

Chapter II: Current Status of Info-communications Industry

II-1-1 Gross Domestic Output

Growing info-communications industry

MPT estimated the real Gross Domestic Output of the info-communications industry in Japan (Refer to Appendix 6) by utilizing an inter-industry analysis. In the analysis, the info-communications industry was classified into the following nine sectors; 1) postal service, 2) telecommunications, 3) broadcasting, 4) information software, 5) information-related services, 6) info-communications equipment manufacturing, 7) info-communications equipment leasing, 8) telecommunications facilities construction and 9) R&D. Other industries excluding the info-communications industry were classified as non-info-communications industries.

1. Trends in real Gross Domestic Output of the info-communications industry (Fig. 1)

Japan's real Gross Domestic Output of the info-communications industry (Refer to Endnote 8) reached 111.2 trillion yen in 1997, representing an 11.8% share in the entire Japanese industry.

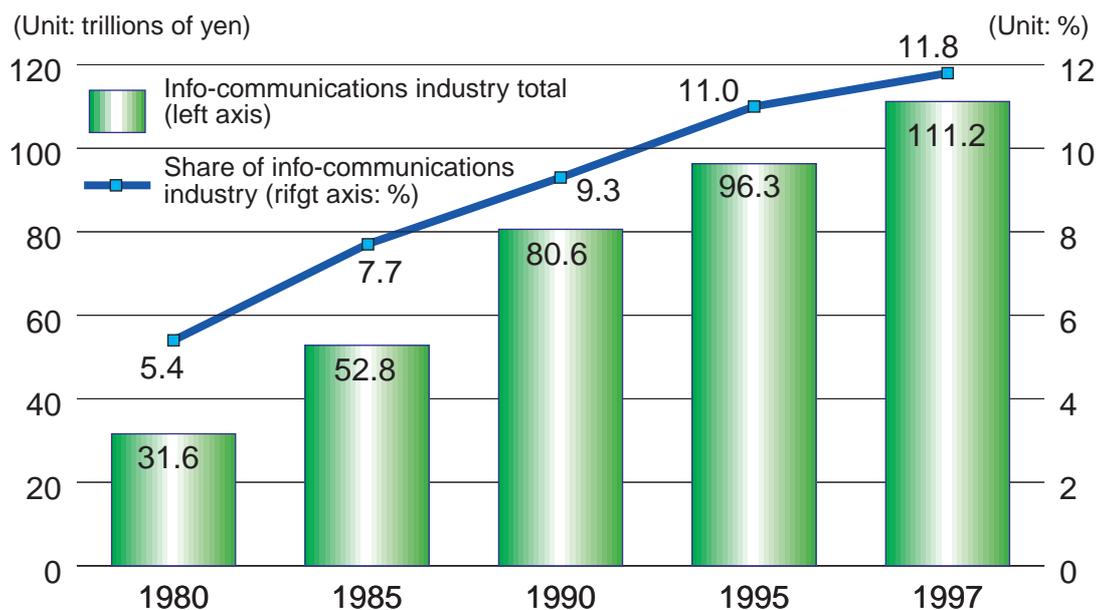
2. Comparison of real Gross Domestic Output in sectors of the info-communications industry (Fig. 2)

In 1997, the biggest sector of the info-communications industry in terms of real Gross Domestic Output was info-communications equipment manufacturing, recording 42.0 trillion yen, followed by information-related services at 24.4 trillion yen. The highest average annual growth rate, at 15.9%, from 1980 to 1997, was recorded by the information software sector; and the second highest by info-communications equipment manufacturing at 11.4%.

3. Comparison of real Gross Domestic Output by industry (Fig. 3)

The real Gross Domestic Output of the info-communications industry surpassed that of the wholesale industry in 1985 and the construction industry in 1995. Of average annual growth rates in real Gross Domestic Output among all Japanese industries from 1980 to 1997, the info-communications industry recorded the highest at 7.7%, followed by the electric machinery industry at 7.0%.

Fig. 1 Trends in real Gross Domestic Output of the info-communications industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

Fig. 2 Comparison of Real Gross Domestic Output in sectors of the info-communications industry

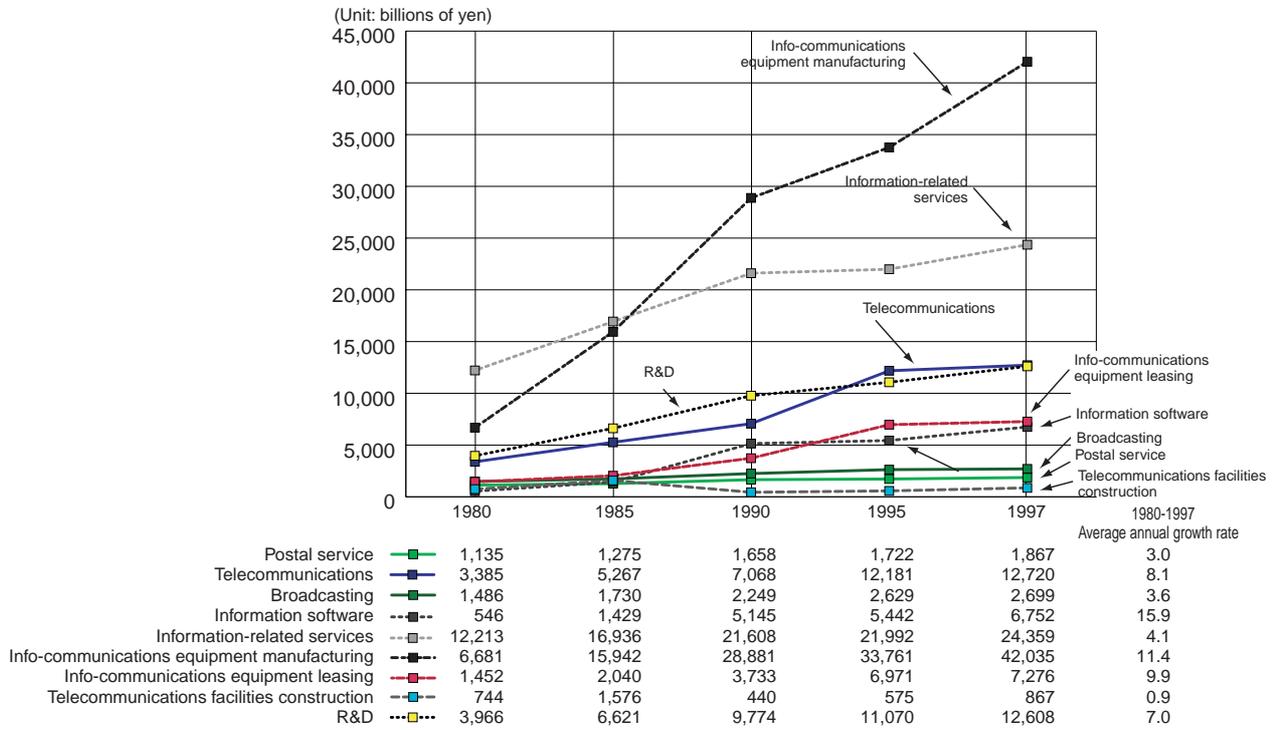
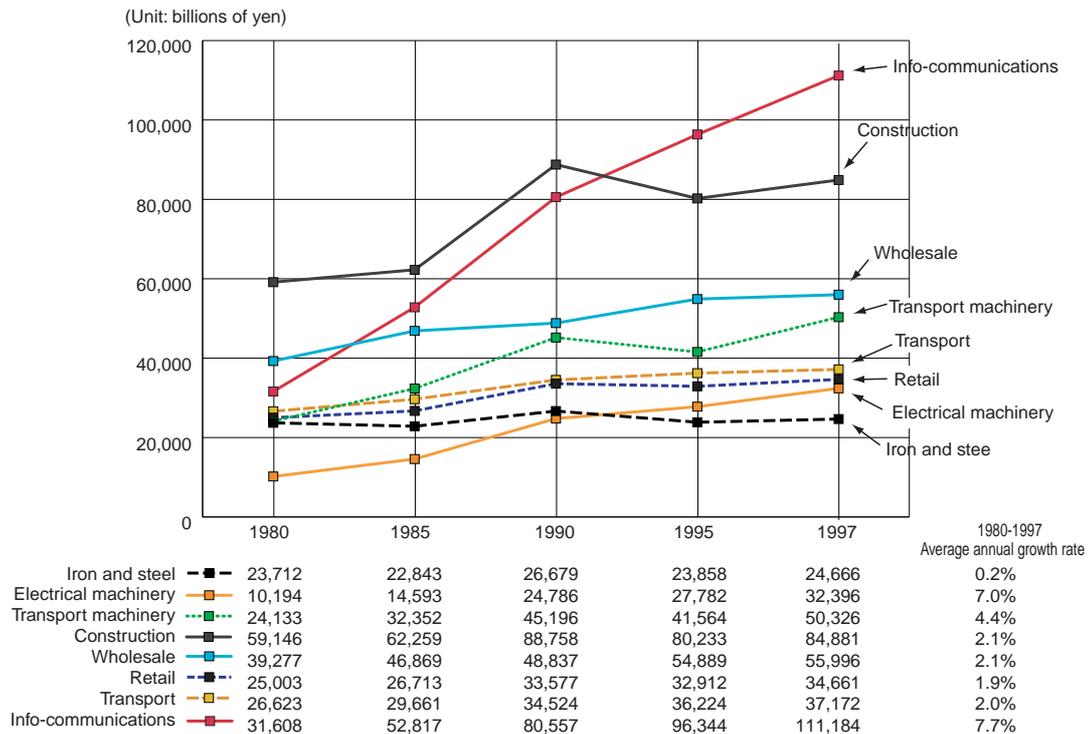


Fig. 3 Comparison of Real Gross Domestic Output by industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

II-1-2 Gross value added

From 1980 to 1997, the info-communications industry's gross value added grew an annual average 6.7%.

II-1

1. Trends in nominal gross value added of the info-communications industry (Fig. 1)

The nominal gross value added of Japan's info-communications industry (Refer to Endnote 9) in 1997 was 47.3 trillion yen, representing a 9.1% share of all industries.

The average annual growth rate of info-communications industry gross value added from 1980 to 1997 was 6.7%.

2. Comparison of nominal gross value added in sectors of the info-communications industry (Fig. 2)

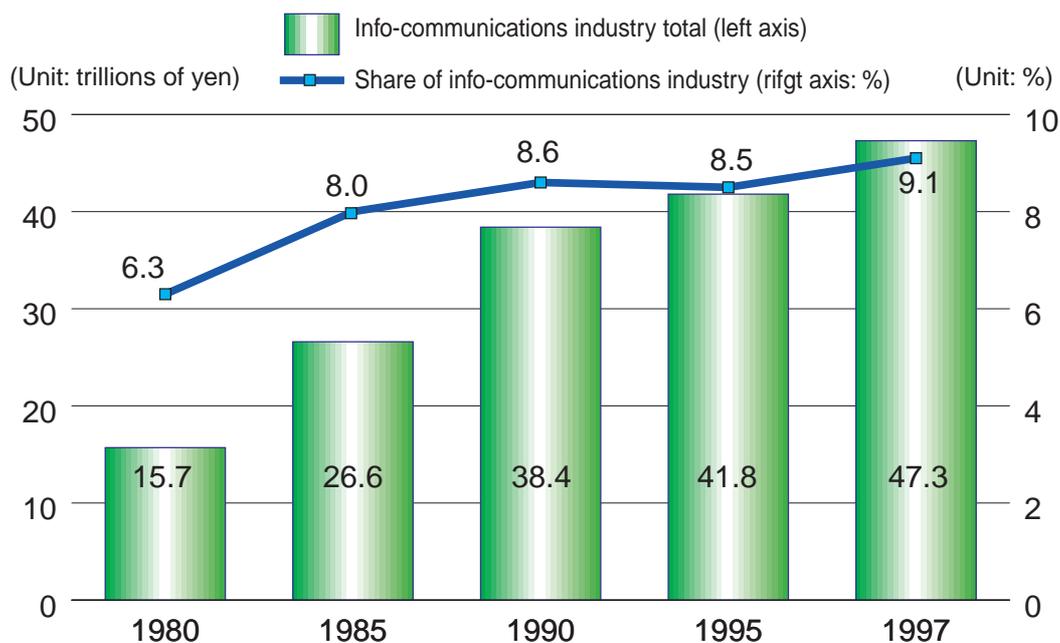
In 1997, the biggest sector of the info-communications industry in terms of nominal gross value added was information-related services, recording 11.9 trillion yen, followed by info-communications equipment manufacturing at 10.4 trillion yen. These

results are in reverse order to those ranking real Gross Domestic Output by sector. The highest average annual growth rate, at 13.7%, from 1980 to 1997, was recorded by the information software sector and the second highest by info-communications equipment leasing at 11.6%.

3. Comparison of nominal gross value added by industry (Fig. 3)

The nominal gross value added of Japan's info-communications industry fell below that of the construction industry in 1990 and in 1995, but again surpassed the construction industry in 1997. From 1980 to 1997, the info-communications industry and the electrical machinery industry achieved the highest average annual growth rates in nominal gross value added, both at 6.7%, with the third highest rate of 4.7% recorded by the transport industry.

Fig. 1 Trends in nominal gross value added of the info-communications industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

Fig. 2 Comparison of nominal gross value added in sectors of the info-communications industry

Info-communications industry

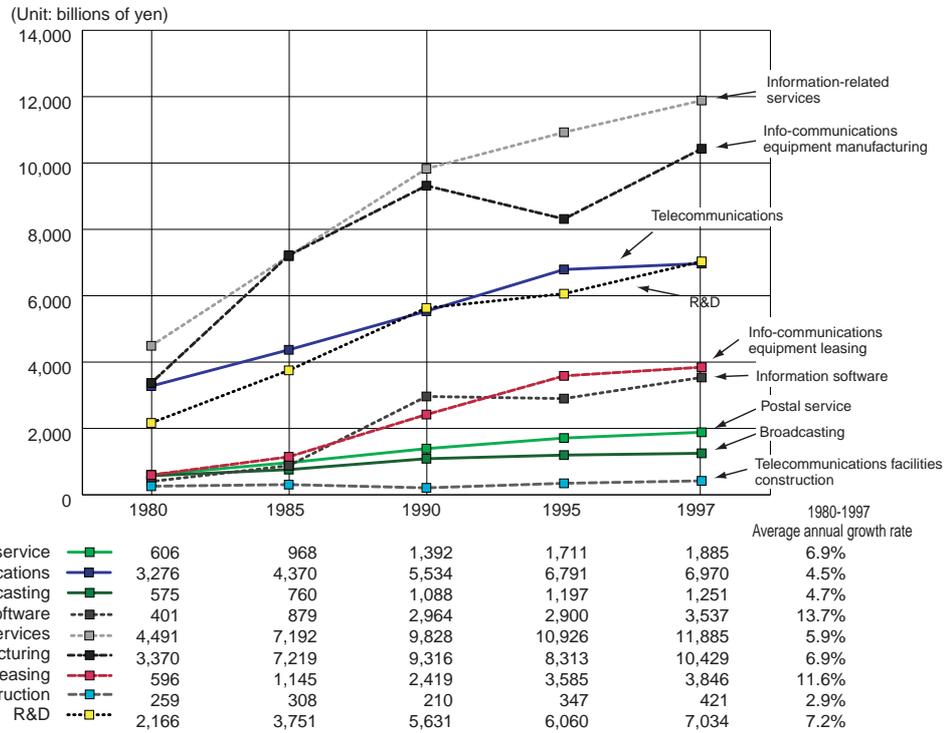
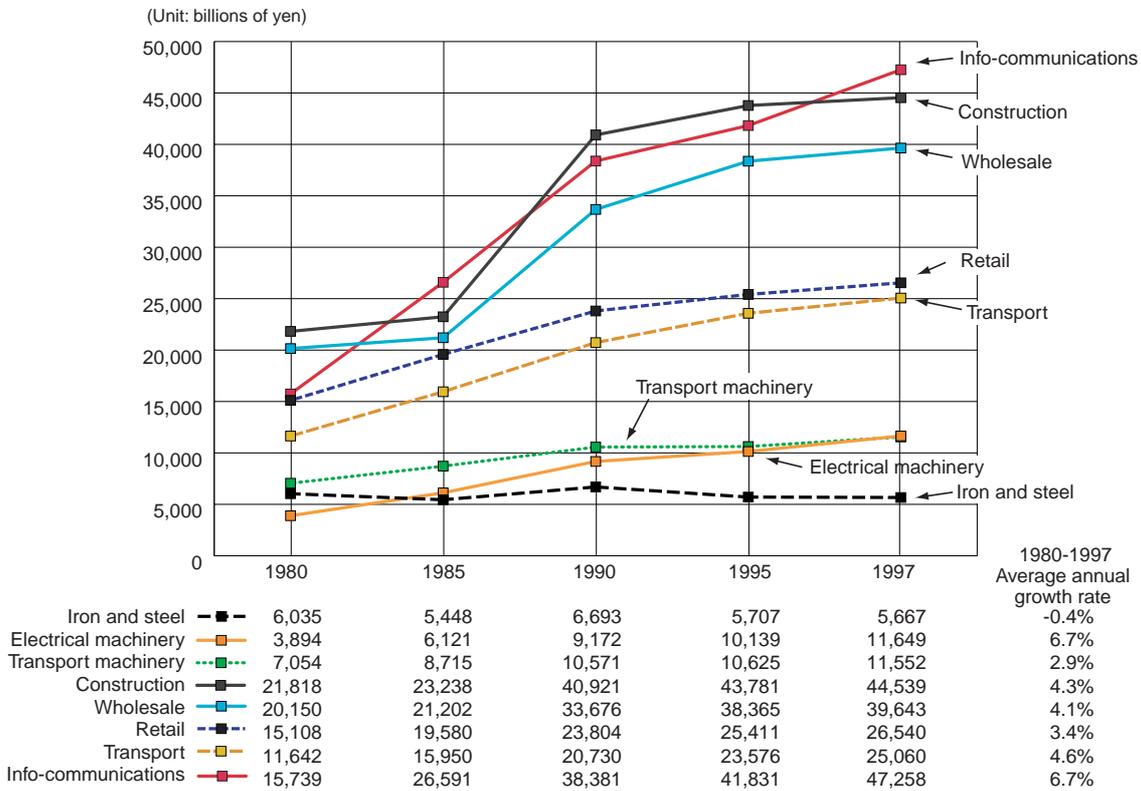


Fig. 3 Comparison of nominal gross value added by industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

II-1-3 Productivity

From 1980 to 1997, the info-communications industry's labor productivity rose an annual average 5.2%.

1. Comparison of labor productivity in sectors of the info-communications industry (real Gross Domestic Output ÷ number of employees) (Fig. 1)

Between 1980 and 1997, the telecommunications sector marked the highest labor productivity growth level, with 58.12 million yen per employee, in 1997 six times higher than for 1980. The average annual growth rate for the telecommunications sector labor productivity between 1980 and 1997 was 11.2%.

2. Comparison of labor productivity by industry (Fig. 2)

Labor productivity for the info-communications industry as a whole in 1997 was 28.72 million yen per employee, and the average annual growth rate of info-communications industry labor productivity between 1980 and 1997 was 5.2%, indicating higher growth rates than those for other major industries. Taking a look at other industries, the elec-

trical machinery industry shows a comparatively higher 4.7% average annual growth rate.

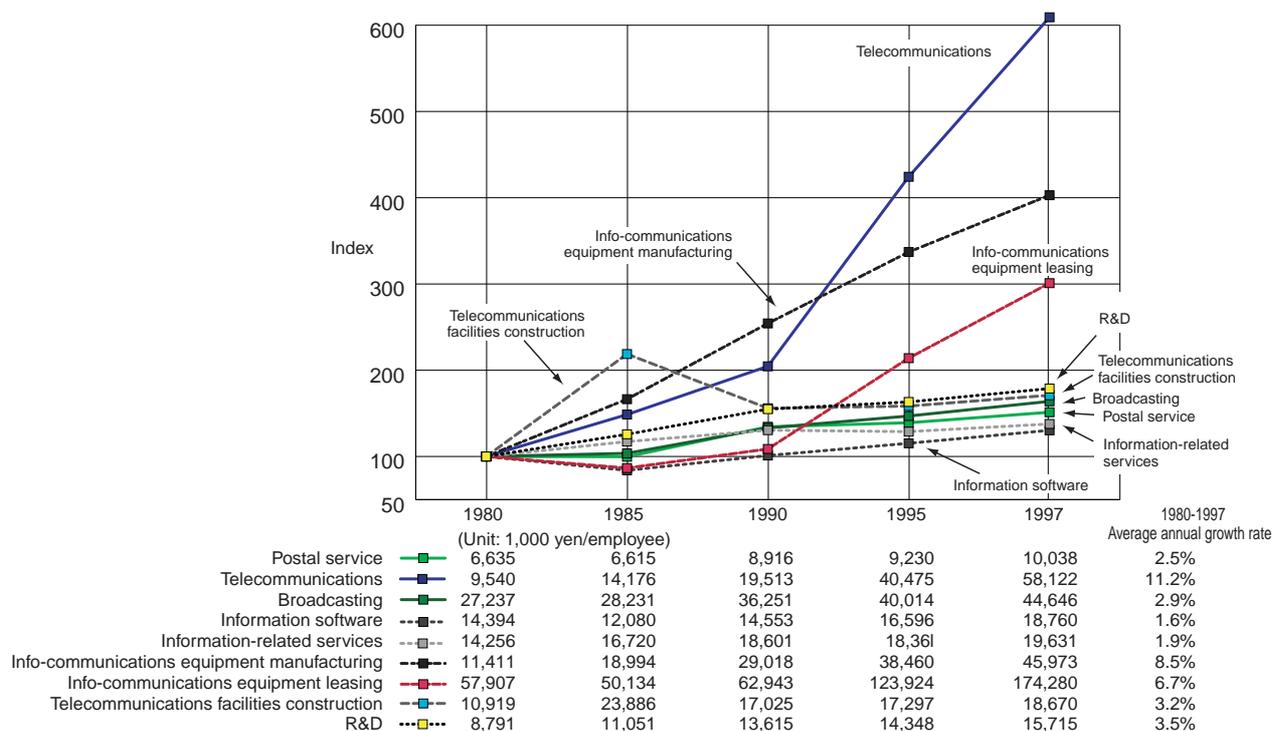
3. Comparison of total factor productivity (TFP) growth rate by industry (Fig. 3)

The following data are based on comparison of the total factor productivity (Refer to Endnote 10) by industry between 1990 and 1997, focusing on the info-communications industry.

TFP includes all contributions to production except for quantitative contributions such as intermediate inputs, labor and capital. TFP includes labor productivity, capital productivity, technological innovation, as well as regulatory frameworks. In other words, TFP is a value indicating a growth rate by subtracting the growth rate of all factors of production from the growth rate of outputs.

Between 1990 and 1997, in the top-10 industries in terms of TFP growth rate, seven sectors in the info-communications industry occupied from No. 1 (computers and peripheral equipment: 33.3%) to

Fig. 1 Comparison of labor productivity in sectors of the info-communications industry (index 100 = 1980)



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

No. 7 (information software: 14.6%) positions. Taking a look at other industries, the electrical machinery industry shows a comparatively higher 6.2% TFP growth rate. While the average TFP growth rate for all industries is -1.2%, that for the info-

communications industry marked 16.0%, showing a remarkable improvement in productivity in comparison with the average productivity of overall industries.

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Fig. 2 Comparison of labor productivity by industry (index 100 = 1980)

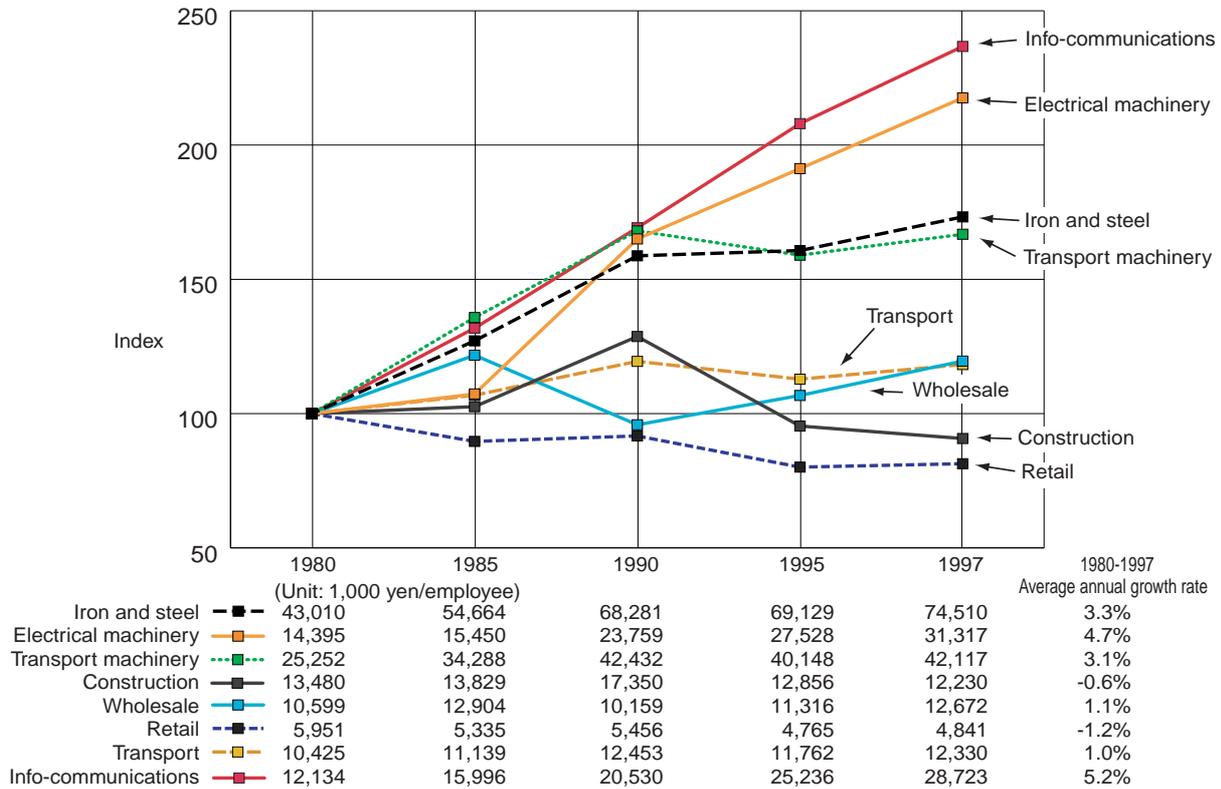
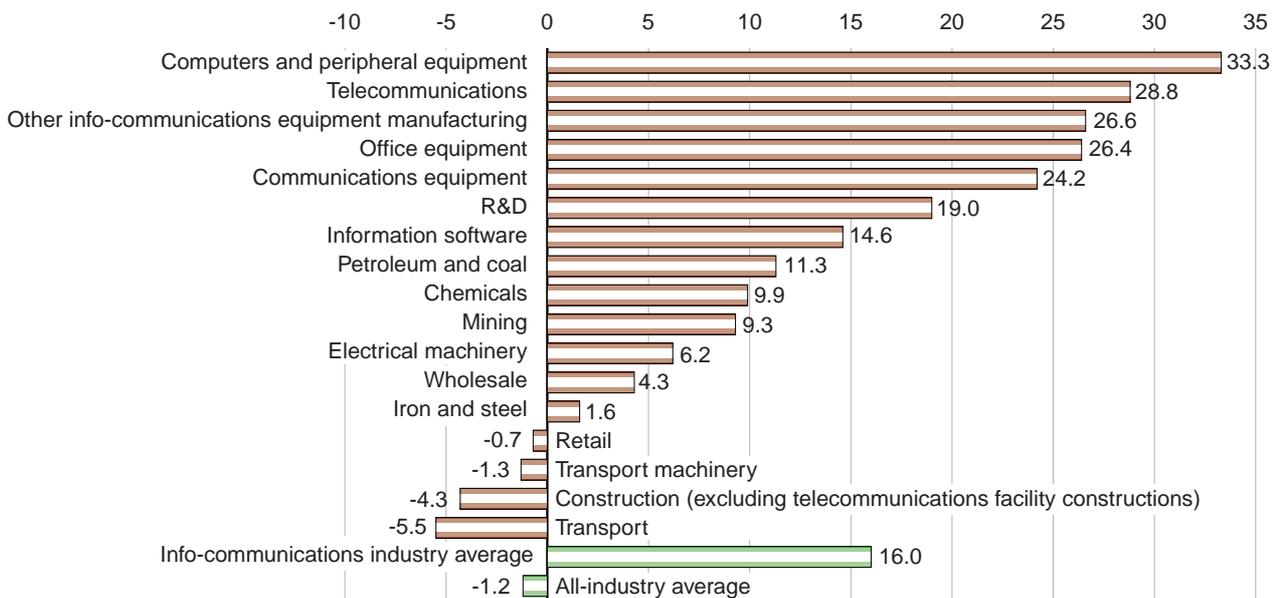


Fig. 3 Comparison of total factor productivity (TFP) growth rate by industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

Info-communications industry

II-1-4 Employment

The number of employees in the info-communications industry totaled 3,871,000 in 1997.

II-1

1. Trends in employment of the info-communications industry (Fig. 1)

The number of employees (Refer to Endnote 11)

in the Japanese info-communications industry totaled 3,871,000 in 1997, representing a 6.8% share of the total for all industries. The average annual

Fig. 1 Transitions in employment in the info-communications industry

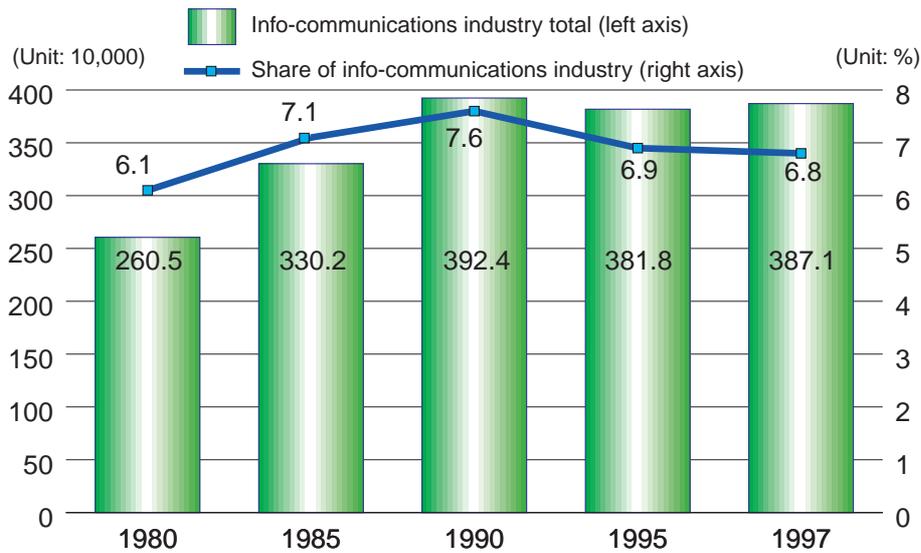
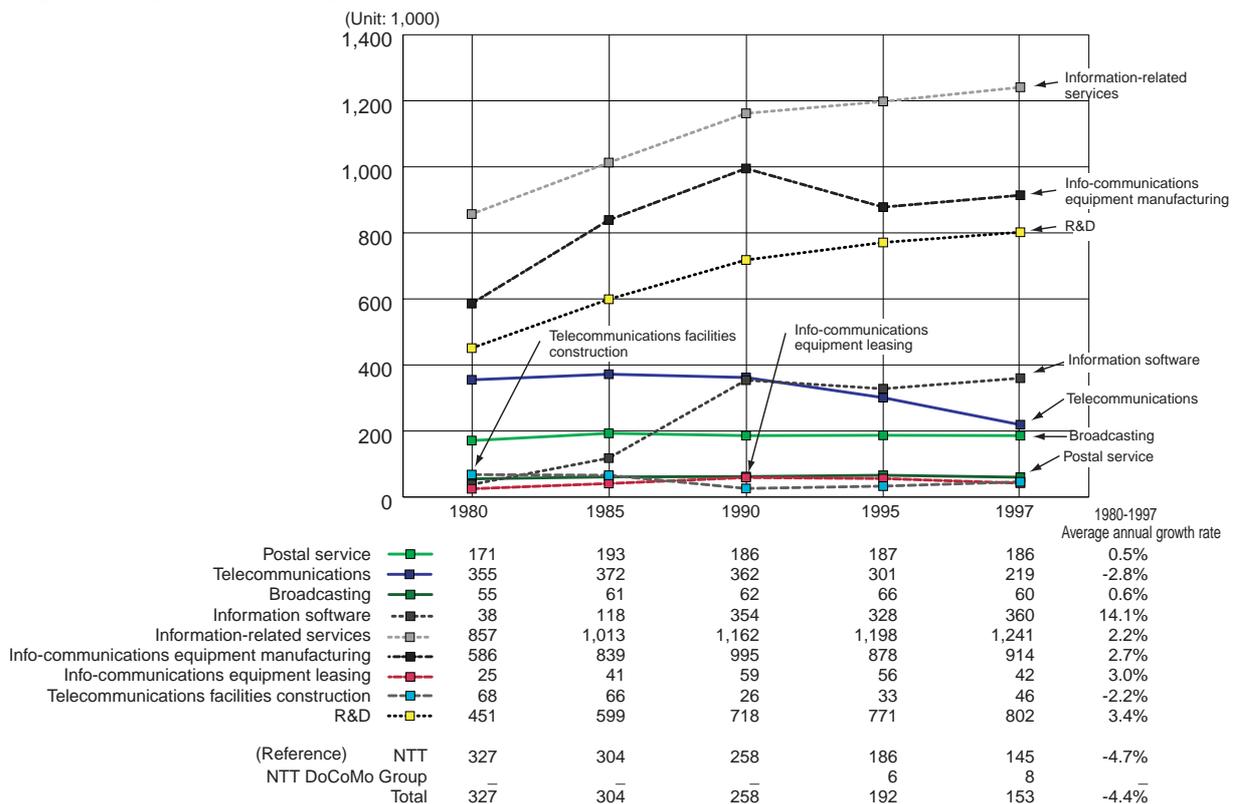


Fig. 2 Comparison of employment in sectors of the info-communications industry



growth rate in employment in the info-communications industry from 1980 to 1997 was 2.4%. By year, the number of workers reached a peak of 3,924,000 employees in 1990. The number of employees then fell slightly through 1995, but rose again in 1997.

2. Comparison of employment in sectors of the info-communications industry (Fig. 2)

In 1997, the sector of info-communications-related services had the largest number of workers at 1,241,000, followed by the info-communications equipment manufacturing sector with 914,000 employees. Concerning the annual growth rate in employment between 1980 and 1997, the highest figure of 14.1% was recorded by the information software sector, followed by the R&D sector at 3.4%. However, in the telecommunications sector the

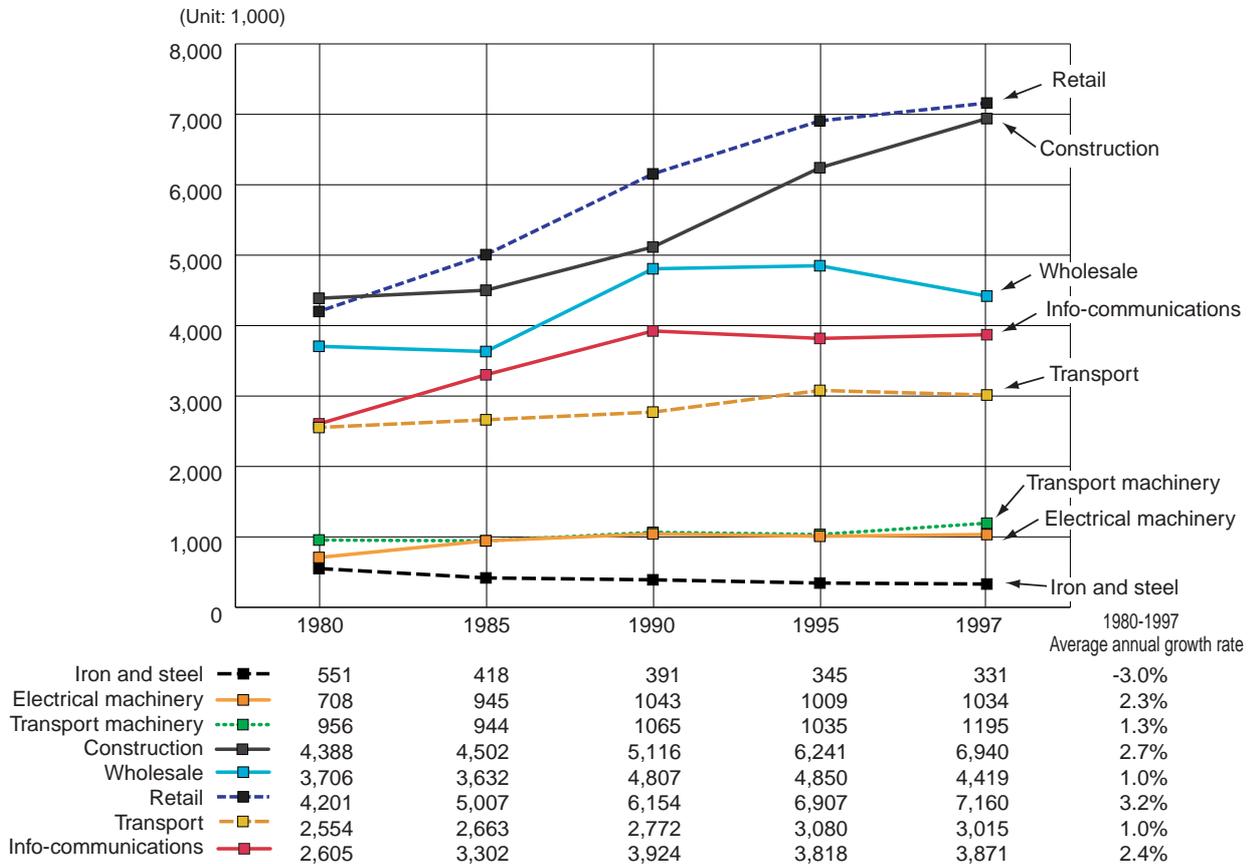
number of employees fell by 153,000 between 1985 and 1997, due mainly to the privatization of Nippon Telegraph and Telephone Corporation (NTT), which reduced their workforce by a total of 151,000 (including NTT DoCoMo group companies) during that period.

3. Comparison of employment by industry (Fig. 3)

For the number of employees by industry in 1997, the retailing industry had 7,160,000 employees, followed by construction at 6,940,000 employees.

By average annual growth rate in employment from 1980 to 1997, the info-communications industry achieved the third highest growth rate at 2.4%, following those for retailing at 3.2% and construction at 2.7%.

Fig. 3 Comparison of employment by industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry

II-1-5 Intracompany IT activities

In 1997, intracompany IT activities in non-info-communications industries had 6.9 trillion yen in gross value added.

The “intracompany IT activities in non-info-communications industries” refer to activities conducted by employees in non-info-communications industries engaged in IT occupations, which include “information production, collection, processing, storage, provision and transmission by electronic measures.”

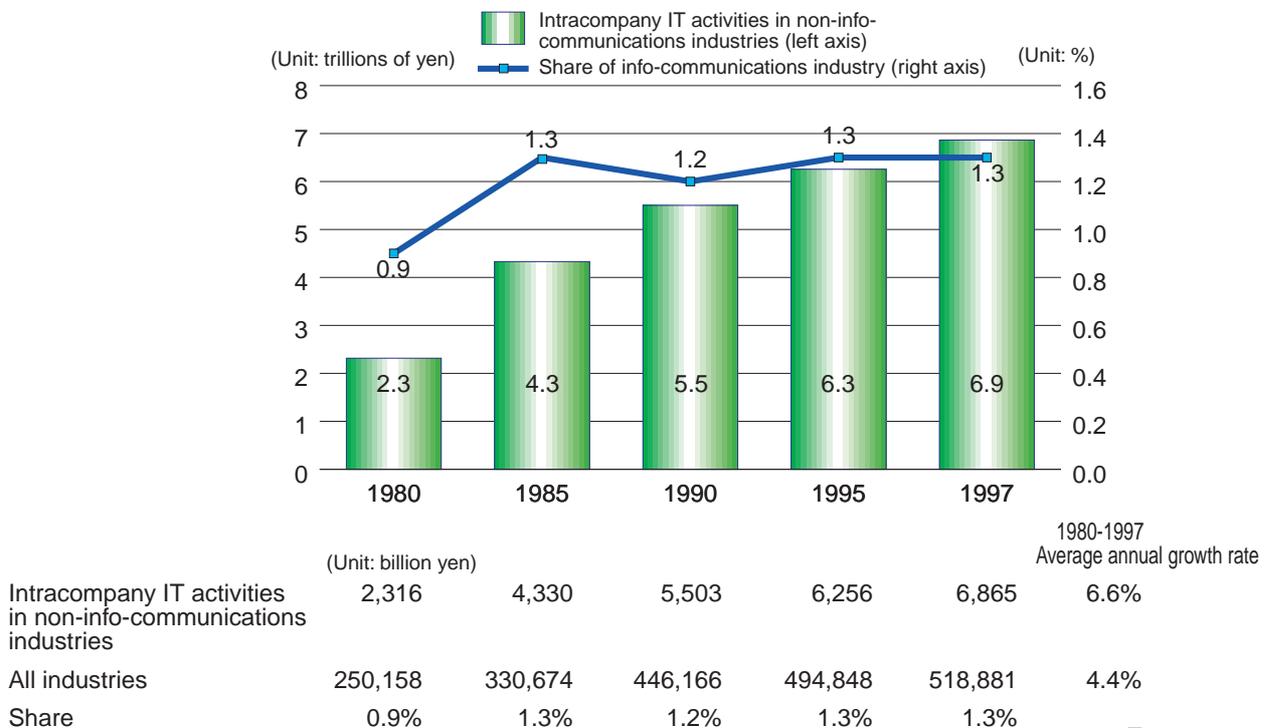
The IT occupations include information processing technicians, computer operators, keypunchers and telecommunications employees (excluding mail and telegraph carriers) in accordance with the Japan Standard Classification of Occupations (JSCO).

1. Trends in nominal gross value added for intracompany IT activities in non-info-communications industries (Fig. 1)

The 1997 nominal gross value added for intracompany IT activities in non-info-communications industries (Refer to Endnote 12) was 6.9 trillion yen, representing a 1.3% share in all industries.

Between 1985 and 1997, while the average annual growth rate of all-industry nominal gross value added was 4.4%, the average annual growth rate of nominal gross value added for intracompany IT activities in non-info-communications industries reached 6.6%.

Fig. 1 Trends in nominal gross value added for intracompany IT activities in non-info-communications industries



Sources: MPT; “Input-Output Tables,” Management and Coordination Agency; “Input-Output Tables (linked tables),” Ministry of International Trade and Industry

2. Growth rates in nominal gross value added for intracompany IT activities by industry (Fig. 2)

For ratios of the 1997 nominal gross value added for intracompany IT activities to the nominal gross value added in major non-info-communications industries, the electrical machinery industry was the highest at 3.6%, followed by the transport machinery industry's 1.2% and the wholesale industry's 1.2%.

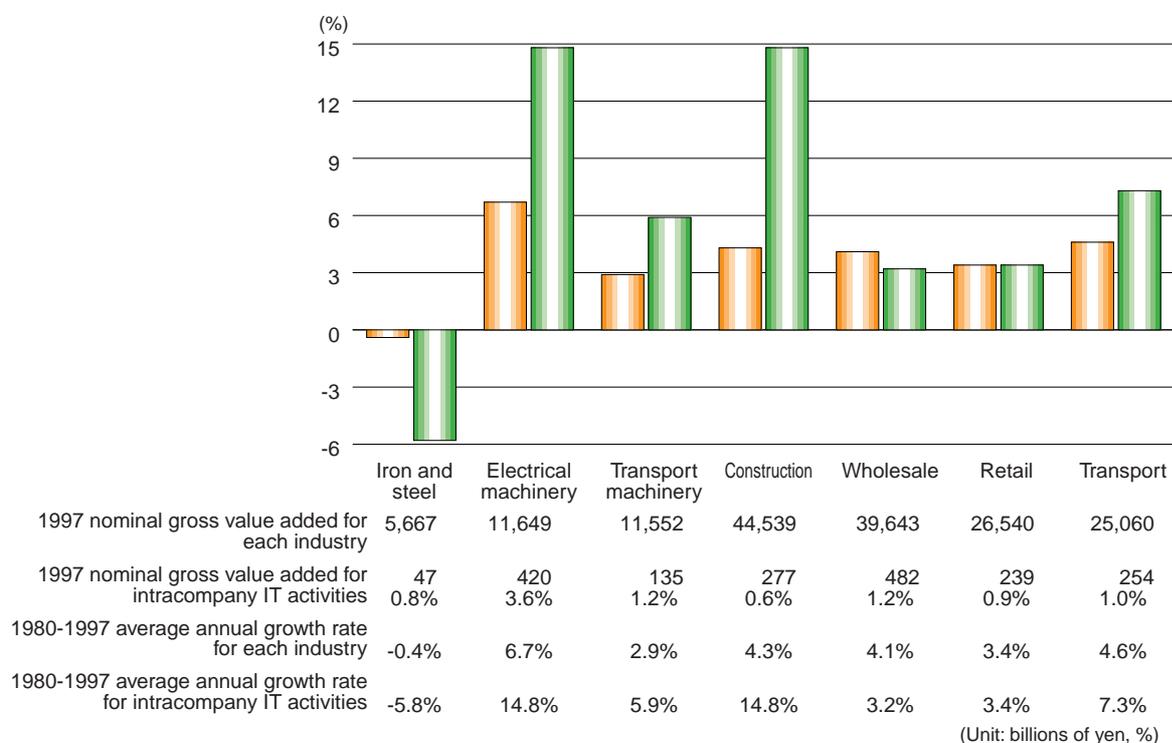
In comparison with the average annual growth rate of nominal gross value added in each industry between 1985 and 1997, the average annual growth rate of each industry's nominal gross value added for intracompany IT activities was higher,

excluding the iron and steel industry and the wholesale industry. (The retailing industry achieved 3.4% growth rates in both industry's nominal gross value added and intracompany IT activities nominal gross value added.)

Especially in the electrical machinery industry and the construction industry, the average annual growth rates of nominal gross value added for intracompany IT activities were extremely high at 14.8% during the same period.

It is clear that in industries with the higher annual growth rates of intracompany IT activities, the contributions of intracompany IT activities to total industry activities become comparatively important.

Fig. 2 Growth rates in nominal gross value added for intracompany IT activities by industry



Sources: MPT; "Input-Output Tables," Management and Coordination Agency; "Input-Output Tables (linked tables)," Ministry of International Trade and Industry