special survey on prices undertaken for national income compilation supplemented by a research paper by Gajah Mada University on cattle marketing channels, (3) for fishery production, the Fishery Survey conducted by the Directorate General of Fishery, and (4) for manufactured goods, the Survey on Commerce in Yogyakarta and other special surveys conducted by Input-Output Team.

The input structure of the trade sector was based on a special ad-hoc survey. Included in the input of trading activity are the cost of packing materials, administrative expense, repairs and maintenance of buildings and equipment, etc.

Note: In the definition of trading activity to decide the ratio of total output marketed, two concepts were considered;

First concept: Trading activity is defined as including all transactions whether undertaken by traders or not. This is called 'market surplus' concept because of the assumption that all production which is sold, regardless of the distribution channel, represents marketed surplus.

Second concept: Trading activity is defined as including only that conducted by traders. Transactions by others, e.g., by producers (farmers selling their production directly to manufactures, manufacturers selling their products directly to consumers in the market, etc.) would not be included as trading activity. Trade margin here is only for commodities where there is a price increase due to trade. Hence, the ratio of trade margin for these commodities should be estimated together with information on the percentage of total transactions undertaken by traders and others. As a consequence, the calculations will become more complicated. However, the second concept is more consistent than the first.

The equations used in the calculations are:

$$\text{Wholesale Trade Margin: } W_i = X_i \times (MS_i \times V_{wi} \times TR_{wi})$$

$$\text{Retail Trade Margin: } R_i = X_i \times (MS_i \times V_{ri} \times TR_{ri})$$

where: X_i = Output of sector i
 MS_i = Marketed ratio of the commodity of sector i
 V_{wi} = Ratio of commodity sold by wholesaler
 V_{ri} = Ratio of commodity sold by retailer
 TR_{wi} = Ratio of wholesale trade margin
 TR_{ri} = Ratio of retail trade margin

A problem in the adoption of the above equations was that separate information on the wholesaler and retailer was not always available. In that case, the two ratios, V_{wi} and V_{ri} were estimated,, based on the assumption that non-household consumption good were traded only through wholesalers while household consumption goods were traded through both wholesalers and retailers.

6-144. Restaurants and Drinking Places and

6-145. Hotels and Lodging Places

Scope and definition:

These sectors cover activities of restaurants and hotels in accordance with ISIC. It was decided that restaurant activities would include restaurants, coffee houses, drinking places, and bars whether undertaken separately or as part of department stores, hotels, or night clubs.

The coverage of hotels is of all activities of hotels whether they are regular hotels, motels or other lodging places.

Sources of data and method of estimation:

The output of restaurants and hotels was calculated on the basis of the average output per employee multiplied by the total number of employees in these sectors. The average output per employee was based on a special survey conducted for this purpose. It should be noted that the survey was conducted only in Jakarta and mainly covered the large establishments with better administration and bookkeeping. This information was utilized in estimating the output as a whole, using per capita consumption expenditure for food in Jakarta compared with that outside Jakarta based on 1969/1970 NSES. To adjust the total output from 1974 prices to 1971 prices, the commodity index of the input of restaurants was used.

The output of hotels was estimated based on the average output per employee from the figures compiled by the Transport Statistics Division of the CBS, and the total number of employees in this sector estimated from the 1971 Population Census.

The input structures of both restaurants and hotels were based on a special survey undertaken for that purpose.

8. TRANSPORTATION AND COMMUNICATIONS (Input-Output Codes: 7-146 to 7-155)

This division consists of the transportation of goods and passengers by road, rail, ship, and plane, as well as services allied to transportation and communication activities. This division is classified into ten sectors described below.

7-146. Railways

Scope and definition:

The activities of this sector are carried out by a state enterprise, which was called 'Perusahaan Negara Kereta Api' (PNKA) but has operated from 1973 under the name 'Perusahaan Jawatan Kereta Api' (PJKA). The activities of this enterprise include transportation by railways, shipping and other supporting activities as well as non-transportation activities. Covered under this sector is only transportation by railways; the other activities were transferred to other sectors.

Source of data and method of estimation:

The output and the input structure for this sector were obtained from the profit and loss account in the Annual Report of PNKA for 1971. Some adjustments were made in the input structure especially to account for overhead cost.

Note: PJKA has a special workshop for the repair and maintenance of transport equipment (Balai Yasa). The activities of this workshop were transferred to the relevant input-output sector. But, as the data of the value of output was not available, this was calculated as the total cost charged to this activity.

7-147. Road Passenger Transport

Scope and definition:

Under the sector are included the transportation of passengers by motorized vehicles such as city buses, intercity buses, taxis, oplets, minibuses, bemoes, helicaks and also by non-motorized vehicles such as becaks and dokars. This sector covers transport vehicles used for general and specialized transportation, and vehicles used for private purposes are excluded

Sources of data and method of estimation:

The indicators which were used to estimate the output of this sector were the total number of vehicles and the average revenue per vehicle calculated separately for each type of vehicle. The total number of motorized vehicles, excluding bemoes and helicaks, was taken from 'Statistik Kendaraan Bermotor' (Motor Vehicle Statistics) published by the CBS. The total number of other kinds of motorized vehicles and that of non-motorized vehicles were taken from the regional publications. The average output per vehicle was obtained from the special surveys conducted for this purpose during March and April, 1975, when information for 1974 was collected. This average revenue for 1974 was extrapolated to that for 1971 by using the passenger-km price index.

The gross output of this sector done separately for each type of vehicle, was calculated by multiplying the total number of vehicles by the average revenue per vehicle. The input structure was based on the results of the special survey conducted for this purpose.

In practice, these types of vehicles also undertake freight transport, but it is difficult to separate freight transport and passenger transport. Hence, it was assumed that these vehicles are used for passenger transport.

7-148. Road Freight Transport

Scope and definition:

This sector includes freight transport by trucks and the like (gerobaks and pedaties).

Source of data and method of estimation:

The indicators which were used for estimating the output of this sector were the total number of vehicles and the average revenue per vehicle, calculated separately for each type of vehicle. The total number of gerobaks/pedaties was taken from the regional publications. The average revenue per vehicle for each type of vehicle was obtained from the special survey conducted for this purpose. The survey was conducted during March and April 1975 and the collected data were for 1974. Extrapolation was made on the average output in 1974 to arrive at that for 1971 by using the passenger-km price index.

The gross output of this sector was calculated separately for each type of vehicle by multiplying the total number of vehicles by the average revenue per vehicle. The input structure was based on the special survey conducted for this purpose.

Note: Although freight transport vehicles also undertake passenger transport in the country side, it has been assumed that these are used only for freight transport. Further, it was felt that this would cancel out with road passenger transport vehicles being used for freight transport.

7-149. Shipping

Scope and definition:

This sector includes freight and passenger transport by vessels. Chartering by state and private enterprises is also included. The shipping enterprises, in general, also perform other supporting activities such as handling, loading, unloading, storage and warehousing, docking, but these activities are excluded from this sector and transferred to the relevant sector.

Source of data and method of estimation:

The indicators which were used in estimating the output of this sector were the total amount of freight, the number of passengers transported and the average revenue per unit of cargo and per passenger. The total quantity of cargo was obtained from export, import and interinsular trade statistics compiled by the CBS. The quantity was estimated separately as dry cargo (including logs), liquid cargo, or oil tankers.

Data on average output per ton of dry cargo transport by ocean-going shipping was obtained from PN. Jakarta Lloyd, and that for interinsular shipping from PN. PELNI. Information on average revenue per ton of oil transportation by ocean going tankers and that for interinsular shipping was based on figures obtained from PN. PERTAMINA. The number of passengers and average revenue per passenger were both obtained from the Directorate of Sea Transportation and PN. PELNI. The gross output of this sector was the total of the outputs of each type of shipping. The input structure was obtained based on the special survey conducted for that purpose.

7-150. Inland Water Transport

Scope and definition:

This sector includes the operation of motorized and non-motorized boats in rivers and lakes. The activities of this sector cover both freight and passenger transport activities. River and lake transport activities are prevalent in Kalimantan and some provinces of Sumatera.

Sources of data and method of estimation:

The indicators used to estimate the output of this sector were the total number of boat calls at the different river and lake harbors and the average revenue per call. Source of data for the

total number of boat calls was 'Inland Water Transport in Indonesia (Angkutan Sungai dan Danau di Indonesia)' published by the 'Directorate of Transport (Direktorat Lalu Lintas dan Angkutan Sungai, Danau dan Ferry). The available information was for 1972 and 1973, and the 1971 figure was estimated based on the increase in the total number of boats in Kalimantan. The average revenue per call was obtained from the river transport survey conducted in West Kalimantan for the calculation of regional income. The figure collected was for 1973 and was the average output per boat per year. This was multiplied by the total number of boats and then divided by the total number of boat calls. To extrapolate the average revenue in 1971 from that in 1973, the consumer price index of transportation was used. The gross output of this sector was obtained by multiplying the total number of boat calls by the average revenue per boat call.

The input structure for this sector was obtained in a way similar to that used in the shipping sector.

7-151. Port Services

Scope and definition:

This sector includes rendering services for ships through the provision of port facilities such as anchoring, plying, floating, pilotage, fresh water supply, and embarkation and disembarkation arrangements for passengers.

Other activities such as loading and unloading, storage and warehousing, docking, etc., are covered under the other relevant sectors.

Sources of data and method of estimation:

The indicators used in the estimation of the output of this sector were the number of vessels by tonnage size which called at all ports throughout Indonesia, the total supply of fresh water, the number of embarkations and disembarkations of passengers, and the amount of fees collected for each of the services rendered.

Information on the number and tonnage of vessels which called at ports throughout Indonesia was obtained from the 'Monthly Reports of the Port Administration Tanjung Priok (Badan Pengusahaan Pelabuhan Tanjung Priok)'. Information on the total supply of fresh water, the number of embarkations and disembarkations of passengers, and the tariff from each of the services rendered was obtained from the PN. PELNI.

The gross output of this sector is the total of the outputs of the different types of activities. The input structure was obtained based on the Special Transport Survey (STS).

7-152. Air Transport

Scope and definition:

This sector includes freight and passenger transport by aircraft, including the chartering of aircraft. Most of these activities are by government enterprises with very few air transport activities carried out by private enterprises. Supporting activities, such as loading and unloading, expediting, storage and warehousing, etc., are also covered in this sector because of the difficulty of their separation, especially for the input structure.

Source of data and method of estimation:

The indicators which were used to estimate the output of this sector are the production indicator of airline and airport services and the average revenue per unit of each production. The production indicator of airline services consists of the number of passenger-km, the number of ton-km of freight and the number of ton-km of parcels; the production indicator of airport services consists of the number of aircraft departures, arrivals, the number of passenger departures, arrivals, and transits, and the amount of freight loaded and unloaded for all airports throughout Indonesia.

The data on production was taken from the air transport statistics published by the CBS. Data on the average revenue per unit of production was obtained from the reports of PN. GIA

and PN. MNA for airline activity and from the report of PN. Angkasa Pura, for airport activity. The gross output of this sector was the total output from all the activities, including the output of supporting activities.

7-153. Services Allied to Transport

Scope and definition:

This sector includes the activities of delivery agencies, expedition and travel bureaus. The agencies and expeditions that are covered in this sector are only those serving shipping. Activities which serve the other forms of freight transport are not covered in this sector due to the non-availability of information. The travel bureau activities covered here include those support of passenger transport by railways, intercity buses, shipping and airlines.

Source of data and method of estimation:

The indicators which were used to estimate the output of agencies and expeditions are:

- (1) The amount of dry cargo loaded and unloaded in the different ports throughout Indonesia under the assumption that all of these were served by agency and expediter activities.
- (2) The average output per ton of freight for each of the activities.

The amount of dry cargo loaded and unloaded in each port throughout Indonesia was taken from export, import and interinsular trade statistics published by the CBS. Information on the average output per ton of freight for agency and expediter activities was obtained from the 'Data Series of PELNI (Serie Data-data Komersil Cabangcabang PELNI)' published by PN. PELNI.

The gross output of agency and expediter activities was calculated by multiplying the quantity of freight by the average output per ton.

The procedure used to estimate the output of the travel bureaus was based on a certain percentage of each output of passenger transportation by railways, intercity buses, shipping and airlines.

The gross output of the sector was the total of the outputs of the component activities. The input structure of this sector was obtained based on the special survey conducted for that purpose.

7-154. Loading, Unloading, Storage and Warehousing

Scope and definition:

This sector includes loading, unloading, storage and warehousing in support of transportation. Loading, unloading, storage and warehousing activities in harbors only are covered in this sector. Activities in support of land transport and air transport were covered in those sectors because of the difficulty in separating the required information.

Source of data and method of estimation:

The indicators which were used to estimate the output of this sector are:

- (1) The amount of dry cargo loaded and unloaded in the different ports throughout Indonesia.
- (2) The average revenue per ton of goods handled for each of the activities.

Data on the quantity of dry cargo loaded and unloaded in the different ports throughout Indonesia was obtained from the export, import, and interinsular trade statistics published by the CBS. Information on the average revenue per ton of goods handled for each of the activities was obtained from PN. PELNI.

The gross output of this sector was the total of the outputs of each activity. This was calculated by multiplying the quantity of goods handled by the average revenue per ton. The input structure of this sector was obtained based on the special survey conducted for this purpose.

7-155. Communication

Scope and definition:

The communication sector covers all postal and telecommunication services rendered to the public whether by telephone, telegraph, radio telephone or telex, excluding radio and television broadcasting.

The output of the postal services is the revenue from handling mail and parcels, and the income from postal saving services.

The value of the parcels handled is not included in the output of this sector in the same manner that the value of commodities sold by traders is not included in the output of the trade sectors.

The output of the telecommunication services is the revenue estimated from the total minutes of local and interlocal telephone calls, the number of words having telegraph service, minutes of telex time, etc. The revenue received from advertisements by the post office, receipts from the renting of buildings or rooms or from other activities are excluded from the coverage of this sector.

Source of data and method of estimation:

The indicators, which were used in the output estimation for this sector were obtained from the monthly reports of PN. POS dan GIRO (Post and Saving State Enterprise) as well as those of Perusahaan Umum Telekomunikasi (Telecommunication State Enterprise). The profit and loss accounts of those Enterprises were also obtained from the Directorate General of Post and Telecommunication. The input structure of this sector was obtained from these profit and loss accounts.

9. FINANCING, REAL ESTATE, AND BUSINESS SERVICES (Input-Output Codes: 8-156 to 8-160)

This division covers activities of banking and other financial institutions, insurance, real estate and business services.

8-156. Banking and Other Financial Institutions

Scope and definition:

The banking and financial institution sector covers all activities of monetary institutions and other financial institutions and services. Included are the central bank, commercial banks, development banks, savings banks, rural banks, pawnshops, credit cooperatives and foreign exchange dealers.

A financial institution can be a bank or a non-bank. At the present time banks play a larger role than other financial institutions in Indonesia. Hence, stress has been placed on banks in the later descriptions of this sector.

The main operations of the financial institutions are to give credit and to render services in financial transactions and money supply. The functions provided by the banking system as a whole can be summarized as follows:

- (1) Deposit and credit services:
 - (a) Accept deposits into current accounts, time deposits and savings deposits and issue medium and long term securities.
 - (b) Extend short-term and medium-term loans and invest in securities.
 - (c) Participate in the share capital of enterprises.
- (2) Money supply and financial transactions:
 - (a) Issue bank notes and coins, transfer money, maintain current accounts, and collect debts.
 - (b) Discount, buy and sell securities.
 - (c) Buy credit guarantees.
 - (d) Issue bank guarantees.
 - (e) Rent vaults for storage of valuables.

Source of data and method of estimation:

For the financial activities mentioned in (1) above, the output is defined as the revenue from those services. Since the service charge is not taken directly from the depositors and borrowers, the revenue from this service is defined as the difference between the interest paid and the interest received. More strictly speaking, the calculation formula is as follows:

$$\text{Service charge} = \text{Interest and dividends received} - \text{Interest paid.}$$

The output from the activities mentioned in (2) above is the total commission, including profit from foreign exchange transactions.

Therefore, the output of the financial sector is the total of the service charges and commissions.

The source of data used to calculate the output and input structure is the reports of the state and private banks, and the data was compiled by Bank Indonesia.

8-157. Life Insurance

Scope and definition:

Life insurance is defined as the activities of life insurance and related services.

The gross output of this sector is equal to the income from life insurance services, including income from investments.

Source of data and method of estimation:

The only source of data available to estimate the output and input structure of this sector is the publication 'Insurance Activities in Indonesia, 1971-1972' published by the Directorate of Insurance. The estimation of output was done by using the following formula:

$$\begin{aligned} \text{Gross output} &= \text{Net premium revenue} \\ &+ \text{Operating surplus from capital transactions} \\ &- \text{Net claim payments} \\ &- \text{Cancellations} \\ &- \text{Net additions to reserves} \\ &+ \text{Net investment income} \\ &\text{or} \\ \text{Gross output} &= \text{Gross premium revenue} \\ &- \text{Reinsurance premium payments} \\ &+ \text{Operating surplus from capital transactions} \\ &- \text{Gross claim payments} \\ &- \text{Reinsurance payments} \\ &+ \text{Reinsurance receipts} \\ &- \text{Cancellations} \\ &- \text{Additions to reserves for policies of current year} \\ &+ \text{Deductions in reserves for policies of previous year} \\ &+ \text{Net investment income} \end{aligned}$$

8-158. Non-Life Insurance

Scope and definition:

This sector covers all kinds of insurance other than life insurance such as fire, accident, marine, and health insurance.

The gross output of this sector is equal to the premiums received minus the claims paid.

Source of data and method of estimation:

As in the case of life insurance, the only source of data available for the estimation of output is 'Report of the Insurance Directorate about the Insurance Activity in Indonesia, 1971-1972'.

8-159. Real Estate

Scope and definition:

The real estate sector consists of dwellings and other real estate services. Dwellings means here the utilization of houses or part of buildings as dwelling units by households, regardless of whether owner-occupied, government, private or rented. Included under real estate services are the renting and operating of non-residential buildings and the operations of real estate agencies and brokers and managers engaged in renting, buying, selling, managing and appraising real estate, on a contract or fee basis.

The gross output of dwellings is equal to the total value of the rent plus repair and maintenance costs and depreciation of fixed assets. The value of total rent is calculated at market prices, including estimates for owner-occupied houses. The gross output of business real estate services is defined as their total receipts.

Source of data and method of estimation:

The gross output of dwellings was calculated by multiplying the average expenditure on rent per capita by the total mid-year population. The sources of data used in this estimation were the

household consumption expenditures on house rent including repairs and maintenance costs compiled by the Price Statistics Division of the CBS for the purpose of constructing the consumers price index, NSES 1969/1970 conducted by the CBS, and the Population Census of 1971. The average per capita house rent was compiled by the Price Statistics Division of the CBS from 11 big cities, and this average was considered valid for all urban areas in Indonesia. The average per capita house rent for rural areas was estimated by adjusting the average per capita rent for the 11 cities in terms of the ratio of urban to rural per capita house rent derived from NSES, 1969/1970.

The gross output of real estate services was estimated from the input of other sectors consuming real estate services because of the non-availability of data. The input structure of this sector was obtained from the Special Service Survey (SSS).

8-160. Business Services

Scope and definition:

This sector included legal services; engineering, architectural and technical services; advertising services; data processing and tabulating services; machinery and equipment rental and leasing; and other business services not elsewhere classified.

The gross output of this sector is defined as the total receipts from the services rendered.

Sources of data and method of estimation:

Due to the lack of basic information on this sector, the gross output was estimated, using the total number of employees in business services from the results of the Population Census of 1971. This was multiplied by the average gross output per employee obtained from the SSS. The input structure was also based on the results of the SSS.

10. SERVICES

(Input-Output Codes: 9-161 to 9-174)

These sectors cover services for sale by private individuals, government and private institutions. According to the nature and the purpose of the activities, these may be classified into 3 groups:

- (1) Social and community services, covering social services rendered to the public such as education, health, public security, and defense.
- (2) Entertainment and cultural services, covering services to private households and the public, such as those of movie houses, theaters, recreational parks, and gardens.
- (3) Personal and household services, covering services for personal and household needs, such as those of barbers, laundries, and tailors.

In the present table, these services are classified into 14 sectors as explained below.

9-161. Public Administration and Defense

Scope and definition:

This sector covers all units of government (central and local) engaged in public administration and defense, including the armed forces and police.

The gross output of this sector is equal to the gross value added, which consists of the compensation of employees in cash and in kind, and depreciation of fixed assets.

Source of data and method of estimation:

The information regarding the compensation of employees was derived from the figure of the routine and development expenditures supplied by the Ministry of Finance. The compensation of employees in government schools, research institutions and hospitals were excluded from this sector as these activities were included in sectors 163, 164 and 165, respectively. The depreciation of fixed assets was estimated as 5% of the total compensation of employees.

9-162. Sanitary and Similar Services

Scope and definition:

This sector covers services such as garbage and sewage disposal; the operation of a drainage system; chimney, window and office cleaning; exterminating, fumigating and disinfecting; and similar services. These kinds of services in Indonesia are generally provided by the government, especially the local government.

The gross output of this sector is equal to the total expenditure for these services.

Source of data and method of estimation:

Due to a lack of data and because these services usually exist in big cities, the calculated estimates cover only the capital cities of the provinces and were based on the receipts and expenditures of the Jakarta metropolitan government.

Total output was obtained by multiplying the average per capita expenditure for these services of Jakarta by the total population of all the capital cities in Indonesia.

9-163. Educational Services

Scope and definition:

This sector covers all levels of public and private educational institutions such as kindergartens, elementary schools, secondary schools, high schools, colleges, and universities. All government educational institutions are included here and excluded from the government sector. Educational activities such as on-the-job training and other short-term special courses oper-

ated by the government for their own personnel were excluded from this sector and included under the government sector. Private, profit-making educational establishments such as typing and driving schools, are not covered here due to the absence of adequate information.

The gross output of educational services was defined as the total cost of producing the services, i.e., the outlays on the intermediate consumption of goods and services, compensation of employees, the depreciation of fixed assets, and the payment of indirect taxes.

Source of data and method of estimation:

The gross output of educational services was estimated by multiplying the average gross expenditure per student by the total number of students. The data of average gross expenditure per student was obtained from the manual inquiries which the Ministry of Education and Culture collected from private and public educational institutions. Information on the total number of students was available from the CBS publication.

The input structure used was based on data collected through the SSS.

9-164. Research and Scientific Institutes

Scope and definition:

Included in this sector are all public and private institutions primarily engaged in basic and general research in social and cultural fields and natural sciences.

Source of data and method of estimation:

Most of the research activities in Indonesia at the present time are undertaken by the government. Hence the gross output and the details of the input structure were estimated on the basis of the actual government expenditure on research.

9-165. Medical and Other Health Services

Scope and definition:

This sector covers all kinds of medical and health services rendered to the public through institutions such as general hospitals, maternity hospitals, and child welfare clinics; as well as those by medical practitioners, and midwives, working on own-account.

Excluded are clinics and medical units operating under the auspices of private or government offices exclusively for their own employees. The gross output of general hospitals and maternity hospitals is defined as the total cost of producing the services, while the gross output of medical practitioners and midwives working on own-account is equal to their receipts.

Source of data and method of estimation:

Due to the limited data available, the estimates of gross output of general hospitals and maternity hospitals were calculated by multiplying average gross output per bed by the total number of beds. For medical practitioners and midwives working on own-account, average gross outputs per doctor and midwife were multiplied by the total number of doctors and midwives, respectively. The total number of beds, doctors, and midwives were obtained from the 'Social Indicators' published by the CBS. The average gross output per bed, doctor, and midwife, as well as the input structure, were obtained from the SSS.

9-166. Business, Professional and Labor Associations

Included here are trade and industry associations, professional associations, sports associations etc. Due to the lack of data, the gross output was estimated indirectly through the input of the other sectors.

9-167. Other Social and Related Community Services

Scope and definition:

This sector covers social institutions such as the Red Cross, religious organizations, orphanages, institutions for handicapped children, and homes for the aged. The gross output of this sector is equal to the total cost of producing the services.

Source of data and method of estimation:

From the SSS, information on the average expenditure per institution and the input structure was obtained. The gross output was estimated by multiplying the average expenditure per institution by the total number of institutions (Source: CBS).

9-168. Motion Picture Production and Distribution

Scope and definition:

This sector covers motion picture production. The gross output of the motion picture establishments is equal to the total receipts from the sale or rental of the motion pictures produced.

Source of data and method of estimation:

The data of the input structure and the average cost per film produced were obtained from the SSS. The average gross output per motion picture was considered to be equal to the total direct cost plus profit and administration costs; estimated at around 20% of the total cost.

The gross output of motion picture production was calculated by multiplying the total number of films produced during the year by the average gross output per film. The data of the total number of films produced was obtained from the Directorate of Radio, Film and Television, Ministry of Information.

9-169. Theaters and Movie Houses

Scope and definition:

This sector covers theaters, movie houses, and other entertainment services. The gross output is defined as the total receipt from sales of tickets.

Source of data and method of estimation:

The gross output of this sector was estimated on the basis of total entertainment taxes collected by the local government in Indonesia. Data on the entertainment taxes was obtained from the 'Local Government Financial Statistics' compiled by the CBS. In the Jakarta region, entertainment tax represents 20% of the ticket price. The gross output of this sector was calculated on the assumption that this percentage is also valid for the whole of Indonesia. The input structure was based on the SSS.

9-170. Radio, Television and Related Services

Scope and definition:

Due to the restricted coverage of available data, this sector is considered to cover only government and private radio studios.

For government radio studios, the gross output is equal to the total expenditures in producing these services, while for private radio studios it is equal to the total receipts.

Source of data and method of estimation:

The gross output was calculated by multiplying the average gross output per studio by the total number of studios which was obtained from the Ministry of Information. The average gross output per studio and the input structure were collected through the SSS.

9-171. Libraries, Museums and Other Cultural Services

Scope and definition:

This sector includes libraries, museums, zoological gardens, botanical gardens, sport halls and swimming pools. The gross output is equal to the total receipts.

Source of data and method of estimation:

The gross output and the input structure per establishment, or per visitor for libraries, were obtained from the SSS. To estimate the total gross output, the average output per establishment was multiplied by the total number of museums, sports halls, swimming pools, zoos and botanical gardens; while for libraries the total number of visitors was multiplied by the average gross output per visitor. Data on the numbers above were based on the data compiled by the CBS.

9-172. Other Recreational Services

Scope and definition:

Included here are night clubs and other recreational places. The gross output of this sector is defined as the total receipts.

Source of data and method of estimation:

Due to the inadequacy of data, an approximate gross output of this sector was estimated based on the total number of employees multiplied by the average gross output per employee. The total number of employees in this sector was derived from the 1971 Population Census. The average output per employee and the input structure were obtained from the SSS.

9-173. Repair Services, not elsewhere classified

Scope and definition:

Included in this sector are the repairs of household appliances and equipment such as the repairs of radios, refrigerators, typewriters and sewing machines; the repairs of footwear and other leather goods; and other repairs not elsewhere classified. The gross output of this sector is equal to the total receipts from services rendered.

Source of data and method of estimation:

The gross output is estimated by multiplying the total number of employees in this sector by the average gross output per employee. The total number of employees in this sector was based on the 1971 Population Census, while the average gross output per employee and the input structure were obtained from the SSS.

9-174. Personal Services

Scope and definition:

This sector covers mechanical or hand laundries, cleaning and dyeing plants; domestic services such as those rendered by maids, cooks, baby sitters, gardeners and caretakers; barbers and beauty shops; photographic studios; tailors and dress makers; massage parlours; and cemetery upkeep and all other personal services not elsewhere classified. The gross output of this sector is equal to the total receipts from services rendered.

Source of data and method of estimation:

The gross output of personal services except that for domestic service was calculated by multiplying the total number of person engaged by the average gross output per person. For domestic services, the gross output was obtained by multiplying the average per capita household expenditure on domestic services by the total population.

The estimate of the total number of persons engaged in rendering personal services was derived from the 1971 Population Census. The average output per person engaged and the

input structure were obtained from the SSS.

For domestic service, the average per capita expenditure was based on the data collected for the purpose of constructing consumer price indices in 11 cities, as well as from NSES 1969/1970 by the CBS.

10-175. Unspecified and Provisional Sector

This sector is considered as the sector that covers all activities and commodities not belonging to any particular sector. This sector plays an important role in the adjustment of discrepancies between input and output.

10-176. Scrap and Waste

This sector is treated as the dummy sector which will be eliminated through the distribution of entries to other sectors. The method adopted for this distribution is the negative input method as described in Chapter 2.

11. VALUE ADDED, FINAL DEMAND, IMPORT, TRADE AND TRANSPORT
(Input-Output Codes: 201 to 204, 301 to 305, 401 to 403, 501 to 503)

201. Wages and Salaries

Code 201 is the row for the wages and salaries of each sector as defined in Chapter 2.

202. Operating Surplus

Code 202 is the row for the operating surplus of each sector as defined in Chapter 2.

203. Depreciation

Depreciation has been defined in Chapter 2. Generally, the depreciation in each sector is estimated on the basis of the results from the special surveys conducted for the purpose of the input-output compilation. For manufacturing, electricity and gas and water supply, estimates were based on information available at the CBS.

204. Indirect Taxes, Net

As defined in Chapter 2, net indirect taxes are indirect taxes minus subsidies. But since data on subsidies for the sectors are not available except for electricity, gas and water supply, this was not taken into account. The control total of indirect taxes was obtained from the Financial Report of the Ministry of Finance.

301. Private Consumption Expenditures

Scope and definition:

The scope and definition has been presented in Chapter 2.

Source of data and method of estimation:

The sources of the data used in this estimation are the Household Consumption Expenditure Survey (NSES) and the Cost of Living Survey (CLS), both conducted by the CBS. It should be noted that the CLS was conducted only in 11 big cities (Medan, Palembang, Jakarta, Bandung, Yogyakarta, Surabaya, Pontianak, Banjarmasin, Manado, Ujungpandang and Denpasar), while the NSES covered both urban and rural areas of Indonesia.

Further, the CLS had the tendency to select households in the middle income group, while the NSES covered households at all income levels. Therefore, the NSES was used for estimating the household consumption expenditures.

The NSES results cover Java and regions outside Java only for 1969/1970. To obtain the household consumption expenditure for 1971, the consumer price index from the CBS was used.

The method adopted was as follows:

$$C_{it_1} = C_{it_0} \times \frac{Q_{it_1}}{Q_{it_0}} \times \frac{P_{it_1}}{P_{it_0}}$$

where: C_{it_1} = The value of per capita household consumption expenditure of commodity i, 1971.

C_{it_0} = The value of per capita household consumption expenditure of commodity i, 1969/1970.

Q_{it_1} = The quantity of per capita consumption of commodity i, 1971.

Q_{it_0} = The quantity of per capita consumption of commodity i, 1969/1970.

- P_{it_1} = The price per unit of commodity i, 1971.
 P_{it_0} = The price per unit of commodity i, 1969/1970.

The 1969/1970 NSES represents consumption during October-December 1969 and January-April 1970 only. Hence, the price data which was used here is related to those periods.

Since Q_{it_1} was not available at all, this was estimated from quantities of consumption in 1969/1970 based on the rate of increase in per capita consumption from 1965 to 1969/1970 (NSES). For the commodities which were not covered in the 1965 NSES, the estimation was based on the increase from 1969/1970.

The NSES results used in this estimation are detailed by type of commodity divided into food and non-food groups. The food group consists of cereals and cereal products, roots and root products, fish, meat, eggs, milk, vegetables, fruits, nuts, prepared foods, beverages and tobacco. The non-food group consists of housing, fuel, electricity and water, clothing, footwear and caps, durable goods, taxes, insurance, ceremonial expenses and other goods and services.

The above method of estimation was adopted for the food group only. For the non-food group, consumption quantities were assumed as constant:

$$Q_{it_1} = Q_{it_0} \text{ or } \frac{Q_{it_1}}{Q_{it_0}} = 1$$

The household consumption expenditure estimated on the basis of the NSES and CLS results was subsequently adjusted.

302. Government Consumption Expenditures

Scope and definition:

The scope of the general government consumption expenditures has been defined in Chapter 2.

Source of data and method of estimation:

The data used in estimating the central government expenditure was supplied by the Budget Directorate, Ministry of Finance. To this, an amount of 8.7% of the actual Development Expenditure, regarded as current expenditure, was added. This percentage was derived from a special study of the Development Budget for 1971/1972. From the government routine expenditures, purchases of inventory like office machinery and other functional equipment which are regarded as capital formation were excluded and included in the sector of capital formation (303).

The local government consumption expenditure, due to a lack of data, was calculated on the basis of the average consumption per employee of the central government multiplied by the total number of local government employees obtained from the Ministry of Interior. The expenditure on the purchase of materials was estimated on the basis of the same ratio as the central government purchases of materials to the total consumption.

The classification of the total government consumption expenditure according to the Input-Output Classification was based on the detailed itemised information derived from the routine budget of the central government.

303. Gross Fixed Capital Formation

Scope and definition:

Gross fixed capital formation is defined as the value of new capital goods or second-hand capital goods imported from other countries, minus the net sales of similar second-hand goods. Capital goods are goods having a lifetime of a year or more and are not used for consumption purposes. Based on this method of estimation, gross fixed capital formation was considered under the two broad categories of (1) construction and (2) machinery and equipment.

(1) Construction

Gross fixed capital formation in the construction sector is the value of new construction, extensions, alterations and capital repairs of residential buildings and non-residential buildings; public works in the agricultural sector; public works on roads and bridges; construction of electric plants; and other construction such as that of harbor facilities, airport facilities, railroads, sewers, telephone and telegraph facilities, radio and television transmission towers and stations, and crude oil pipe lines.

(2) Machinery and equipment

Gross fixed capital formation in machinery and equipment is defined as the value of new capital good (or second-hand capital goods imported from other countries) such as transportation equipment, agricultural machinery and equipment, and other industrial machinery and equipment, including outlays on replacement, alteration and capital repairs. Dealer's margins and other transfer costs in the purchase and sale of second-hand capital goods are also included. Classified in this category are the net increases in breeding stock, dairy cattle, draught animals and the like.

Source of data and method of estimation:

(1) Construction

The source of data and method of estimation of the control total for construction has been explained under the construction sector.

The gross output of construction except current repair was allocated to the fixed capital formation.

(2) Machinery and equipment

The method of estimation of the gross fixed capital formation in machinery and equipment was based on a commodity flow approach covering both values of imported and domestically produced machinery and equipment. Outlays on machinery for offshore oil drilling are also included here (source: PERTAMINA). The value of imported machinery and equipment was derived from import statistics (CBS). Sales tax, import duties and other taxes for each kind of commodity were added to the C.I.F. value in rupiahs. The value of machinery and equipment which were produced domestically was based on the IS-1971-CBS. The trade margins and transport costs were obtained through STS.

304. Change in Inventories

Scope and definition:

The scope and definition of change in inventories has been described in Chapter 2.

Source of data and method of estimation:

The data on change in inventories was estimated during the process of reconciliation, i.e., the balancing between output allocation and its control total. It should be noted that these results cannot be used for analytical purposes.

305. Exports (F.O.B.)

Scope and definition:

The general scope and definition of exports have been described in Chapter 2.

Source of data and method of estimation:

The estimates on goods exported were based on the foreign trade statistics compiled by the CBS. Since the data on services obtained from the balance of payments are on a net basis with a negative sign, all of these services are regarded as imports.

On the other hand, the transport services undertaken by Indonesian carriers were added to

exports. The estimates of the transport services were based on the output of national ocean shipping.

401. Imports (C.I.F.)

Scope and definition:

As in the case of exports, imports include imports of merchandise as well as services.

Source of data and method of estimation:

The import of merchandise was valued at C.I.F., while the import of services was based on information contained in the balance of payments, which is stated on a net basis, i.e., after deducting exports.

In this Input-Output Table, import figures have been adjusted by the amount of direct import of machinery for the purpose of offshore operations by Pertamina oil company and also the direct import of rice by the Board of Logistics, which were not covered in the import statistics compiled by the CBS. Rice directly imported by the Board of Logistics was valued at the wholesale price.

509. Trade Margins and Transport Costs

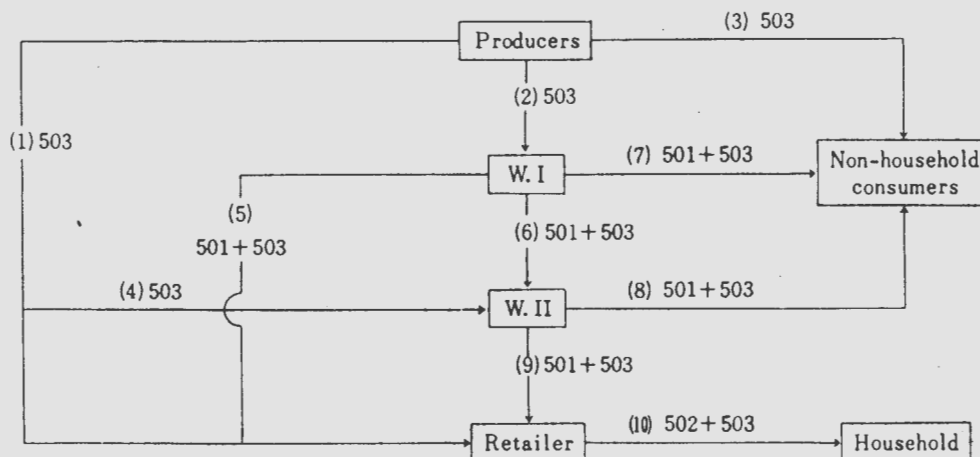
Scope and definition:

The treatment of the commerce sector has been discussed in general in Chapter 2. Here, the specialized concepts and definitions adopted in this 1971 Input-Output Table are explained. The definition decided on was: the output of commerce is the trade margin obtained from the trading activities of commodities (domestically produced or imported) by traders.

In the 1971 Input-Output Table, trade margins and transport costs are coded as follows:

- (1) 501 Wholesale Trade Margin (W)
- (2) 502 Retail Trade Margin (R)
- (3) 503 Transport Costs (T)

The chart below is presented to a better understanding of this concept.



According to the definitions used for the 1971 Input-Output Table, the wholesale channel is the channel from Wholesaler I (W.I) or Wholesaler II (W.II) to the retailer or to the non-household consumers. The activity of the trader who serves households are considered retail activity. In the case of Wholesaler I selling directly to households, this is considered retail trade. On the other hand, the retail sales to intermediate sectors such as manufacturers, hotels, and restaurants, are considered wholesale trade. These assumptions had to be made for convenience in calculation. As a consequence of the definition of the activity of producers, their sales to wholesalers or to retailers or directly to consumers (household or non-household) are assumed

not to be contributing to the trade margin. If numbers are assigned to the channels in the above chart:

In Channels (1), (2), (3) and (4), only transport costs are relevant (503).

In Channels (5), (6), (7), (8) and (9), both wholesale trade margins and transport costs are relevant (501+503).

In Channel (10) the retail trade margins and transport costs are relevant (502+503).

Output of wholesale trade = Total of 501

Output of retail trade = Total of 502

Output of transport (parts) = Total of 503

Source of data and method of estimation:

In the input-output table at purchaser's prices, trade margins and transport costs are entered on the right side of the table in the column sectors 501, 502, and 503 with a negative sign against the appropriate row sector, say Sector i. Then the equation is as follows:

$$X_i = \sum_j x_{ij}^* + \sum_k F_{ik}^* - (M_i + W_i + R_i + T_{ii})$$

(i = 1, 2, ..., n; j = 1, 2, ..., n; k = 301 ...305; l = 5031 ...5039)

- where
- x_{ij}^* = Intermediate demand from i to j at purchaser's price
 - F_{ik}^* = Final demand from i to k at purchaser's price
 - X_i = Gross output of sector i at producer's price
 - M_i = Import of i at landed cost
 - W_i = Wholesale trade margin on i
 - R_i = Retail trade margin on i
 - T_{ii} = Transport cost by transport sector on i.

Concerning each intermediate demand, the relationship between the producer's value and purchaser's value is as follows:

$$x_{ij} = x_{ij}^* - (W_{ij} + R_{ij} + T_{ij})$$

and

$$F_{ik} = F_{ik}^* - (W_{ik} + R_{ik} + T_{ikl})$$

- where
- x_{ij} = Intermediate demand from i to j at producer's prices
 - F_{ik} = Final demand from i to k at producer's prices.

Then the following estimation formula can be used:

$$W_{ij} = W_i \times \frac{X_{ij}^*}{\sum_j x_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

where E_i = export of i at F.O.B. prices

Wholesale trade margin of commodities used in final demand:

$$W_{ik} = W_i \times \frac{F_{ik}^*}{\sum_j x_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Wholesale trade margin of commodities imported:

$$W_i(M) = W_i \times \frac{M_i}{\sum_j x_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Wholesale trade margin of commodities exported:

$$W_i(E) = W_i \times \frac{E_i}{\sum_j X_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Retail trade margin of commodities used in final demand:

$$R_{ik} = R_i \times \frac{F_{ik}^*}{\sum_k F_{ik}^* + M_i}$$

Retail trade margin of commodities imported:

$$R_i(M) = R_i \times \frac{M_i}{\sum_k F_{ik}^* + M_i}$$

Transport cost of commodities used in intermediate sector:

$$T_{ij} = T_{ii} \times \frac{x_{ij}^*}{\sum_j X_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Transport cost of commodities used in final demand sector:

$$T_{ik} = T_{ii} \times \frac{F_{ik}^*}{\sum_j X_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Transport cost of commodities imported:

$$T_{ii}(M) = T_{ii} \times \frac{M_i}{\sum_j X_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Transport cost of commodities exported:

$$T_{ii}(E) = T_{ii} \times \frac{E_i}{\sum_j X_{ij}^* + \sum_k F_{ik}^* + M_i + E_i}$$

Summary Table of Trade Margins and Transport Costs

Code	501	502	5031	5032	5033	5034	5035	5036	5039	509
001										
002										
⋮										
174	W_i	R_i	T_{i1}	T_{i2}	T_{i3}	T_{i4}	T_{i5}	T_{i6}	T_i	TTM_i
175										
Total	W	R	T_1	T_2	T_3	T_4	T_5	T_6	T	TTM

Notes: (1) W_i , R_i , T_i , TTM_i , W, R, T and TTM are givens.

(2) T_{ii} is defined as: $T_{ii} = T_i \times \frac{T_i}{T}$

APPENDIX C

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