# 1995 Input-Output Tables for Japan

## Summary in English

Joint Compilation

Management and Coordination Agency
Economic Planning Agency
Ministry of Finance
Ministry of Education
Ministry of Health and Welfare
Ministry of Agriculture, Forestry and Fisheries
Ministry of International Trade and Industry
Ministry of Transport
Ministry of Posts and Telecommunications
Ministry of Labour
Ministry of Construction

## March 2000

# Management and Coordination Agency

# PREFACE

Input-Output Tables for Japan have been compiled every five years since 1955 jointly by ministries and agencies concerned under the Management and Coordination Agency (known as the Administrative Management Agency until June 1984) of the Prime Minister's Office.

The 9th publication of the 1995 Input-Output Table is the latest achievement accomplished as a joint effort project of 11 ministries and agencies, namely, the Management and Coordination Agency, the Economic Planning Agency, the Ministry of Finance, the Ministry of Education, the Ministry of Health and Welfare, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of International Trade and Industry, the Ministry of Transport, the Ministry of Posts and Telecommunications, the Ministry of Labour and the Ministry of Construction.

The 1995 Input-Output Tables are commodity-by-commodity tables as were their predecessors and valued at producers' price and purchasers' price. They are recorded in 519 rows and 403 columns matrix form based on the most detailed classification. In this report, however, more aggregated tables classified according to 93 sectors are published together with the Input Coefficient Table and the Inverse Matrix Coefficient Table. Besides, the various supplementary tables such as the Table on Trade Margin, Domestic Freight, Import, Employment, Employment Matrix, Fixed Capital Matrix and Make Matrix are also published.

On behalf of the Department Head Committee in charge of the input-output compilation, I sincerely hope that this publication would serve its purpose in enhancing the studies of Japanese economy by statistical data and will be of effective assistance toward mutual understanding between Japan and the world at large.

March 2000

Masahiro Horie
Director-General
Statistical Standards Department
Statistics Bureau
Management and Coordination Agency

# CONTENTS

# Introduction

## THE JAPANESE ECONOMY AND THE 1995 INPUT-OUTPUT TABLES

The economic status quo of a particular economy for a particular period of time (normally on a yearly duration basis) may be inferred from the input-output tables (I-O tables) by analyzing the inter-industrial good and service transactions as recorded under the matrix column. As an illustration, a straightforward overall picture of the 1995 I-O tables for Japan with 13 sectors is depicted in Table 1 and the economic structure as inferred from the aforesaid tables is shown in Chart 1.

To begin with, as deduced from the said tables, the Total supply of goods and services in 1995 is 980.82 trillion yen out of which the Domestic production amounted to 937.10 trillion yen (95.5% of the Total supply value) while the Imports valued at 43.7 trillion yen (4.5% of the Total supply value). As compared to 1990, the values of Total supply and Domestic production have increased by 6.5% and 7.1% respectively while the value of Imports has decreased by 4.6%.

Overall, the value of Domestic production has increased due to the expansion of output in such sectors as Commerce, Real estate, Medical service, health and social security and Business services. However, the burst of economic bubbles has contracted the Japanese economies through a long tunnel of economic depression. Recovery rate has been slow as evidenced by the contraction of output in such sectors as Agriculture, forestry and fisheries, Mining, Manufacturing as well as Construction. On the other hand, as far as Imports is concerned, although it has increased in term of quantity, it has contracted in term of value due to the strong yen and depressed crude oil price. Consequently, as compared to 1990, the ratio on the value of Imports as against the value of Total supply has decreased by 0.5 point, i.e., from 5% in 1990 to 4.5% in 1995.

In so far as the value of input structure of Domestic production is concerned, intermediate inputs of goods such as raw materials and fuels and the related services accounted for 431.85 trillion yen which is equivalent to 46.1% in ratio as against the Domestic production. As for the Gross value added, it amounted to 505.25 trillion yen, i.e., 53.9% in ratio as against the Domestic production.

Furthermore, looking from the demand side, the total amount of goods and services demanded in 1995 is 980.84 trillion yen out of which the value of intermediate demand in production amounted to 431.85 trillion yen (44% of the Total

demand value) while the value of Final demand totaled at 548.97 trillion yen (56% of the Total demand value)

As compared to 1990, the values of Total demand, Intermediate demand and Final demand have increased by 6.8%, 1.4% and 11.6% respectively.

Notes:

1. The figures in the 1990 and 1985 tables are nominal values which are rearranged according to sector classifications in the 1995 table.
2. As there have conceptual and methodological differences for estimation among 1985, 1990 and 1995 tables, it is difficult to compare three tables in the strict sense.

## Chart 1. Flow of Goods and Services According to the 1995 Input-Output Tables

(trillion yen)

| Intermediate Inputs 431.9 | | Gross Value Added 505.2 | | | |
|---|---|---|---|---|---|
| Goods | Services | Consumption of Employees | Operating Surplus | Capital Depreciation | Others |
| 237.8 (55.1%) | 194.1 (44.9%) | 273.2 (54.1%) | 99.7 (19.7%) | 80.8 (16.0%) | 51.6 (10.2%) |

Intermediate Input Rate (46.1%)

Gross Value Added Rate (53.9%)

| Domestic Production 937.1 | |
|---|---|
| Goods 439.0 (46.8%) | Services 498.1 (53.2%) |

Imports

43.7

Domestic Production (95.5%)

Imports (4.5%)

Total Supply   980.8 (100.0%)

Total Demand   980.8 (100.0%)

Intermediate Demand (44.0%)

Final Demand (56.0%)

Final Demand   549.0

Exports (4.8%)

Domestic Final Demand (95.2%)

| Domestic Production   502.2 | |
|---|---|
| Consumption 360.4 (71.8%) | Investment 141.8 (28.2%) |

Exports

46.8

Notes:

1: 'Goods' refers to sector 01 to 18 and 31 of 32 sector classification, while 'Services' refers to sector 19 to 30 and 32.

2: 'Consumption' refers to sector 35, 36 and 37, while 'Investment' refers to sector 38, 39 and 40.

3: Component figures may not add up to the total, because of rounding.

## Table 1. Input-Output Table Valued at Producers' Prices (13 Sectors)

| | | Intermediate demand | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| **Intermediate Inputs** | 01 Agriculture, forestry and fishery | 19221 | 8 | 99417 | 1610 | 0 | 100 | 0 | 1 | 23 | 0 | 20 | 12491 |
| | 02 Mining | 0 | 41 | 53006 | 8187 | 13189 | 0 | 0 | 0 | 0 | 0 | 7 | 45 |
| | 03 Manufacturing | 25376 | 959 | 1247342 | 259049 | 14488 | 38247 | 13316 | 1635 | 54426 | 3827 | 26614 | 267704 |
| | 04 Construction | 503 | 105 | 13909 | 2242 | 11664 | 5924 | 1340 | 22788 | 4712 | 1591 | 4627 | 11793 |
| | 05 Electric power, Gas and water supply | 716 | 471 | 59111 | 6203 | 25035 | 11654 | 1940 | 2265 | 8764 | 1811 | 8528 | 46068 |
| | 06 Commerce | 6559 | 291 | 171655 | 61848 | 3146 | 11242 | 2225 | 1066 | 18053 | 762 | 4683 | 78454 |
| | 07 Finance and insurance | 5303 | 733 | 43394 | 9533 | 7238 | 58662 | 35348 | 32706 | 30879 | 2252 | 824 | 53827 |
| | 08 Real estate | 42 | 157 | 11353 | 2731 | 2533 | 38416 | 6772 | 4790 | 8308 | 2445 | 498 | 27639 |
| | 09 Transport | 7273 | 4021 | 93244 | 46994 | 6781 | 53416 | 7046 | 1623 | 52905 | 4151 | 8369 | 38765 |
| | 10 Communication and broadcasting | 135 | 76 | 8682 | 4913 | 1118 | 19014 | 6740 | 435 | 3465 | 9167 | 3826 | 37155 |
| | 11 Public administration | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 12 Services | 1780 | 688 | 207289 | 69945 | 24464 | 53225 | 37826 | 10267 | 65577 | 19902 | 18595 | 142920 |
| | 13 Activities not elsewhere classified | 1507 | 228 | 23154 | 1788 | 1702 | 5874 | 1456 | 5112 | 2286 | 1196 | 4263 | 11511 |
| | Sub-total | 68416 | 7777 | 2031557 | 475043 | 111356 | 295774 | 114010 | 82687 | 249397 | 47103 | 80854 | 728372 |
| **Gross Value Added** | Consumption expenditure outside households | 1228 | 865 | 63512 | 16905 | 5577 | 27203 | 12778 | 2789 | 11009 | 2205 | 5466 | 44386 |
| | Compensation of employees | 14966 | 3380 | 542531 | 292757 | 45614 | 499234 | 139581 | 25083 | 167069 | 49206 | 167690 | 782848 |
| | Operating surplus | 51968 | 2440 | 200708 | 30824 | 35600 | 113029 | 59903 | 284075 | 28051 | 14962 | 0 | 152219 |
| | Depreciation of fixed capital | 17532 | 1528 | 168338 | 45376 | 53666 | 50102 | 36723 | 207987 | 32727 | 28335 | 7631 | 154734 |
| | Indirect taxes | 6222 | 763 | 143192 | 22260 | 14799 | 39584 | 15546 | 40897 | 16317 | 5863 | 528 | 58251 |
| | (Less) Subsidies | -2153 | -158 | -4253 | -1672 | -1977 | -1711 | -15195 | -1667 | -3431 | -46 | 0 | -10814 |
| | Sub-total | 89762 | 8819 | 1114028 | 406450 | 153279 | 727442 | 249336 | 559165 | 251741 | 100525 | 181315 | 1181624 |
| Domestic production | | 158178 | 16595 | 3145585 | 881493 | 264635 | 1023216 | 363346 | 641852 | 501138 | 147628 | 262170 | 1909996 |
| **(Ref.)** | Gross domestic product | 88533 | 7953 | 1050516 | 389545 | 147702 | 700239 | 236558 | 556376 | 240732 | 98320 | 175849 | 1137238 |
| | Net domestic product at factor cost | 66934 | 5820 | 743239 | 323580 | 81214 | 612263 | 199484 | 309158 | 195119 | 64168 | 167690 | 935067 |

| 13 | Sub-Total | Final demand | | | | | | Sub-total | g | h | k | l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | a | b | c | d | e | f | | | | | |
| 0 | 132891 | 1035 | 40771 | 0 | 1994 | 4836 | 412 | 49047 | 181938 | -23760 | 158178 | 24252 |
| 7 | 74482 | 0 | 2 | 0 | -84 | 424 | 164 | 506 | 74987 | -58392 | 16595 | -57886 |
| 4963 | 1957945 | 28395 | 637792 | 7076 | 390843 | 11943 | 378899 | 1454947 | 3412892 | -267308 | 3145585 | 1159245 |
| 0 | 81198 | 0 | 0 | 0 | 800295 | 0 | 0 | 800295 | 881493 | 0 | 881493 | 800295 |
| 915 | 173481 | 48 | 74541 | 16296 | 0 | 0 | 288 | 91173 | 264653 | -18 | 264635 | 91107 |
| 1123 | 361108 | 21747 | 505050 | 36 | 104059 | 1783 | 30998 | 663672 | 1024780 | -1564 | 1023216 | 640361 |
| 9003 | 289701 | 3 | 78138 | 0 | 0 | 0 | 5771 | 83912 | 373612 | -10267 | 363346 | 73642 |
| 735 | 106419 | 0 | 535426 | 0 | 0 | 0 | 52 | 535478 | 641897 | -45 | 641852 | 535433 |
| 1416 | 326003 | 6879 | 146942 | -660 | 8033 | 1624 | 37397 | 200214 | 526217 | -25079 | 501138 | 168255 |
| 98 | 94823 | 1397 | 51679 | 0 | 0 | 0 | 479 | 53555 | 148379 | -750 | 147628 | 51408 |
| 4614 | 4614 | 0 | 7818 | 249737 | 0 | 0 | 0 | 257555 | 262170 | 0 | 262170 | 257555 |
| 3327 | 655806 | 134691 | 639557 | 419141 | 92078 | 0 | 13173 | 1298639 | 1954445 | -44449 | 1909996 | 1119500 |
| 0 | 60076 | 0 | 242 | 0 | 0 | 0 | 461 | 703 | 60780 | -5604 | 55176 | -4901 |
| 26201 | 4318547 | 194194 | 2717958 | 691627 | 1397217 | 20610 | 468091 | 5489696 | 9808243 | -437236 | 9371006 | 4858266 |

| 13 | Sub-Total |
|---|---|
| 271 | 194194 |
| 1647 | 2731605 |
| 23283 | 997062 |
| 3328 | 808007 |
| 473 | 364696 |
| -28 | -43104 |
| 28974 | 5052460 |
| 55176 | 9371006 |
| 28704 | 4858266 |
| 24931 | 3728667 |

Column Codes are:

a : Consumption expenditure outside households

b : Consumption expenditure (private)

c : Consumption expenditure of general government

d : Gross domestic fixed capital formation

e : Increase in stocks

f : Exports

g : Total demand

h : (Less) Imports

k : Domestic production

l : Gross domestic expenditure

Notes:

1. Component figures may not add up the total because of rounding.
2. The values of intermediate transactions include consumption tax.
    Treatment of consumption tax in final demand and gross value added is as follows:
      Gross domestic fixed capital formation and Increase in stocks include consumption tax concerned with buying, which is to be deducted essentially. Exports includes consumption tax on exports, which is concerned with domestic transactions through exporters.
      Indirect taxes include consumption tax, but do not include custom duties, commodity taxes and consumption tax on import goods.
3. Gross domestic product, Net domestic product at factor cost and Gross domestic expenditure are calculated for the I-O table, and do not agree with the final figures of the System of National Accounts.
4. Relationship between 13 sector classification and 32 sector classification is shown in Table 3.

## Table 2.  Input-Output Table Valued at Purchasers' Prices (13 Sectors)

| | | | | | | Intermediate demand | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Intermediate Inputs | 01 Agriculture, forestry and fishery | 20168 | 11 | 124079 | 2587 | 0 | 189 | 0 | 1 | 34 | 0 | 31 | 19395 |
| | 02 Mining | 0 | 57 | 63864 | 12428 | 16371 | 0 | 0 | 0 | 1 | 0 | 11 | 62 |
| | 03 Manufacturing | 34062 | 1274 | 1440212 | 337776 | 17457 | 49319 | 15913 | 2338 | 74314 | 4635 | 31739 | 349172 |
| | 04 Construction | 503 | 105 | 13909 | 2242 | 11664 | 5924 | 1340 | 22788 | 4712 | 1591 | 4627 | 11793 |
| | 05 Electric power, gas and water supply | 716 | 471 | 59111 | 6203 | 25035 | 11654 | 1940 | 2265 | 8764 | 1811 | 8528 | 46068 |
| | 06 Commerce | 0 | 0 | 0 | 0 | 0 | 1403 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 07 Finance and insurance | 5303 | 733 | 43394 | 9533 | 7238 | 58662 | 35348 | 32706 | 30879 | 2252 | 824 | 53827 |
| | 08 Real estate | 42 | 157 | 11353 | 2731 | 2533 | 38416 | 6772 | 4790 | 8308 | 2445 | 498 | 27639 |
| | 09 Transport | 4010 | 3949 | 33355 | 24666 | 3557 | 51097 | 6388 | 1349 | 50768 | 3951 | 7373 | 27105 |
| | 10 Communication and broadcasting | 135 | 76 | 8682 | 4913 | 1118 | 19014 | 6740 | 435 | 3465 | 9167 | 3826 | 37155 |
| | 11 Public administration | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 12 Services | 1782 | 688 | 207578 | 69955 | 24473 | 53362 | 37933 | 10268 | 65584 | 19907 | 18604 | 143212 |
| | 13 Activities not elsewhere classified | 1695 | 256 | 26020 | 2009 | 1912 | 6734 | 1636 | 5747 | 2569 | 1345 | 4793 | 12944 |
| | Sub-total | 68416 | 7777 | 2031557 | 475043 | 111356 | 295774 | 114010 | 82687 | 249397 | 47103 | 80854 | 728372 |
| Gross Value Added | Consumption expenditure outside households | 1228 | 865 | 63512 | 16905 | 5577 | 27203 | 12778 | 2789 | 11009 | 2205 | 5466 | 44386 |
| | Compensation of employees | 14966 | 3380 | 542531 | 292757 | 45614 | 499234 | 139581 | 25083 | 167069 | 49206 | 167690 | 782848 |
| | Operating surplus | 51968 | 2440 | 200708 | 30824 | 35600 | 113029 | 59903 | 284075 | 28051 | 14962 | 0 | 152219 |
| | Depreciation of fixed capital | 17532 | 1528 | 168338 | 45376 | 53666 | 50102 | 36723 | 207987 | 32727 | 28335 | 7631 | 154734 |
| | Indirect taxes | 6222 | 763 | 143192 | 22260 | 14799 | 39584 | 15546 | 40897 | 16317 | 5863 | 528 | 58251 |
| | (Less) Subsidies | -2153 | -158 | -4253 | -1672 | -1977 | -1711 | -15195 | -1667 | -3431 | -46 | 0 | -10814 |
| | Sub-total | 89762 | 8819 | 1114028 | 406450 | 153279 | 727442 | 249336 | 559165 | 251741 | 100525 | 181315 | 1181624 |
| Domestic production | | 158178 | 16595 | 3145585 | 881493 | 264635 | 1023216 | 363346 | 641852 | 501138 | 147628 | 262170 | 1909996 |

| 13 | Sub-Total | Final demand | | | | | | Sub-total | g | h | i | j | k |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | a | b | c | d | e | f | | | | | | |
| 0 | 166493 | 2126 | 75673 | 0 | 1994 | 5158 | 490 | 85440 | 251933 | -23760 | -59260 | -10735 | 228173 |
| 9 | 92804 | 0 | 3 | 0 | -84 | 1675 | 202 | 1797 | 94601 | -58392 | -3059 | -16555 | 36209 |
| 6328 | 2364538 | 50521 | 1132939 | 7146 | 500075 | 13776 | 413711 | 2118168 | 4482706 | -267308 | -946354 | -123459 | 4215398 |
| 0 | 81198 | 0 | 0 | 0 | 800295 | 0 | 0 | 800295 | 881493 | 0 | 0 | 0 | 881493 |
| 915 | 173481 | 48 | 74541 | 16296 | 0 | 0 | 288 | 91173 | 264653 | -18 | 0 | 0 | 264635 |
| 0 | 1403 | 0 | 4524 | 0 | 2859 | 0 | 1202 | 8585 | 9988 | -1564 | 1014792 | 0 | 8424 |
| 9003 | 289701 | 3 | 78138 | 0 | 0 | 0 | 5771 | 83912 | 373612 | -10267 | 0 | 0 | 363346 |
| 735 | 106419 | 0 | 535426 | 0 | 0 | 0 | 52 | 535478 | 641897 | -45 | 0 | 0 | 641852 |
| 1153 | 218721 | 5408 | 117307 | -693 | 0 | 0 | 32240 | 154261 | 372982 | -25079 | 0 | 153235 | 347903 |
| 98 | 94823 | 1397 | 51679 | 0 | 0 | 0 | 479 | 53555 | 148379 | -750 | 0 | 0 | 147628 |
| 4614 | 4614 | 0 | 7818 | 249737 | 0 | 0 | 0 | 257555 | 262170 | 0 | 0 | 0 | 262170 |
| 3345 | 656692 | 134692 | 639652 | 419141 | 92078 | 0 | 13174 | 1298737 | 1955429 | -44449 | -809 | -175 | 1910980 |
| 0 | 67660 | 0 | 257 | 0 | 0 | 0 | 483 | 740 | 68400 | -5604 | -5310 | -2311 | 62796 |
| 26201 | 4318547 | 194194 | 2717958 | 691627 | 1397217 | 20610 | 468091 | 5489696 | 9808243 | -437236 | 0 | 0 | 9371006 |

| 13 | Sub-Total |
|---|---|
| 271 | 194194 |
| 1647 | 2731605 |
| 23283 | 997062 |
| 3328 | 808007 |
| 473 | 364696 |
| -28 | -43104 |
| 28974 | 5052460 |
| 55176 | 9371006 |

Column Codes are:

    a : Consumption expenditure outside households

    b : Consumption expenditure (private)

    c : Consumption expenditure of general government

    d : Gross domestic fixed capital formation

    e : Increase in stocks

    f : Exports

    g : Total demand

    h : (Less) Imports

    i : (Less) Trade margin

    j : (Less) Transportation fee

    k : Domestic production

Notes:

    1. Component figures may not add up the total because of rounding.

    2. Treatment of consumption tax is the same as Table Valued at Producers' Price.

## Table 3.  13 Sector Classification

| 13 Sector Classification | 32 Sector Classification |
|---|---|
| 1  Agriculture, forestry and fishery | 1  Agriculture, forestry and fishery |
| 2  Mining | 2  Mining |
| 3  Manufacturing | 3  Foods |
|  | 4  Textile products |
|  | 5  Pulp, paper and wooden products |
|  | 6  Chemical products |
|  | 7  Petroleum and coal products |
|  | 8  Ceramic, stone and clay products |
|  | 9  Iron and steel |
|  | 10  Non-ferrous metals |
|  | 11  Metal products |
|  | 12  General machinery |
|  | 13  Electrical machinery |
|  | 14  Transportation equipment |
|  | 15  Precision instruments |
|  | 16  Other industrial products |
|  | 31  Office supplies |
| 4  Construction | 17  Construction |
| 5  Electric power, gas and water supply | 18  Electric power, gas and heat supply |
|  | 19  Water supply and waste disposal services |
| 6  Commerce | 20  Commerce |
| 7  Finance and insurance | 21  Finance and insurance |
| 8  Real estate | 22  Real estate |
| 9  Transport | 23  Transport |
| 10  Communication and broadcasting | 24  Communication and broadcasting |
| 11  Public administration | 25  Public administration |
| 12  Services | 26  Education and research |
|  | 27  Medical service, health and social security |
|  | 28  Other public services |
|  | 29  Business services |
|  | 30  Personal services |
| 13  Activities not elsewhere classified | 32  Activities not elsewhere classified |

# EXPLANATORY NOTES

# CHAPTER

## ORGANIZATIONAL STRUCTURE AND COMPILATION PROCESS

### §1.   A Joint-Work Organizational Structure

The input-output tables for Japan have been compiled jointly by the relevant authorities including the Management and Coordination Agency since its first publication in 1955. For instance, the 1995 I-O tables have been compiled by eleven ministries and agencies: Management and Coordination Agency, Economic Planning Agency, Ministry of Finance, Ministry of Education, Ministry of Health and Welfare, Ministry of Agriculture, Forestry and Fisheries, Ministry of International Trade and Industry, Ministry of Transport, Ministry of Posts and Telecommunications, Ministry of Labour and Ministry of Construction.

In order to enhance a smooth compilation process, various committees entrusted with the relevant functions have been established as follow:

(1)  Department Head Committee

This comprises of the relevant department heads of the Ministries or Agencies entrusted with the responsibility in deciding fundamental matters pertaining to the construction of I-O tables.

(2)  Division Head Committee

This comprises of the relevant division heads of the Ministries or Agencies which carries the function in decision making on important matters pertaining to the construction of the I-O tables.

(3)  Technical Committee

This comprises of a panel of specialists which is to advise the above-mentioned Department Heads Committee technical matters on the I-O tables.

(4)  Management Committee

This comprises of the official in charge of the relevant departments to deal with matters or common problems in relation to the I-O tables and act as coordinating agents for the various departments.
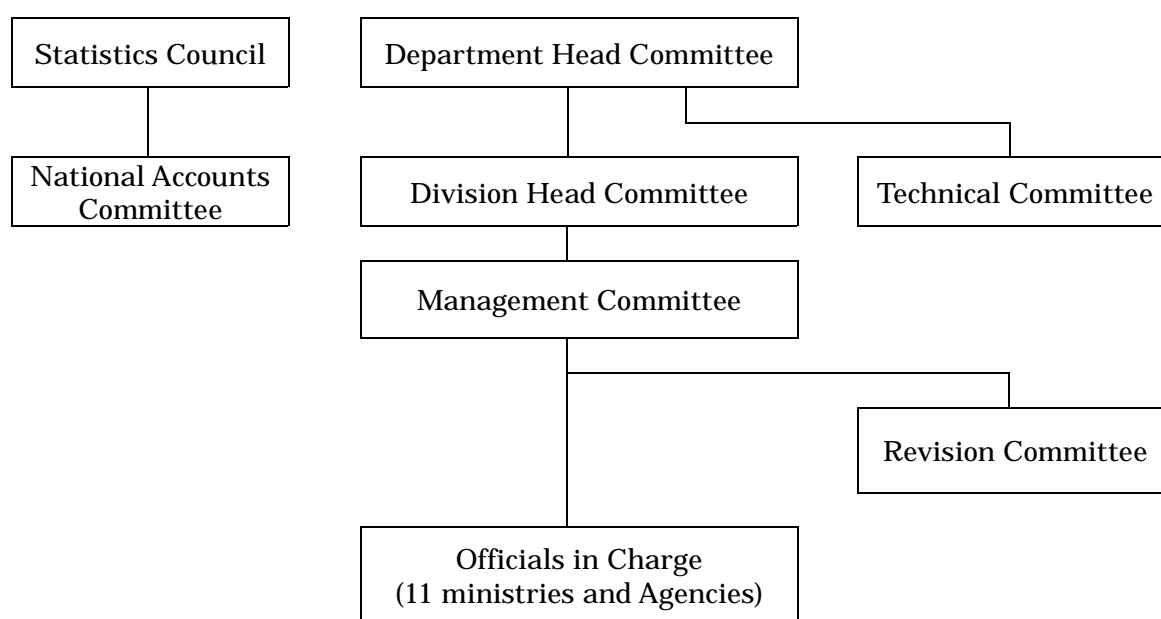
(5)  Revision Committee

This comprises of the official in charge of the relevant departments to deal with matters pertaining to sectors' classification, conceptual definitions and methodological constructs for estimation as well as the contents of the final report.

(6) National Accounts Committee of the Statistics Council

This committee examines and discusses matters relating to the compilation of I-O tables from the point of view of the System of National Accounts.

Chart 1-1.   Joint Work System

```
┌─────────────────┐      ┌──────────────────────────┐
│ Statistics      │      │ Department Head Committee│
│ Council         │      └──────────────────────────┘
└─────────────────┘             │              │
        │                       │              │
┌─────────────────┐      ┌──────────────────┐  ┌──────────────────────┐
│ National Accounts│     │ Division Head    │  │ Technical Committee  │
│ Committee        │     │ Committee        │  └──────────────────────┘
└─────────────────┘      └──────────────────┘
                                │
                         ┌──────────────────────┐
                         │ Management Committee  │
                         └──────────────────────┘
                                │        │
                                │   ┌──────────────────────┐
                                │   │ Revision Committee    │
                                │   └──────────────────────┘
                         ┌──────────────────────┐
                         │ Officials in Charge   │
                         │ (11 ministries and    │
                         │ Agencies)             │
                         └──────────────────────┘
```

Furthermore, the assignments of operations or the scope of responsibilities of the relevant authorities may be detailed as follow:

**Management and Coordinating Agency** (Statistical Standards Department of Statistics Bureau)

(1) Planning, liaison, coordination and publication

(2) Computerized tabulation and analysis

(3) Export and import sectors

**Economic Planning Agency** (National Income Department of Economic Research Institute)

(1) Personal service sectors (exclusive of those covered by other Ministries or Agencies)

(2) Final demand and direct purchase sectors(exclusive of export and import sector)

(3) Gross value added sectors (exclusive of compensation of employees)

**Ministry of Finance** (Research and Planning Division of Minister's Secretariat)

Salt, alcohol, tobacco, finance, insurance, legal, banking as well as accounting services sectors

**Ministry of Education** (Research, Statistics and Planning Division of Minister's Secretariat)

Education and research sectors

**Ministry of Health and Welfare** (Statistics and Information Department of Minister's Secretariat)

Medicament, water supplies and waste disposal services (exclusive of those covered by other ministries or agencies), medical services, health, social security and environmental health services sectors

**Ministry of Agriculture, Forestry and Fisheries** (Research Department of Minister's Secretariat)

Agriculture, forestry, fishery and food industries sectors (exclusive of alcoholic drinks and tobacco)

**Ministry of International Trade and Industry** (Research and Statistics Department of Minister's Secretariat)

(1) Mining and manufacturing industries (exclusive of those covered by other ministries or agencies), electric power and, gas supply, wholesale and retail trade as well as business services sectors. (exclusive those covered by other ministries and agencies)

(2) Office supplies

**Ministry of Transport** (Information and Research Department of Transport Policy Bureau)

Transport and transport equipment sectors (exclusive of motor cars and others)

**Ministry of Posts and Telecommunications** (Finance Department of Minister's Secretariat)

Communications and broadcasting sectors

**Ministry of Labour** (Policy Planning and Research Department of Minister's Secretariat)

(1) Worker dispatching services sectors

(2) Compensation of Employees sectors

**Ministry of Construction** (Research and Information Department of Economics Affairs Bureau)

　　Construction, civil engineering, real estate and related services sectors

## §2.　Compilation Process

　　The compilation process require firstly, the establishment of a set of guidelines followed by in sequence, data accumulation, arrangement, estimation, reconciliation and finally publication. The process involves a massive amount of data couples with an extensive and diversified scope of contents which extends over a five years period (with its tail ends at either 0 or 5) as a joint work effort by the eleven ministries and agencies.

　　Various methodologies may be cited in compiling the I-O tables. As a point of departure, for instance, the United Nations System of National Accounts (herein referred to as 68 SNA) has recommended that the table on commodity input by industry (use table) and the table on commodity output by industry (make table) are prepared first. Based on these tables and by taking into consideration of the industrial or commodity technological assumptions, the commodity by commodity table may be compiled indirectly.

　　On the other hand, from the Japanese perspective, since its first initiative in 1955, the commodity by commodity table is constructed directly. After that, the make(V) table is constructed as supplementary table, and the use (U) table is constructed on the basis of these tables.

## 1. Fundamental Guidelines

　　The I-O tables for Japan have been compiled every five years since 1955 as a joint-work effort by the relevant Ministries and Agencies. As far as its procedural design is concerned, the fundamental guidelines pertaining to the basic matters are firstly determined by the Departmental Head Committee in questioned. "The Fundamental Guideline on the 1995 I-O Tables" has been determined by the said committees in August 1995.

　　As for its methodological constructs, although the basic framework hitherto established, is being adhered to, due regard is paid to the 93SNA as a heuristic device for its compilation process. Moreover, it is determined that the same contents as appeared in the

1990 tables be brought forward for consideration as a joint-work effort by the 11 Ministries as above-mentioned. However, the recent rapid change in the Japanese economic structure has necessitated further improvement in its methodological design in order to assure high accuracy in its computation. In this regard, an expansion in the scope of service sectors and further development of estimates may offer an important point of entry.

## 2. Fundamental Compilation Procedure

The construction of the I-O tables requires firstly, the establishment of a set of concrete principles pertaining to the kinds, forms and structure of tables are prepared. As for the 1995 tables, the Management Committee, in close consultation with the Technical Committee has been discussed and "The Basic Guidelines on the Compilation Work for the 1995 Input-Output Tables" determined by the Department Head Committee in April 1997. These guidelines are deemed to encompass the following matters:

The procedure of work which covers a period of 5 years in duration
Conceptual definitions, theoretical constructs and table categorization procedure.
Basic and aggregate sector classifications together with their relevant codes and the determination of authorities that are responsible for the said assignment.
Conceptual definition and demarcation process for the respective sector.

## 3. Accumulation and Arrangement of Data

As shown in the 1995 I-O tables, all goods and services produced by all industries have been arranged into 5,200 detailed items which are then reclassified into 519 row sectors and 403 column sectors. For the respective sector, the values of domestic production and input-output breakdowns are estimated based on the data available from the governmental statistics and records relating to permits and approvals as well as data compiled by the corporate sectors. However, special surveys inclusive of interviews with the industrial sectors are conducted in cases where the existing statistical data are insufficient for estimation. Furthermore, basic data for such sectors as services, manufacturing, import and export---which are regarded as common activities among the respective ministries and agencies---are compiled by rearranging the

statistical data from the Survey on Service Industries, the Census of Manufacture and Foreign Trade Statistics in accordance with the classification of the I-O tables.

Table 1-1.　Data Sources Used for the Compilation of the 1995 Input-Output Tables

| Organization | Data Sources |
|---|---|
| National Personnel Authority | Survey on Wages of National Public Service Personnel |
| Management and Coordination Agency | Population Census<br>Establishment Census<br>Housing Survey<br>Labour Force Survey<br>Family Income and Expenditure Survey<br>Survey of Research and Development<br>Employment Status Survey<br>National Survey of Family Income and Expenditure<br>Survey on Service Industries<br>Linked Indexes of the 1990-base Consumer Price Indexes<br>Consumer Price Indexes Annual |
| Economic Planning Agency | Survey on Non-profit Private Organizations |
| Ministry of Justice | Justice Yearbook |
| Ministry of Finance | Financial Statements of Incorporated Businesses<br>Foreign Trade Statistics<br>Tax Statistics<br>Report of Securities<br>Annual Report of National Public Service Mutual Aid Association<br>Annual Report on Settled Accounts of Ministries and Agencies<br>Report on Closing Accounts of Special Budget<br>Report on Closing Accounts of Central Government Sponsored Institutions<br>Handbook of Subsidies<br>Situation of Corporated Enterprises based on Tax Statistics<br>Annual Statistical Report of Tax Administration Agency<br>Budget for FY 1995<br>Survey on Taxes and Stamp Revenue |
| Ministry of Education | School Basic Survey<br>Social Education Survey<br>Survey on Financial Affairs of Private Schools<br>Survey on Local Educational Expenditures |
| Ministry of Health and Welfare | Survey of Pharmaceutical Industry productions<br>Survey of Medical Care Facilities<br>Survey on Health Services Facilities for Aged<br>Survey of Social Welfare Institutions<br>Annual Report on Revenue and Expenditure for Hospital Management<br>Annual Report of National Health Insurance Services |

| | |
|---|---|
| | Annual Report on Medical Services for Aged<br>Annual Change of National Medical Care Expenditures<br>Water Works Statistics<br>Survey on the Actual States of the Waste Disposal Business |
| Ministry of Agriculture, Forestry and Fisheries | Census of Agriculture and Forestry<br>Crop Statistics<br>Census of Fishery<br>Statistics of Prices and Wages in Rural Areas<br>Survey on Production Cost of Agricultural Products<br>Statistics on Marketing of Fishery Products<br>Statistics of Movement in Fishery Structure<br>Statistics of Agricultural Income<br>Food Balance Sheet<br>Farm Household Economy Survey<br>Economic Relation Tables on Agriculture and Food Industries<br>Index Numbers of Agricultural, Forestry and Fishery Production<br>Statistics of Synthetic Agricultural Cooperatives<br>Standard Value of Agricultural Fixed Assets<br>Statistics on Production and Shipment of Vegetables<br>Statistics on Production and Shipment of Fruits and Nuts<br>Survey on Production Flower Plants<br>Statistical Tables of Agricultural Mutual Relief<br>Statistics on Marketing Meat<br>Report of Livestock<br>Survey on Production Cost of Livestock Products<br>Statistics of Sericulture<br>Survey on Production Cost of Cocoon<br>Statistics of National Forest Operation<br>Statistics of Forestry Income Produced<br>Report on Supply and Demand of Timber<br>Statistics on Fisheries and Culture Production<br>Report on Fishery Economy – Fishery Household<br>Report on Fishery Economy – Fishery Company<br>Oils and Fats Situation in Japan<br>Annual Statistics on Food Administration<br>Statistics of Hen Eggs and Poultry Marketing |
| Ministry of International Trade and Industry | Census of Manufactures<br>Current Survey of Production<br>Survey of Textile Distribution<br>Census of Commerce<br>Current Survey of Coal Demand and Supply<br>Current Survey of Production in the Gas Utility Industry<br>Current Survey of Non-Ferrous Metals Demand and Supply<br>Current Survey of petroleum products Demand and Supply<br>Current Survey of Commerce<br>Survey of Paper Distribution |

| | |
|---|---|
| | Survey of Selected Service Industries<br>Current Survey of Oil Consumption in Commerce, Mining and Manufacturing<br>Basic Survey of Commercial Structure and Activity<br>Survey of Mining Trend of Japan<br>Statistical Survey of Distribution of Concrete Not Hardened<br>Current Survey of Cement Demand and Supply<br>Current Survey of Iron and Steel Demand and Supply<br>Current Survey of Crushed Stone<br>Survey on Management of Small and Medium Enterprise<br>Report on Quarriers' Activities<br>Annual Report of Electric Utilities<br>Heat Supply Facilities and Its Demand and Supply |
| Ministry of Transport | Survey on Port and Harbour<br>Japan port Statistics<br>Survey on Vessels and Seamen<br>Survey on Seamen's Labour<br>Survey on Shipbuilding and Engineering<br>Survey on Current Rolling Stock Production<br>Survey on Motor Vehicle Transport<br>Survey on Coastwise Vessel Transport<br>Land Transportation Summary<br>Annual Railroad Statistics<br>Air Transport Statistics<br>Monthly Statistics of Transport by Private Railways<br>Quarterly Statistics on Warehouse Services<br>Final Report of Revenue and Expenditure of Special Account to Maintain Airports<br>Collection of Business Reports of Travel Agencies |
| Ministry of Posts and Telecommunications | Survey of the Communications Industry<br>Report on Revenue and Expenditure of Postal Services Special Account<br>Annual Statistical Report on Posts and Telecommunications |
| Ministry of Labour | Monthly Labour Survey<br>Basic Survey on Wage Structure<br>General Survey on Wages and Working Hours System<br>Wage Survey of Forestry Workers by Occupation<br>Report of Worker Dispatching Undertaking |
| Ministry of Construction | Survey of Building Construction Started<br>Survey on Buildings and Structures<br>General Construction Statistics<br>Estimates for Construction Investment<br>Annual Statistics on Roads<br>Coast Statistics |
| Ministry of Home Affairs | Survey on Wages of Local Public Service Personnel<br>Yearbook of Local Finances |
| Bank of Japan | International Balance-of-Payments Statistics<br>Annual Report on Price Indexes<br>Analysis of Main Enterprises' Business Management |
| Other | Statements of Account of NTT (Nippon Telegraph and |

| | Telephone Corporation) |
| --- | --- |
| | Statements of Account of KDD (Kokusai Denshin Denwa Co.,Ltd) |
| | Statements of Account of NHK (Japan Broadcasting Corporation) |
| | Business Report of Public Corporations |
| | Statement of Profit and Loss of Public Corporations |
| | Annual Report on Central Wholesale Markets |
| | Confectionery Industry Statistics |
| | Sugar Statistical Yearbook |
| | Can Packing Review |
| | Gravel Review |
| | Handbook of Chemistry |
| | Shipment Details of Rubber |
| | Survey of Iron and Steel Orders |
| | Shipment Details of Vinyl Chloride Film |
| | Shipment Details of Vinyl Chloride Plate |
| | Yearbook of Motor Vehicle Statistics |
| | Summary of Industrial Machinery Orders |
| | Summary of Machine Tool Orders |
| | Survey on Heavy Machinery and Equipment Orders |
| | Analysis of Financial Reports of Banks |
| | Insurance Yearbook |
| | Water Supply Statistics |
| | Annual Report on Health Insurance Society Business |

Table 1-2.   Special Surveys Conducted for the Compilation of the 1995 Input-Output Tables

| organization | Special Surveys |
| --- | --- |
| Management and Coordination Agency | Input Survey of Service Industries |
| | Survey of Head Offices' Activities |
| Economic Planning Agency | Survey on Local Public Industries' Financial Expenditure |
| Ministry of Finance | Survey of Alcoholic Liquor Production Industries |
| Ministry of Health and Welfare | Basic Survey for Compilation of the Input-Output Tables |
| Ministry of Agriculture, Forestry and Fisheries | Input Survey of Agricultural Service |
| | Input Survey of Log Production (Non-national forest) |
| | Input Survey of Marine Culture |
| | Input Survey of Inland Water Culture |
| | Input Survey of Food Industry |
| | Input Survey of Agricultural Construction |
| | Input Survey of Seed and Seeding |
| | Input Survey of Forestry Construction Ordered by Government |
| Ministry of International Trade and Industry | Input Survey of Mining and Manufacturing Industries |
| | Commodity Distribution Survey |
| | Survey on Capital Goods Demand Structure |
| | Survey of Commercial Margins |
| Ministry of Transport | Input Survey on Undertakings Concerned with Transportation |

| | Survey on Parking Area Utilization<br>Survey on Freight Income of Coastal Ships<br>Survey on Prefectural and Local Government Transportation Facilities |
|---|---|
| Ministry of Posts and Telecommunications | Input Survey of Communication and Broadcasting |
| Ministry of Labour | Survey of Service Industry Labour Expense<br>Survey of Worker Dispatching Undertaking |
| Ministry of Construction | Input Survey of Building Expenses<br>Input Survey of Construction Ordered by Government<br>Input Survey of Construction Ordered by Public Corporation<br>Input Survey of Real Estate Industry |

## 4. Estimation and Reconciliation

Once the basic data together with the relevant statistics are accumulated, the value of domestic production, input and output for the respective sectors are estimated. This exercise forms the gist of the whole compilation process which consumes a massive amount of time and labour force.

### (1) Estimation of Domestic Production

In estimating the I-O tables, the value of the domestic production is first determined and after which the breakdown figures for input and output are estimated.

In short, all goods and services produced by every industry are arranged into approximately 5,200 detailed items which are in turn further classified and calculated into row (7digits) or column (6digits) sectors in basic sector classification. With this, the domestic production of the respective detailed item of goods is in principle, estimated by the multiplication of the unit price with its quantity. However, as for the items of services, its value is estimated directly based on the sales amount of the respective detailed items. This is due to the fact that unit prices do not exist for the said items in most cases. Moreover, as far as the producer of government services activity and the producer of private non-profit services for households are concerned, their production value is estimated by the accumulation of the cost of their activities.

### (2) Input Estimation

The value of input, which may be estimated from the individual items in the column sector (6 digits) refers to the structure of cost components and gross value added of domestic production in the respective sector.

### (3) Output Estimation

The value of output, which may be estimated from the individual items in the row sector (7 digits) refers to the sale values of domestic production to an identified production sector or a final demand sector.
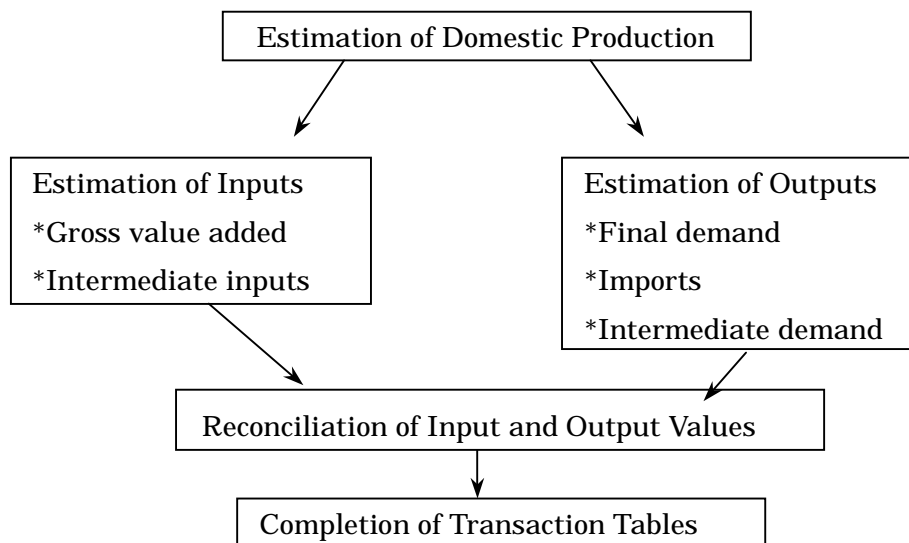
### (4) Consumption Tax

Consumption tax was first introduced on 1st April 1989 in Japan. When compared to the previous straightforward single indirect commodity tax system, the newly introduced indirect multiphase tax system is non-cumulative and complicated. In view of data constraints, the respective transaction value in the I-O tables is shown in gross value. Furthermore, indirect tax in lieu of operating surplus as appeared in the 1990 tables has been included in computing the value of consumption tax.

### (5) Reconciliation of Input and Output Values

Since the input and output values are estimated separately by using different methodology and data, differences are bound to occur even though the respective computation may relate with each other in the corresponding transaction sector. Hence, an integrated course of reconciliation between these estimates of the respective transaction is necessary. In the light of this observation, 5 extensive meetings---each lasted for 4 days and attended by about a total of 1000 related staffs---have been held to undertake the task of reconciliation process for the 1995 I-O tables.

Chart 1-2.   Procedure of estimation and reconciliation

Estimation of Domestic Production

Estimation of Inputs
*Gross value added
*Intermediate inputs

Estimation of Outputs
*Final demand
*Imports
*Intermediate demand

Reconciliation of Input and Output Values

Completion of Transaction Tables

## 5. Coefficient Tables

After compiling the transaction tables, various coefficient tables such as the input coefficient tables and the inverse matrix coefficient tables which are required for I-O analysis need to be constructed. The following tables have been compiled for the 1995 I-O tables:

(1) Input Coefficients
(2) Inverse Matrix Coefficients
(3) Production Inducement Coefficients
(4) Import Inducement Coefficients
(5) Gross Value Added Inducement Coefficients

## 6. Supplementary Tables

Various supplementary tables are compiled to make up for the deficiencies in the transaction table as well as to enable multiple use of the input-output tables. The following supplementary tables have been compiled for the 1995 I-O tables:

(1)    Table on Trade Margins*
(2)    Table on Domestic Freight *
(3)    Table on Import*
(4)    Table on Scrap and By-products
(5)    Table on Value and Quantity
(6)    Persons Engaged in Production Activities (by employment status)*
(7)    Employees Engaged in Production Activities (by occupation)*
(8)    Fixed Capital Formation Matrix*
(9)    Table on Commodity Output by Industry (Make Matrix)*
(10)   Table on Self-Transport

Note: Tables with the * sign are shown in this publication.

## 7. Publication and Report

Upon completing the compilation of the above tables; that is, transaction tables, coefficient tables and the supplementary tables, the final report is published.

The final report for 1995, was published in May 1999 in 3 volumes, namely,

Explanatory Report (Vol. 1) and Data Report (Vols.2 &3). The data have also been released in March 1999. Furthermore, prior to the publication of these reports, a preliminary release of the transaction and the coefficient tables which covers 93 sectors was given in September 1998.

# CHAPTER

# OUTLINE OF THE 1995 INPUT-OUTPUT TABLES

## §1.    Basic Structure and Theory

### 1. The Structure of I-O Tables

The I-O tables record a matrix of good and service transactions among industries for a certain region and within a certain period of time (normally for one year duration). The values of domestic production as well as the input components (for goods and services) of the individual sector may be inferred from the figures as appeared in the column sector of the I-O tables. Moreover, the sales amount of domestic production as well as import of the respective good and service sectors demanded may be inferred from the row sector of the tables.

As illustrated on top of the overall structure of the I-O tables, the good and service items on the demand side are mainly classified under intermediate demand sector or final demand sector. While the former refers to the production sector of the respective goods and services, the latter concerns about consumption, investment and exports.

On the other hand, the side of the table is the good and service sectors of the supplier side which consists of the intermediate input and the gross value added sectors. While the former refers to the supply of the respective intermediate goods and services of the individual sector, the latter discloses the factor cost of production such as labour and capital.

Furthermore, while the final demand and the gross value added sectors are in general, termed as the exogenous sector, the intermediate demand or input sectors are regarded as the endogenous sector. The scope of the latter sector determines the size of the I-O tables.

### 2.The Scope of the I-O Tables

The I-O tables cover production activities and transactions of goods and services conducted in a certain region among period of time. The I-O tables for Japan cover the aforesaid activities and transactions conducted within a covered time and domestic

area.

## 3.Timing for Recording

Domestic production of goods is recorded at the time they are produced and that of services at the time they are provided. Intermediate consumption of goods and services is recorded at the time they are actually incurred in the production process. Furthermore, consumption expenditures of final demand sectors, namely; outside household, household and general government expenditures, are recorded at the time they are incurred irrespective of the time of deliveries. Gross domestic fixed capital formation is recorded at time of delivery while the net increase in stock is recorded at the time where legal proprietary rights are transferred. Finally, imports and exports are recorded at the time of customs clearance.

## 4. Sector Classification

## 4.1 The Criteria

### (1) Classification According to Production Activity (in term of unit)

In principle, sector classifications are decided in accordance to production activities of goods and services. In the case of certain establishment which holds more than 2 production activities, the said activities are, in principle subjected to reclassification under the appropriate separate grouping based on the activity. This concept is similar to the commodity classification. For instance, the activities for a manufacturing retail industry are divided into manufacturing and retail activities respectively. Indeed, the I-O tables for Japan are constructed in line with the activity based classifications, and are called commodity-by-commodity tables.

### (2) Relationship between Row and Column Sectors

In principle, the row and column sectors must be in a one to one correspondence. However, in the case of manufacturing activities such as the petroleum refinery which produces different goods with different unit prices and usage, the row sector which  strictly represents the output structure is divided by commodity.

On the other hand, if different types of manufacturing equipment or processes such as electric power generation are required to produce the same commodity,

the input structure may be divided and summarized under the row sector. Subsequently, the basic transaction table displays a rectangular form with more row sectors than column sectors.

## 4.2 Endogenous Sectors

The I-O tables for Japan are composed of basic sector classification and consolidated sector classification (which consists of 4 basic sectors) and may be illustrated as follow:

| Sector classification | Number of Sectors |
|---|---|
| Basic sector | 519 × 403 |
| Minor consolidated sector | 186 |
| Intermediate consolidated sector | 93 |
| Major consolidated sector | 32 |
| 13 sector | 13 |

In addition to the above, a detailed item classification which contributes to the structure of the basic sector may be given. This forms the base for computing the value of domestic production of the respective basic sector.

In this publication, the tables of the intermediate consolidated sector are presented.

## (1) Basic sector classification

The basic sector classification (with 519 row sectors and 403 column sectors) is tailored in such a way as to be compatible with the United Nations International Standard Industrial Classification (ISIC) and the Standard Industrial Classification for Japan.

The basic sectors of the respective classification are established based on such factors as input structure, the volume of domestic production, and the availability of sources data and others.

This classification provides a framework for the estimation of domestic production, input and output. For instance, with approximately 5200 types of good and service detailed in accordance to the basic sector classification, the domestic production for each basic sector may be computed.

The row sector of the basic sector classification has 7 digits (519 sectors) coding system whereas the column sector has 6 digits (403 sectors).

Special codes as shown as follow are used for such special commodities as scrap and by-products, trade margins and domestic transportation fees.

|  | Special Codes |
| --- | --- |
| Scrap inputs (use) | 2 |
| Scrap outputs (generation) | 3 |
| By-product inputs (use) | 4 |
| By-products output (generation) | 5 |
| Trade margins | 6 |
| Domestic transportation fees | 7 |

These codes are indicated next to the last digit of the Basic Sector Classification Code.

## (2) Consolidated Sector Classification

The Minor, Intermediate and Major Consolidated Sectors Classifications are established in accordance to the Basic Sector Classification. These classifications facilitate input-output analysis that uses input and inverse matrix coefficients. Although in principle, the Minor Consolidated Sectors Classification with 186 sectors is established in line with the 4 digits classification of the ISIC, there are several sectors which are divided or consolidated in accordance with the economic *status quo* of Japan. Furthermore, the upper 4 digits code of the Basic Sector Classification corresponds with the Minor Consolidated Sectors Classification. Finally, while the Intermediate Consolidated Sectors Classification with 93 sectors is used for the normal I-O analysis, the Major Consolidated Group with 32 sectors is used for straightforward analysis purpose.

## (3) Transactor Based Production Activity Classification

This classification has been introduced to the basic sector classification since 1975, deals with the transactor based production and supply of goods and services. Moreover, the transactor is categorized in industries, producers of government services and producer of private non-profit service for households.

## 4.3 Exogenous Sector

The components of the final demand and gross value added are almost established in correspondence with the System of National Accounts.

However, a slight deviation from this approach is seen in the consumption

expenditure outside households sector. This sector corresponds the business consumption expenditure, and encompass the final demand as well as the gross value added sectors. Although the consumption expenditure outside households is computed based on the SNA standard under the endogenous sector, the I-O tables for Japan is treated as part of the operating surplus to be treated in the exogenous sector. This methodology helps to stabilize the input coefficients.

## 5. Valuation Method

The transaction tables record the actual transaction of goods and services conducted during the year. Valuation of each transaction is shown strictly in monetary term. Furthermore, in addition to the table in monetary term, "Table on Value and Quantity" is compiled as supplementary tables on a part of goods.

### (1) Purchasers' and Producers' Price

Transactions can either be valued at the price the producers received or the price the purchasers paid. The price difference that exists between them is ascribed to the fact that the purchasers' price is inclusive of trade margins and domestic transportation charges, while the producers' price does not. The value transaction flows for Japan is compiled based on both prices.

Since the values of transactions of services do not include domestic transportation fees and trade margins and are computed to the exclusion of certain special sectors, it is expected that the values of most of the transactions as between the producers and purchasers are deemed to remain the same.

Besides, the amount of domestic transportation fees and trade margins differs not only by the types of good and service transacted but also for the same goods and services, the transaction patterns are in most cases, different. Hence, to stabilize input coefficients, it is recommended that the purchaser's price be used as a base for basic transaction computation purpose.

### (2) Uniform and Actual Prices

The prices of commodities in actual economy vary in accordance to such factors as regional and seasonal fluctuations as well as the differences in the structure of demand and supply or the transaction patterns. A commodity may either be valued at "uniform price" irrespective of customer specifications and transaction patterns or at "actual price" derived from the actual cost incurred. The latter computational method is used for the I-O tables for Japan.

### (3) Basic Value

This value is derived from the producers' price minus commodity taxes such as consumption, tobacco, liquor and other indirect taxes plus subsidies. The 68SNA recommended that the transaction value be computed by using the basic value. In this regard, however, in the case where commodity taxes are included the transaction value, discrepancies may arise. This is due to the fact that since tax rates are not necessary stable and are subjected to variations according to consumer patterns---that is, for example whether it is a household or non-household transaction---their (tax rates) changes may exert an impact on the input coefficients.

However, in Japan, except for the 1970's tables, the impact of indirect taxes on basic values has not been seriously discussed.

### (4) Exports and Imports Valuations

The values of exports in the producers' price tables are estimated at producers' price, the same method as applied for goods for domestic demand. In the purchasers' price tables, they are valued at FOB prices inclusive of trade margins and domestic transport fees. Since external trade statistics are computed at FOB prices, their values are directly applicable in the purchasers' price tables. However, domestic transportation fees and trade margins which are included in the FOB price have to be deducted in the producers' price tables.

Moreover, the values of imports whether the producers' or purchasers' price tables are estimated at CIF prices inclusive of international transport fees and insurance. In addition, the transaction value of the respective import as detailed in the basic transaction tables is also estimated at CIF prices inclusive of customs duties and commodity taxes.

### (5) Consumption Tax

The consumption tax differs from the individual indirect taxes such as the former commodity taxes which were imposed on specific goods and services. In principle, consumption tax is a non-cumulative multi-indirect tax imposed on each and every process of good and service of transactions. In addition, the tax imposed on purchase is deducted in order that the tax may not be accumulated in the intermediate transaction stages.

As the prices of commodities as appeared in the I-O tables are inclusive of the former indirect taxes, their values irrespective of intermediate or final

demand are also estimated by taking into consideration the tax element as the cost of input. However, as usual, the consumption tax imposed on the transaction for intermediate demand sector is, in principle deducted from the purchasers' side (input side). Consequently, the value of intermediate input should be estimated net of tax deductible. However, in view of the difficulties involved in computing the net values, the figures as appeared in the 1995's I-O tables---as similar to the 1990's tables ---are shown in gross value.

## 6. Domestic Production

### (1) Definition of Domestic Region

Domestic production refers to all goods and services (inclusive of intermediate items) produced in the domestic region from January to December 1995. 'Domestic region' is defined here as to cover Japanese enterprises engaged in air and sea transport activities managed by Japanese enterprises, Japanese embassies and consulate in foreign territories but excluding foreign embassies consulates and US forces in Japan.

### (2) Self-Production and Consumption

The value of domestic production is computed by aggregating the value every basic classification sector based on the figures of the detailed items (approximately 5,200 of items) . This computational methodology runs the risk of double counting in case that one of the component items in a sector concerned is also used a raw material for production of another item in the same sector as mentioned. In an integrated production process where the intermediate products are produced and consumed entirely and exclusively within its own sector, their amounts are, in principle discarded in the computation of the values of domestic production. However, commodities such as pig iron and crude steel which are going to be consumed at once in the next stage of production process, are separated and recorded by commodity for domestic production if they have different structures of input and output respectively.

Moreover, in cases where the estimations of domestic production are based on the shipment statistics by the detailed items, there is no method for estimating the values of internal production and consumption. Consequently, their amounts are not contained in the estimation of domestic production. Thus, the computational methodology for self-production and consumption accounts, differs from case to case, depending on the source of information or statistics

available. Finally as for self-production and consumption goods in the households, their values are treated as self-households consumption of farm and fishery households.

### (3) Goods and Services in Non-Profit Activities

The value of domestic production in the endogenous sector is estimated by the revenues derived from the transaction in the sector concerned. However, the value of domestic production in producer of government and private non-profit services for households is estimated by their total cost.

### (4) Method of Estimation

a.   Domestic production of approximately 5,200 types of goods and services are estimated and aggregated according to the Basic Sector Classification of the I-O tables

b.   Domestic production of goods is in principle, estimated on the 'quantity by unit value' basis and that of services, 'value by volume of sales'.

c.   As for most of the manufactured commodities, estimation is made by taking into account the stocks (stocks of producers' finished goods and semi-products), by-products and scrap, processing revenues, etc.

d.   For other commodities, utilized various data such as the Current Production Statistics, the Survey of Mining Trend of Japan, the Establishment Census and Survey of Construction Work Started as well as statistics compiled by the private enterprises associations.

### (5) Producers' Price Valuation Based on Actual Prices of Domestic Production

The value of domestic production is valued at producers' market shipment prices. The producers' market shipment prices refers to selling price inclusive of current cost as well as the profit of headquarters or the controlling offices. Such indirect taxes as consumption taxes which inflate the selling price are included and current government subsidies that deflate the figure, are valued as negative items. Besides, trade margins and domestic transportation fees are not included. In addition, industries such as forestry, quarry and others where the places of production are not specified, valued at the price of the nearest market to the producing districts. Additionally, transportation fees from the producer to the market are treated as production cost.

Indirect taxes imposed in the process of producing commodities are included in the domestic production of sector which pay them, taxes levied in the process of distribution are included in the production cost of commerce.

Fluctuations of stocks of semi-finished goods and work in progress are valued at the average prices of the opening and closing year.

Domestic production for service sectors are valued at the price paid by those receives the services. The values of its sectors covering finance, insurance, house rent   and others are based on their imputed values.

## 7. Input and Output Value

The column and row data as appeared in the endogenous sector disclose the cost and demand compositions of the I-O tables respectively. However, to be specific, changes in stocks and fixed capital formation are not depicted in the endogenous sectors but located in the exogenous sectors of the final demand column. In this connection, the depreciation of fixed capital is located in the exogenous row sector of the gross value added.

## (1) Input Estimation

The estimation of inputs (cost components) begins firstly with the computation of the value added such as compensation of employees followed by the aggregation of the intermediate items. Concretely speaking, raw material cost, fuel expenses, salary and wages, capital depreciation and domestic consumption tax and others incurred in the manufacturing process are inferred from the Census of Manufactures. The detailed cost components in the endogenous sectors are determined based on the information on production technologies and input data specifically compiled for the I-O tables. Inputs for other sectors are also estimated in the same manner as mentioned. The major sources of data used for the above computation are mainly derived from, *inter alia*, Current Production Statistics, the Survey on Production Cost of Agricultural Products and others are used. However, as the existing data may be insufficient, special input and output surveys and interview surveys from the private enterprises' associations are conducted in order to make up for the deficiencies.

## (2) Output Estimation

      The estimation of outputs is estimated firstly, by aggregating the values of domestic production and import to arrive at the total supply for every row sectors. By subtracting the amount of exports from the total supply, the total domestic supply for every row sector is given. By taking into consideration of the characteristics of the respective detailed items of the gross domestic supply, the output value is estimated based on the respective demand statistics. Furthermore, because of data constraints, estimation should begin from the input sector first.

## (3) Reconciliation of Input and Output Values

      The estimated value of input and output are reconciled to arrive at a single value for the 220,000 cells in the I-O tables. In view of data constraints, the input sector is relied heavily in the reconciliation process.

## 8. Special Treatment

    In the individual sector of the basic transaction tables, there are several sectors treated specially according to 68 SNA concept or for analyzing and compiling the I-O tables.

## 8.1 Commerce and Transportation Estimation

## (1) Domestic Production

      For the sector of commerce, only the trade margins are recorded in the table at producer' prices. On the other hand, as far as the purchasers' price tables are concerned, trade margins are recorded as a part of purchasers' prices. For this reason, domestic production valued at purchasers' prices is larger than that valued at producers' prices. For the transportation sectors, domestic transportation fees are recorded likewise.

## (2) Cost Transportation and Cost Trade Margins

      As the cost transportation and trade margins as defined below differed from the usual distribution cost, these margins are recorded in either of the producers' and purchasers' prices tables under the 'transport' or 'commerce' row sector.

## a. Cost Trade Margins

(a) Services supplied by the agents of foreign trading companies which are not directly related to imported goods but commercial services are recorded as import of commercial services in the column sector of imports (special trade). These values are treated as cost trade margins of wholesale sectors. Likewise, services supplied by the agents of Japanese trading companies for export of commercial services are treated as cost trade margins in the column sector of exports (special trade).

(b) For the transactions of second hand goods within a sector, only the trade margins are recorded as commercial cost.

## b. Cost Transportation Margins

(a) Transportation fees incurred in the process of production:

Transportation fees incurred for transporting such commodities as log, fresh food supplies from the production place to the collecting points or the wholesaler market where the producers' market prices of such commodities are determined.

Transportation fees for transporting raw materials and semi-finished products such as iron and steel within a huge producing factory, and for transporting production facilities.

(b) Transportation fees for goods such as second hand, parcel, mail, wastes and others

## 8.2 Import

There are two methods of treating imports under the basic transaction tables. One is the 'competitive import type' which treats imports and domestic products as identical. The other is the 'non-competitive import type' which treats imports and domestic products as different.

In principle, the basic transaction tables for Japan are of 'competitive import type'. However, as appeared in the Basic Classification Tables, certain important competitive imported items such as raw materials and soybeans are recorded separately under the row sector of the imported items. Therefore, the basic transaction tables for Japan are in fact consists of both competing and non competing imported items. In addition, as import table on, compiling as a supplementary table could facilitate the compilation of 'non-competitive import' tables.

### 8.3 Scrap and By-Products

Secondary products derived from economic activities are separated from the activities and recorded in the sectors in which the products are primarily produced. However, as far as scrap is concerned, as there is no sector to produce them mainly, so a dummy row sector for scrap is created to cover the gap in the tables.

There are four methods, in treating scraps and by-products.

(a) A lump sum method
(b) Transfer method
(c) Minus input method (Stone method)
(d) Separation method

The minus input method is applied in most cases in the I-O tables for Japan. Exceptions are as follows:

The lump sum method is used in the poultry sector pertaining to fertilizing process

The transfer method is used in the advertising sector such as  newspaper, magazines and broadcasting

### 8.4 Imputation

In case transactions are not actually conducted, but utilities are fictionally produced and there are those who receive these utilities, 'Imputation' is conducted. 'Imputation' means to value the utilities at the market price and to compute such value as domestic production for the sectors producing the utilities.

Domestic production for the following sectors are estimated by imputing the utilities that are not actually transacted in the market but are received by the users:

a. Imputed financial interest: The financial services in the strict sense, which means the control of deposits and loan services.
b. The services of life and Non-life insurance.
c. The Depreciation of fixed capital for the government buildings: The governmental buildings of public administration and education sectors which are not depreciated, is imputed the depreciation and recorded in the row sector of the Depreciation of Fixed Capital.

d. House rent which include not only dwellings supply by the house owners but also the employers.

## 8.5 Dummy Sector

Although the respective categories as appeared in the endogenous sector of the I-O tables is compiled based on the types of activities involved, there exist some sectors which are not considered as independent industrial sectors. In this case, 'dummy sector' is established to accommodate the aforesaid activities so as to facilitate compilation process.

In the 1995 I-O tables, as for instance, the following dummy sectors have been created:

(a) Office supplies
(b) Self-transport
(c) Iron scrap, non-ferrous metal scraps and waste papers

## 8.6 Rental and Leasing of Goods and Services

The computation of the sectors above costs are based either on 'the user' or 'the owner' principles. The former is recorded the cost of production facilities in an individual sector concerned. This may be referred to the cost of using the services rendered by the owner, which may include, among others, the costs of maintenance, depreciation, and rental (net), and recorded as the cost for an individual sector or the operating surplus. On the other hand, ' the owner principle' refers to the costs incurred in rendering the production facilities and are necessary include, among others, leasing cost of equipment incurred as an intermediate input in the respective production sector.

In the 1985 tables, part of the leasing and rental of goods and services has been taken out and computed under the 'user principle'. However, after the 1990 tables, the weighting for leasing and rental for goods and services sector has been on the rise. This necessitates the establishment of an independent sector to deal with it accordingly. In addition to this, in view of the difficulties involved in applying the basic data estimated based on the 'user principle', it is suggested that the 'owner principle' be used in computing the values of leasing and rental for goods and services activities.

## 8.7 Government and Private Non-Profit Organization serving Households Activities

Government activities are mainly classified into three categories, namely; activities provided by (1) the industrial sector, (2) private non-profit Organization serving households and, (3) government sector.

Government activities that are classified under the industrial sector are treated exactly as the same way as the private industrial sector. Moreover, for analysis purpose, services provided by the government sector are further divided into public and non-public services. However, as no corresponding industrial sector exists for 'public activities' and for computation convenience, government expenditures for the aforesaid activities are imputed from the differences between the value of domestic product and sales revenue. Likewise, the 'quasi-public' and the 'producer of private non-profit service for households' sectors are computed in the same manner.

## §2.   The Input-Output Tables for Japan --- Compilation Procedure

The first compilation of the I-O tables for Japan dates back to 1955 where the Ministry of International Trade and Industry (MITI) and the Economic Planning Agency (EPA) have for the first time started to compile the 1951 tables respectively. However, while the tables compiled by the MITI consists of 182 sectors, the one completed by the EPA covers 9 sectors. Moreover, different methodological computation and has inevitably resulted in inconsistency in their interpretation. In view of this, under the recommendation of the Statistics Council, it has been acknowledged that a joint work effort among all the related Ministries and Agencies should be initiated to facilitate an integrated compilation process.

Thus, the 1955 I-O tables, published in June 1961, have been compiled as a joint effort assignment by six ministries and agencies, namely; Administrative Management Agency, Economic Planning Agency, Ministry of Agriculture and Forestry, Ministry of International Trade and Industry, Ministry of Construction and Statistics Bureau of Prime Minister's office.

Since then, this joint-effort principles have been adhered to in the compilation of the 1960, 1965, 1970, 1975, 1980, 1985, 1990 and 1995 I-O tables for Japan, which are compiled as a joint work by the relevant ministries and agencies on a five years basis coordinated by the Management and Coordination Agency.

However, a series of modifications has been made in the course of their compilation process. For instance, in compiling the 1970 tables, due considerations

have been paid to the advice or recommendation of the 68SNA of the United Nations and the revisions of the International Standard Industrial Classification of All Economic Activities. The sector classifications for the 1985 tables, as for example, have been extensively modified in accordance with the revisions of the Standard Industrial Classification for Japan.

In addition, with the introduction of consumption tax, its treatment under the 1990 tables has been discussed whereby it was decided that the said tax be treated under operating surplus.

Furthermore, as regard to the sector classifications of the 1995 tables, due considerations have been given to the previous framework and the 1993 SNA as well as the Standard Industrial Classification for Japan revised in October 1993. Quite apart from that, the structure of the I-O tables has been modified based on the recommendations of the 93SNA of the United Nations by taking into consideration of the following elements:

consumption structure

scope of producer of private non-profit services for households

computation methodology on the growth of plants and poultry farm animals

treatment of historical monuments

treatment of fixed capital of which its utility may be transferable for households or enterprises consumption purpose.

individual good account computation

import value computation (adjustment value from CIF to FOB)

revision on the scope of public enterprise

computation of the value of productive capital of intangible fixed asset

However, it should be noted that no alteration has been made in respect to items , and mentioned above. Besides, consumption tax inclusive of operating surplus is not treated as an independent sector but including in the indirect taxes.

Table    Flow of the Input-Output Tables for Japan

| Subject | Computation |
|---|---|
| 1. Number of sectors<br><br>  (Basic Sector Classification) | 1951: 182 rows    182 columns    *1<br>          9          9    *2<br>          62        62    *3<br>1955: 310        278<br>1960: 453        339<br>1965: 467        339<br>1970: 467        341<br>1975: 558        411<br>1980: 554        405<br>1985: 529        408<br>1990: 527        411<br>1995: 519        403 |
| 2. Transactions within own sector | 1951: All are included in principle.<br>1955: All are included in principle, except for those values of parts and semi-finished goods that are consumed within sector.<br>1960-1975: Same as 1955.<br>1980: Same as 1955, but production for farm and fishery households is computed irrespective of self-product or selling.<br>1985-1995: Same as 1980. |
| 3. Scrap and By-products | 1951: Scrap and by-products are in principle dealt with by "Transfer method". For MITI table, scrap is classified under the "scrap sector".<br>1955: "Transfer method".<br>1960: Scrap and by-products are in principle dealt with by "Stone's method".<br>1965-1995: Same as 1960. |
| 4. Valuation | 1951: Actual producers' prices.<br>1955: Uniform producers' prices.<br>1960: Actual producers' prices (tables valued at actual purchasers' prices are also compiled). |

| | 1965-1995: Same as 1960. |
|---|---|
| 5. Imports | 1951: Competing and non-competing inclusive (mixed method). |
| | 1955: Mixed method. Simplified non-competing type tables are also estimated. |
| | 1960: Competing, non-competing imports are also compiled. |
| | 1965-1970: Same as 1960. |
| | 1975: Mixed method (A partial non competing tables are also compiled). |
| | 1980-1995: Same as 1975. |
| 6. Consumption expenditure outside households | 1951: Treated as an endogenous sector. |
| | 1955: Same as 1951. |
| | 1960: Treated as an exogenous sector. |
| | 1965-1995: Same as 1960. |
| 7. Public school, hospital services, and others | 1951: The output is treated as government consumption expenditure. Treated as industrial sector. |
| | 1955: The output is treated as households consumption expenditure. Treated as industrial sector. |
| | 1960-1970: Same as 1951 |
| | 1975: The portion borne by the households is treated as household consumption expenditure, while the balance is treated as government consumption expenditure. |
| | 1980-1990: Same as 1975. |
| | 1995: Same as 1975. In addition, medical service is treated as the industrial sector. |
| 8. Public administration and defense | 1951: Treated as government consumption expenditures. |
| | 1955: Same as 1951. |
| | 1960: Endogenous sector for public administration and defense is set up, but only value added items are estimated. The output is treated as government consumption expenditures. |

| | |
|---|---|
| | 1965-1970: Same as 1960. |
| | 1975: Same as 1960, but for these sectors are treated intermediate consumption expenditures. |
| | 1980-1990: Same as 1975. |
| | 1995: Same as 1975, but the final government consumption expenditure have been divided into individual and collective expenditure respectively. |
| 9. Imputed services of financial institutions | 1951: All are charged to the households for convenience purpose. |
| | 1955: Same as 1951. |
| | 1960: Charged to the depositors who receive the service either in the industrial or household sector. |
| | 1965: Same as 1960, but are obviated at intersections between financial sectors. |
| | 1970: Charged to the current depositors which first receive the services, and the balance charged to the industrial or household sector. But the services are again obviated between financial sectors. |
| | 1975: Same as 1970, but are not shown in the final demand sectors. Charged to intersections between financial sectors. |
| | 1980: Same as 1975. Lending and imputed interest are treated in intermediate consumption of industrial sectors. |
| | 1985: Same as 1975. |
| | 1990: Same as 1975. Housing loan are treated in intersection between housing charges and financial sector. |
| | 1995: Same as 1975. |
| 10. Re-exports and re-imports | 1951: Included in exports and imports sectors. |
| | 1955: Same as 1951. |
| | 1960: Excluded from the exports and imports sectors. |
| | 1965: Imports and exports are included to re-exports |

| | and imports sectors. |
|---|---|
| | 1970: Re-export and imports of vessels are excluded with the balance treated as unidentified items. |
| | 1975-1990: Same as 1970. |
| | 1995: The value of imports and exports of vessels are excluded. With the exception of the value of vessels, the re-export and re-import value are deducted from the export value and import values respectively. |
| 11. Custom duties | 1951: Inclusive of indirect taxes is treated in the households sector |
| | 1955: Same as 1951 |
| | 1960: The '(less) custom duties' sector is set up in final demand and treated minus input at each import items. Import items are broken down in detail and compiled respectively. |
| | 1965-1995: same as 1960 |

*1   Ministry of International Trade and Industry

*2   Economic Planning Agency

*3   Ministry of Agriculture, Forestry and Fisheries

## §3.   Other Input-Output Tables

### (1) Extended I-O Tables

The Ministry of International Trade and Industry has been compiling extended I-O tables annually for its own use by updating the tables for each bench-mark year.

### (2) Use Tables

The Economic Planning Agency has been constructing the use tables annually as part of the compilation process for the national account statistics for Japan. Based on the recommendation of the SNA, the Commodity Flow Method has been adopted for the compilation of use matrix. However, the use matrix for a particular bench-mark year is constructed as a joint-work effort based on the transaction tables and the make matrix from the supplementary table.

### (3) Regional and Inter-Regional Tables

Regional Tables for the nine regions in Japan and their respective inter-regional tables are compiled by the Ministry of International Trade and Industry in collaboration with the regional offices.

### (4) Prefecture Tables

Prefecture governments of the respective region prepare their own I-O tables. The national compilation I-O team provides all the necessary assistance---which include, among others, organizing workshop session, provision of procedural manuals and the relevant data---in order to facilitate their compilation assignments.

# CHAPTER

# COEFFICIENT TABLES

A repercussion effect analysis under an input-output system mainly carried out with the aid of a set of coefficient tables, which are deduced from the basic transaction tables. One of them is the matrix of input coefficients and the other is the table of inverse matrix coefficients, which is computed by using the matrix of input coefficients.

In addition, the values such as domestic production, gross value added and imports induced by final demand are calculated by using the inverse matrix coefficients.

## §1. Input-Output Model

Basic structure of the transaction table is shown as follows:

| | Intermediate Demand $j$ | | | | Final Demand | Domestic Production |
|---|---|---|---|---|---|---|
| Intermediate Inputs | $x_{11}$ | $\cdots$ | $x_{1j}$ | $\cdots$ | $x_{1n}$ | $F_1$ | $X_1$ |
| | $\vdots$ | | $\vdots$ | | $\vdots$ | $\vdots$ | $\vdots$ |
| $i$ | $x_{i1}$ | $\cdots$ | $x_{ij}$ | $\cdots$ | $x_{in}$ | $F_i$ | $X_i$ |
| | $\vdots$ | | $\vdots$ | | $\vdots$ | $\vdots$ | $\vdots$ |
| | $x_{n1}$ | $\cdots$ | $x_{nj}$ | $\cdots$ | $x_{nn}$ | $F_n$ | $X_n$ |
| Value Added | $V_1$ | $\cdots$ | $V_j$ | $\cdots$ | $V_n$ | | |
| Domestic Production | $X_1$ | $\cdots$ | $X_j$ | $\cdots$ | $X_n$ | | |

Note:

$x_{ij}$ is the quantity of output of sector " $i$ " absorbed as an input by sector " $j$ ".

$X_i$ is the domestic production of sector " $i$ "

$F_i$ is the quantity of output of sector " $i$ " absorbed by the final demand.

$V_j$ is the quantity of gross value added absorbed as an input in sector " $j$ ".

Given that economy is divided into 'n' sectors, then the mathematical expression of the balance for every row is described by the following set of 'n' equations.

$$\begin{cases} x_{11} + \cdots\cdots + x_{1n} + F_1 = X_1 \\ \qquad\qquad \vdots \\ x_{i1} + \cdots\cdots + x_{in} + F_i = X_i \\ \qquad\qquad \vdots \\ x_{n1} + \cdots\cdots + x_{nn} + F_n = X_n \end{cases} \qquad (1)$$

And the balance for every column is decribed by the following set of 'n' equations.

$$\begin{cases} x_{11} + \cdots\cdots + x_{n1} + V_1 = X_1 \\ \qquad\qquad \vdots \\ x_{1j} + \cdots\cdots + x_{nj} + V_j = X_j \\ \qquad\qquad \vdots \\ x_{1n} + \cdots\cdots + x_{nn} + V_n = X_n \end{cases} \qquad (2)$$

## §2. Input Coefficient

A special assumption for input- output analysis is that the input from production sector " $j$ " to production sector " $i$ "($x_{ij}$) is directly proportional to the output of sector " $j$ " ($X_j$). This assumption can be expressed in the following equation.

$$x_{ij} = a_{ij} X_j \quad (i, j = 1,2\cdots,n) \qquad (3)$$

$a_{ij}$ , which is called "input coefficient", represents input per unit of domestic production from sector $j$ to sector $i$. From (1) and (3), it can be deduced that

$$\begin{cases} a_{11}X_1 + \cdots\cdots + a_{1n}X_n + F_1 = X_1 \\ a_{n1}X_1 + \cdots\cdots + a_{nn}X_n + F_n = X_n \end{cases} \qquad (4)$$

(4) can be written as

$$\mathbf{A}X + F = X \qquad (5)$$

Where

$\mathbf{A}$ is a matrix of input coefficient : $\mathbf{A} = (a_{ij})$

X is a vector of the value of domestic production: $X = (X_i)$

F is a vector of the value of final demand: $F = (F_i)$

The following assumptions are made in order to secure stabilization of the input coefficients;

(a) Change in the output of an industry leads to proportional changes in the quantities of its intermediate and primary inputs.

(b) Changes in relative prices, technology, and the composition of sector output are slow and may be ignored.

## §3.  Inverse Matrix Coefficient

### 3.1 Definition and computation of Inverse Matrix Coefficient

From (5), transferring $\mathbf{A}X$ to the right hand side, gives;

$$(\mathbf{I} - \mathbf{A})X = F \qquad (6)$$

The general solution for the unknown vector X can be deduced by inverting the matrix $\mathbf{I} - \mathbf{A}$:

$$X = (\mathbf{I} - \mathbf{A})^{-1} F \qquad (7)$$

Whereby $\mathbf{I}$ denotes a unit matrix.

$(\mathbf{I} - \mathbf{A})^{-1}$ is known as the "inverse matrix" whose elements are referred to as inverse matrix coefficients. The inverse matrix coefficient $b_{ij}$ at the intersection of row $i$ and

$j$ column  represents the amount of output of sector " $i$ " required directly and indirectly to satisfy one unit of final demand for sector " $j$ ".

### 3.2 Inverse matrix

The treatment of imports in the basic transaction tables has an important effect on the input-output model. Various inverse matrix may be calculated based on the following methodologies:

a. $(\mathbf{I} - \mathbf{A})^{-1}$

A simplified demand and supply balancing equation in which imports are regarded as independent item as distinguished from domestic products and determined

exogenous factors. This may be expressed as follow;

$$\mathbf{A}X + F - M = X \tag{8}$$

$M = (M_i)$ is a vector whose elements are the value of imports of every column sector.

The solution for $X$ is:

$$X = (\mathbf{I} - \mathbf{A})^{-1}(F - M) \tag{9}$$

b. $\left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right]^{-1}$

Dividing vector $F$ into domestic final demand vector $Y = (Y_i)$ and exports vector $E = (E_i)$ gives:

$$F = Y + E \tag{10}$$

Substituting (10) into (8) gives:

$$\mathbf{A}X + Y + E - M = X \tag{11}$$

Should imports be proportional to domestic demand $\mathbf{A}X + Y$, then

$$M = \hat{\mathbf{M}}(\mathbf{A}X + Y) \tag{12}$$

where $\hat{M}$ indicates the diagonal matrix whose elements are defined as:

$$\hat{\mathbf{M}} = \begin{pmatrix} m_1 & 0 & \cdots & 0 \\ 0 & m_2 & & \vdots \\ \vdots & & \ddots & 0 \\ 0 & \cdots & 0 & m_n \end{pmatrix} \qquad \text{where } m_i = \frac{M_i}{\sum_j a_{ij} X_j + Y_i} \tag{13}$$

Substituting (12) into (11) gives:

$$\left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right] X = (\mathbf{I} - \hat{\mathbf{M}}) Y + E \tag{14}$$

Solution for $X$ is:

$$X = \left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right]^{-1}\left[(\mathbf{I} - \hat{\mathbf{M}}) Y + E\right] \tag{15}$$

c. $(\mathbf{I} - \mathbf{A}^d)^{-1}$

Using the import matrix, a non-competing import model may be constructed. The balance for domestic production is represented as below:

$$\mathbf{A}^d X + F^d = X \tag{16}$$

Solution for the $X$ is :

$$X = (\mathbf{I} - \mathbf{A}^d)^{-1} F^d \tag{17}$$

Where vector $\mathbf{A}^d X$ intermediate demand of national products, vector $F^d$ final demand of national products.

### 3.3 Power of Dispersion and Sensibility of Dispersion

The vertical sum of every column sector of the inverse matrix coefficients divided by the mean value of vertical sum is called 'Power of Dispersion by Sectors'. the horizontal sum of every row sector of the inverse matrix coefficients divided by the mean value of horizontal sum is called 'Sensibilities of Dispersion by Sector'.

Power of Dispersion by Sector gives the multiplicative effect on a unit of final demand of every column sector on all industries. The "Sensibilities of Dispersion by Sector" gives the multiplicative effect on a unit of final demand of all column sectors on every row sector.


## §4. Relations between Final Demand and Domestic Production

### 4.1 Domestic Production Induced by Individual Final Demand Items

Every industry in the endogenous sector supplies goods and services to the production sectors as well as the final demand sectors. Generally speaking, the production activities of the endogenous sectors are designed to cover the differences arise from the final demand and its production level, the latter of which is in turn depends on the size of the final demand.

With reference to equation (15) and based on the competing import model, import as per domestic demand as appear in the I-O tables may be written as follow:

$$X = \left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right]^{-1}\left[(\mathbf{I} - \hat{\mathbf{M}})\,Y + E\right] \tag{18}$$

$$\begin{array}{ccc} \text{domestic} & \text{inverse} & \text{value of} \\ \text{production} & \text{matrix} & \text{final demand} \end{array}$$

Domestic production induced by individual final demand items refers to the production of every industry induced by individual final demand item. In so far as the final demand is concerned, it can be broadly classified into (i) consumption expenditure outside households, (ii) consumption expenditure (private), (iii) consumption expenditure of general government, (iv) gross domestic fixed capital formation, (v) the increase in stocks and (vi) exports.

These classifications serve as bases for identifying and analyzing the items in the final demand that influence the value of domestic production.

As stated, the final demand vector $F$ may be divided into domestic final demand vector $Y$ and export vector $E$, and the various vectors of the domestic final demand

items (e.g. consumption expenditure (private), Increase in stocks, etc.) may be derived from vector Y of the domestic final demand which may be represented as follow:

$$Y = Y_1 + Y_2 + \cdots + Y_N \tag{19}$$

here $N$ is the number of vectors of domestic final demand items.

Given that $X_k$ represents the induced production value derived from the respective domestic final demand, then the induced production may be written as follow:

$$X_k = \left[ I - (I - \hat{M})A \right]^{-1} (I - \hat{M}) Y_k \quad (k = 1, 2 \cdots N) \tag{20}$$

$X_E$ which is induced by exports $E$ is:

$$X_E = \left[ I - (I - \hat{M})A \right]^{-1} (I - \hat{M}) E \tag{21}$$

As the aggregate of induced value by the respective final demand items is equivalent to the value of domestic production; the aggregate of (19), (20) and (21) gives:

$$X = X_1 + X_2 + \cdots + X_N + X_E \tag{22}$$

## 4.2 Production Inducement Coefficient

Production Inducement Coefficient by the respective final demand is defined as the domestic production induced by individual final demand items divided by the amount of the corresponding final demand. It indicates the rate of increase of domestic production of every industry derived from a unit increase of the final demand item. That is to say, given that $Y_k, X_k, E$ and $X_E$ as:

$$Y_k = \begin{pmatrix} Y_{1k} \\ \vdots \\ Y_{nk} \end{pmatrix}, \qquad X_k = \begin{pmatrix} X_{1k} \\ \vdots \\ X_{nk} \end{pmatrix} \quad (k = 1, 2 \cdots N : \text{domestic final demand items} \quad )$$

$$E = \begin{pmatrix} E_1 \\ \vdots \\ E_n \end{pmatrix}, \qquad X_E = \begin{pmatrix} X_{1\,N+1} \\ \vdots \\ X_{n\,N+1} \end{pmatrix}$$

then, the domestic production of industry $"i"$ induced by the domestic final demand item $"k"$ and exports $"N+1"$ will be $X_{ik}$ and $X_{i\,N+1}$ respectively, and the Production Inducement Coefficients are:

$$\frac{X_{ik}}{\sum_{i=1}^{n} Y_{ik}} \quad (k = 1,2 \cdots N) \qquad \text{(domestic final product)}$$

$$\frac{X_{i\,N+1}}{\sum_{i=1}^{n} E_i} \qquad \text{(exports)} \qquad\qquad (23)$$

## 4.3 Dependency Ratios

Dependency ratios are defined as the domestic production induced by final demand item divided by the amount of the corresponding industrial domestic production. They indicate the degree of influence or weighting of the respective final demand items on the corresponding industrial domestic production sector.

With reference to equation (22), the value of domestic production $X_i$ in $i$ industrial sector may be detailed as follow:

$$X_i = \sum_{k=1}^{N} X_{ik} + X_{iE} \qquad\qquad (24)$$

The dependency ratio for the final demand can be deduced as:

$$\frac{X_{ik}}{X_i} \quad (k = 1,2 \cdots N) \qquad \text{(domestic final product)}$$

$$\frac{X_{i\,N+1}}{X_i} \qquad \text{(exports)} \qquad\qquad (25)$$

## 4.4 Relations between final demand, gross value added and imports

The above relationship may be expressed in the same manner as follows: the induced value added vector is,

$$\hat{\mathbf{V}}\left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right]^{-1}(\mathbf{I} - \mathbf{M})\,\mathbf{Y}_k \qquad \text{(domestic final demand)}$$

$$\hat{\mathbf{V}}\left[\mathbf{I} - (\mathbf{I} - \hat{\mathbf{M}})\mathbf{A}\right]^{-1}\mathbf{E} \qquad \text{(exports)}$$

here,

$\widehat{V}$ is a diagonal matrix:
$$\hat{V} = \begin{pmatrix} \dfrac{V_1}{X_1} & 0 & \cdots & 0 \\[2ex] 0 & \dfrac{V_2}{X_2} & & \vdots \\[2ex] \vdots & & \ddots & 0 \\[2ex] 0 & \cdots & 0 & \dfrac{V_n}{X_n} \end{pmatrix}$$

and the induced imports are:

$$\left\{ \hat{M}A\left[I - (I - \hat{M})A\right]^{-1}(I - \hat{M}) + \hat{M} \right\} Y_k \quad (k = 1,2 \cdots N) \qquad \text{(domestic final demand)}$$

$$\hat{M}A\left[I - (I - \hat{M})A\right]^{-1} E \qquad\qquad\qquad\qquad \text{(exports)}$$

# CHAPTER

# SUPPLEMETARY TABLES

The I-O basic transaction tables summarize all the goods and services for a period of one year based on all available data. However, the fact remains that it is practically impossible to encompass all the relevant data in the I-O tables. Subsequently, various supporting or supplementary tables are constructed to facilitate various analytical processes. For instance, in the 1995's I-O tables, the following supplementary tables have been compiled for this purpose:

(a) Table on Trade Margins
(b) Table on Domestic Freight
(c) Table on Import
(d) Table on Persons Engaged in Production Activities (by Employment Status)
(e) Table on Employees Engaged in production Activities (by Occupation) -Employment Matrix
(f) Fixed Capital Matrix
(g) Table on Commodity Output by Industry(Make Matrix)
(h) Table on Scrap and By-Products
(i) Table on Value and Quantity
(j) Table on Self-Transport

This publication contains seven supplementary tables ranging from (a) to (g).

## 1. Table on Trade Margins

The table shows the distributive trade margins of the respective sectors pertaining to their individual goods transaction and is recorded in the row and column sectors. The trade margins as appeared in the producers' price table is computed in total at the intersection between the respective sectors of the intermediate and final demand as well as trade column sectors. Besides, in the purchasers' price table, each and every transaction value is computed. Therefore, as it is not possible to deduce the value of trade margin from each and every individual transaction from the purchasers' or the producers' tables, the tables as supplemented by the basic transaction table is constructed.

Trade margins may be computed while compiling the producers' and purchaser' prices tables.

## 2. Table on Domestic Freight

This table indicates the value of domestic freight, as recorded in the row sector, for goods transaction in each and every sector in the basic transaction table. As in the case of trade margin, direct inferences from the producers' and purchasers' price tables pertaining to domestic freight of the individual transaction are not possible, and hence, a supplementary transaction table needs to be compiled.

Again, like the estimation of trade margins, the value of domestic freight, may be computed in between the process of compiling the producers' and purchasers' tables.

## 3. Table on Import

Imports as appeared in the basic transaction table for Japan are in principle treated as 'competitive type'. This means that the transaction value of each and every input and output (domestic and import alike) is computed in their aggregate. Accordingly, direct and exclusive inference for the transaction value of either of the commodities (import or domestic) is impossible.

Hence, the compilation of import tables serves its function in disclosing, exclusively, the transaction value of import as appeared in the basic transaction table. Consequently, other information such as import structure, sector classification as well as consumption patterns may be inferred from the table.

The amount disclosed in the import table is the aggregate sum of the respective import (ordinary, special trade or direct purchase alike), custom duties as well as import commodity taxes and are shown in the form of matrix.

## 4. Table on Persons Engaged in Production Activities (by Employment Status)

The Tables show ,for each column sector, the annual average numbers of employees and paid directors, which serve as the base for estimation of employees, compensation in the transaction table, as well as those of self-employed workers and unpaid family workers. From these tables, labour input coefficients, total labour requirements (labour induced by final demand) and others are calculated. A dispersion analysis on labour is conducted by the use of these coefficients.

The estimation of the numbers of regular employees, temporary or day employees

and paid directors is mainly based on Population Census, the Establishment Census and the Census of Manufactures. The numbers of self-employed workers and unpaid family workers are estimated from the Population Census and the Employment Status Survey in most cases.

## 5. Table on Employees Engaged in Production Activities (by Occupation) –Employment Matrix

The tables give, for each of 91-column sectors, breakdown of employees including paid directors into occupational categories. As in the case of the Table on Persons Engaged in Production Activities, the employment matrix is utilized to measure impacts of possible changes in the final demand on employees to be needed by occupational category.

These tables are compiled from the occupational distribution ratios for each column sectors obtained from the Population Census and the corresponding numbers of employees obtained form the Tables on Persons Engaged in Production Activities. It should be noted that the conversion of the Population Census data to the input-output sector concepts is not straightforward and some problems still remain at the most detailed level.

## 6. Fixed Capital Matrix

Basically, gross domestic fixed capital formation covers the transaction value of the reproducible capital assets with purchaser unit price at more than 200,000 yen and utility duration of more than one year. These cover, among others, buildings, machinery and equipment as well as productive capital services rendered by the poultry or agricultural sectors. Furthermore, as gathered from the 1995's tables, the scope of intangible assets or capital formation has for the first time extended to cover software industry pertaining to software production received as well as mineral exploration in progress.

Moreover, as appeared in the basic transaction tables, only the aggregate values as appeared in the column sector of the respective gross domestic fixed capital formation (public or private) in the final demand sector are shown, individual value or segment involved in process of capital formation is not indicated in isolation.

Fixed capital matrix, indicates the specifications and value of capital formation (column sector) of the major individual investment sectors which is detailed under three classifications, namely, 'public', 'private' and public and private. The structure of the capital formation sector is, in principle, derived from the intermediate consolidated

sector classification which consists of 93 sectors.

The computation of the aforesaid matrix is based on such information as the Survey on Capital Goods Demand Structure, the Census of Manufactures, the Survey of Construction building Started as well as the values of domestic production of the public and   private sectors. With this, the composition of the capital formation sector is imputed based on the relevant information from the input sector. Any necessary adjustment is made in the process of computation.

## 7. Table on Commodity Output by Industry (Make Matrix)

This table indicates the specifications of goods and services (inclusive of scrap and by-products) produced by the respective industries in the form of industry-by-commodity matrix.

Although industrial production activities as appeared on the side of the table are, in principle, classified under the intermediate consolidated sectors classification (with 93 sectors), there are some sectors which are corresponded with consolidated sector classification (with 186 sectors). Furthermore, the major production sectors are sub-divided into, (i) industry, (ii) producer of government service, (iii) producer of private non-profit service for households.

The values of the manufacturing and service sectors are computed by re-arranging the result of the Census of Manufactures and the Survey on Service Industry respectively. As scraps and by-products are computed in the values of domestic production, the aggregate value of the respective commodity sector corresponds with the aggregate value of CT plus scrap or by-products.

## 8. Table on Scrap and By-Products

In principle, this table for Japan is constructed based on the minus input method (stone method). Hence, it is not possible to deduce the output value of scrap and by-products from the basic transaction table.

However, the conditions input and the output of scrap and by-products may be inferred from the basic transaction tables.

## 9. Table on Value and Quantity

This table indicates the quantity rather than the monetary value of the major goods transacted. This methodology maintains a stabilizing function on the input coefficients.

In order to avoid a vast difference in price standard as well as unit quantity duplication and also in order to facilitate automatic computation of individual import and domestic product based on an average unit price in the 1995 tables, the trial balance is constructed.

## 10. Table on Self-Transport

This matrix, as recorded under the column sector of the basic transaction table, shows the disaggregation of goods and services required for 'Transport by private cars (passengers)' as well as 'Transport by private cars (freight)' transport activities.

The input structure of goods and services of self-transportation activities as well as the output conditions of the respective column sector may be inferred from the aforementioned matrix.

# CHAPTER V

# STRUCTURE OF THE JAPANESE ECONOMY AS INFERRED FROM THE 1995 INPUT-OUTPUT TABLES

## 1. Composition and Growth of Total Supply

As inferred from the 1995's table, the total amount of goods and services (inclusive of Domestic production and Imports) supplied amounted to 980.82 trillion yen, out of which, Domestic production accounted for 937.1 trillion yen (95.5%) and Imports 43.72 trillion yen (4.5%). As compared to 1990, while the Domestic production has increased by 0.5 point, Imports has fallen by 0.5 point. The ratio of Imports to the Total supply has fallen for 1990 and 1995 due to the decline of import prices and other factors.

In 1990, while the Total supply and domestic production have increased by 6.8% and 7.4% respectively, Imports has decreased by 4.6%.

Chart 5-1 Composition of total supply
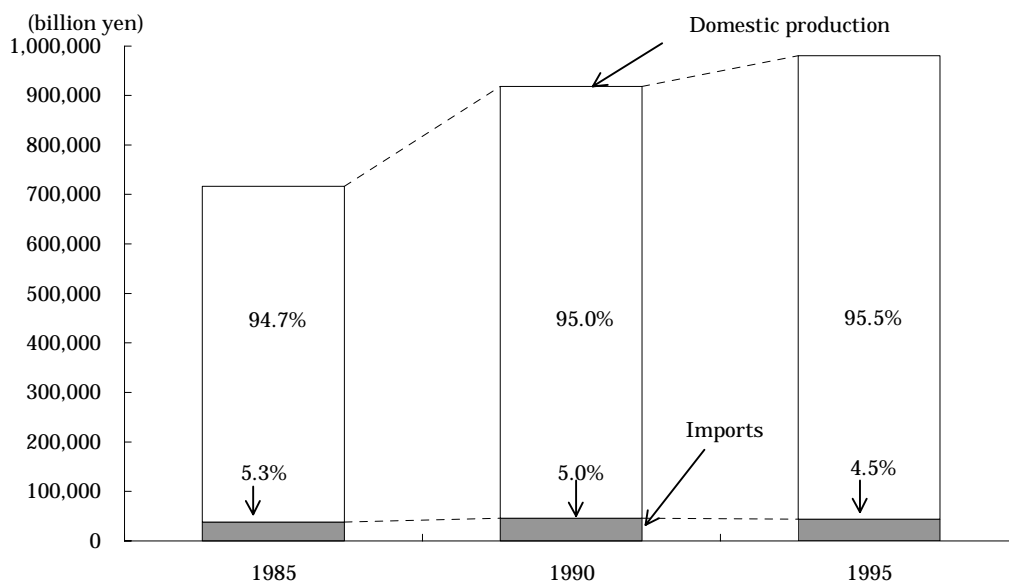
## Chart 5-2 Comparative growth of total



Legend: ■ 1985～1990  □ 1990～1995

(Categories: Total supply, Domestic production, Imports)
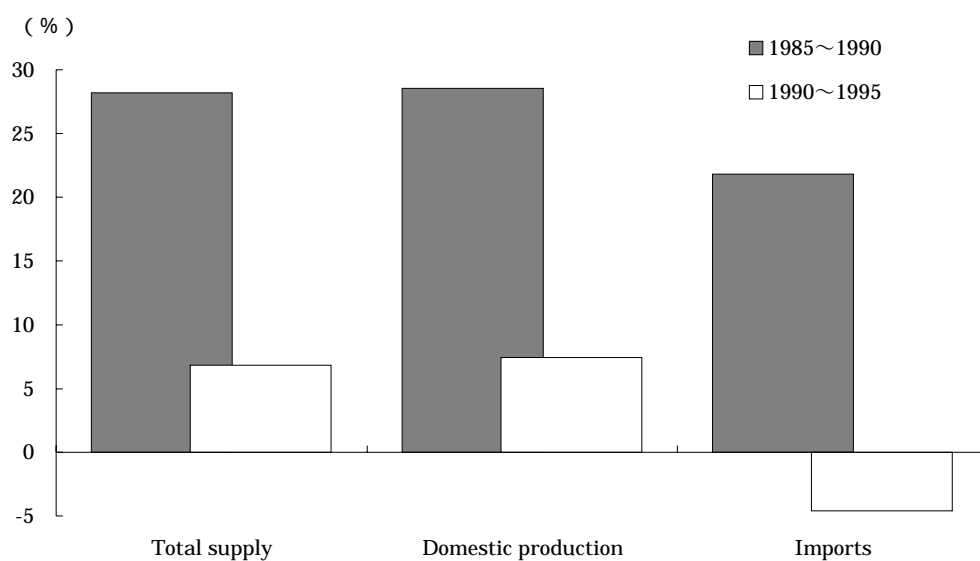
## Table 5-1 Composition and growth of total supply

| | Value (billion yen) | | | Distribution Ratio (%) | | | Growth (%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 1990 | | 1990 1995 | |
| Total supply | 716,156.4 | 918,045.5 | 980,824.3 | 100.0 | 100.0 | 100.0 | 28.2 | | | 6.8 |
| Domestic production | 678,538.2 | 872,212.2 | 937,100.6 | 94.7 | 95.0 | 95.5 | 28.5 | | | 7.4 |
| Imports | 37,618.2 | 45,833.3 | 43,723.6 | 5.3 | 5.0 | 4.5 | 21.8 | | △ | 4.6 |

Notes: 1. The table derive from 32 sectors table.
     2.The total figures don't always corresponded with sum amount of details rounded.
     3.The distribution ratio and growth in the table are calculated on a million yen basis.

## 2. The Domestic Production Trend

The domestic production for 1995 as compared to 1990 has increased by 7.4% to 937.1 trillion yen. In other words, the annual average rate of increase from 1990 to 1995 is 1.4%.

Chart 5-3 Domestic production trend
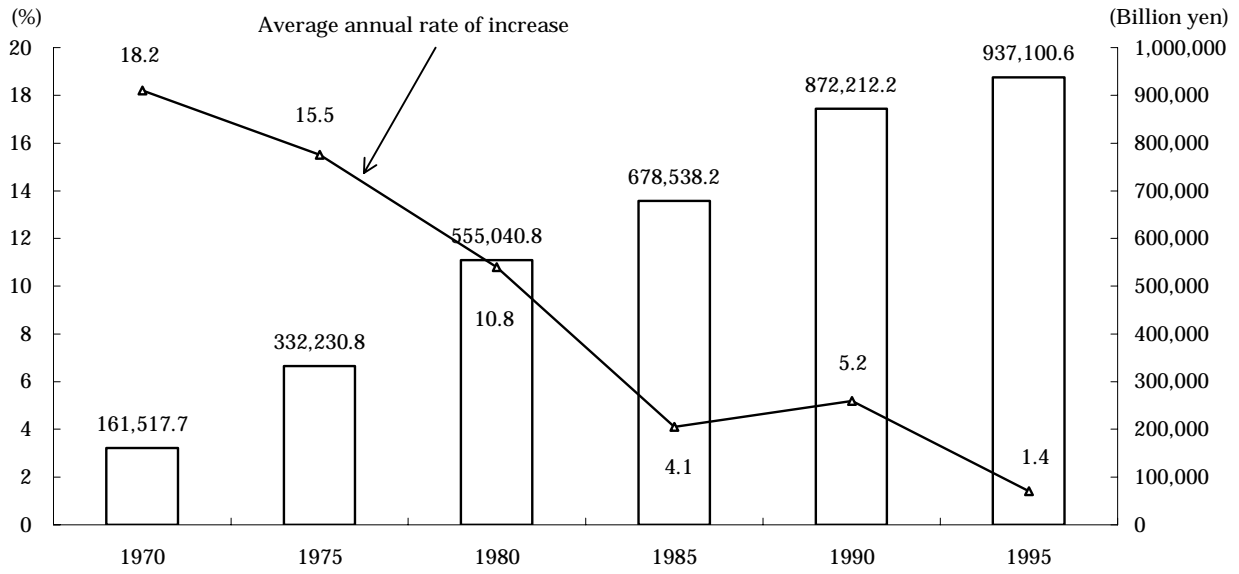


Table 5-2 Domestic production trend

| Domestic production (billion yen) | | | | | |
|---|---|---|---|---|---|
| 1970 | 1975 | 1980 | 1985 | 1990 | 1995 |
| 161,517.7 | 332,230.8 | 555,040.8 | 678,538.2 | 872,212.2 | 937,100.6 |

Table 5-3 Annual charge of domestic production

| Average annual rate of increase (%) | | | | | |
|---|---|---|---|---|---|
| 1965  1970 | 1970  1975 | 1975  1980 | 1980  1985 | 1985  1990 | 1990  1995 |
| 18.2 | 15.5 | 10.8 | 4.1 | 5.2 | 1.4 |

## 3. Domestic Production by Industrial Specifications

By sector classification (13 sectors in all), domestic production in 1995 for the manufacturing sector has the highest ratio (33.6%), followed in sequence, by services (20.4%), commerce (10.9%), construction (9.4%) and real estate (6.8%) respectively. The ratio of tertiary industry exclusive of agriculture, forestry and fishery, mining, manufacturing and construction has increased from 47.0% in 1990 to 53.2 % in 1995.

A comparative review of the tertiary industrial trend with that of 1990 indicates that the ratios for services has risen by 2.0 points (from 18.4% to 20.4%), commerce by 1.5 point (from 9.4% to 10.9%) and real estate by 1.1 point (from 5.7% to 6.8%). On the other hand, in so far as the primary and secondary industries are concerned, the ratios for agriculture, forestry and fishery have fallen by 0.3 point (2.0% to 1.7%), manufacturing by 5.1 points (from 38.7% to 33.6%), and construction by 0.8 point (from 10.2% to 9.4%) respectively.

## Chart 5-4 Domestic production trend



Chart 5-4 Domestic production trend
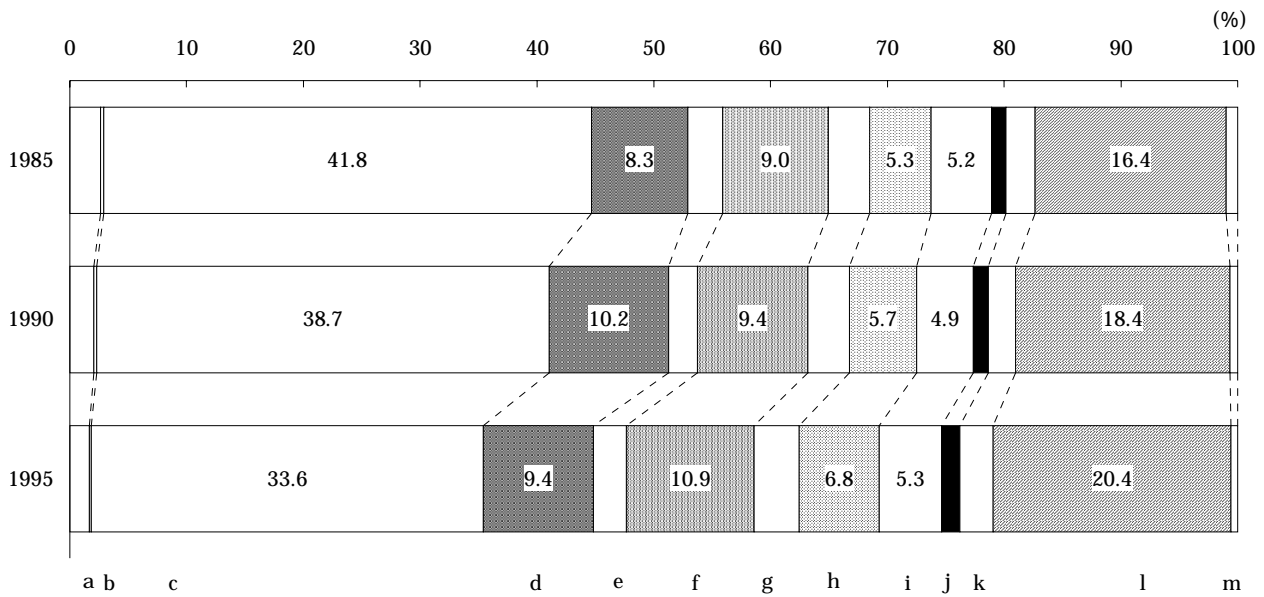
## Table 5-4 Domestic production trend

| | Domestic production (billion yen) | | | Distribution ratio (%) | | |
|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| Total | 678,538.2 | 872,212.2 | 937,100.6 | 100.0 | 100.0 | 100.0 |
| a) Agriculture, forestry and fishery | 17,745.7 | 17,795.3 | 15,817.8 | 2.6 | 2.0 | 1.7 |
| b) Mining | 1,925.1 | 2,156.4 | 1,659.5 | 0.3 | 0.2 | 0.2 |
| c) Manufacturing | 283,320.3 | 337,914.6 | 314,558.5 | 41.8 | 38.7 | 33.6 |
| d) Construction | 56,018.3 | 89,198.9 | 88,149.3 | 8.3 | 10.2 | 9.4 |
| e) Electric power, gas and water supply | 20,484.2 | 21,513.9 | 26,463.5 | 3.0 | 2.5 | 2.8 |
| (Electric power, gas and heat supply) | (15,426.5) | (15,318.0) | (18,810.0) | (2.3) | (1.8) | (2.0) |
| (Water supply and sanitary services) | (5,057.8) | (6,195.9) | (7,653.5) | (0.7) | (0.7) | (0.8) |
| f) Commerce | 61,147.5 | 82,414.4 | 102,321.6 | 9.0 | 9.4 | 10.9 |
| g) Finance and insurance | 24,049.2 | 31,251.5 | 36,334.6 | 3.5 | 3.6 | 3.9 |
| h) Real estate | 35,807.4 | 50,116.1 | 64,185.2 | 5.3 | 5.7 | 6.8 |
| i) Transport | 35,114.4 | 42,580.4 | 50,113.8 | 5.2 | 4.9 | 5.3 |
| j) Communication and broadcasting | 8,265.4 | 10,974.6 | 14,762.8 | 1.2 | 1.3 | 1.6 |
| k) Public administration | 17,057.4 | 20,409.5 | 26,217.0 | 2.5 | 2.3 | 2.8 |
| l) Services | 111,001.4 | 160,073.6 | 190,999.6 | 16.4 | 18.4 | 20.4 |
| m) Activities not elsewhere classified | 6,601.8 | 5,812.9 | 5,517.6 | 1.0 | 0.7 | 0.6 |
| (Ref.) Primary industries | 17,745.7 | 17,795.3 | 15,817.8 | 2.6 | 2.0 | 1.7 |
| Secondary industries | 356,690.2 | 444,587.9 | 423,177.3 | 52.6 | 51.0 | 45.2 |
| Tertiary industries | 304,102.3 | 409,829.0 | 498,105.5 | 44.8 | 47.0 | 53.2 |

Notes: 1. The table derive from 13 sectors table.
  2. Electric power, gas and water supply are indicated by details of 32 sector classification.

## 4. Growth of Domestic Production by Industrial Specification

The growth rate for domestic production from 1990 to 1995 is 7.4%, which is below that of 28.5% for the 1985 to 1990 period. The 32 sectors classification table indicates that industries which have attained high growth rates are Medical service, health and social security (36.0%), Communication and broadcasting (34.5%), Public administration (28.5%) and Real estate (28.1%) respectively. On the whole, services industries inclusive of these industries have increased.

On the other hand, the growth rates for such sectors as Agriculture, forestry and fishery, Mining, Manufacturing and Construction have been on the decrease with their figures shown as 11.1%, 23.0%, 7.0% and 1.2% respectively. Moreover, as far as Manufacturing is concerned, the growth rates for such sectors as Iron and steel, Textile products, Precision instruments and Non-ferrous metals have decreased substantially to 24.7%, 22.1%, 18.8% and 16.7% respectively.

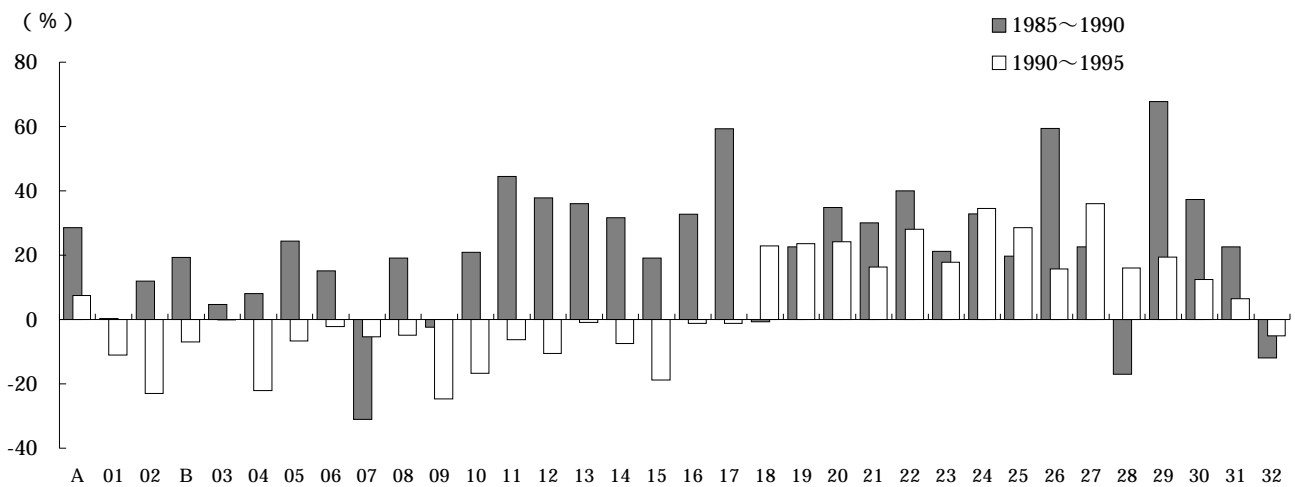Chart 5-5 Growth of Domestic Production by Industrial Specification

## Table 5-5 Growth of domestic production by industrial specification

| | Domestic production (billion yen) | | | Growth (%) | | | |
|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1990 | 1995 |
| A   Total | 678,538.2 | 872,212.2 | 937,100.6 | | 28.5 | | 7.4 |
| 01 Agriculture, forestry and Fishery | 17,745.7 | 17,795.3 | 15,817.8 | | 0.3 | | -11.1 |
| 02 Mining | 1,925.1 | 2,156.4 | 1,659.5 | | 12.0 | | -23.0 |
| B   Manufacturing | 281,758.7 | 336,000.1 | 312,521.5 | | 19.3 | | -7.0 |
| 03  Foods | 37,181.0 | 38,906.0 | 38,856.5 | | 4.6 | | -0.1 |
| 04  Textile products | 13,268.6 | 14,333.7 | 11,164.5 | | 8.0 | | -22.1 |
| 05  Pulp, paper and wooden products | 15,344.3 | 19,074.5 | 17,800.1 | | 24.3 | | -6.7 |
| 06  Chemical products | 22,913.7 | 26,383.1 | 25,778.2 | | 15.1 | | -2.3 |
| 07  Petroleum and coal products | 16,084.7 | 11,087.6 | 10,492.8 | | -31.1 | | -5.4 |
| 08  Ceramic, stone and clay products | 8,556.4 | 10,193.6 | 9,696.1 | | 19.1 | | -4.9 |
| 09  Iron and steel | 27,314.3 | 26,679.2 | 20,093.3 | | -2.3 | | -24.7 |
| 10  Non-ferrous metals | 6,295.1 | 7,614.6 | 6,343.1 | | 21.0 | | -16.7 |
| 11  Metal products | 11,587.8 | 16,748.0 | 15,707.7 | | 44.5 | | -6.2 |
| 12  General machinery | 23,101.4 | 31,839.0 | 28,475.0 | | 37.8 | | -10.6 |
| 13  Electrical machinery | 37,381.8 | 50,826.5 | 50,385.5 | | 36.0 | | -0.9 |
| 14  Transportation equipment | 34,341.8 | 45,195.9 | 41,855.8 | | 31.6 | | -7.4 |
| 15  Precision instruments | 3,941.5 | 4,692.0 | 3,810.7 | | 19.0 | | -18.8 |
| 16  Other industrial products | 24,446.4 | 32,426.5 | 32,062.1 | | 32.6 | | -1.1 |
| 17 Construction | 56,018.3 | 89,198.9 | 88,149.3 | | 59.2 | | -1.2 |
| 18 Electric power, gas and heat supply | 15,426.5 | 15,318.0 | 18,810.0 | | -0.7 | | 22.8 |
| 19 Water supply and waste disposal service | 5,057.8 | 6,195.9 | 7,653.5 | | 22.5 | | 23.5 |
| 20 Commerce | 61,147.5 | 82,414.4 | 102,321.6 | | 34.8 | | 24.2 |
| 21 Finance and insurance | 24,049.2 | 31,251.5 | 36,334.6 | | 29.9 | | 16.3 |
| 22 Real estate | 35,807.4 | 50,116.1 | 64,185.2 | | 40.0 | | 28.1 |
| 23 Transport | 35,114.4 | 42,580.4 | 50,113.8 | | 21.3 | | 17.7 |
| 24 Communication and broadcasting | 8,265.4 | 10,974.6 | 14,762.8 | | 32.8 | | 34.5 |
| 25 Public administration | 17,057.4 | 20,409.5 | 26,217.0 | | 19.7 | | 28.5 |
| 26 Education and research | 18,023.2 | 28,727.1 | 33,247.0 | | 59.4 | | 15.7 |
| 27 Medical services, health and social insurance | 21,751.4 | 26,641.3 | 36,229.4 | | 22.5 | | 36.0 |
| 28 Other public services | 4,842.4 | 4,017.7 | 4,658.7 | | -17.0 | | 16.0 |
| 29 Business services | 31,291.1 | 52,503.7 | 62,691.3 | | 67.8 | | 19.4 |
| 30 Personal services | 35,093.3 | 48,183.8 | 54,173.3 | | 37.3 | | 12.4 |
| 31 Office supplies | 1,561.6 | 1,914.6 | 2,037.0 | | 22.6 | | 6.4 |
| 32 Activities not elsewhere classified | 6,601.8 | 5,812.9 | 5,517.6 | | -12.0 | | -5.1 |

Notes: 1. The table derive from 32 sectors table.

2. The totals of manufacturing are totaled from 03 to 16.

## 5. Intermediate Inputs and Gross Value Added

"Intermediate inputs" in the I-O tables represent the purchasing cost of goods and services such as raw materials, fuels and others which are required for production activities in the individual industrial sector. When the amount of intermediate input is divided by the domestic production of a given sector, its input ratio can be deduced. And, the purchasing cost of equipment and facilities for production is considered as capital formation and is not included as an intermediate input. As far as the gross value added is concerned, it represents the value that is newly added as a result of production activities. As the gross value added is compiled by deducting the intermediate input from domestic production, it can be composed that the said value is necessary covers such components as Consumption expenditure outside households, Compensation of employees, Operating surplus, Depreciation of fixed capital, Indirect taxes as well as Current subsidies.

Gross value added exclusive of Consumption expenditure outside households more or less corresponds to the Gross domestic products.

As inferred from the 937.1 trillion yen worth of domestic production in the 1995 I-O tables, the intermediate input of goods and services such as raw materials, fuels and others accounted for 431.85 trillion yen (46.1%) while the gross value added which has increased through production activities amounted to 505.24 trillion yen (53.9%).

As compared to 1990, the input ratio for intermediate input has fallen by 2.7 points while the ratio of gross value added has risen by the same ratio at 2.7 points.

# Chart 5-6 Intermediate inputs and Gross value added

|  | 0 | 50 | 100 ( ) |
|---|---|---|---|
| 1985 | 51.3 | 48.7 | |
| 1990 | 48.8 | 51.2 | |
| 1995 | 46.1 | 53.9 | |

Intermediate  inputs          Gross value added
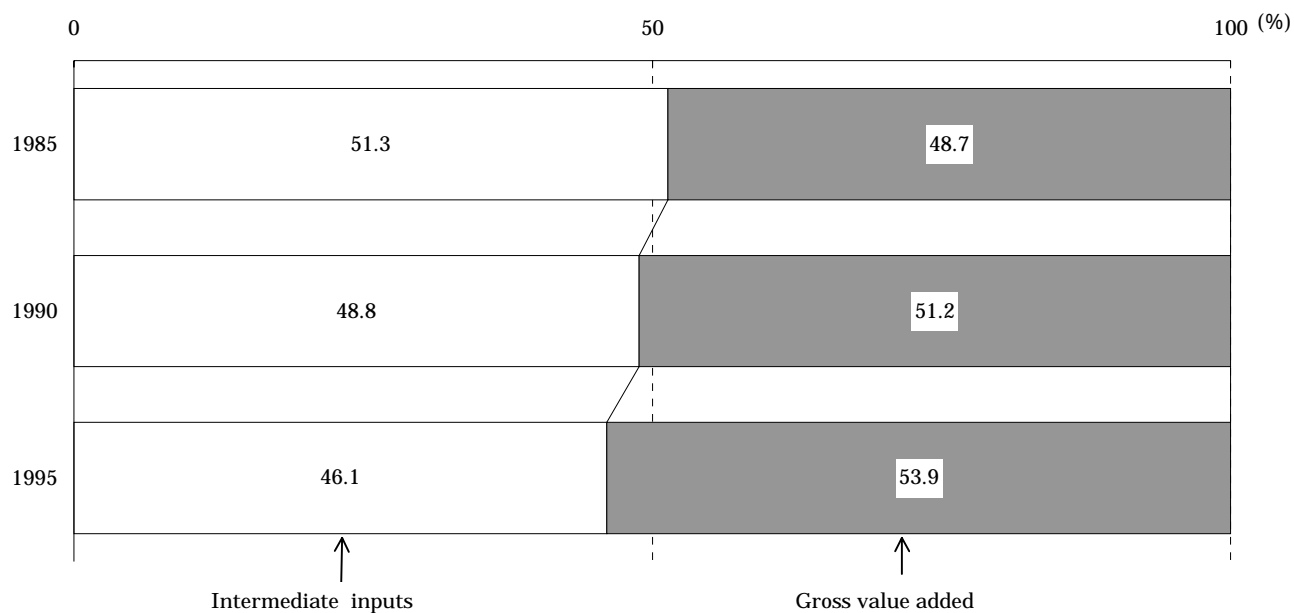
## Table 5-6 Intermediate inputs and Gross value added

|  | Value(billion yen) | | | Distribution ratio(%) | | | Growth(%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1990 | 1995 |
| Domestic production | 678,538.2 | 872,212.2 | 937,100.6 | 100.0 | 100.0 | 100.0 | 28.5 | | | 7.4 |
| Intermediate inputs | 348,332.2 | 426,055.3 | 431,854.7 | 51.3 | 48.8 | 46.1 | 22.3 | | | 1.4 |
| Gross value added | 330,205.9 | 446,157.0 | 505,246.0 | 48.7 | 51.2 | 53.9 | 35.1 | | | 13.2 |

Note: The table derive from 32 sectors table.

## 6. Intermediate Input Ratio by Industrial Specification

The intermediate input ratio by industry to domestic production in 1995 as categorized under 32 sectors classification shows a high trend for manufacturing sector such as Transportation equipment (76.0%), Iron and steel (71.8%), Non-ferrous metal (69.5%). Besides Manufacturing, Construction, Transportation, and Mining also indicate high trend at 53.9%, 49.8%, and 46.9% respectively. However, Real estate as well as Education and research indicate low trend at 12.9% and 21.7% respectively.

As far as the changes of intermediate input ratio of the respective industrial sector in the period from 1990 to 1995 are concerned, substantial decrease (from 61.7% to 49.5% i.e., by 12.2 points) have been observed in Petroleum and coal products. Moreover, the trend for Education and research, Textile product, Iron and steel, Real estate has also been decreasing at 3.6 points (from25.3% to 21.7%), 2.9 points (from65.1% to 62.9%), 3.1 points (from 74.9% to 71.8%), and 3.2 points (from 16.1% to 12.9%) respectively.

# Chart 5-7 Intermediate input ratio By Industrial specification



| | | 1985 | 1990 | 1995 |
|---|---|---|---|---|

A　Total

01　Agriculture, forestry and Fishery

02　Mining

B　Manufacturing

　03　Foods

　04　Textile products

　05　Pulp, paper and wooden products

　06　Chemical products

　07　Petroleum and coal products

　08　Ceramic, stone and clay products

　09　Iron and steel

　10　Non-ferrous metals

　11　Metal products

　12　General machinery

　13　Electrical machinery

　14　Transportation equipment

　15　Precision instruments

　16　Other industrial products

17　Construction

18　Electric power, gas and heat supply

19　Water supply and waste disposal service

20　Commerce

21　Finance and insurance

22　Real estate

23　Transport

24　Communication and broadcasting

25　Public administration

26　Education and research

27　Medical services, health and social insurance

28　Other public services

29　Business services

30　Personal services

31　Office supplies

32　Activities not elsewhere classified
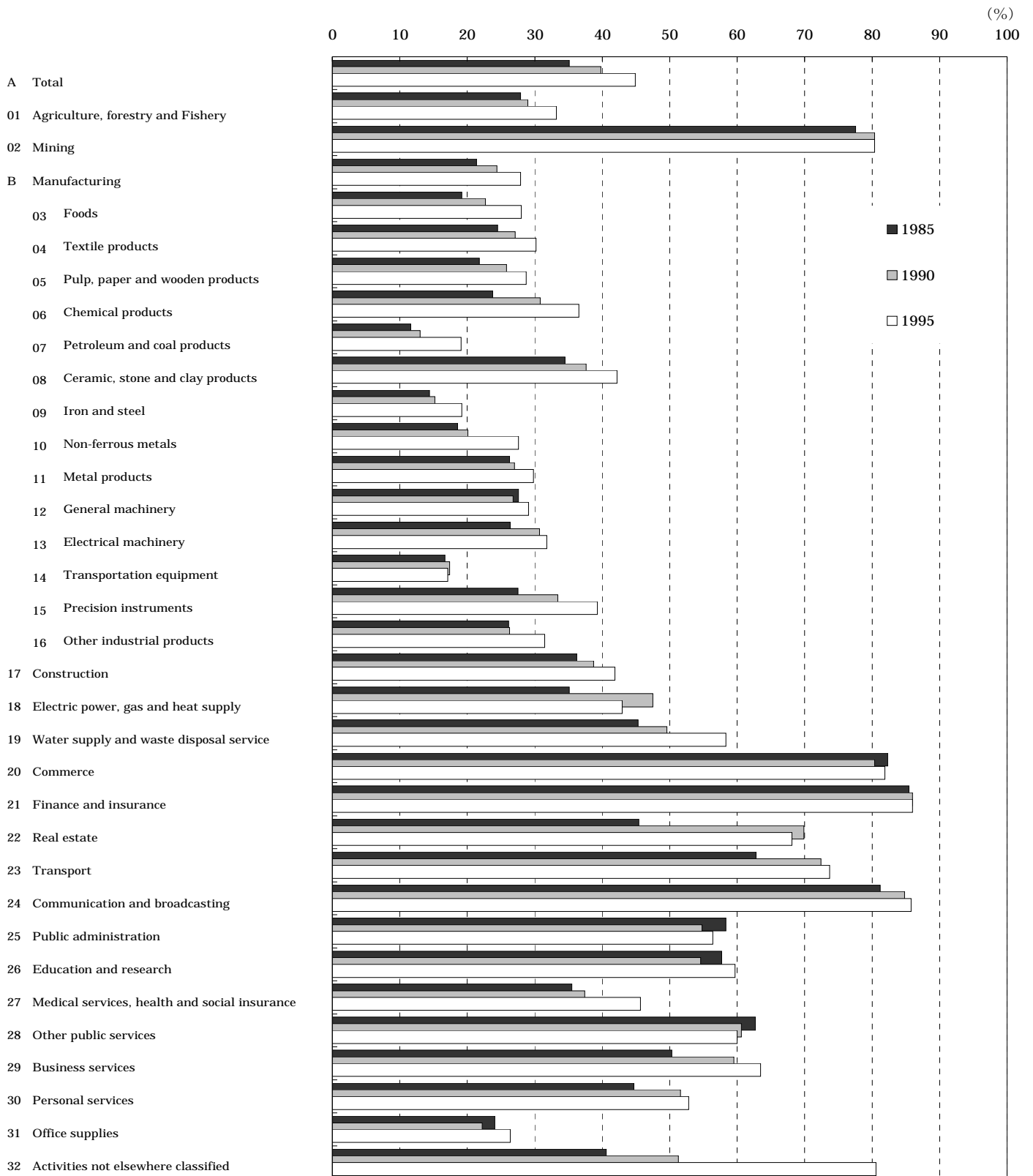
Note: The table derive from 32 sectors table.

## 7. Composition of Intermediate Inputs

The breakdown values of intermediate input amounting to 431.85 trillion yen are 237.77 trillion yen (55.1%) for goods and 194.83 trillion yen (44.9%) for services. In other words, the input ratio for goods is higher than that of services.

As compared to 1985 and 1990, the input ratio for services in 1995 has increased. Inferring from the 32 sector classification by industry, it can be observed that high ratios of input are observed in such sectors as Finance and insurance, Communication and broadcasting, Commerce and Mining. On the whole, the ratios for service inputs have increased in many industrial sectors.

It is to be noted that "goods" as described here refer to inputs pertaining to Agriculture, forestry and fishery, Mining, Manufacturing, Construction and Electric power, gas and heat supply. The rest of the inputs are regarded as "services" item. Furthermore, while Office supplies are categorized as "goods", Activities not elsewhere classified are regarded as "services".

# Chart 5-8 Composition of Intermediate Inputs

(%)

| | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|

A    Total

01   Agriculture, forestry and Fishery

02   Mining

B    Manufacturing

  03    Foods

  04    Textile products

  05    Pulp, paper and wooden products

  06    Chemical products

  07    Petroleum and coal products

  08    Ceramic, stone and clay products

  09    Iron and steel

  10    Non-ferrous metals

  11    Metal products

  12    General machinery

  13    Electrical machinery

  14    Transportation equipment

  15    Precision instruments

  16    Other industrial products

17   Construction

18   Electric power, gas and heat supply

19   Water supply and waste disposal service

20   Commerce

21   Finance and insurance

22   Real estate

23   Transport

24   Communication and broadcasting

25   Public administration

26   Education and research

27   Medical services, health and social insurance

28   Other public services

29   Business services

30   Personal services

31   Office supplies

32   Activities not elsewhere classified

■ 1985

▨ 1990

□ 1995

Note: The table derive from 32 sectors table.

## 8. Composition and Growth Rate of Gross Value Added

The amount of gross value added for 1995 is 505.25 trillion yen. It is broken down into Compensation of employees (54.1%), Operating surplus (19.7%), Depreciation of fixed capital (16.0%), Indirect taxes (7.2%), Consumption expenditure outside households (3.8%) and Net of subsidies (0.9%).

As composed to 1990, the growth rate for the gross value added has increased by 13.2%. The gross value added items that display an increasing trend of growth rate include Indirect taxes (30%), Depreciation of fixed capital (28.6%) and Compensation of employees (17.6%), while Consumption expenditure outside households (10.7%) and Operating surplus (9.4%) which show a decreasing trend.

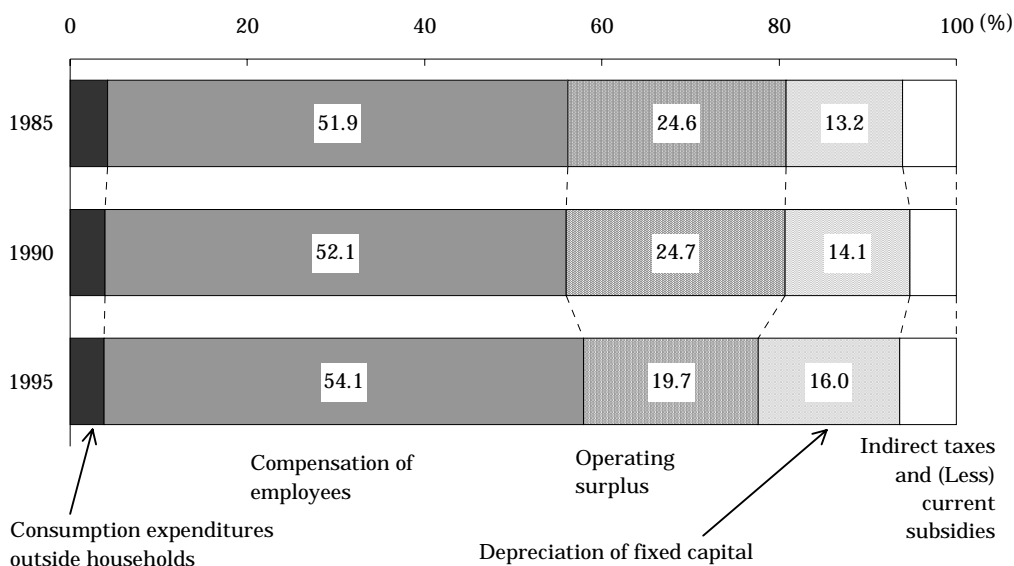Chart 5-9 Composition of Gross value added
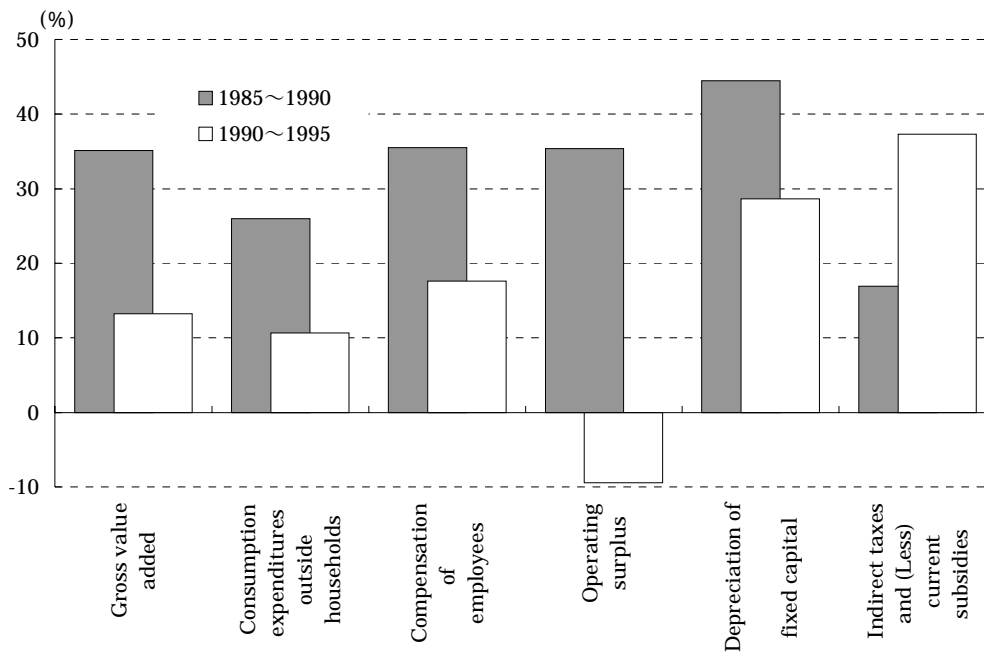
## Chart 5-10 Growth of Gross value added



## Table 5-7 Composition and rate of Gross value added

| | Value(billion yen) | | | Distribution ratio(%) | | | Growth(%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985～1990 | 1990 | 1995 |
| Gross value added | 330,205.9 | 446,157.0 | 505,246.0 | 100.0 | 100.0 | 100.0 | 35.1 | | 13.2 |
| Consumption expenditures outside households | 13,930.5 | 17,548.2 | 19,419.4 | 4.2 | 3.9 | 3.8 | 26.0 | | 10.7 |
| Compensation of employees | 171,446.8 | 232,283.0 | 273,160.5 | 51.9 | 52.1 | 54.1 | 35.5 | | 17.6 |
| Operating surplus | 81,320.5 | 110,090.7 | 99,706.2 | 24.6 | 24.7 | 19.7 | 35.4 | △ | 9.4 |
| Depreciation of fixed capital | 43,478.2 | 62,819.9 | 80,800.7 | 13.2 | 14.1 | 16.0 | 44.5 | | 28.6 |
| Indirect taxes | 23,631.6 | 28,045.7 | 36,469.6 | 7.2 | 6.3 | 7.2 | 18.7 | | 30.0 |
| (Less) Current subsidies | △3,601.7 | △4,630.6 | △4,310.4 | △ 1.1 | △ 1.0 | △ 0.9 | 28.6 | △ | 6.9 |

Note: The table derive from 32 sectors table.

## 9. Composition of Import by Commodity Specification

The amount of imports for 1990 is 43.73 trillion yen which is equivalent to 4.5 % of the total supply. As inferred from the import ratio by commodity as categorized in accordance to the 32 sectors classification, it can be observed that import for Mining takes the lead of 13.4%. This is followed by, in sequence, Electrical machinery (11.1%), Foods (10.9%) and textile products (6.3%).

Thus, as compared to 1990, the growth rates in term of ratio for Agriculture, forestry and fishery, Mining, Petroleum and Coal products as well as Non-ferrous metals in manufacturing, have decreased, while, the ratios for Electrical machinery, Foods and Textile products in the manufacturing sector have increased.

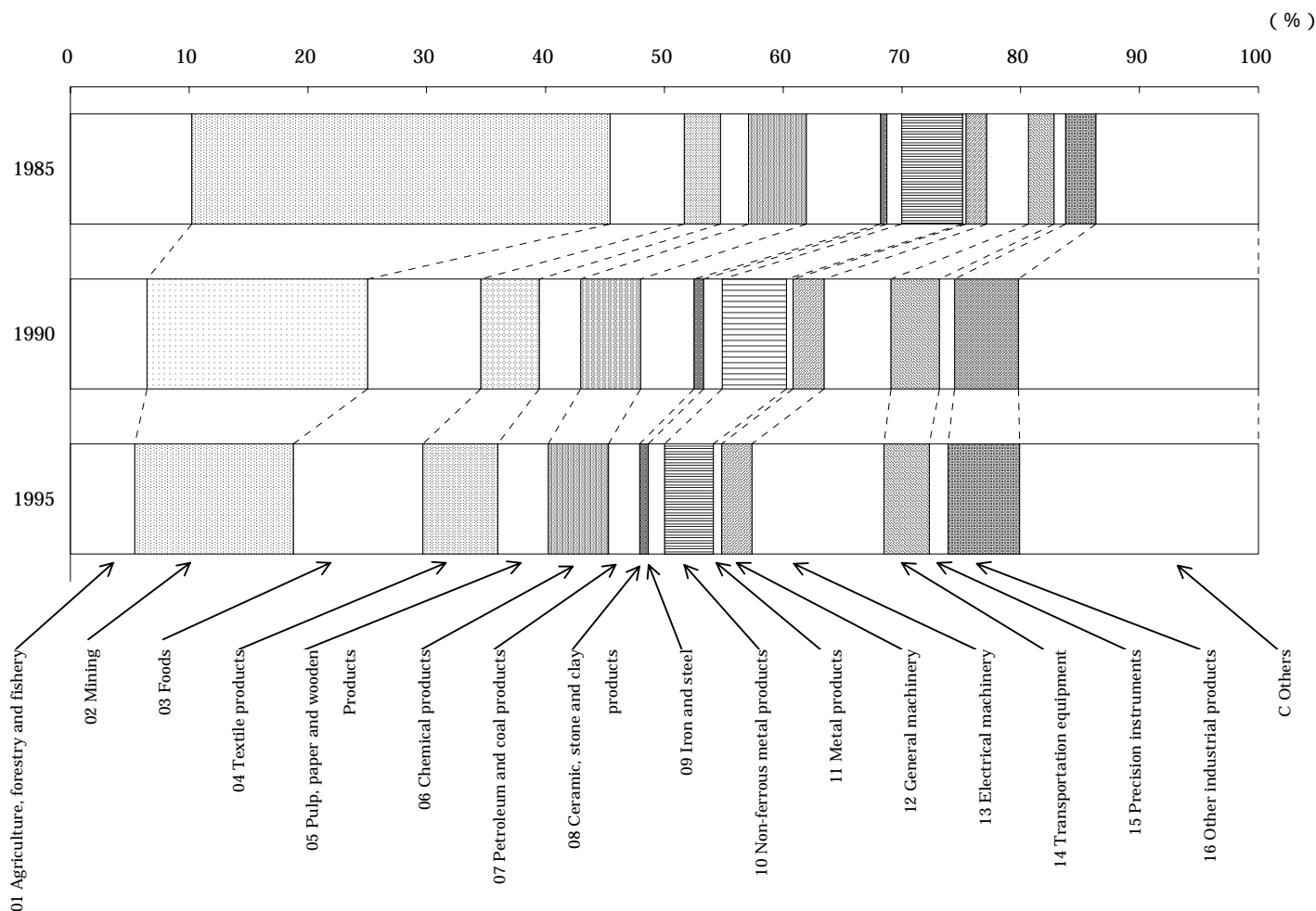Chart 5-11 Composition of Import by Commodity Specifications

# Table 5-8 Composition and growth of Import by Commodity specifications

| | Value(billion yen) | | | Distribution ratio(%) | | | Growth(%) | |
|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985~1990 | 1990  1995 |
| A  Total | 37,618.2 | 45,833.3 | 43,723.6 | 100.0 | 100.0 | 100.0 | 21.8 | △　4.6 |
| 01  Agriculture, forestry and fishery | 3,852.0 | 2,962.5 | 2,376.0 | 10.2 | 6.5 | 5.4 | △ 23.1 | △ 19.8 |
| 02  Mining | 13,243.9 | 8,507.9 | 5,839.2 | 35.2 | 18.6 | 13.4 | △ 35.8 | △ 31.4 |
| B  Manufacturing | 15,372.2 | 25,102.5 | 26,730.8 | 40.9 | 54.8 | 61.1 | 63.3 | 6.5 |
| 03  Foods | 2,351.3 | 4,375.7 | 4,769.6 | 6.3 | 9.5 | 10.9 | 86.1 | 9.0 |
| 04  Textile products | 1,137.6 | 2,248.5 | 2,747.6 | 3.0 | 4.9 | 6.3 | 97.7 | 22.2 |
| 05  pulp, paper and wooden products | 890.0 | 1,598.4 | 1,847.9 | 2.4 | 3.5 | 4.2 | 79.6 | 15.6 |
| 06  Chemical products | 1,837.5 | 2,308.2 | 2,238.0 | 4.9 | 5.0 | 5.1 | 25.6 | △　3.0 |
| 07  Petroleum and coal products | 2,350.5 | 2,068.0 | 1,138.9 | 6.2 | 4.5 | 2.6 | △ 12.0 | △ 44.9 |
| 08  Ceramic, stone and clay products | 197.6 | 355.3 | 317.4 | 0.5 | 0.8 | 0.7 | 79.8 | △ 10.7 |
| 09  iron and steel | 457.8 | 727.7 | 598.6 | 1.2 | 1.6 | 1.4 | 59.0 | △ 17.7 |
| 10  Non-ferrous metals | 1,938.2 | 2,475.1 | 1,798.2 | 5.2 | 5.4 | 4.1 | 27.7 | △ 27.3 |
| 11  Metal products | 117.0 | 261.8 | 309.3 | 0.3 | 0.6 | 0.7 | 123.8 | 18.1 |
| 12  General machinery | 646.9 | 1,203.2 | 1,110.3 | 1.7 | 2.6 | 2.5 | 86.0 | △　7.7 |
| 13  Electrical machinery | 1,317.6 | 2,567.4 | 4,851.1 | 3.5 | 5.6 | 11.1 | 94.9 | 88.9 |
| 14  Transportation equipment | 814.6 | 1,865.1 | 1,673.4 | 2.2 | 4.1 | 3.8 | 129.0 | △ 10.3 |
| 15  Precision instruments | 359.2 | 589.4 | 683.9 | 1.0 | 1.3 | 1.6 | 64.1 | 16.0 |
| 16  Other industrial products | 956.5 | 2,458.7 | 2,646.7 | 2.5 | 5.4 | 6.1 | 157.1 | 7.6 |
| C  Others | 5,150.1 | 9,260.5 | 8,777.7 | 13.7 | 20.2 | 20.1 | 79.8 | △　5.2 |

Note: 1. The table derive from 32 sectors table.

    2. The totals of manufacturing are totaled from 03 to 16.

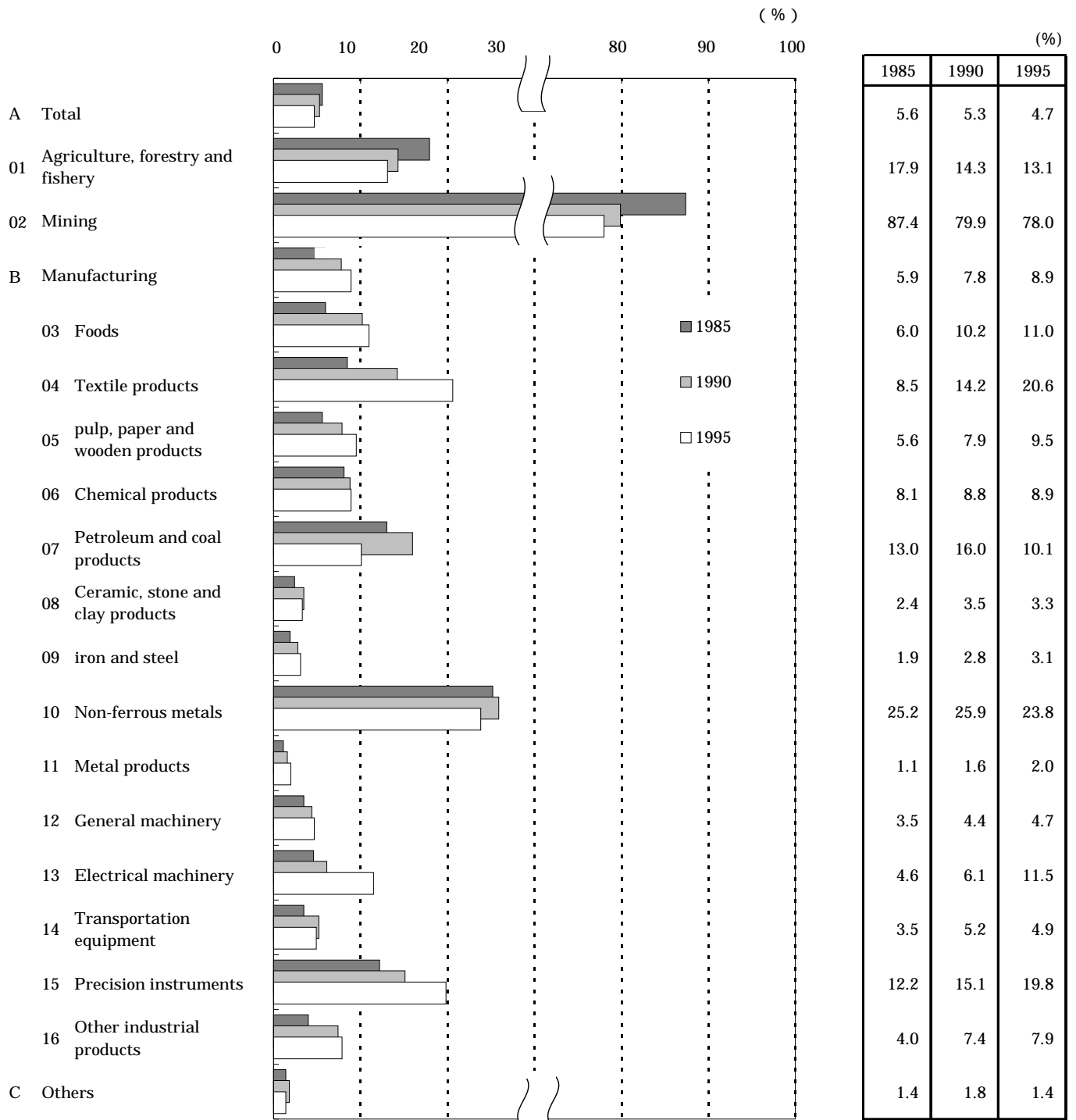    3. The totals of Others are totaled from 17 to 32.

## 10. Commodity Import Ratios of Domestic Demand

The 32 sectors classification indicates that the ratio for Mining is the highest at 78.0% followed by, in sequence, Non-ferrous metal (23.8%), Textile products (20.6%),and Precision instrument (19.8%).

As compared to 1990, the ratios for Mining as well as Agriculture, forestry and fishery have fallen from 79.9% to 78.0% (1.9 point) and 14.3% to 13.1% (1.2 point) respectively. On the other hand, the import ratios for Textile products, Electrical machinery, Precision instruments, among others in the manufacturing, have risen substantially from 14.2% to 20.6% (6.4 points), 6.1% to 11.5% (5.4 points), 15.1 % to 19.8% (4.7%) respectively. As against these, substantial decrease has been observed in Petroleum and coal products from 16.0% to 10.1 % (5.9 points). On the whole, however, it can be concluded that the manufacturing displays an increasing trend of development from 7.8% to 8.9% (1.1 point).

# Chart 5-12 Commodity Import Ratios of domestic Demand

|  |  | 1985 | 1990 | 1995 |
|---|---|---|---|---|
| A | Total | 5.6 | 5.3 | 4.7 |
| 01 | Agriculture, forestry and fishery | 17.9 | 14.3 | 13.1 |
| 02 | Mining | 87.4 | 79.9 | 78.0 |
| B | Manufacturing | 5.9 | 7.8 | 8.9 |
| 03 | Foods | 6.0 | 10.2 | 11.0 |
| 04 | Textile products | 8.5 | 14.2 | 20.6 |
| 05 | pulp, paper and wooden products | 5.6 | 7.9 | 9.5 |
| 06 | Chemical products | 8.1 | 8.8 | 8.9 |
| 07 | Petroleum and coal products | 13.0 | 16.0 | 10.1 |
| 08 | Ceramic, stone and clay products | 2.4 | 3.5 | 3.3 |
| 09 | iron and steel | 1.9 | 2.8 | 3.1 |
| 10 | Non-ferrous metals | 25.2 | 25.9 | 23.8 |
| 11 | Metal products | 1.1 | 1.6 | 2.0 |
| 12 | General machinery | 3.5 | 4.4 | 4.7 |
| 13 | Electrical machinery | 4.6 | 6.1 | 11.5 |
| 14 | Transportation equipment | 3.5 | 5.2 | 4.9 |
| 15 | Precision instruments | 12.2 | 15.1 | 19.8 |
| 16 | Other industrial products | 4.0 | 7.4 | 7.9 |
| C | Others | 1.4 | 1.8 | 1.4 |

■1985
■1990
□1995

Note: 1. The table derive from 32 sectors table.

2. The totals of manufacturing are totaled from 03 to 16.

3. The totals of Others are totaled from 17 to 32.

## 11. Composition and Growth of Total Demand

"Total demand" which corresponds to "Total supply" refers to the aggregate sum of intermediate demand, final demand and exports.

The total demand for 1995 is 980.82 trillion yen with the breakdown figures as 431.85 trillion yen (44.0%) for intermediate demand, 502.16 trillion yen (51.2%) for final domestic demand and 46.81 trillion yen (4.8%) for exports respectively. As compared to 1990, intermediate demand and export have fallen by 2.4 and 0.4 points respectively while final domestic demand has increased by 2.8 points.

An inference from the growth rates over 1990 indicates that, except for export which has fallen by 2.2%, total demand, intermediate demand, and final domestic demand have increased by 6.8%, 1.4%, 13.1% respectively.

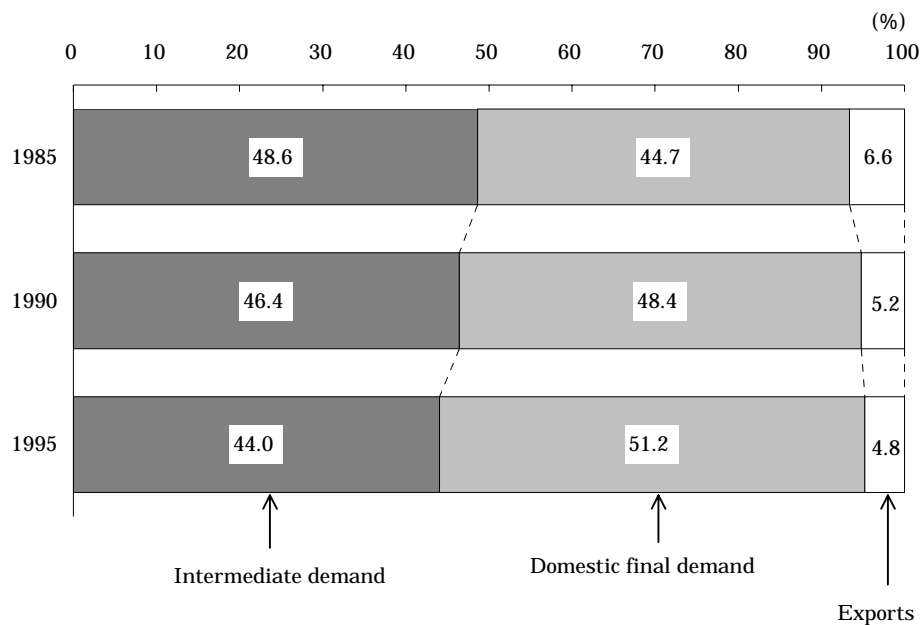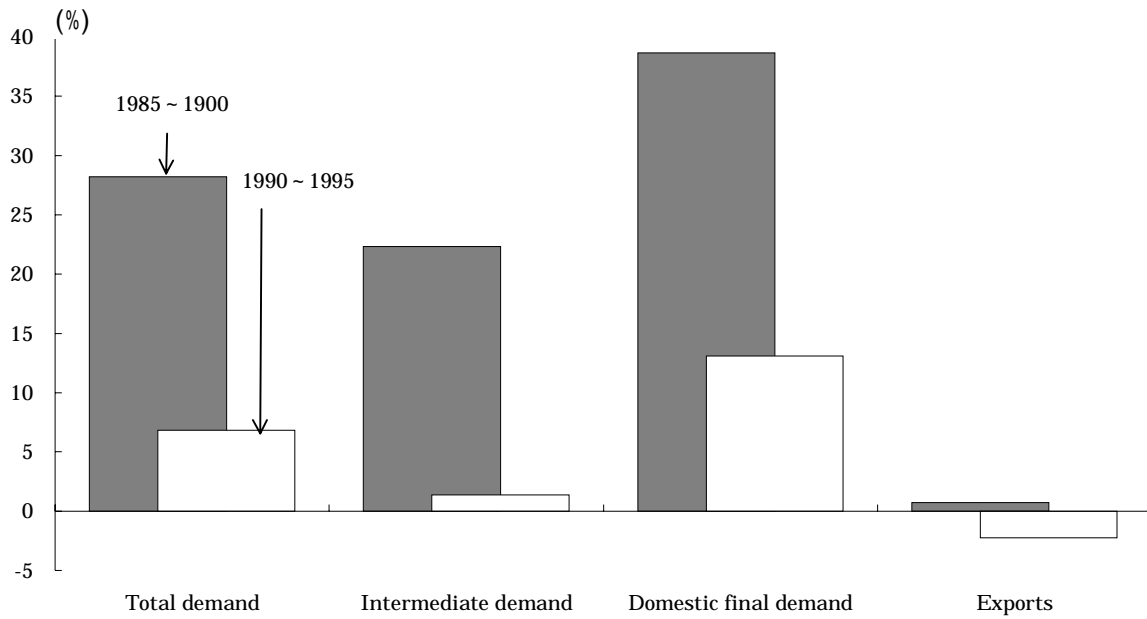### Chart 5-13 Composition of Total demand



Intermediate demand

Domestic final demand

Exports

## Chart 5-14 Growth of Total Demand



Table 5-9 Composition and Growth of Total Supply

| | Value(billion yen) | | | Distribution ratio( ) | | | Growth( ) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1990 | 1995 |
| Total demand | 716,156.4 | 918,045.5 | 980,824.3 | 100.0 | 100.0 | 100.0 | 28.2 | | | 6.8 |
| Intermediate demand | 348,332.2 | 426,055.3 | 431,854.7 | 48.6 | 46.4 | 44.0 | 22.3 | | | 1.4 |
| Final demand | 367,824.1 | 491,990.3 | 548,969.6 | 51.4 | 53.6 | 56.0 | 33.8 | | | 11.6 |
| Domestic final demand | 320,279.5 | 444,108.5 | 502,160.5 | 44.7 | 48.4 | 51.2 | 38.7 | | | 13.1 |
| Exports | 47,544.7 | 47,881.8 | 46,809.1 | 6.6 | 5.2 | 4.8 | 0.7 | | △ | 2.2 |
| Domestic demand | 668,611.7 | 870,163.8 | 934,015.2 | 93.4 | 94.8 | 95.2 | 30.1 | | | 7.3 |

Note: Domestic demand is intermediate demand added to domestic final demand.

## 12. Composition and Growth of Final Demand

"Final demand" consists of Consumption expenditure outside households, consumption expenditure (private), Consumption expenditure of general government, Gross domestic fixed capital formation, Increase in stocks and Exports. These correspond to the amount of gross value added plus imports. Moreover, Gross domestic expenditure (GDE) may be computed by deducting Consumption expenditure outside households and Imports from the final demand.

The amount of final demand for 1995 is 548.97 trillion yen out of which consumption expenditure (private) has accounted for 49.5% followed by Gross domestic fixed capital formation at 25.5 %, Consumption expenditure of general government at 12.6%, Exports at 8.5%, Consumption expenditure outside households at 3.5% and Increase in stocks at 0.4% respectively.

As compared to 1990, while Consumption expenditure of general government has risen from 7.8% to 12.6% (4.8 points), the distribution ratios for the rest of the final demand have displayed a decreasing trend of development.

However, the distribution ratio for consumption expenditure (private) and Consumption expenditure of general government in aggregate has increased from 58.0% to 62.1% (4.1 points). The growth rates over 1990 shows that the value of final demand, Consumption expenditure of general government, Consumption expenditure outside households, Consumption expenditure (private), Gross domestic fixed capital formation have risen by 11.6%, 80.6%, 10.7%, 10.1%, and 0.7% respectively. On the other hand, Increase in stocks and Exports has fallen by 21.3% and 2.2% respectively.
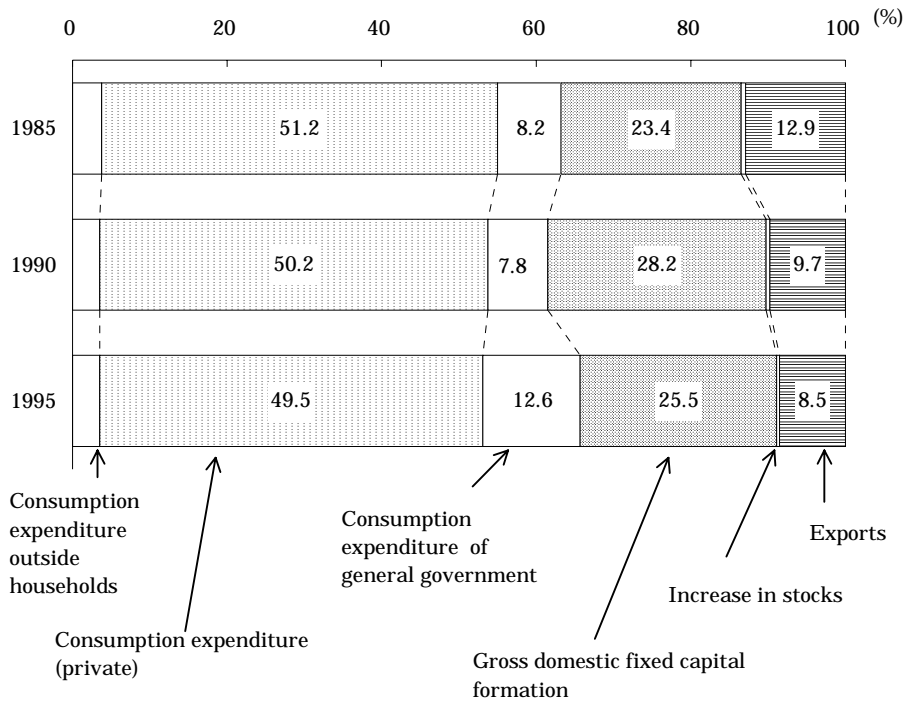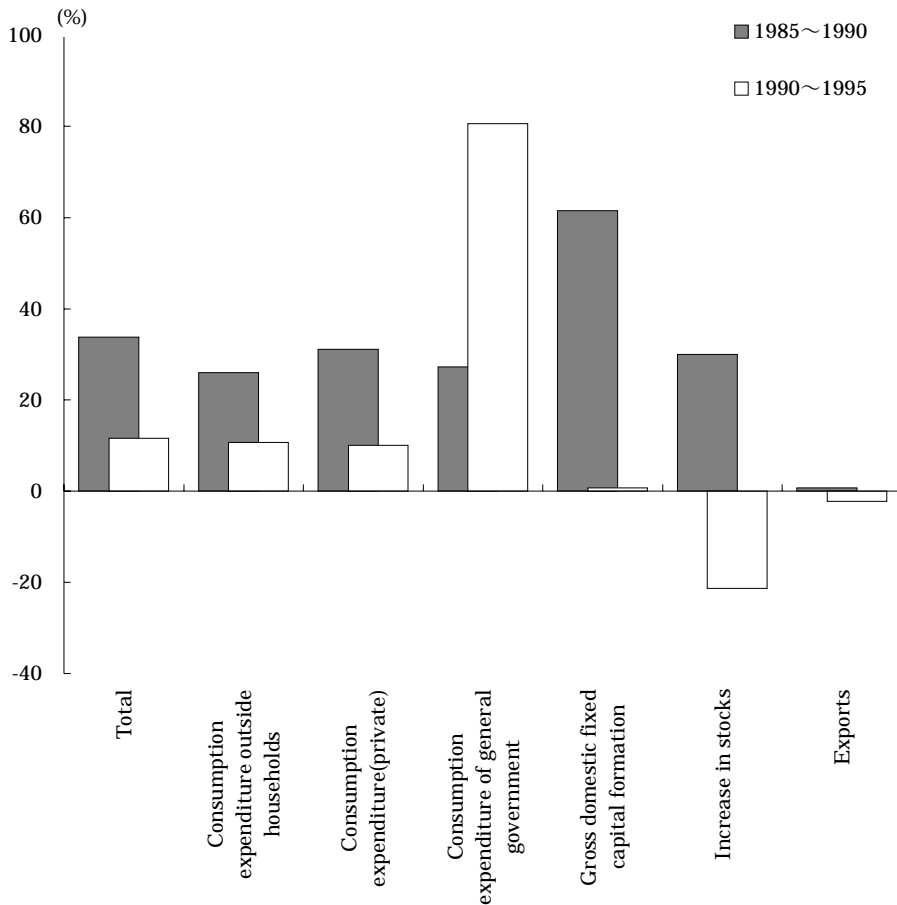
## Chart 5-15 Composition of Final Demand



Consumption expenditure outside households

Consumption expenditure (private)

Consumption expenditure of general government

Gross domestic fixed capital formation

Increase in stocks

Exports

## Chart 5-16 Growth of Final Demand

Table 5-10 Composition and Growth of Final Demand

| | Value (billion yen) | | | Distribution ratio( ) | | | Growth( ) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1990 | 1995 |
| Total | 367,824.1 | 491,990.3 | 548,969.6 | 100.0 | 100.0 | 100.0 | | 33.8 | | 11.6 |
| Consumption expenditure outside households | 13,930.5 | 17,548.2 | 19,419.4 | 3.8 | 3.6 | 3.5 | | 26.0 | | 10.7 |
| Consumption expenditure(private) | 188,313.4 | 246,911.1 | 271,795.8 | 51.2 | 50.2 | 49.5 | | 31.1 | | 10.1 |
| Consumption expenditure of general government | 30,106.0 | 38,302.1 | 69,162.7 | 8.2 | 7.8 | 12.6 | | 27.2 | | 80.6 |
| Gross domestic fixed capital formation | 85,914.4 | 138,727.0 | 139,721.7 | 23.4 | 28.2 | 25.5 | | 61.5 | | 0.7 |
| Increase in stocks | 2,015.3 | 2,620.2 | 2,061.0 | 0.5 | 0.5 | 0.4 | | 30.0 | | △ 21.3 |
| Exports | 47,544.7 | 47,881.8 | 46,809.1 | 12.9 | 9.7 | 8.5 | | 0.7 | | △ 2.2 |
| (Ref.)Consumption expenditure(private and general government) | 218,419.4 | 285,213.2 | 340,958.4 | 59.4 | 58.0 | 62.1 | | 30.6 | | 19.5 |

Note: The table derive from 32 sectors table.

## 13　Composition and Growth of Exports by Commodity Specifications

As far as the composition of the 1995's exports by commodity specification (as in accordance to the 32 sectors classification) is concerned, Electrical machinery has taken up 27.6% followed by Transportation equipment at 19.5% and General machinery at 13.2%. These three industries account for 60.0% of the whole commodity export industry.

As compared to 1990, the exports of Electrical machinery and General machinery have risen by 3.3 points (from 24.3% to 27.6%) and 1.0 point (from 12.2% to 13.2%) respectively. However, Transportation equipment has fallen by 4.0 points; that is, from 23.5% to 19.5%.

The growth rates over 1990 indicates that the overall growth rate has decreased by 2.2% of which Textile products, Foods and precision instruments have decreased substantially by 27.5%, 26.8% and 25.3% respectively.
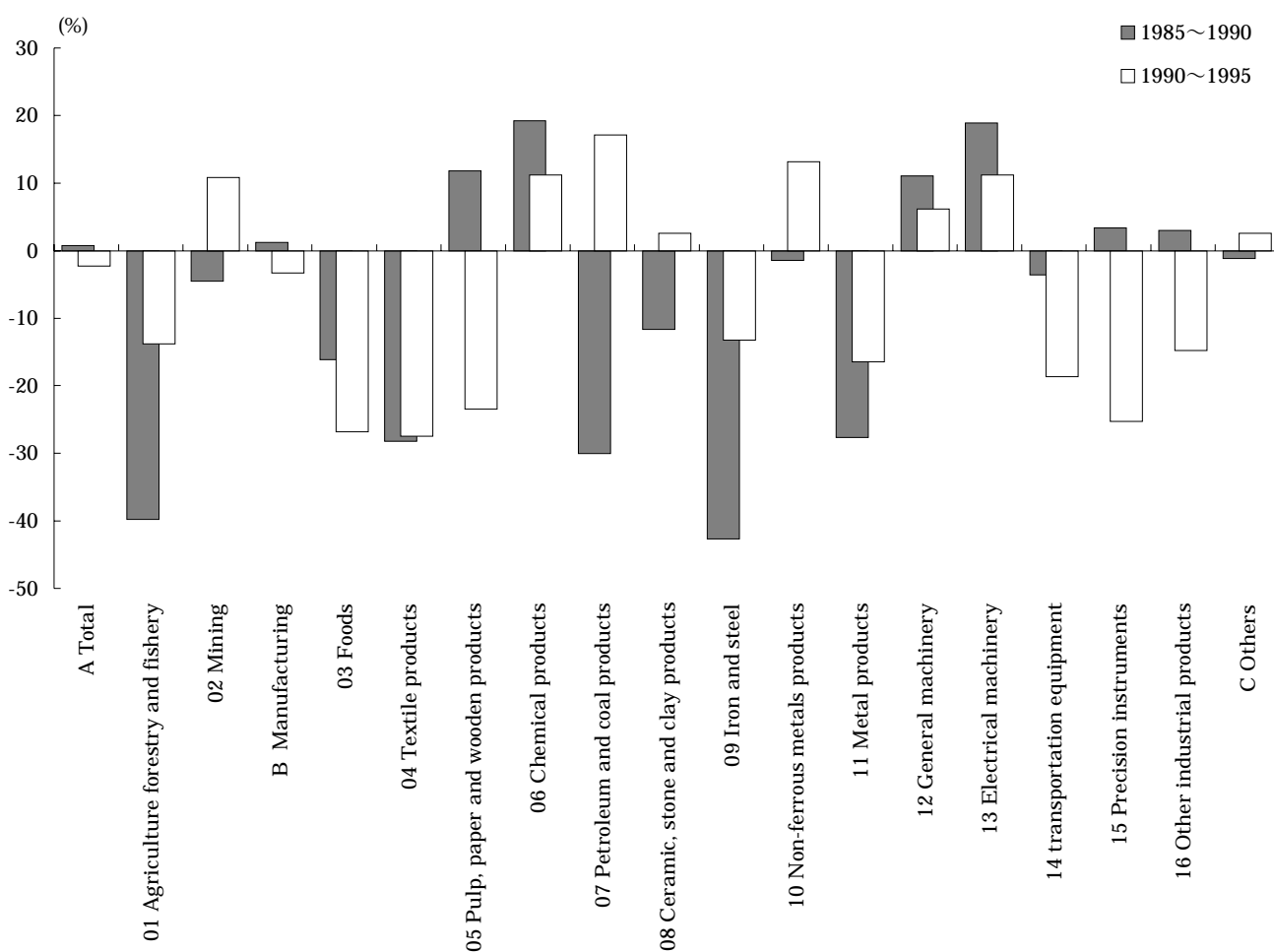
Chart 5-17 Growth of Exports by Commodity Specifications

## Table 5-11 Composition and Growth of Exports by Commodity Specifications

| | Value(billion yen) | | | Distribution ratio( ) | | | Growth( ) | |
|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 1990 | 1990 1995 |
| A Total | 47,544.7 | 47,881.8 | 46,809.1 | 100.0 | 100.0 | 100.0 | 0.7 | △ 2.2 |
| 01 Agriculture, forestry and fishery | 79.4 | 47.8 | 41.2 | 0.2 | 0.1 | 0.1 | △ 39.8 | △ 13.8 |
| 02 Mining | 15.5 | 14.8 | 16.4 | 0.0 | 0.0 | 0.0 | △ 4.5 | 10.8 |
| B Manufacturing | 38,713.4 | 39,181.7 | 37,889.9 | 81.4 | 81.8 | 80.9 | 1.2 | △ 3.3 |
| 03 Foods | 291.4 | 244.5 | 178.9 | 0.6 | 0.5 | 0.4 | △ 16.1 | △ 26.8 |
| 04 Textile products | 1,099.6 | 789.2 | 572.4 | 2.3 | 1.6 | 1.2 | △ 28.2 | △ 27.5 |
| 05 pulp, paper and wooden products | 301.1 | 336.7 | 257.6 | 0.6 | 0.7 | 0.6 | 11.8 | △ 23.5 |
| 06 Chemical products | 2,170.6 | 2,587.8 | 2,877.4 | 4.6 | 5.4 | 6.1 | 19.2 | 11.2 |
| 07 Petroleum and coal products | 370.1 | 259.0 | 303.3 | 0.8 | 0.5 | 0.6 | △ 30.0 | 17.1 |
| 08 Ceramic, stone and clay products | 553.5 | 489.1 | 501.8 | 1.2 | 1.0 | 1.1 | △ 11.6 | 2.6 |
| 09 iron and steel | 3,071.2 | 1,760.8 | 1,527.9 | 6.5 | 3.7 | 3.3 | △ 42.7 | △ 13.2 |
| 10 Non-ferrous metals | 535.4 | 527.7 | 596.9 | 1.1 | 1.1 | 1.3 | △ 1.4 | 13.1 |
| 11 Metal products | 827.1 | 598.3 | 499.9 | 1.7 | 1.2 | 1.1 | △ 27.7 | △ 16.4 |
| 12 General machinery | 5,261.7 | 5,842.6 | 6,199.9 | 11.1 | 12.2 | 13.2 | 11.0 | 6.1 |
| 13 Electrical machinery | 9,780.5 | 11,626.9 | 12,923.9 | 20.6 | 24.3 | 27.6 | 18.9 | 11.2 |
| 14 Transportation equipment | 11,652.6 | 11,231.8 | 9,135.9 | 24.5 | 23.5 | 19.5 | △ 3.6 | △ 18.7 |
| 15 Precision instruments | 1,345.6 | 1,390.8 | 1,039.1 | 2.8 | 2.9 | 2.2 | 3.4 | △ 25.3 |
| 16 Other industrial products | 1,453.2 | 1,496.6 | 1,274.9 | 3.1 | 3.1 | 2.7 | 3.0 | △ 14.8 |
| C Others | 8,736.4 | 8,637.4 | 8,861.7 | 18.4 | 18.0 | 18.9 | △ 1.1 | 2.6 |

Note: 1. The table derive from 32 sectors table.
　　　 2. The totals of manufacturing are totaled from 03 to 16.
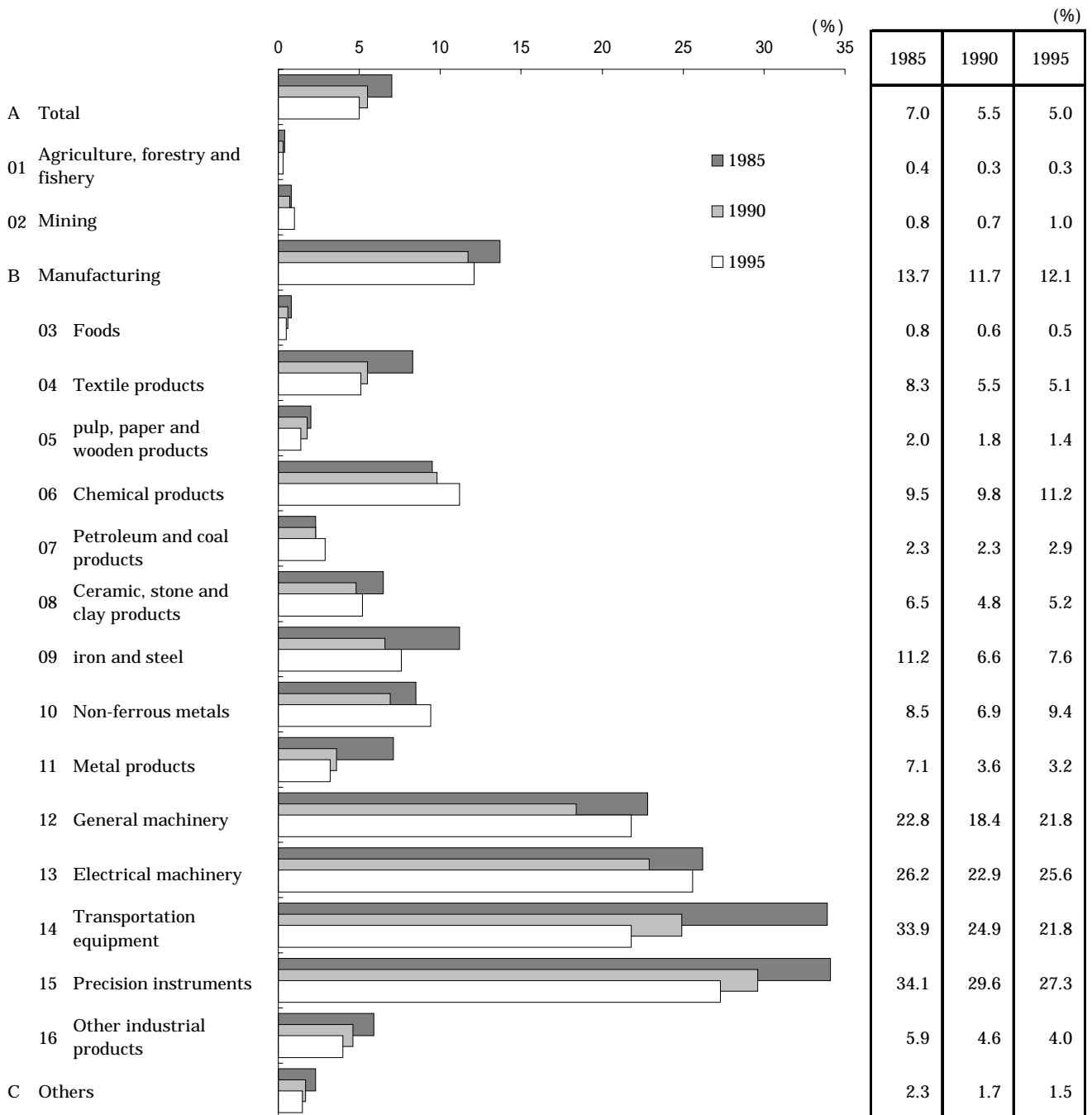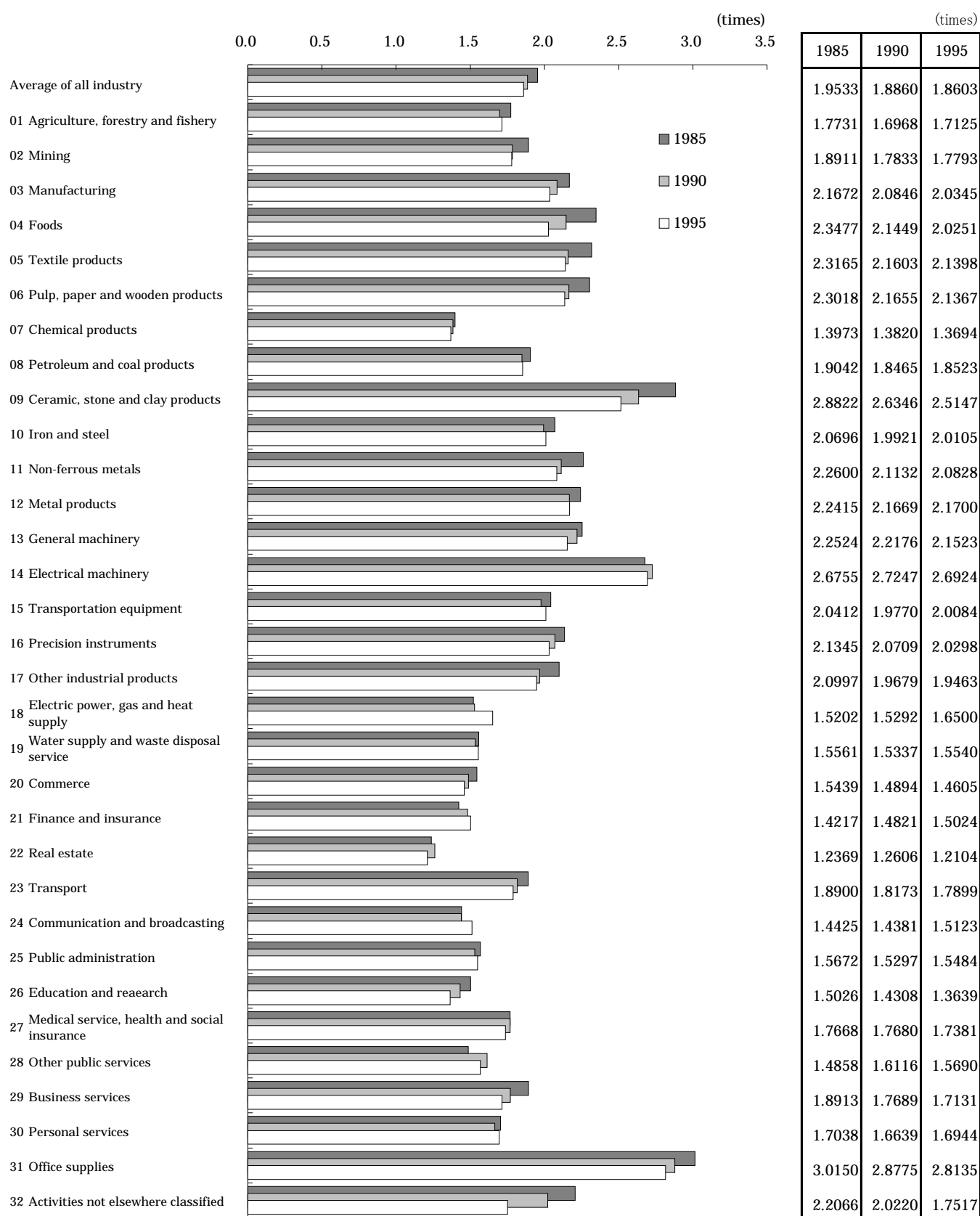　　　 3. The totals of Others are totaled from 17 to 32.

## 14 Commodity Export Ratio of Domestic Production

An inference from the 1995's commodity export ratio of domestic production (as in accordance to the 32 sectors classification) shows the highest increase of 27.3% for Precision instruments, followed by, in sequence, 25.6% for Electrical machinery and 21.8% each for General machinery and Transportation equipment.

As compared to 1990, General machinery and Electrical machinery have risen by 3.4 points (from 18.4% to 21.8%) and 2.7 points (from 22.9% to 25.6%) respectively, while transportation equipment and Precision instruments have fallen by 3.1 points (from 24.9% to 21.8%) and 2.3points (from 29.6% to 27.3%) respectively.

Although Precision instruments and Transportation equipment has shown a high export ratio as against the value of domestic production, a decreasing trend is observed after 1985.

# Chart 5-18 Commodity Export ratio of Domestic production



| | | 1985 | 1990 | 1995 |
|---|---|---|---|---|
| A | Total | 7.0 | 5.5 | 5.0 |
| 01 | Agriculture, forestry and fishery | 0.4 | 0.3 | 0.3 |
| 02 | Mining | 0.8 | 0.7 | 1.0 |
| B | Manufacturing | 13.7 | 11.7 | 12.1 |
| 03 | Foods | 0.8 | 0.6 | 0.5 |
| 04 | Textile products | 8.3 | 5.5 | 5.1 |
| 05 | pulp, paper and wooden products | 2.0 | 1.8 | 1.4 |
| 06 | Chemical products | 9.5 | 9.8 | 11.2 |
| 07 | Petroleum and coal products | 2.3 | 2.3 | 2.9 |
| 08 | Ceramic, stone and clay products | 6.5 | 4.8 | 5.2 |
| 09 | iron and steel | 11.2 | 6.6 | 7.6 |
| 10 | Non-ferrous metals | 8.5 | 6.9 | 9.4 |
| 11 | Metal products | 7.1 | 3.6 | 3.2 |
| 12 | General machinery | 22.8 | 18.4 | 21.8 |
| 13 | Electrical machinery | 26.2 | 22.9 | 25.6 |
| 14 | Transportation equipment | 33.9 | 24.9 | 21.8 |
| 15 | Precision instruments | 34.1 | 29.6 | 27.3 |
| 16 | Other industrial products | 5.9 | 4.6 | 4.0 |
| C | Others | 2.3 | 1.7 | 1.5 |

Note: 1. The table derive from 32 sectors table.

2. The totals of manufacturing are totaled from 03 to 16.

3. The totals of Others are totaled from 17 to 32.

## 15. Intensity of Production Impact

The inverse matrix coefficients indicate the impact on the ultimate production of a particular industry in a particular sector as a result of a creation of a unit of final demand. The vertical sum of the said coefficients measures the weight propensity on the respective industry pertaining to its production level caused by the creation of one unit increase in its final demand for a particular sector concerned. Moreover, it also indicates directly (or indirectly) the ultimate impact on the production level for a particular industrial sector as a whole.

As inferred from the 1995 inverse coefficient matrix in the 32 sectors classification table, a unit of increase in demand has produced 1.8603 times the impact on the average of all industry. As compared by industries, those sectors which received higher rate of impact---that is; at a rate higher than the average of all industry ---are Transportation equipment (2.6924), Iron and steel (2.5147) and General machinery (2.1700). The same trend applies to Construction.

However, the intensity of the production impact for many sectors created by a unit of demand, has subsided for the years 1990 and 1995.

# Chart 5-19 Intensity of Production Impact

(times)

| | 1985 | 1990 | 1995 |
|---|---|---|---|
| Average of all industry | 1.9533 | 1.8860 | 1.8603 |
| 01 Agriculture, forestry and fishery | 1.7731 | 1.6968 | 1.7125 |
| 02 Mining | 1.8911 | 1.7833 | 1.7793 |
| 03 Manufacturing | 2.1672 | 2.0846 | 2.0345 |
| 04 Foods | 2.3477 | 2.1449 | 2.0251 |
| 05 Textile products | 2.3165 | 2.1603 | 2.1398 |
| 06 Pulp, paper and wooden products | 2.3018 | 2.1655 | 2.1367 |
| 07 Chemical products | 1.3973 | 1.3820 | 1.3694 |
| 08 Petroleum and coal products | 1.9042 | 1.8465 | 1.8523 |
| 09 Ceramic, stone and clay products | 2.8822 | 2.6346 | 2.5147 |
| 10 Iron and steel | 2.0696 | 1.9921 | 2.0105 |
| 11 Non-ferrous metals | 2.2600 | 2.1132 | 2.0828 |
| 12 Metal products | 2.2415 | 2.1669 | 2.1700 |
| 13 General machinery | 2.2524 | 2.2176 | 2.1523 |
| 14 Electrical machinery | 2.6755 | 2.7247 | 2.6924 |
| 15 Transportation equipment | 2.0412 | 1.9770 | 2.0084 |
| 16 Precision instruments | 2.1345 | 2.0709 | 2.0298 |
| 17 Other industrial products | 2.0997 | 1.9679 | 1.9463 |
| 18 Electric power, gas and heat supply | 1.5202 | 1.5292 | 1.6500 |
| 19 Water supply and waste disposal service | 1.5561 | 1.5337 | 1.5540 |
| 20 Commerce | 1.5439 | 1.4894 | 1.4605 |
| 21 Finance and insurance | 1.4217 | 1.4821 | 1.5024 |
| 22 Real estate | 1.2369 | 1.2606 | 1.2104 |
| 23 Transport | 1.8900 | 1.8173 | 1.7899 |
| 24 Communication and broadcasting | 1.4425 | 1.4381 | 1.5123 |
| 25 Public administration | 1.5672 | 1.5297 | 1.5484 |
| 26 Education and reaearch | 1.5026 | 1.4308 | 1.3639 |
| 27 Medical service, health and social insurance | 1.7668 | 1.7680 | 1.7381 |
| 28 Other public services | 1.4858 | 1.6116 | 1.5690 |
| 29 Business services | 1.8913 | 1.7689 | 1.7131 |
| 30 Personal services | 1.7038 | 1.6639 | 1.6944 |
| 31 Office supplies | 3.0150 | 2.8775 | 2.8135 |
| 32 Activities not elsewhere classified | 2.2066 | 2.0220 | 1.7517 |

Note: The table derive from 32 sectors table.

## 16. Final Demand and Production Inducement

In the I-O tables, domestic production is considered to be induced by final demand. Subsequently, by computing the inducement coefficient, the impact of change produced by the final demand on the production level in the respective sectors may be analyzed.

In this regard, a distinction may be made between the terms " production inducement value" and "production inducement dependency". While the former refers to the amount of domestic production required, directly or indirectly, to satisfy the final demand, the latter refers to the production inducement value of the final demand components in the respective sectors. For instance, the value of domestic production amounting to 937.10 trillion yen in 1995 is actually referred to the total amount required, directly or indirectly, to satisfy the final demand in the same year valued at 548.97 trillion yen.

As inferred from the 13 sectors classification table, the distribution ratios for production inducement by sectors are 46.0% for Private consumption expenditure, 28.2% for Gross domestic fixed capital formation, 11.7% for Consumption expenditure general government and 10.3% for Exports. Among these, as compared to 1990, while production inducement dependency for Consumption expenditure of general government has increased, the ratios for the rest have either remained unchanged or decreasing.

Moreover, the production inducement for Consumption expenditure (private and general government) in aggregate has risen by 4.3 points from 53.4% to 57.7%. In addition, interpreting from a sector final demand perspective, the extent of domestic production attributable to a unit of change in the final demand of a particular sector may be traced back to Exports which has taken up the highest coefficient standard at 2.0538 point, followed by Gross domestic fixed capital formation at 1.8935 point. As compared to 1990, Production inducement coefficients for all other items except for Consumption expenditure of general government have become smaller.

## Chart 5-20 Production inducement ratio by the Final demand specifications

(%)

| Year | | | | | |
|------|------|------|------|------|------|
| 1985 | | 47.3 | 7.2 | 26.1 | 15.2 |
| 1990 | | 46.5 | 6.9 | 31.0 | 11.6 |
| 1995 | | 46.0 | 11.7 | 28.2 | 10.3 |

Consumption expenditure (private)

Gross domestic fixed capital formation

Exports

Consumption expenditure outside households

Consumotion expenditure of general government

Increase in stocks
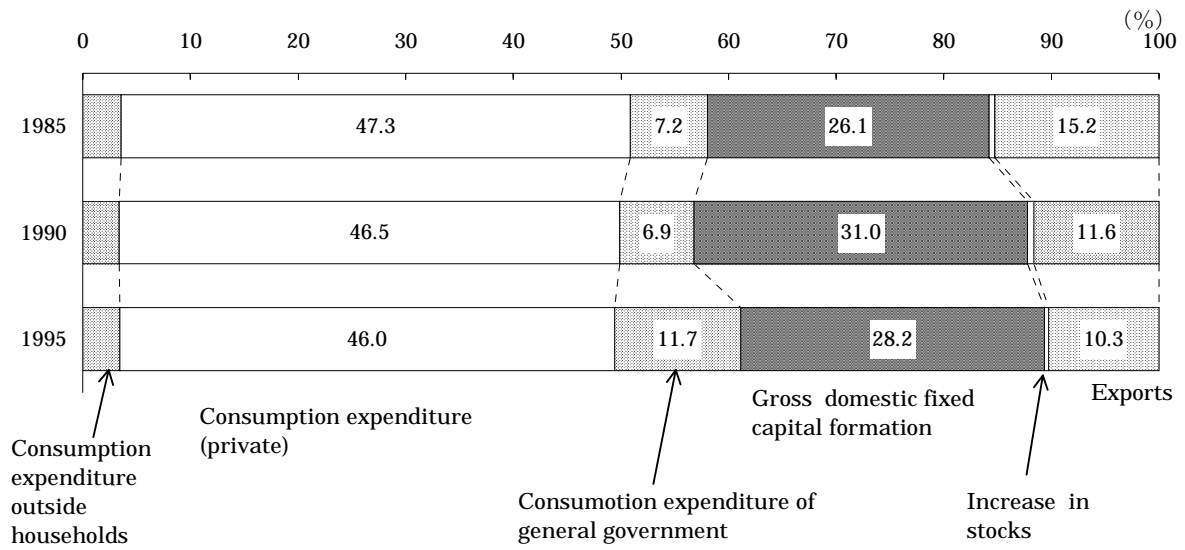
## Chart 5-21 Production Inducement Coefficients by the Final Demand Specifications

(times)

■ 1985　■ 1990　□ 1995

- Total of final demand
- Consumption expenditure outside households
- Consumption expenditure(private)
- Consumption expenditure of genaral government
- Gross domestic Fixed
- Increase in stocks
- Exports
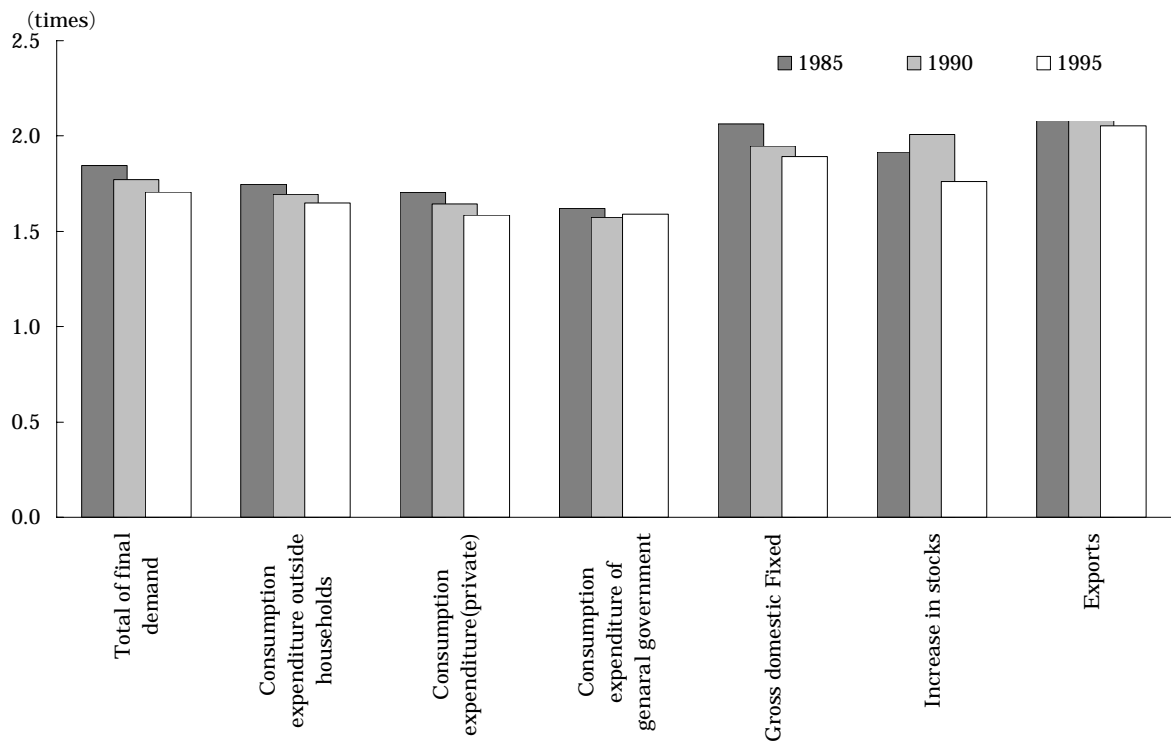
## Table 5-12 Production inducement, Production inducement ratio and Production inducement coefficient by the Final demand specifications

| | Induced production(billion yen) | | | Distribution ratio( ) | | | Inducement coefficients(times) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| Total | 678,538.2 | 872,212.2 | 937,100.6 | 100.0 | 100.0 | 100.0 | 1.8447 | 1.7728 | 1.7070 |
| Consumption expenditure outside households | 24,322.6 | 29,727.4 | 32,014.5 | 3.6 | 3.4 | 3.4 | 1.7460 | 1.6940 | 1.6486 |
| Consumption expenditure(private) | 320,910.8 | 405,434.5 | 430,832.9 | 47.3 | 46.5 | 46.0 | 1.7041 | 1.6420 | 1.5851 |
| Consumption expenditure of genaral government | 48,749.8 | 60,251.7 | 109,921.9 | 7.2 | 6.9 | 11.7 | 1.6193 | 1.5731 | 1.5893 |
| Gross domestic fixed | 177,349.8 | 270,178.9 | 264,564.5 | 26.1 | 31.0 | 28.2 | 2.0643 | 1.9476 | 1.8935 |
| Increase in stocks | 3,859.3 | 5,260.9 | 3,628.6 | 0.6 | 0.6 | 0.4 | 1.9150 | 2.0079 | 1.7606 |
| Exports | 103,345.9 | 101,358.8 | 96,138.3 | 15.2 | 11.6 | 10.3 | 2.1737 | 2.1169 | 2.0538 |
| (ref.)Consumption expenditure(private and general government) | 369,660.5 | 465,686.2 | 540,754.7 | 54.5 | 53.4 | 57.7 | 1.6924 | 1.6328 | 1.5860 |

Note: The table derive from 13 sectors table.

## 17. Final Demand and Induced Gross Value Added

Domestic production as induced by the final demand would exert an impact on the gross value added which is termed as "induced gross value added". This value may be computed by multiplying the induced domestic production by the gross value added ratio.

Inferring from the 13 sector classification table, gross value added of 505.25 trillion yen as induced by domestic production may be traced back to the respective composition such as Private consumption expenditure which accounts for 49.8%, followed by Gross domestic fixed capital formation (24.9%), Consumption expenditure of general government (13.0%) and exports (8.4%) respectively.

As compared to 1990, while the inducement impact of Consumption expenditure of general government expenditure on the gross value added has increased, the degree of dependency for the rest of the components has either remained unchanged or decreasing.

Moreover, gross value added inducement effect attributable to Consumption expenditure (private and general government) in aggregate have risen by 4.1 points from 58.7% to 62.8%. Finally, as seen from the sector of final demand perspective, in so far as the impact of the induced gross value added attributable to a unit of change in the final demand is concerned, Consumption expenditure of general government exerts the greatest influence of 0.9480 times followed by Consumption expenditure (private) at 0.9256, and Consumption expenditure outside households ad 0.9243. Items related consumption also display a high degree of impact. Besides, as compared to 1990, the gross value added inducement coefficients for all other items except for Consumption expenditure of general government and Increase in stocks have also increased substantially.

## Chart 5-22 Impact Inducement Ratio by the Demand Specifications

| | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|

**1985** 51.7  8.6  22.7  12.6

**1990** 50.6  8.1  27.6  9.6

**1995** 49.8  13.0  24.9  8.4

Consumption expenditure outside households

Consumption expenditure (private)

Consumotion expenditure of general government

Gross domestic fixed fapital Formation

Exports

Increase in stocks
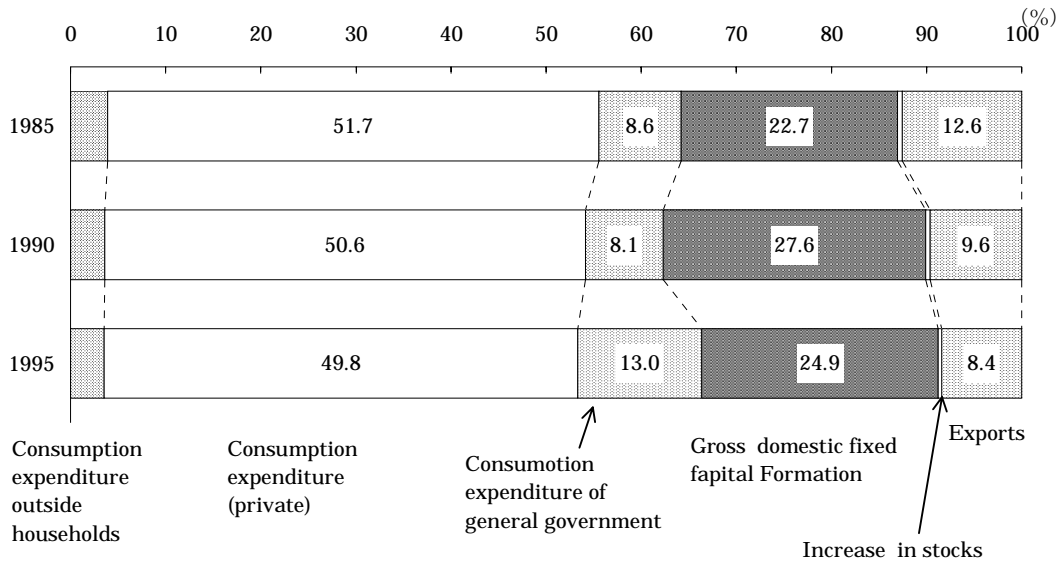
## Chart 5-23 Gross Value Added Inducement Coefficients by the Final Demand Specifications

（times）

■ 1985  ■ 1990  □ 1995

- Total of final demand
- Consumption expenditure outside households
- Consumption expenditure(private)
- Consumption expenditure of genaral government
- Gross domestic fixed
- Increase in stocks
- Exports
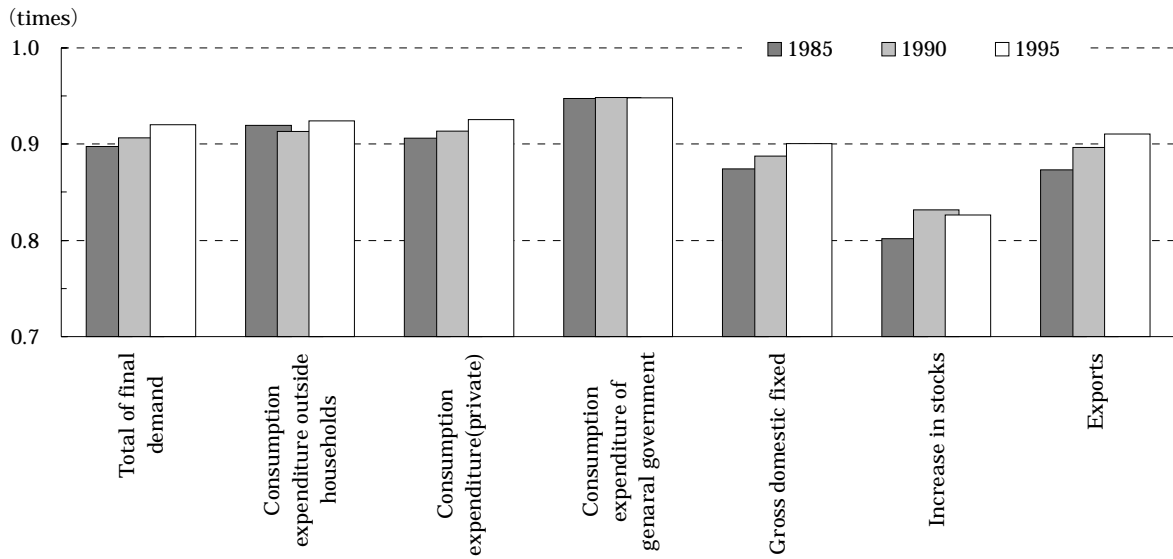
Table 5-13 Induced Gross value added inducement, Gross value added inducement ratio
and Gross value added inducement coefficients by the Final demand specifications

| | Induced gross value added(billion yen) | | | Distribution ratio( ) | | | Inducement coefficients(times) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| Total | 330,205.9 | 446,157.0 | 505,246.0 | 100.0 | 100.0 | 100.0 | 0.8977 | 0.9068 | 0.9204 |
| Consumption expenditure outsaide households | 12,810.9 | 16,025.8 | 17,948.5 | 3.9 | 3.6 | 3.6 | 0.9196 | 0.9132 | 0.9243 |
| Consumption expenditure(private) | 170,628.3 | 225,569.1 | 251,587.1 | 51.7 | 50.6 | 49.8 | 0.9061 | 0.9136 | 0.9256 |
| Consumption expenditure of general government | 28,523.2 | 36,338.2 | 65,567.1 | 8.6 | 8.1 | 13.0 | 0.9474 | 0.9487 | 0.9480 |
| Gross domestic fixed capital formation | 75,103.4 | 123,121.9 | 125,811.4 | 22.7 | 27.6 | 24.9 | 0.8742 | 0.8875 | 0.9004 |
| Increase in stock | 1,616.2 | 2,179.0 | 1,702.8 | 0.5 | 0.5 | 0.3 | 0.8020 | 0.8316 | 0.8262 |
| Exports | 41,524.0 | 42,923.1 | 42,628.9 | 12.6 | 9.6 | 8.4 | 0.8734 | 0.8964 | 0.9107 |
| (Ref.)Consumption expenditure(private and general government) | 199,151.5 | 261,907.2 | 317,154.3 | 60.3 | 58.7 | 62.8 | 0.9118 | 0.9183 | 0.9302 |

Note: The table derive from 13 sectors table.

## 18. Final Demand and Induced Imports

In the I-O tables, imports are considered to be induced by final demand. The "value of induced import", "induced import dependency ratio" and "induced import coefficients" denote the relationship between final demand and imports.

As inferred from the 13 sectors' classification table, the value of imports of 43.72 trillion yen as induced by the final demand may be traced back to the import inducement ratios of the respective sector, such as Consumption expenditure (private) which has taken up 46.2%, followed by Gross domestic fixed capital formation (31.8%) and Exports (9.6%) respectively. As compared to 1990, while the import inducement dependency ratio attributable to consumption expenditure of general government has increased the ratio for the rest of the items have decreased. Moreover, the import inducement dependency ratio attributable to consumption expenditure (private and general government) in aggregate has risen by 3.6 points form 50.8% to 54.4%. Finally, the impact of the import inducement coefficient attributable to a unit of change in the final demand may be traced back to such sectors as Gross domestic fixed capital formation (0.0996 times) and consumption expenditure (private) (0.00744 times).

Chart 5-24 Import Inducement Ratio by the Final Demand Specification
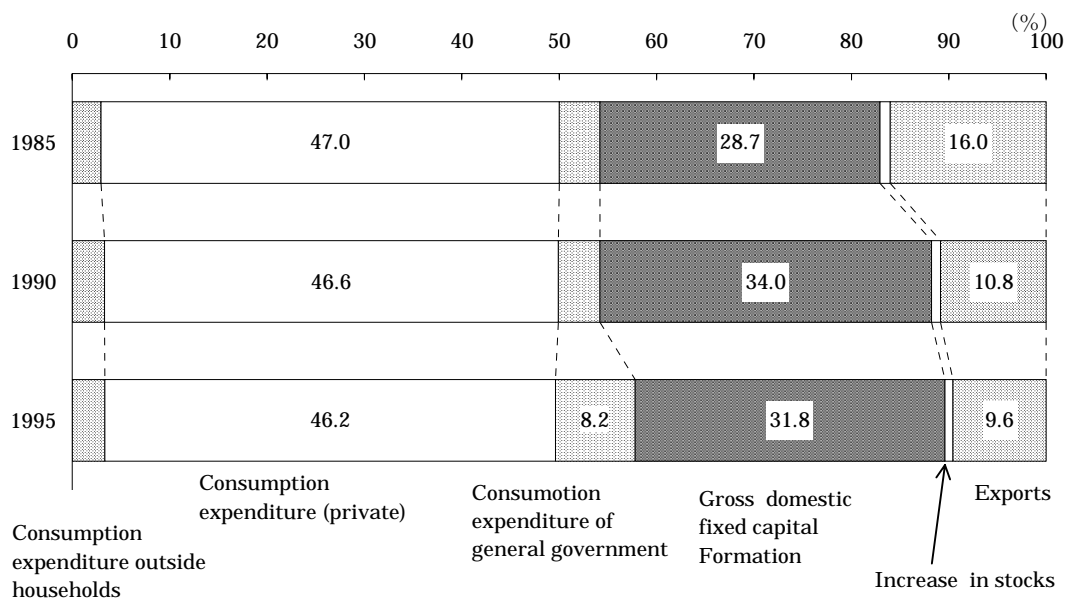
## Chart 5-25 Import inducement coefficients by the Final demand specification



（times）
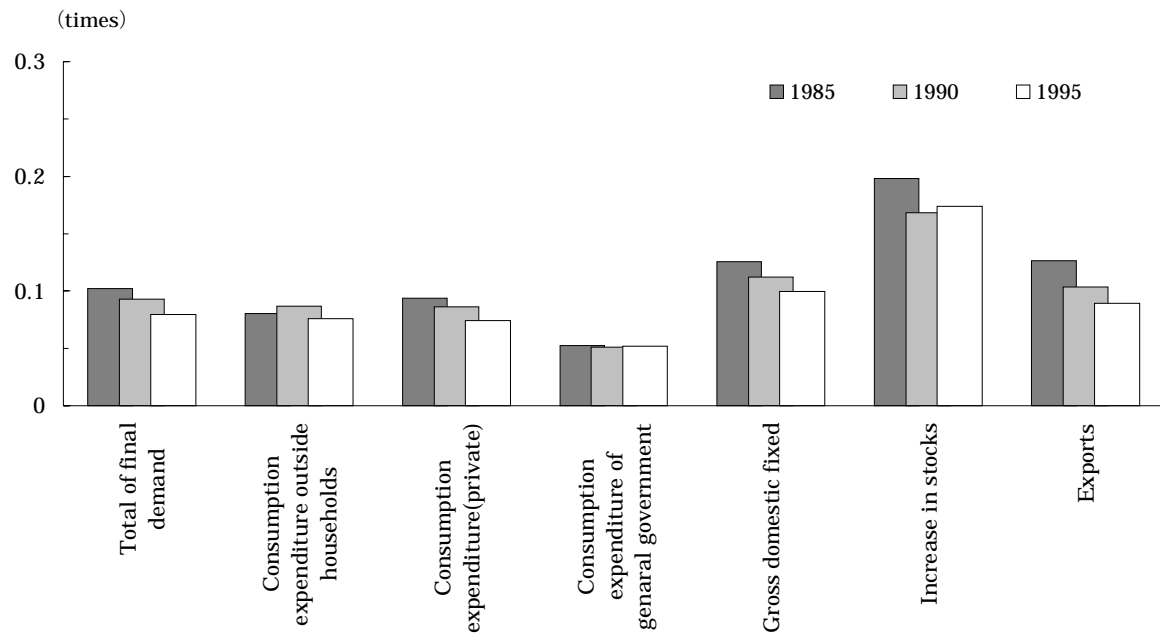
■ 1985　□ 1990　□ 1995

## Table 5-14 Import Inducement, Import Inducement Ratio and Import Inducement Coefficients by the Final Demand Specifications

| | Induced imports(billion yen) | | | Distribution ratio( ) | | | Inducement coefficients(times) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| Total | 37,618.2 | 45,833.3 | 43,723.6 | 100.0 | 100.0 | 100.0 | 0.1023 | 0.0932 | 0.0796 |
| Consumption expenditure outsaide households | 1,119.6 | 1,522.5 | 1,470.9 | 3.0 | 3.3 | 3.4 | 0.0804 | 0.0868 | 0.0757 |
| Consumption expenditure(private) | 17,685.1 | 21,342.0 | 20,208.6 | 47.0 | 46.6 | 46.2 | 0.0939 | 0.0864 | 0.0744 |
| Consumption expenditure of general government | 1,582.8 | 1,963.9 | 3,595.5 | 4.2 | 4.3 | 8.2 | 0.0526 | 0.0513 | 0.0520 |
| Gross domestic fixed capital formation | 10,810.9 | 15,605.1 | 13,910.3 | 28.7 | 34.0 | 31.8 | 0.1258 | 0.1125 | 0.0996 |
| Increase in stock | 399.1 | 441.2 | 358.1 | 1.1 | 1.0 | 0.8 | 0.1980 | 0.1684 | 0.1738 |
| Exports | 6,020.6 | 4,958.6 | 4,180.2 | 16.0 | 10.8 | 9.6 | 0.1266 | 0.1036 | 0.0893 |
| (Ref.)Consumption expenditure(private and general government) | 19,267.9 | 23,305.9 | 23,804.2 | 51.2 | 50.8 | 54.4 | 0.0882 | 0.0817 | 0.0698 |

Note: The table derive from 13 sectors table.

# APPENDIX 1

**CONTENTS OF 1995 INPUT-OUTPUT TABLES FOR JAPAN**

The Japanese Input-Output Tables are published in three volumes. The contents of each volume may be described below.

**[Vol. I]  Data Report (1)**

      Part 1. Basic Transaction Tables (with 519 X 403 basic classifications)

        1. Output Table

        2. Input Table

      Part 2. Table on Domestic Production by Sector and Commodity

        [Appendix] Basic Sector Classification Table

**[Vol.   ] Data Report (2)** Basic Transaction Tables and Coefficient Tables

      Part 1.

        1.  186-sector Tables (Minor Consolidated Sector Classification)

          1)  Output Table

          2)  Input Table

          3)  Input Coefficient Table

          4)  Inverse Matrix Coefficient Table

          5)  Domestic Production Induced by Individual Final Demand Items, Production Inducement Coefficients and Distribution Ratios

          6)  Gross Value Added Induced by Individual Final Demand Items, Gross Value Added Inducement Coefficients and Distribution Ratios

          7)  Import Induced by Individual Final Demand Items, Imports Inducement Coefficients and Distribution Ratios

          8)  Import Coefficients, Input Coefficients of Imported Goods, Total Import Coefficients and Total Gross Value Added Coefficients

        2.  93-sector Tables (Intermediate Consolidated Sector Classification)

          1)  Producers' Price Valuation Table

          2)  Purchaser' Price Valuation Table

          3)  Input Coefficient Table

          4)  Inverse Matrix Coefficient Table

          5)  Domestic Production Induced by Individual Final Demand Items, Production Inducement Coefficients and Distribution Ratios

# [Vol. III]   Explanatory Report

Introduction: The Japanese Economy and the 1995 Input-output Tables

Part 1. The Compilation Process of the 1995 Input-output Tables

  Chapter 1. Organizational Structure and Compilation Process

    (1) Joint-Work Organizational Structure

    (2) Compilation Guideline

    (3) Compilation Procedure

  Chapter 2. Outline of the 1995 Input-output Tables

    (1) Basic Structure and Theory

# APPENDIX 2

Magnetic tape or MO release of the following 1995 input-output data is available at a fee:

## 1. Data Available

The following four volumes have been prepared for the prospective users. Each volume is recorded on a single tape reel or MO.

(I)     Basic Transaction Tables (Basic Classification)

(II)    Consolidated Classification Tables (186, 93 and 32 sectors)

(III)   Inverse Matrix Coefficient Tables (186, 93 and 32 sectors)

(IV)   Supplementary Tables (Table on Value and Quantity, Tables on Persons Engaged in production activities (by Employment Status), Tables on Employees Engaged in production activities (by occupation), Fixed Capital Matrix, Table on Commodity Output by Industry (make matrix), Table on Self-transport) *

note: Data pertaining to Table on Trade Margin, Domestic Freight, Import, Scrap and By-product as well as Input Coefficient Table are contained in the First and Second Volumes

## 2. Data Recording

### (1) Magnetic Tape

The standard recording may be described as follows:

| Recording Media | Open Reel Type | Cartridge Type |
|---|---|---|
| Track (unit) | 9 tracks | 18 tracks |
| Parity | odd parity | odd parity |
| Recording Density | 6250 BPI | about 3800 BPI |
| Label | standard label | standard label |
| Recording Form | long fixed block | long fixed block |
| Code used | EBCDI code | EBCDI code |

### (2) Magneto Optical Disc (MO)

The format used may be described below:

Recording media: Magneto Optical Disc

Recording density: 230 MB

Recording Format: MS-DOS fixed text file

Code used: JIS code

## 3. Correspondence in respect of:

i) Content

Statistical Standards Department

Statistics Bureau

Management and Coordination Agency

19-1, Wakamatsu-cho, Shinjuku-ku, Tokyo 162-8668, Japan

ii) Order of magnetic data

National Federation of Statistical Association

1-14-15, Okubo, Shinjuku-ku, Tokyo 169-0072

International Trade and Industry Research Institute

2-8-9, Chuo-ku, Ginza, Tokyo 104-0061, Japan