Industrial Policy of Japan

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ACADEMIC PRESS, INC.
Harcourt Brace Jovanovich, Publishers
Tokyo San Diego New York Berkeley
Boston London Sydney Toronto

CHAPTER 5

The Tax System and the Fiscal Investment and Loan Program[1]

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I. The Role of the Government

The changes in major policy objectives in the postwar Japanese economy can be best understood within the framework of the following periodization:

1. The decade of economic reconstruction beginning in 1945;
2. The decade of 'catching up' with the advanced economies through heavy and chemical industrialization, beginning in 1955;
3. The decade of social development beginning in 1965;
4. The decade of building up a welfare state beginning in 1975.

Needless to say, the periodization is highly simplistic and intended merely to provide a broad frame of reference for a complex system of policies actually implemented.

Given such policy goals, it is natural that the government would administer its fiscal spending as well as its fiscal investments and loans in a manner most conducive to the achievement of these objectives. In many cases, however, changes in economic structure, reflected in the shifts in policy objectives, are bound to have differential impact on various segments within the economy and it becomes imperative for the government to adopt proper compensatory measures to mitigate the impact of such changes on adversely affected groups.

This duality in the form of promotional and compensatory roles of the

government can be clearly visualized in the functioning of public finance in Japan since 1955. During the period of rapid economic growth, the government promoted industrial development by (1) devoting a large proportion of its annual expenditures for consolidation of industrial infrastructure; (2) raising investment incentives for industries such as iron and steel, automobiles, and shipbuilding through adoption of specially designed depreciation schemes; and (3) reducing joint costs by channeling low-interest loans aimed specially at industries such as electric power, sea transport, and railways. Public finance, since around 1965, has also made direct contributions to projects for technological development, especially large-scale industrial technology, basic technology, next generation industrial infrastructure technology, computer technology, and the like. As against this, a system of liberal assistance and heavy protection for agriculture, huge compensations to the coal mining industry, which had lost its competitive power, and protection and subsidization of structurally depressed industries such as textiles and sea transport reveal the compensatory role of public finance.

A balanced evaluation of the government policy in the context of development of heavy and chemical industries in postwar Japan requires a proper grasp of the duality mentioned above. Table I reveals that agriculture, forestry, and fisheries accounted for over 80% of total subsidies provided to private industry out of the national treasury. Of the subsidies provided to nonagricultural industries, roughly one-half went to competitively weak sectors such as smaller business, textiles, and sake breweries. The contribution to the development of high technology, on the other hand, reached a peak of 4% in 1974 and has again declined to slightly over 1% in recent years.

What follows is our attempt to quantify the dual roles of public finance to the extent that officially published data permit. Our analysis is confined principally to manufacturing industries, though industries such as coal mining, electric power, and sea transport are also referred to as need arises. Agriculture, however, is excluded from the scope of this analysis.

II. Consolidation of Industrial Infrastructure

The Japanese economy recovered and surpassed its prewar level around 1953 and continued into the late 1950s with a high rate of growth primarily propelled by private business investment. However, the development of industrial infrastructure—the setting up of a network of roads and railways, the development of ports, and the securing of land and water resources—received less-than-adequate attention during this period, with the result that shortages in such social overheads gradually came to the fore. The

TABLE I
Sectoral Disbursement of Subsidies (billion yen, % of total in parentheses)[a]

Year	Sea Transport	Coal Mining	Small Business Textiles, etc.[b]	High Technology[c]	Agriculture, Forestry, and Fisheries	Total Subsidies
1955	3.5(5.0)	0 (0)	0.5 (0.6)	0.5(0.7)	65.7(93.4)	70.3
1956	3.2(4.9)	0 (0)	0.7 (1.1)	0.5(0.7)	59.4(93.0)	63.8
1957	0.05(0)	0 (0)	1.9 (2.8)	0.4(0.6)	64.2(96.3)	66.7
1958	0.04(0)	0 (0)	3.1 (4.2)	0.6(0.7)	70.3(94.8)	74.1
1959	0.5(0.6)	0 (0)	2.2 (2.6)	0.5(0.6)	81.9(96.0)	85.3
1960	1.7(1.7)	5.8 (6.0)	2.6 (2.6)	0.5(0.5)	86.1(89.0)	96.7
1961	1.5(1.3)	5.8 (5.3)	4.6 (4.2)	0.6(0.5)	95.2(88.2)	107.9
1962	1.6(1.0)	10.8 (7.2)	9.1 (6.1)	0.7(0.4)	126.2(84.8)	148.8
1963	2.1(1.1)	18.0(10.0)	11.8 (6.6)	0.8(0.4)	146.0(81.5)	179.0
1964	10.1(4.7)	18.3 (8.5)	16.6 (7.7)	0.9(0.4)	167.5(78.3)	713.8
1965	13.6(5.5)	20.1 (8.1)	21.8 (8.8)	0.8(0.3)	190.1(76.9)	246.9
1966	14.5(4.5)	24.0 (7.5)	29.8 (9.4)	1.9(0.5)	246.0(77.6)	316.7
1967	15.4(4.1)	37.7(10.1)	36.2 (9.7)	4.2(1.1)	277.0(74.5)	371.6
1968	15.7(3.7)	42.3(10.0)	39.3 (9.3)	5.5(1.3)	318.6(75.3)	422.6
1969	15.2(3.1)	69.9(14.3)	43.6 (8.9)	6.4(1.3)	351.4(72.0)	487.8
1970	15.4(2.3)	78.8(11.8)	51.6 (7.7)	7.7(1.1)	510.7(76.7)	665.2
1971	15.6(1.9)	68.0 (8.3)	59.2 (7.2)	8.2(1.0)	664.5(81.3)	816.6
1972	16.1(1.6)	58.7 (5.9)	90.8 (9.1)	20.0(2.0)	806.0(81.2)	992.1
1973	16.1(1.4)	63.9 (5.5)	85.4 (7.4)	31.9(2.7)	952.5(82.7)	1,151.0
1974	15.6(1.2)	55.2 (4.5)	103.7 (8.5)	44.5(3.6)	996.6(81.9)	1,216.8
1975	15.0(1.1)	61.1 (4.5)	129.4 (9.5)	43.3(3.2)	1,102.3(81.5)	1,352.2
1976	13.6(0.8)	58.7 (3.7)	166.4(10.7)	36.3(2.3)	1,268.8(82.1)	1,545.0
1977	11.5(0.6)	57.6 (3.2)	173.6 (9.7)	31.3(1.7)	1,514.6(84.6)	1,789.7
1978	9.5(0.4)	59.5 (2.5)	206.8 (8.9)	31.4(1.3)	1,992.3(86.5)	2,300.7
1979	5.5(0.2)	52.2 (1.9)	232.6 (8.7)	34.1(1.2)	2,345.6(87.8)	2,671.4
1980	9.5(0.3)	48.8 (1.7)	243.7 (8.6)	34.6(1.2)	2,473.8(87.9)	2,811.8
1981	10.5(0.3)	44.4 (1.5)	249.9 (8.6)	36.3(1.2)	2,552.7(88.1)	2,895.1
1982	11.0(0.3)	48.1 (1.5)	251.0 (8.2)	37.2(1.2)	2,695.1(88.5)	3,043.7

Source: Okurasho, *Kuni no Yosan* (National Budget).

[a]General A/c budget. For coal mining, special A/c allocations are also included.

[b]The total of subsidies to small businesses, textiles, and sake breweries.

[c]The total of subsidies to large scale industrial technology, basic technology, next generation industrial infrastructure technology, computer technology, transport machinery, medical equipment, etc.

government set about the task of improving industrial infrastructure in earnest from 1957 onward, formulating a number of medium-term improvement programs. In order to meet this need, a major proportion of the national budget for road development was brought under special accounts and its size expanded from ¥45.9 billion in 1957 to ¥164 billion two years later, a four-fold increase. The national railways system also

saw its investments double during the same period. Finally, port development allocations were also brought into the fold of special accounts in 1959, and improvement of ports with a long-term perspective got under way (see Table II).

The Income Doubling Plan (December 1960), visualizing the shortages in social overhead capital as a bottleneck for rapid growth, also aimed at

TABLE II
Investments in Social Overheads and Industrial Infrastructure (billion yen)

Year	Gross Investment in Social Overheads	Share of Industrial Infrastructure	of Which				
			Roads[a]	Ports	Waste Treatment Facilities	Water for Industrial Use	Railways
1955	148.7	79.9	23.0	4.4	0	0	52.5
1956	158.1	89.8	26.4	4.4	0	0.2	58.7
1957	230.6	151.2	45.9	6.8	0.3	0.3	98.7
1958	292.3	229.3	133.6	8.2	0.3	0.5	87.3
1959	398.6	293.7	164.0	20.8	0.4	0.9	107.6
1960	501.0	339.3	197.6	23.5	0.6	1.3	116.4
1961	741.3	554.0	311.8	46.5	0.7	2.5	192.5
1962	850.9	686.4	420.6	57.4	1.1	3.8	203.5
1963	1122.8	856.7	488.0	69.7	2.2	5.4	291.4
1964	1248.4	931.3	580.3	80.4	4.3	7.0	259.3
1965	1457.6	1136.0	704.7	87.2	4.6	8.3	331.2
1966	1645.0	1348.5	876.2	111.0	3.2	8.2	350.0
1967	1858.6	1512.1	1001.1	124.0	2.7	6.2	378.0
1968	1965.5	1608.5	1081.0	121.6	3.0	6.6	396.3
1969	2217.4	1278.8	1254.1	154.2	3.3	7.4	399.8
1970	2565.1	1875.5	1275.3	185.1	3.6	10.1	401.5
1971	3010.4	2354.7	1688.1	220.0	4.4	13.4	428.8
1972	3714.7	2908.9	2055.1	267.3	8.4	18.8	559.3
1973	4747.5	3593.7	2439.5	326.8	16.3	23.3	787.8
1974	4831.3	3624.5	2464.6	328.0	18.6	23.1	790.1
1975	4758.7	3627.6	2507.6	316.2	23.3	21.4	759.0
1976	5522.9	3980.7	2730.2	361.2	28.0	24.3	837.1
1977	6572.3	4904.7	3399.7	412.8	34.6	26.3	1031.2
1978	8320.0	5730.0	4048.7	487.5	48.3	25.0	1120.4
1979	9967.0	6370.7	4386.8	583.4	63.5	23.9	1313.1
1980	9896.1	6683.8	4756.2	579.9	66.2	22.6	1258.9
1981	9850.5	6600.8	4789.4	585.9	67.1	21.0	1137.5
1982	9883.2	6770.4	4982.5	591.1	66.5	19.6	1110.7

Source: Okurasho, *Kuni no Yosan*, (National Budget).

[a]Based on Ministerial Secretariat, Ministry of Home Affairs', *Gyosei Toshi Jisseki* (Performance of Administrative Investments), provided to us by professor Susumu Yamaguchi of Saitama University. Including streets before 1969.

rapid development with the result that investments in industrial infrastructure (roads, ports, railways, waste treatment facilities, water for industrial use) rose from 1% of GNP in 1956 to 3.5% in 1964. Even though a major proportion of this investment, amounting to ¥580.3 billion in 1964, went for the development of roads, the national railways system also invested to the tune of ¥260 billion in ambitious schemes of its own like the building up of the Tokaido Bullet-Train Line. A significant proportion of this huge investment in national railways (¥150 billion in 1964 alone) came out of the funds for the Fiscal Loan and Investment Program.

By the late sixties, the problem of shortage in social overhead capital had been compounded by the so-called "strains" of rapid economic growth in the form of pollution, urban congestion and rural depopulation, and so on, forcing a diversification in policy goals. Despite the shift in transport demand from railways to roads during this period, which resulted from popularization of automobiles and consolidation of a national network of roads, large investments continued to be made in railways. Between 1965 and 1975, on average, ¥500 billion per year was invested in railways. Since 1975, this figure has grown to ¥1 trillion per year. From 1965 to 1975, investment in roads also grew parallel with the growth in GNP at a level of about 2.5% of GNP, although the growth slowed in the subsequent period to 1.8% of GNP. Moreover, two-thirds of the budget for roads was being directed toward sparsely populated areas with low transport demand and the inefficient overinvestment in national railways is revealed in the system's ¥2 trillion-a-year deficit.

III. The Tax System

A. Corporate Taxes

Changes in the corporate income tax rate, covering both national and local levies, are depicted in Figure 5.1. Following the recommendations of the Shoup Mission, the national tax rate on corporate income was set at 35% in 1950 but was raised to 42% in the following year, as corporate income soared with the beginning of the Korean War. In exchange for this tax hike, firms were allowed to treat reserves for covering price changes and reserves for employees' retirement allowances as business expenses and the coverage of special depreciation (to be discussed later) was also broadened. In 1954, with the objective of building up internal revenue sources for local governments, a corporate income tax of 12% and an inhabitant tax surcharge equivalent to 12.5% of the corporate income tax were levied, thus raising the marginal tax rate close to 60%.

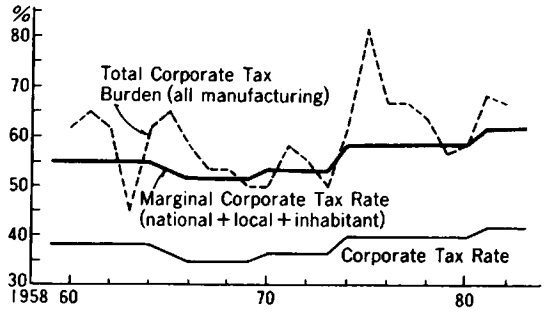

Fig. 5.1. Taxes levied on corporations.

In view of declining corporate earnings with the passing of the Korean war boom, as well as in order to increase corporate savings, the corporate tax was reduced by 2% in 1955. Lower tax rates for smaller businesses were also adopted at the same time. The natural rise in fiscal resources concomitant to economic growth led to a further fall in the corporate tax rate by 2%, bringing it down to 38%. A system of lower tax rates on paid-out dividends was adopted in 1961. With a recession in 1965, the tax rate was reduced by 1%, with a further reduction of 2% in 1966 bringing it back to the initial level of 35%.

The economy turned around in 1966 and stayed buoyant for the next four years. With the fiscal spending growing without any respite during this period there was no room for a reduction in revenues to provide personal income tax cuts. To implement the personal income tax cuts, finally, the corporate tax rate was raised by 1.75% in 1970, reversing the downward trend observed since 1955. Another large-scale reduction in personal income taxes in 1974 was matched by a sharp increase in the corporate tax rate, bringing it up to 40%. Finally, the corporate tax rose by another 2% in 1981 to attain its present level of 42%. (A temporary surcharge of 1.3% was placed for three years during 1984–1986 period.)

In addition to the above-mentioned taxes on corporate income, firms have to bear the burden of taxes on their fixed assets, stamp duties, and other charges. Figure 5.1 presents, for all manufacturing corporations, the tax burden, including all taxes and public charges as percent of current income.[2]

The tax burden reveals a cyclical pattern with a decline or a rise depending on whether business was good or bad. This pattern arises because current profits shoot up under favorable business conditions, but tax obligations do not keep pace due to, first, the existence of certain taxes, like those on fixed assets, totally unrelated to changes in business conditions and, second, lower tax rates on paid-out dividends, as well as firms' manipulation of business accounts for tax saving, such as the carrying over of losses and building up of tax-exempt reserves. Under unfavorable business conditions, not only do these factors work in the reverse direction but also firms that incur losses reduce the size of aggregate profit but not the tax liability, causing a rise in the tax burden. The corporate tax burden peaked in 1961, 1965, 1971, 1975, and 1981, all recession years.

Besides the above mentioned cyclical pattern, one can also discern a U-shaped trend in the tax burden closely conforming to the pattern depicted by the marginal tax rate (Fig. 5.1). The trend was downward from 1960 to 1975 in all manufacturing as well as in major industries, but shifted upward after the first oil shock by about 10 percentage points to 60%. This upward shift was due to (1) the above-mentioned rise in the marginal tax rate, (2) heavier taxes achieved through a large-scale elimination of tax-exempt reserves, and (3) an inflation-induced rise in fixed-asset taxes while business assets were earning less.

B. The Depreciation System

In computing corporate income, corporations are allowed to deduct the acquisition cost of machinery and equipment from their annual incomes over a number of years depending on the stipulated life of the asset. This system, designed to spread the acquisition cost over a certain period of time, does not take into account interest cost and inflation over the relevant period. The longer the stipulated life of an asset, the larger is the spread of corporate tax savings arising out of depreciation schemes and hence the lower the present value of such savings. The corporate tax burden with respect to investment goods can, thus, be reduced through the shortening of stipulated asset lives, even with no change in tax rates.

The first major postwar overhaul of the depreciation system was carried out in 1951[3] and this system remained in operation until 1961 when the next revision was introduced. In 1951, prior to this overhaul, a system of accelerated depreciation for important machinery was adopted, allowing an additional 50% write-off over and above the normal depreciation for three years in the case of certain types of machinery and equipment specially designated by the tax authorities. This measure was intended to stimulate replacement of worn-out machinery and equipment due to overuse during and after the war in order to help firms to improve international competitiveness.

In 1952, this system of accelerated depreciation was expanded to cover machinery acquired for "rationalization" (50% of the purchase price in the first year) and experimental equipment (these were especially quick

write-offs, with 50% in the first year and 20% each in the second and third years). With the passage of time, the system became increasingly more specific and more complicated, finally forcing the government's Tax System Council to lament in 1960, thus:

> the special depreciation scheme allowing 50% writeoff in the first year applies to 500 types of machinery and the 3-year 50% accelerated depreciation scheme to 1300 types of machinery. These are specified to such minute details that it becomes extremely difficult to determine the applicability of special depreciation provisions unless one is a specialist. [Nov. 1960, quoted in Komiya (1975)]

The three-year 50% accelerated depreciation system (for important machinery, and so on) was abandoned in 1961. The items covered under the scheme were incorporated into the general depreciation system, which was revised so as to shorten the stipulated asset lives of machinery and equipment by 20% on average. The first-year depreciation allowed on "rationalization machinery" was reduced to one-third of the acquisition cost. A further 15% reduction in the stipulated asset lives was adopted in 1964 and the first-year depreciation on "rationalization machinery" was cut down to one-fourth of the purchase price. Buildings were left out of these two reforms, but their average useful life was reduced by 15% in 1966 with a corresponding restructuring of the provisions of special depreciation schemes.

The special depreciation schemes that prospered in the 1956–1960 period were thus gradually absorbed into the normal depreciation system through a shortening of stipulated asset lives and finally lost their importance. In a sort of reversal of this trend, the coverage of rationalization machinery was once again expanded in 1970 with the view to improving the strength of firms, and in 1971, special depreciation schemes were extended or newly instituted for vessels and large-sized aircraft. This, however, did not last long, and in 1973, it was decided that the former was to be phased out gradually in three years and the latter was to be narrowed in scope.

C. Export-Based Special Depreciation

This system, which was adopted in 1961, permitted a firm with rising exports to claim a special depreciation equal to the product of the increase in its export/sales ratio and the amount of normal depreciation. The multiplier was reduced in 1964 to 80% of the increase in the export/sales ratio but was reverted in 1966 to the full amount. In order to stem the worsening foreign exchange position through expansion of exports, a scheme of 30% and 60% special increases in depreciation, depending on the type of product, was introduced in 1968. This special-increase system was withdrawn in 1971 in face of severe international criticism resulting from huge surplus

in Japan's trade balance and the multiplier was reduced to 80% of the increase in the export/sales ratio. The system was finally abandoned in 1972, but a large part of it was allegedly absorbed into the special depreciation schemes for rationalization machinery discussed earlier.

D. Special Depreciation Schemes and Investment Costs

The available data do not lend themselves to an easy interpretation of changes in the depreciation system discussed above.[4] First, as the firms normally do not avail themselves fully of normal depreciation allowances during the periods of subnormal profits, the realized depreciation amounts in effect become dependent on profit levels. Second, in order to utilize special depreciation for designated machinery, investment in such machinery has to be made, thereby making depreciation amounts a function of gross investment. Finally, in the case of export-based special depreciation schemes, the export/sales ratios would naturally affect the amount of depreciation.

1. Special Depreciation Schemes Prior to 1961

Data regarding special depreciation schemes for designated machinery are very scanty prior to 1961. The only continuous time-series data by industry during this period are from the MITI's *Wagakuni Kigyo no Keiei Bunseki* (Financial Statements of the Japanese Enterprises) available for 131 large corporations from 1955 onward. Despite severe limitations, these data can tell us which industries were benefited by special depreciation schemes before 1961.

Figure 5.2 presents the share of special depreciation allowances in the total depreciation amount for major industries. Prior to 1961, the industries can be clearly divided into three groups: (1) industries receiving exceptionally large benefits (iron and steel and automobiles); (2) industries receiving no more than average benefits (shipbuilding, general machinery, and electrical machinery); (3) industries receiving less than average benefits (chemicals, as well as textiles and petroleum refining, which are not shown in Fig. 5.2). For the iron and steel industry, this period happened to coincide with its second rationalization program under which integrated steel mills like Yahata in Tobata, Nippon Kokan in Mizushima, Sumitomo Metal in Fukuyama, and Kobe Steel in Nadahama were established in the new coastal belt. As for the automobile industry, this period coincided with the period of accelerating investment as the full-scale production of passenger cars took root with the release of indigenous models like Datsun and Crown. Another reason for high special depreciation in these industries was their high rates of profits.

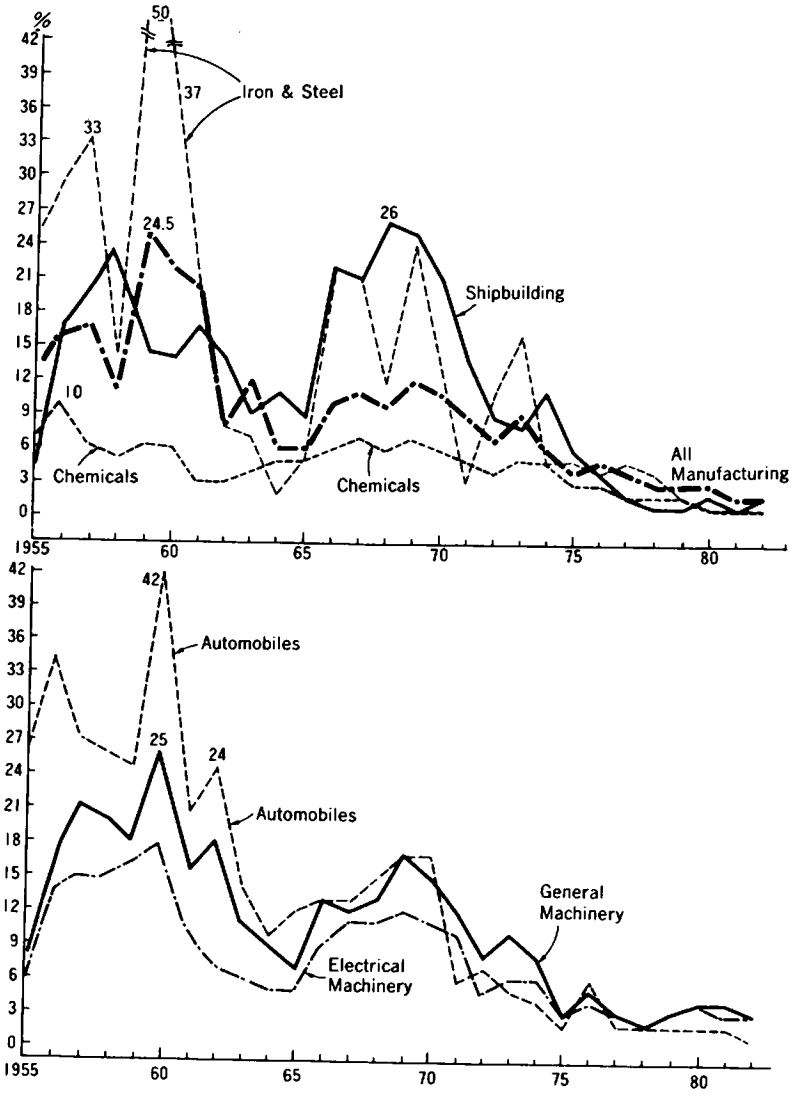

Fig. 5.2. Proportion of special depreciation to total by industry. The figures for All Manufacturing, Iron and Steel, Shipbuilding, and Chemicals are from *Shuyo Kigyo Keiei Bunseki* (Financial Statements of Principal Enterprises) for the period before 1959 and from *Hojin Kigyo Tokei* (Corporate Enterprise Statistics) thereafter. For Automobiles, General Machinery, and Electrical Machinery Industries, *Shuyu Kigyo Keiei Bunseki* figures are used prior to 1961 and *Hojin Kigyo Tokei* thereafter.

2. *Trends Since 1962*

From 1962 onward, the ratio of special depreciation allowances to total depreciation is calculated by industry from the Ministry of Finance's *Hojin Kigyo Tokei* (Corporate Enterprise Statistics). Figure 5.2 presents results for the industries discussed above. These data reveal the following:

First, as compared to the 1962–1973 average of 8% for all manufacturing, the ratio was above average in shipbuilding (15%), automobiles (13%), iron and steel (12%), general machinery (12%), and textiles (10%), equal to the average in electrical machinery (8%), and was less than the average in chemicals (5%).

Second, within the period of high growth delineated above, one can discern intervals when the ratio of special depreciation allowances was consistently high. In the iron and steel industry, for example, this ratio hovered around 20% during the 1966–1969 period when plants with annual production capacity of 10 million tons like Nippon Kokan's Fukuyama and Nippon Steel's Kimitsu were completed one after another. Construction of extra-large sized docks during the same period raised the ratio for the shipbuilding industry to above 20%. In the sea transport industry, in the wake of a heavy inflow of subsidies following the shipping reorganization policy beginning in 1963, this ratio climbed to the 20% level.

Third, the degree to which various industries benefited from the export-based special depreciation scheme can be estimated indirectly to a certain extent by analyzing the relationship between the export/sales ratio and the ratio of special depreciation to total depreciation for the 1963–1970 period and by the changes in the latter after 1971 when the special increases scheme was abandoned. Based on these criteria, the automobile industry seems to have reaped large benefits from this scheme (1968–1970) and the shipbuilding industry also seems to have used it to its advantage as revealed by a sharp fall in the proportion of special depreciation allowances during 1971–1972. The iron and steel industry also seems to have taken advantage of the system in the 1966–1969 period when the proportion of special depreciation allowances was high.

How far did the special depreciation schemes raise corporate profits? Taking 1970 as a reference point, we find that the total amount of special depreciation allowances availed of during the year was ¥300 billion. With the marginal tax rate at 52%, it helped to save ¥156 billion in taxes. The use of these special depreciation schemes, however, implies an automatic decrease in future depreciation allowances by ¥300 billion, and hence a rise in the future tax burden of the corporations by ¥156 billion. The term *future* in this context is equivalent to the stipulated asset life. Given the average useful life of equipment in manufacturing at 6.7 years in 1970, the interest cost on a loan of ¥156 billion with the maturity period of 6.7

years is the profits accruing on special depreciation. The average effective rate of interest for manufacturing industries (cf. footnote 9) being 10.3% in 1970, total interest cost on the average balance of ¥78 billion amounts to ¥53.8 billion. As current profits in all manufacturing in this year were ¥3.6 trillion, special depreciation schemes accounted for about 1.5% of total profits. During the period of high growth, these gains show a high of ¥66 billion and a low of ¥12.8 billion.

A similar calculation by industry puts the amount of benefits at a maximum of ¥20 billion and a minimum of ¥0.5 billion for the iron and steel industry, less than ¥3 billion a year for the automobile industry and between ¥1 to ¥3 billion for the shipbuilding industry. Figure 5.3 depicts the proportion of gains from special depreciation schemes to investment expenditure. The average for all manufacturing is seen to hover around the 1% level, while that for iron and steel is seen to attain the 2% level in almost every other year. The average for the automobile industry during the period of high growth is slightly less than 1.5%, while the shipbuilding industry shows an exceptionally high proportion during the 1966–1970 period.

IV. The Fiscal Investment and Loan Program

The national government runs the Fiscal Investment and Loan Program (FILP), making use mainly of the surplus funds of postal savings and social security funds (welfare annuities and national annuities),[5] In addition to financing the investment activities of national public organizations like the National Railways (JNR) and the Nippon Telegraph and Telephone Corporation (NTT) or local public entities, these surplus funds, centralized in the Trust Fund Bureau of the Ministry of Finance, are used to provide funds for private-sector investments through public financial institutions like the Housing Loan Corporation, Japan Development Bank, Export-Import Bank, and the Small Business Finance Corporation. The issuing of government guaranteed debt, which some of the institutions are permitted to do in order to supplement their finances,[6] is also included within the FILP.

Figure 5.4 presents time-series data on the ratio of the total FILP funds supplied by postal savings, social security funds, and government guaranteed debt to the increase in financial assets held by households as recorded in the flow of funds tables to indicate the extent to which the FILP absorbed funds in the domestic capital market. The figure reveals a rising share of the FILP in the capital market funds from 20% in 1955–1964 to 30% in 1965–1974 and to 40% since 1975. Within this, the share of postal

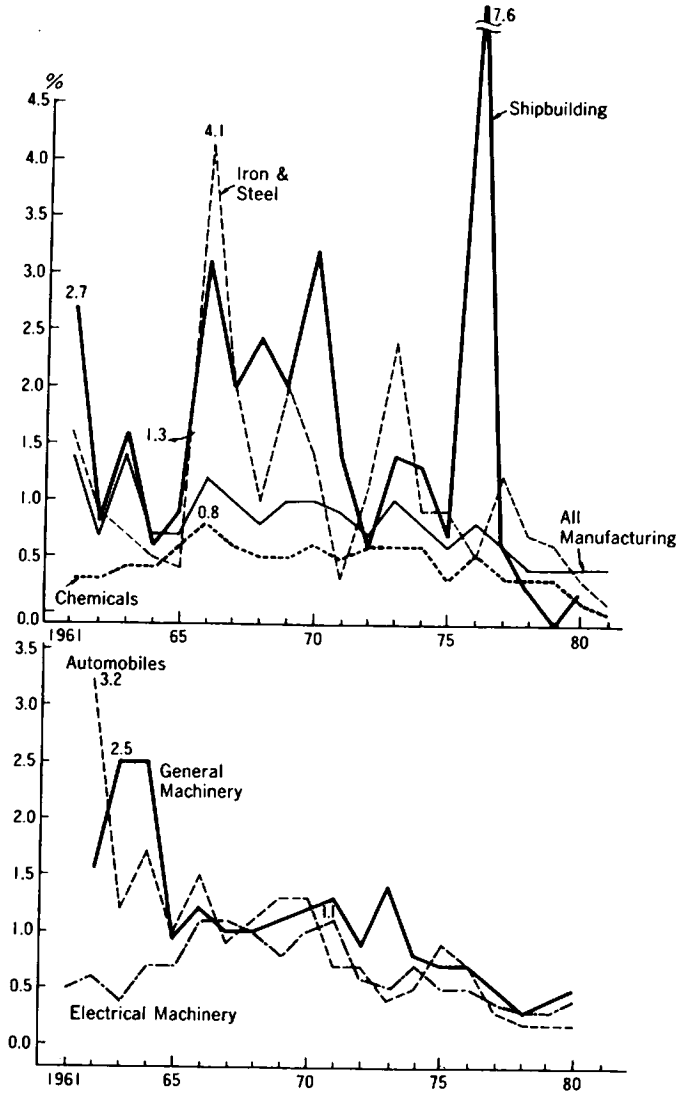

Fig. 5.3. Ratio of benefits from special depreciation schemes to investment expenditures. From the sources listed in Figure 5.2.

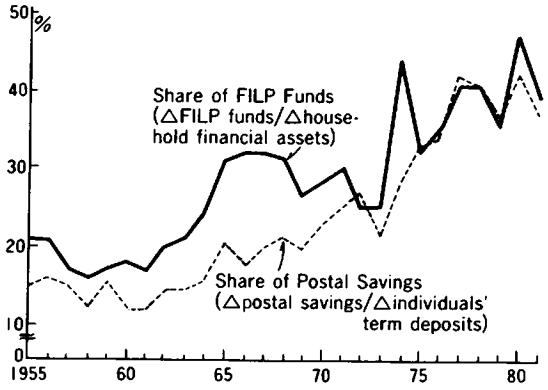

Fig. 5.4. Fund absorption by FILP and share of postal savings. From Nihon Ginko, *Keizai Tokei Nenpo* [Economic Statistics Annual], Flow of Funds tables.

savings rose steadily from 15% in 1955–1964 to 40% in 1975–1980. In contrast, surplus funds from the social security funds rose rapidly until the 1960s but leveled off thereafter, even in absolute terms, due to the scaling up of the annuities and a rise in the number of recipients. At the end of 1982, of the ¥127 trillion in the hands of the Trust Fund Bureau, 60% was accounted for by postal savings and 30% by social security funds.

Table III allows us to follow the changing importance of the user sectors in the FILP by showing us the proportions of the total funds going to these sectors on five yearly basis. The share of the basic industries, such as electric power, sea transport, coal mining, and iron and steel, that was targeted for funding through the Japan Development Bank was well below 25% even in 1953–1955, immediately after the introduction of the FILP, and continued to fall steadily, finally reaching 2.9% in 1976–1981. In contrast, the financing of trade and economic cooperation, through the Export-Import Bank, targeted at the export of vessels and plants, rose till 1970, with a slight fall thereafter.

The overall share of funds going to agriculture and the small-scale sector (modernization of the low productivity sector in Table III) is seen to be stable at around 20% throughout the period, though the share of the small-scale sector, within this category, has increased gradually. The funding related to railways, roads, and communications (building up of the industrial infrastructure) maintained a share of over 20% during the 1965–1975 period, but has fallen off since 1976. Finally, the share of funds going to housing, education, and welfare under the "improvement of living standards" category revealed a continuous rise, attaining the level of almost 50% since 1976.

TABLE III
Composition of Fiscal Investment and Loans Program by Use (%)

	1953–55	1956–60	1961–65	1966–70	1971–75	1976–81
Strengthening of key industries	23.6	16.6	9.9	6.3	3.7	2.9
Trade and economic cooperation	2.8	4.3	7.9	10.4	8.8	6.4
Area development	5.7	9.0	7.5	4.6	3.7	2.6
Equipping the industrial infrastructure	26.4	21.6	26.1	24.3	23.2	18.1
Modernization of low-productivity sectors (small and medium industries)	18.6	20.9 (13.7)	19.0 (12.9)	20.1 (15.6)	19.6 (15.2)	22.6 (17.7)
Improvement of living standards	22.9	27.6	29.6	34.3	41.0	47.4
Total amount of FILP loans (¥100 million)	9,218	23,360	61,958	137,716	340,736	925,471

Source: Okurasho, *Zaisei Kinyu Tokei Geppo* (Monthly Fiscal and Financial Statistics).

It is clear from the above discussion that the weight of the industrial policy related to financing was not exceptionally high in the Fiscal Investment and Loan Program.[7]

A. Role of the Development and Export-Import Banks

For a time after the Second World War, the deployment of postal savings, under the direction of the GHQ, was restricted to national level organizations like the JNR and the NTT and the local public entities. As the inflationary pressures abated around 1950, however, the postal savings began a steep climb. Meanwhile, the beginning of the Korean hostilities in June 1950 boosted the demand for investment funds and the business community made a strong plea that long-term funds for fixed investment be supplied from the postal savings. It was against this background that the Export Bank of Japan was established as a governmental financial institution at the end of 1950 to supply long-term funds for the export of equipment, followed by the establishment of the Japan Development Bank in 1951 for the purposes of supplying long-term investment funds to industry.

1. The Japan Development Bank

For some time after its inception, the Japan Development Bank (JDB) concentrated its attention on the electric power and sea transport industries, followed by coal mining, iron and steel, fertilizers, and machinery in that order. Such emphasis underscored the policy objectives of the time, namely, closing the supply gap in the electric power industry, improving the balance-of-payments positions, and increasing self-sufficiency in food and so on. The enforcement of the financial tightening measures in 1954–1955, however, choked the supply of new funds to the JDB forcing it to specialize in only three industries—electric power, sea transport, and coal mining—until 1960.

The financing of the electric power industry was necessary on the following three counts: (1) The equipment investment in the electric power industry formed approximately 20% of the total equipment investment in all industries at that time; (2) as the electric power charges were held down at low levels throughout, the industry had to depend heavily on external funds; and, (3) low-interest loans with maturities as long as 20 years, which were needed by this industry as public utilities, made this industry relatively unattractive to private financial institutions.

The supply of long-term, low-interest funds to the sea transport industry through the JDB was considered necessary by the government in order to increase the shipping tonnage held, through a planned building of ships, without being affected by short-term fluctuations in firms' earnings. Private financial institutions were wary of financing this industry because of the extreme instability in its earnings record and the long loan maturity in excess of 15 years.

The JDB loans to the coal mining industry reflected the high proportion of such loans in the Reconstruction Finance Corporation (RFC) loans that were inherited by the JDB and the financing of the equipment investment being actively undertaken for cost saving by this industry under the government's rationalization program.

The iron and steel industry, in contrast, rapidly reduced its dependency on the JDB loans during this period. The share of the JDB in the funds raised to implement the first phase of the first rationalization plan for this industry (1951–1953) was as high as 15%. With the enforcement of the financial stringency measures mentioned above, the flow of the JDB funds to this industry dried up almost completely and the Industrial Bank of Japan and the Long-Term Credit Bank of Japan came to occupy the place of central importance in the financing of this industry. After the second rationalization plan (1956–1960), the iron and steel industry depended exclusively on the open market funds for its requirement of funds in the domestic markets.

The decade beginning in 1965 was characterized by rapid growth in the Japanese economy. The electric power suppliers, who had been cornering almost 40% of the JDB loans until then, began depending on the open markets for their fund requirements because of their increased earnings and ability to raise funds on the bond markets. The sea transport industry thereby replaced the electric power industry as the largest recipient of JDB loans. It was only because of the shipping reorganization policy and heavy subsidization that the sea transport industry was able to ride out the shipping depression during the first half of this period. The steep rise in Japanese trade during the latter half of the decade helped the industry engage in the mass production of ships and it absorbed, in the process, over 30% of the JDB loans.

It was during this period that the coal mining industry lost its competitive edge decisively to the petroleum industry. With fund raising in the open markets becoming increasingly difficult, the coal mining industry turned to the JDB, which came to supply 50% of the finances needed by this industry. As the profit position of the industry kept on deteriorating, however, the government took over ¥200 billion of the industry's debt. The financing of equipment investment in this industry also shifted from the JDB to interest-free loans from the Coal Mining Industry Reorganization Corporation.

Anticipating the capital market liberalization, the JDB also began directing its efforts toward strengthening the international competitiveness of Japanese industry by encouraging the petrochemical and the automobile industries to enlarge their scales of production and by promoting improvement of technological standards in industries like auto parts, machine tools, and electronics. The financing of technological development and marketing of indigenous electronic computers rose rapidly over 1966–1970. Though the total finances going into such activities accounted for 20% of the total financing by the JDB, the share of the individual industries, barring the financing of computer marketing (JDB's share 20%), did not exceed a few percentage points, as this type of financing was targeted at a very broad cross section of industries.

Income differentials widened between the industrially developed regions and the rest of the country in the process of rapid growth, and overpopulation of the developed and depopulation of the underdeveloped areas surfaced as a major social problem. The JDB began diverting over 20% of its funds for dispersion of industry to the lagging regions and the improvement of transport facilities in large cities.

The Nixon shock of 1971 and the oil shock of 1973 brought Japan's rapid growth era to an end, but the financing by the JDB expanded into areas as diverse as pollution control investments such as the desulphur-

ization of petroleum, the control of gaseous emissions, and the treatment of polluted water. The trend reversed itself after peaking in 1975, as the financing of the electric power industry resurged. At present, 40% of the total loans by the JDB are concentrated in energy-related fields (of which electric power accounts for 70%). This has been the result of a studied fostering of thermal and hydroelectric power stations for the diversification of energy sources, as well as the increased dependence of the electric power suppliers on JDB funds for the huge construction costs of atomic power stations (Table IV).

2. *The Export-Import Bank of Japan*

The Export-Import Bank of Japan (EIBJ) was first established toward the end of 1950 as the Export Bank of Japan. The bank had the express purpose of supplying long-term funds for financing plant exports that could not be fully accommodated within the system of preferential treatment being given to short-term export financing by the Bank of Japan (BOJ). At the time, however, the products of light industries, such as textiles, formed the core of Japanese exports and, in the case of machinery products, only ships, rolling stock, and textile machinery showed some degree of competitiveness in the export markets. Consequently, in the scale of lending operations, the Export Bank was only about one-half as large as the Development Bank.

The shipbuilding industry strengthened its competitive power gradually by making full use of the government's export promotion policy. The industry's export of ships was aided further by the "Suez Boom" after 1955. The Export Bank's financing of the shipbuilding industry, especially in view of the effects that it could have on the demand for steel and other related industries, rose rapidly, and despite the highly fluctuating shipping markets, about 50% of the loans issued by the EIBJ went to finance this industry during the decade beginning in 1955.

The financing of exports of various types of machinery also rose gradually from 1960 onward. A large proportion of these loans could be categorized as economic cooperation loans to less-developed countries who were suffering from severe foreign exchange problems in the process of their economic development. These loans were intended to promote the export of Japanese heavy electrical equipment, which lacked international competitiveness. This reflected the importance attached to the policy of promoting machinery exports in the Long-Term Economic Plan of 1957. Because most of the customers of Japanese exports were underdeveloped countries, the existence of a deferred payment clause attached to the low-interest loans from the EIBJ was instrumental in clinching the agreements, even for other products.

TABLE IV
Composition of Loans by the Japan Development Bank (%)

	1951–55	1956–60	1961–65	1966–70	1971–75	1976–80	1981–82
Energy	45.3	58.7	25.8	15.0	7.7	24.4	41.1
Electric power	(38.8)	(39.0)	(16.6)	(7.4)	(—)	(17.7)	(28.6)
Coal	(6.5)	(9.7)	(8.5)	(3.4)	(—)	(—)	(—)
Transport							
Sea transport	25.3	27.3	30.3	35.5	17.7	7.7	11.7
Strengthening of international competitiveness	—	12.1	14.6	8.4	—	—	—
Improvement of the balance of payments position	—	—	4.4	2.5	—	—	—
Area development	—	2.6	21.5	27.5	30.9	30.5	25.8
Anti-pollution measures	—	—	—	0.6	19.1	21.3	8.5
Promotion of technology	—	—	—	8.3	10.6	11.1	9.2
Total JDB loans (¥ 100 million)	2,744	3,027	6,726	13,632	28,275	45,355	22,390

Source: Nihon Kaihatsu Ginko (The Japan Development Bank). [1976], [1982, 1983, 1984].

The Japanese shipbuilding industry, aided by its greater competitive power arising out of the technological superiority and pricing policy, captured 50% of the world market by 1965 and was able to reap rich rewards during the shipping boom beginning 1965. It was against this background that the EIBJ expanded its loans to the shipbuilding industry during 1966–1970.

Japanese exports of plant-related machinery (excluding unitary machines like automobiles and ships) were one-fourth of that of the United States or West Germany, and the government adopted a policy to promote plant exports in 1969. In step with this, the EIBJ also increased its financing of the export of plants. The exports of ships declined steeply following the oil shock of 1973, whereas the export of complete plants, especially to the Middle-East countries, grew rapidly. In terms of loans from the EIBJ, plant exports displaced the shipbuilding industry in 1974 and the gap has been widening ever since.

The expansion in the financing of plant exports resulted in a shifting pattern of disbursement of EIBJ funds during 1971–1975, with the weight of trading companies in total loans to exporters shooting up and the share of intergovernment loans to the countries importing from Japan, like those in the communist camp and the developing countries, rising to over 20% of the total funding by the EIBJ. The increased surplus in the Japanese balance of payments during this period became the target of vehement international criticism resulting in an increase in the financing of imports and overseas investment, each of which has been accounting for nearly 20% of the total funding by the EIBJ in recent years (Table V).

B. The Role of the Fiscal Investment and Loan Program

This section presents a quantitative analysis of the role of government financial intermediaries in lowering the cost of funds within the framework of postwar Japanese industrial policy. Furthermore, a comparison by industry of the role played by the funds supplied by public financial institutions closely related to the industrial policy, such as the JDB, the EIBJ, and the Hokkaido and Tohoku Development Corporation, as well as institutions such as the Small Business Finance Corporation and the People's Finance Corporation, which cater mainly to the needs of small business enterprises, and the role played by funds supplied by private financial intermediaries (ordinary banks, mutual banks, trust banks, and the Central Cooperative Bank for Commerce and Industry) is also undertaken. To achieve this purpose, the effective rate of interest on market borrowings was estimated by industry and was then used to quantify the reduction in the interest burden resulting from the supply of low-interest loans from

TABLE V
Amount of Loans Sanctioned by Export–Import Bank of Japan (100 million yen, %)

	1950–55	1956–60	1961–65	1966–70	1971–75	1976–80
Exports (total)	1,334 (99)	2,821 (85)	6,638 (77)	13,825 (76)	17,196 (44)	22,514 (44)
Ships	886 (66)	1,844 (56)	4,196 (48)	8,225 (45)	7,273 (19)	5,355 (11)
Plants	448 (33)	977 (30)	2,442 (28)	5,600 (31)	9,924 (25)	17,159 (34)
Imports	1 (0)	28 (1)	65 (1)	600 (3)	6,852 (18)	11,045 (22)
Investments	12 (1)	262 (8)	449 (5)	1,437 (8)	6,392 (16)	6,502 (13)
Direct loans	0 (0)	196 (6)	1,514 (17)	2,238 (12)	8,651 (22)	10,925 (21)
Total	1,347(100)	3,306(100)	8,665(100)	18,099(100)	39,090(100)	50,987(100)

Source: Nihon Kikai Yushutsu Kumiai [1982], p 64.

the public financial institutions to these industries. Finally, the weight of such reductions in the total investment expenditure (including land)[8] was calculated to bring out the interest lowering effect of public loans.

Figure 5.5 summarizes the yearly reduction in the interest burden (estimated) as a proportion of investment expenditure (including land) by industry. The figures reveal that the proportion was highest for the sea transport industry, at 20% on the average for the period 1962–1975, followed by transport equipment (mainly shipbuilding during 1960–1966), electric power (including gas and water, but the share of these was very small), and mining. The proportion, in contrast, was below the 5% level in wholesale and retail trade and iron and steel.

The following discussion traces, historically, the changes in policy finance and its interest lowering effect in the context of industries such sea transport, electric power, shipbuilding, automobiles, machinery, iron and steel, coal mining, and petroleum refining, which have been important from the point of view of the postwar Japanese industrial policy.[9]

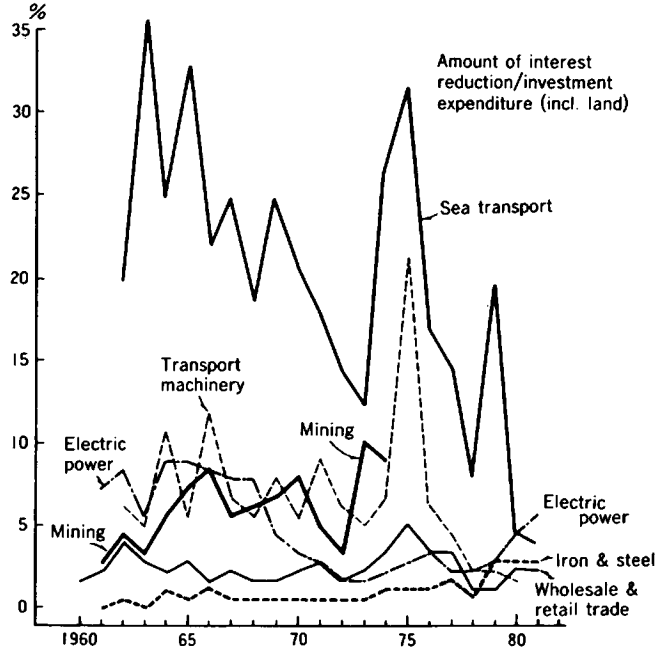

Fig. 5.5 Ratio of estimated reduction in interest burden to investment expenditure.

1. The Sea Transport Industry

The sea transport industry had lost almost the whole of its fleet of ocean going ships during the Second World War and, with the postwar suspension of compensations to this industry, it lacked sufficient financial resources to acquire new ships on its own. The industry did not show any signs of revival in the immediate postwar period. The shipbuilding industry was also at pains to restart production. To pull the industry out of such a tight spot, the government adopted a program of planned building of ships by inducing the sea transport industry to acquire ships by supplying funds through the Reconstruction Finance Corporation (RFC) in 1947.[10] The source of funds needed for acquisition of ships by this industry shifted, for a short time, to the special accounts of the counterpart funds of U.S. aid to Japan as the RFC ceased its activities, and from 1953 on to the JDB.

The terms and conditions governing loans in 1953 included (1) subsidies in the form of interest payments on the JDB loans, and (2) government subsidies in the form of interest payments to the private sector financial intermediaries in order to bring down the market rate of interest. The JDB loan amounted to 70% of the ship's price (freighters) at that time.

The shipping markets prospered with the Suez Boom of 1956 and the interest subsidies were withdrawn in 1957. The shipping firms greatly increased their acquisition of new tonnage, leaning basically on funds from open markets. The industry, however, found itself faced with a recession in the shipping markets as early as 1958, causing the payments to shipyards to fall into arrears to the extent of ¥11.4 billion. Eventually, it had to be rescued with government help. The private financial institutions developed a very conservative attitude toward the financing of the sea transport industry after this event, and the further expansion of the industry came to depend on the JDB funds. As the market continued to deteriorate, the underdepreciation of the industry as a whole in 1962 amounted to ¥66 billion, and loans amounting to ¥96 billion had fallen into arrears. Despite this, the Income Doubling Plan adopted in December 1960 visualized a doubling of the snipping tonnage held within a decade. For this purpose, the Shipping Reconstruction and Reorganization Act (Law on Refurbishing and Consolidating Ocean Transport) was adopted in 1963. The act aimed at the consolidation of the industry by providing incentives in the form of exemption from interest payment on the loans contracted from the JDB before 1961 under the provisions of the program of planned building of ships for a period of five years and reduction in the interest burden for acquirers of ships. This resulted in the consolidation of a hundred companies into six groups. The market for shipping revived in 1965 and the

problems of underdepreciation and arrears on loan repayments were finally resolved.

After the reconstruction was over in 1968, the government was able to extricate itself from its overwhelming preoccupation with the subsidization of the firms. While the proportion of financing through the JDB, as well as the proportion of interest subsidies, was reduced in 1969, the ocean going ships were allowed, for the first time, to avail of a 10% special depreciation under the tax system in order to help the firms assert their financial independence. A surge in the transport demand emerging from the iron and steel and the petroleum industries kept the acquisitions of shipping tonnage by the sea transport industry at a high level during 1970–1971. As the Nixon Shock raised the value of the yen sharply upward in 1971 and the first oil shock steeply reduced the world petroleum demand in 1973 and thereafter, the industry was forced into a persistent stagnation. The interest subsidies were also withdrawn in 1975.

The ratio of reduction in the interest burden (estimated) arising from the low-interest loans provided by the JDB to the total investment expenditure of the shipping industry maintained a high level of 20% on the average during 1962–1975 period (Fig. 5.5), a level much higher than in any other industry.

2. *The Electric Power Industry*

The electric power industry suffered much smaller war damages than other industries and therefore was in a position to contribute to the rehabilitation of the Japanese economy in the postwar period. The government policy of low electricity charges kept this industry perpetually in the red, holding down new investment. Thus, the sudden surge in domestic productive activity as the Korean hostilities began (1950) threw the demand–supply balance into a disarray and load-shedding became a regular phenomenon.

The system of centralized supply of electric power, adopted during the war, was replaced in 1951 by the present decentralized nine-region structure, with one firm to each region. At the same time, the electric power charges were increased by 30% in order to induce an increase in the supply capacity of the industry by stabilizing the business position of the firms. The electricity charges were raised again in 1952 and 1954. An Electric Power Development Company was established, pursuant to the Electric Power Development Promotion Law, which was enacted with the help of government funds aimed at developing large-scale hydroelectric power sources that could not be easily developed by individual electric power companies. By 1955, a number of large-scale hydroelectric power stations had been completed using a huge amount of the FILP resources.

The JDB, which had just been established at that time, gave a high priority to the financing of electric power supply companies for the development of electric power resources and financed about 20% of their fixed investment. Thermal power had become more economical by 1955, resulting in a shift of focus from hydroelectric power to the development of thermal power. The shortage of electric power supply was brought to an end by 1960. The requirement of funds by the electric power companies doubled during this period of high pitched growth in supply capacity and even though these companies continued to get the most-favored customer treatment from the JDB, the JDB loans became less and less important in the total funds as the companies were able to raise funds through new issues of corporate bonds.

The Japanese economy embarked on the process of rapid growth in 1961 and the development of the heavy and chemical industries steeply raised the electricity demand. The exploitation of economies of large scale and the falling prices of crude oil increased the earnings in this industry to the extent that it was able to meet almost 50% of the growth in its demand for investment funds out of retained earnings. The increased fund-raising capacity of the electric supply companies as their securities were made eligible for open market operations by the BOJ in 1962 when it adopted new credit control measures deserves a special mention in this context. From 1964 on, therefore, the JDB shifted its attention from financing the industry's ordinary fixed investment, which was now taken over by private bond financing, to "policy financing," namely, financing projects directed toward specific policy objectives, such as deferred payments on heavy electrical machinery to protect and promote the makers of such equipment, providing incentives for the development of coal-based thermal power in order to maintain coal demand, and the like."

The most important of these projects financed by the JDB was related to the "indigenization of the production of nuclear power generation equipment," a special measure in force since 1966. This project rose in importance from 1970 onward, and its financing now occupies a prominent position in the JDB financing of the electric power industry. With the financing of projects related to the pollution control and joint sewerage works in 1971, as environmental pollution became a social problem, the nature of the JDB financing of this industry diversified. The loans for the development of hydroelectric power rose in importance once again and development of geothermal power sources was also brought within this framework as development of domestic sources of power became imperative with the setting in of the energy crisis in 1973, thereby raising the share of energy-related financing in the total lendings by the public financial institutions (specially the JDB).

The proportion of reductions in the interest burden resulting from the supply of low-interest loans by public financial institutions, led by the JDB, to the investment expenditure (including land) for this industry was perceptibly high at 7.9% on the average for the period 1961–1968, surpassed by sea transport and shipping industries only. The recent resurgence in this proportion is another special feature.

3. *The Shipbuilding Industry (Transport Machinery)*[12]

The financing of the shipbuilding industry by public financial institutions, led by EIBJ, accounted for nearly 20% of the total loans outstanding against the transport machinery industry in 1955. The shipping markets slipped in the wake of the reopening of the Suez Canal in April 1957 and the demand for new ships fell off. As a result, the proportion of the EIBJ loans to this industry hovered around a low level of 10% in 1960.

The reduction in freight cost toward the end of 1962 and the introduction of large-scale specialized containerships suddenly pulled up the demand for new ships in what was to become the second export boom for the industry. This raised the share of the EIBJ finances to about the 15% level once again. However, the setback suffered by the international economy following the first oil shock and the resulting shift in the oil policy of various countries, led by the United States, drastically cut back the demand for ships, especially large tankers, bringing down the share of the EIBJ finances.

The ratio of reductions in interest burden (estimated) to the investment expenditure (including land) for this industry was surpassed only by the sea transport industry (Fig. 5.5).

4. *The Automobile Industry (Transport Machinery)*

The contribution of the institutions of policy finance such as the JDB in financing the makers of completed vehicles was almost negligible. In order to ensure international competitiveness through mass production in face of the imminent liberalization of trade and capital in 1965, the government directed its efforts at consolidation of the industry through mergers and groupings. The JDB also contributed in this direction by providing incentives for such consolidation in the form of financing the reorganization setup. These efforts bore fruit only during 1966–1968 and a mere ¥11.9 billion worth of loans were provided for the business tie-ups between Nissan and Prince, Toyota and Hino, Toyota and Daihatsu, and Nissan and Fuji Heavy Industries. The share of the JDB loans, including the above, in the total investment expenditure of the makers of completed vehicles was no more than 0.9% on the average for the period 1966–1971. In the context of auto-parts makers, the JDB and the Small Business Finance

Corporation provided loans under the Law on Temporary Measures for the Promotion of Specified Manufacturing Industries to be discussed below.

5. *The Machinery Industry*

The machinery industry in 1955 was composed of makers of finished products, dominated by large firms, and materials and component makers, dominated by medium- and small-scale firms. The government, visualizing the latter as a bottleneck for the future development of heavy and chemical industries, attributed their low productivity to small-scale production of a large variety of products with obsolete equipment and enacted the Law on Temporary Measures for the Promotion of Specified Manufacturing Industries in 1956 and the Law on Temporary Measures for the Promotion of the Electronics Industry the following year. Both of these laws aimed at providing low-interest loans (at a yearly rate of 6.5%) through the JDB for modernization of equipment and upgrading of technology in those industries designated by MITI to be basic but underdeveloped. Machine tools, auto parts, and implements were designated as such, but the total amount of public loans to these industries, with basic machinery (machine tools and implements) as the major recipient, did not exceed ¥10.6 billion in five years. Loans to the electronics industry, aimed mainly at consumer-oriented electronics equipment, amounted to only ¥2.2 billion in seven years.

The first of the two laws was revised and extended twice in 1961 and in 1966, in an attempt to strengthen the international competitiveness of the machine industry following the trade and capital liberalization, respectively. The Small Business Finance Corporation joined the JDB in financing this industry, and the funds supplied to this industry amounted to ¥53.8 billion in 1961–1965 (five years) and ¥48.9 billion in 1966–1970 (five years). Especially rapidly increases in these loans were those to auto-parts makers.

The second of the two laws was revised in 1964 and was extended with the main focus shifting to industrial electronic machinery. Loans, with electronic components cornering a major proportion, amounted to ¥12.1 billion.

With the expiration of the two laws in 1971, and in view of the fact that these two industries were being integrated, the government took the opportunity to club these two laws into one and enacted the Law on Temporary Measures for the Promotion of Specified Electronics Industries and Specified Machinery Industries. Financing under this law, directed mainly toward auto-parts and integrated circuit manufacturers, amounted to ¥70.6 billion in a seven year period, with the electronics industry cornering 20% of these funds. Finally, in 1978 when the law expired, it was

succeeded by the Law on Temporary Measures for the Promotion of Specified Machinery and Information Industries in order to promote the integration of the electronics, machinery, and information processing industries. The JDB and Small Business Finance Corporation supplied ¥11 billion a year worth of loans, of which nearly 80% were accounted for by the electronics industry.

The share of public funds going to the machinery industry in the total financing was very low, with the share of the JDB loans for specified machinery[13] forming 1.3% to 5% (1956–1974) and that of the Small Business Finance Corporation forming 0.07% to 2.8% (1961–1979). As a result, the reduction in interest burden for general machinery, electrical machinery, and precision instruments was very low.

6. *The Iron and Steel Industry*

The lagging production of iron and steel after World War II caused a shortage of steel input indispensable for increasing coal production and thereby acted as an impediment to reviving production in other industries. In 1947, the government adopted a "priority production plan" with special emphasis on coal and steel, and the RFC began extending loans to the iron and steel industry. The industry underwent three rationalization programs and the proportion of self-financing rose appreciably. The supply of public funds for rationalization purposes was no longer considered to be necessary for this industry by the JDB, whose loans from 1961 onward were thus restricted mainly to the financing of pollution control and development of indigenous technology.

The proportion of reduction in the interest burden resulting from the low-interest loans, mainly through the JDB, to investment expenditure (including land) was as low as 0.99% on the average during 1961–1981. The benefits arising out of the public loans were also small as compared to other industries (Fig. 5.5).

7. *The Coal Mining Industry*

The coal mining industry received preferential treatment in terms of resource allocation under the priority production plan adopted in 1947, and 50% of the RFC financing was directed at this industry at its peak. The system of subsidies was abandoned in 1949 when the fiscal policy was tightened on the advice of Mr. Dodge, public-finance advisor to General MacArthur. As the excess demand for coal dwindled with the depression, the industry was put into a serious predicament. The two-year Korean War boom gave the industry a breathing space, but the lifting of controls

on crude oil in 1952 produced a shift in demand in favor of liquid energy, throwing the coal mining industry into a protracted depression.

A Law on Temporary Measures for Coal Mining Industry Rationalization was adopted in 1955, and the Coal Mining Industry Council was set up as an inquiry committee of MITI for formulating a rationalization plan. Besides this, a Coal Mining Industry Reorganization Corporation (renamed as Rationalization Corporation in 1960) was established to buy up inefficient mines, and the opening of new pits was brought under a licensing system. The industry got a short reprieval during the Jimmu boom of 1956–1957 but the situation took a turn for the worse in 1958, forcing severe personnel cuts by the firms, which resulted in labor disputes like the one at Miike, thereby turning the problem of the decline of the coal mining industry into a social problem.

Under these circumstances, the government tried to save the coal mining industry by raising labor productivity through an active investment program. The JDB increased its lendings to this industry by a large amount in support of the "build mines" program from 1958 onward. A fall in the petroleum prices beyond expectations during this period, however, brought down the coal prices as well and the earnings in the coal industry continued to decline despite a rise in productivity. The government tried to improve the earnings position of the coal mining firms by supporting the prices of coal used for electric power generation in 1965 and by providing interest subsidies to reduce the interest on borrowings. The earnings of the coal mining firms continued to deteriorate despite these measures, and the government disbursed, besides supplying ¥100 billion out of the tariff proceeds on petroleum and crude for the repayment of principal and interest (the first subrogation), subsidies for adopting safety measures proportionate to production levels in order to make the firms managerially secure. A continued downward shift in demand and an unabated rise in the wages led to the accumulation of deficits once again, and the government disbursed ¥85 billion in grants to the firms in 1969 (the second subrogation). Meanwhile, the main source of investment funds in this industry shifted to the interest-free loans from the Coal Mining Industry Rationalization Corporation, with the JDB in a supplementary role in providing loans only to the firms with a long-run earnings prospect. Finally, in 1973, the government took over the debt of the industry contracted up to June 3, 1972 (third subrogation) and the curtain fell on the coal policy of the government.

The JDB accounted for the highest share in the total funds supplied by the public financial institutions to the mining industry (10% to 20%) until the early 1970s when the curtain fell on the coal policy. The financing of

the coal mining industry was an important part of the government finances, as is revealed by the relatively high proportion of reductions in interest burden (estimated) to the investment expenditure (including land) in this industry.

8. The Petroleum Refining Industry

The restrictions on the import of petroleum, which was prohibited by the GHQ after the war, were only lifted in 1950. As soon as the importation began, the Japanese petroleum interests joined the fold of international petroleum capital in order to secure the supplies of crude oil and import of technology. The imports of crude and petroleum products before the liberalization of 1962 were limited by the availability of foreign exchange rationed under the "foreign exchange control system." During this period, the government effectively utilized the rationing measures for nurturing the domestically owned companies, making adjustments with the coal mining industry, building up refining capacity, and promoting the petrochemical industries.

With the liberalization of import of crude in 1962, a Petroleum Industry Law was formulated and the demand–supply adjustment role that was being played by the foreign exchange controls came to be played by the administrative guidance of MITI. Despite this, competition stiffened and the product market collapsed, putting the domestically owned medium and small petroleum firms into dire business difficulties. The government pursued a policy of consolidation and promotion of these firms through vertically integrating the stages of crude production, refining, and sales to bring the industry to a scale comparable to that of international petroleum majors. JDB loans were immediately granted to the Kyodo Petroleum group set up in 1965. The financing of the sales facilities and refining equipment of the Kyodo group has been accounting for 3% to 4% of the total JDB loans since 1965. The problem of atmospheric pollution arising out of the emission of sulphurous acid gas worsened by 1966, and the financing of pollution control measures like that for the equipment for the desulphurization of crude began rising from 1967. The Hokkaido and Tohoku Development Corporation also funded the establishment of new petroleum refining plants in the Tomakomai and Sendai port districts, but its financing was a mere 10% of that provided by the JDB.

Development of overseas crude sources and the stockpiling of petroleum became major policy issues after the first oil shock in 1973 in order to secure stable oil supplies, and the JDB and the Japan Petroleum Development Corporation increased their financing in these areas. The JDB loans to the petroleum refining industry formed only 10% of the total financing of this industry by the financial intermediaries during 1975–1979, but the proportion of reduction in interest burden (estimated) to the total investment expenditure in this industry has been rising since 1979.[14]

V. Conclusion

We round off our discussion in this chapter by looking at the cost-reduction effect of the special depreciation schemes and the FILP taken together. Table VI presents the simple average of the proportion of cost reduction to the total investment expenditures separately for the period of rapid economic growth (1961–1973) and the period of relatively stable growth (1974–1980).

TABLE VI
A Comparison of Benefits Arising out of Reduction in Interest Burden and Special Depreciation Schemes (%)

		Manufacturing				
	Total	Transport Machinery	Iron and Steel	Machinery	Sea Transport	Electric Power
	1961–1973					
1. *Reduction in interest burden (est.)* Investment expenditure (incl. land)	1.0 (52)	6.9(85)	0.5(27)	3.6(72)	22.3(76)	5.9(94)
2. *Benefits from spl. dep. schemes* Investment expenditure (incl. land)	0.95(48)	1.3(15)	1.4(73)	1.4(28)	7.2(24)	0.36(6)
Total	1.95	8.2	1.9	4.9	29.5	6.26
	1974–1980					
1. *Reduction in interest burden (est.)* Investment expenditure (incl. land)	1.6 (73)	6.4(94)	1.6(70)	2.6(84)	17.0(81)	2.8(77)
2. *Benefits from spl. dep. schemes* Investment expenditure (incl. land)	0.57(27)	0.4 (6)	0.7(30)	0.5(16)	4.1(19)	0.9(24)
Total	2.1	6.8	2.3	3.1	21.1	3.7

Composition (%) within parentheses. May not add up to 100% because of rounding.

The amount of cost reductions in all manufacturing formed approximately 2% of the total investment expenditure in both the periods, but a glance at the sources of these reductions reveals that whereas the special depreciation schemes and the FILP contributed equally in the first period, FILP accounts for almost three-quarters in the second period. The high proportion of 7% to 8% reduction in costs revealed by the transport machinery industry within the manufacturing industries is due to the FILP, mainly in form of the Export-Import Bank loans for deferred payments on ships. The iron and steel industry shows a low proportion of 2% in both the periods, although relatively more was contributed by special depreciations in the first period and by FILP in the second period.

Among the nonmanufacturing industries, the sea transport industry stands out both in special depreciations and in FILP. The total benefits accounted for nearly 30% of its investment expenditure during the rapid growth phase and 20% during the phase of stable growth. The important role played by the JDB in this industry under the planned shipbuilding program is quite obvious. The electric power industry also reaped above-average benefits, mainly due to the JDB finances. Even though the proportion of benefits is seen to decline from 6% to 3% over the two periods, the trend could be reversing itself in the recent years as the dependency of this industry on the JDB funds is growing in the wake of the construction of high-cost nuclear power plants.

With this, we close our discussion of the cost-reduction effect of the special depreciation schemes and the FILP. We intend to take up the discussion of the impact of such cost-reduction on investment in another place.[15]

NOTES

1. The present research is a part of our project funded by the Kikawada Foundation. The authors have benefited from valuable comments received from Yutaka Kosai, Michihiro Oyama, Koji Shinjo, Kazuo Ueda, and many other participants at the Zushi conference. Keimei Kaizuka, Akiyoshi Horiuchi, Masaaki Homma, Juro Teranishi, Toshihiro Ihori, Michiko Yamashita of the EPA, Setsuo Uchihori, Hisashi Yaginuma, Yoshitaka Kurosawa, Kazushi Suzuki, and Tatsuo Takahashi, all of the JDB, were also generous with their comments. Our thanks are also due to Isao Maeda of the Export-Import Bank of Japan, Tatsuo Takahashi and Masahiro Kawata of the JDB, Shigeru Kobayashi and Kazuo Watanabe of the Hokkaido and Tohoku Development Corporation, Hiroshi Karakawa of the Small Business Finance Corporation, Masanobu Kobayashi and Koichi Takesue of the People's Finance Corporation, and Masahiko Yoshida of the Finance Corporation of Local Public Enterprise for insights into institutional aspects and collection of data. Katsuto Masubuchi and Masayuki Kako of Saitama Bank and Ryo Nishimoto, Kazuaki Oshima, and Michiko Hayashi of Saitama University helped out with computational work.

2. More precisely, the tax burden is the ratio of corporate income tax plus other taxes and public charges (which are treated as business cost) to current income (before tax) plus other taxes and public charges. This may not be the best indicator of the tax burden, inasmuch as corporate income tax as well as other taxes and public charges are fraught with problems of incidence of tax burden, but should suffice for following the changes in the tax burden over time.
3. Although the first change in depreciation law came about in 1947, it went no further than bringing the exceptionally short stipulated asset lives back to normal.
4. *Hojin Kigyo Tokei* (Corporate Enterprise Statistics) provides depreciation data by industry, although without breakdown by depreciation scheme. Estimates of the Tax System Council, on the other hand, give aggregate data by depreciation scheme without giving breakdown by industry. Furthermore, these estimates differ significantly, as pointed out in Komiya (1975), from estimates compiled from micro data in *Hojin Kigyo Tokei* and *Wagakuni Kigyo no Keiei Bunseki*.
5. For a discussion of the makeup of the Fiscal Investment and Loan Program, see Kumon, Okamoto, and Taniguchi [1983], and Tachi et al. [1983].
6. The public financial intermediaries issuing government guaranteed debt are the Finance Corporation of Local Public Enterprise, Hokkaido and Tohoku Development Corporation, and Small Business Finance Corporation.
7. The share of basic industries and exports in the total FILP funds, if it can be considered as industrial policy-related finance (defined in a narrow sense), fell from about 25% during 1953–1955, to 20% during 1956–1970 and further from 15% to 10% during 1971–1980.
8. Investment here is the total of net changes in fixed capital including land, normal depreciation, and special depreciation.
9. For detailed data, methodology, and the impact on investment, see Ogura and Yoshino [1985]. Reductions in the interest burden (estimated) have been calculated as follows: Interest and discounts paid to the public financial intermediaries for each of the industries were deducted from the total interest payments and discounts as presented in the *Corporate Enterprise Statistics* and the resulting figure was divided by the borrowings from private financial institutions by industry to get a figure for the nominal rate of interest charged by these organizations. This was then converted into the effective rate of interest by adjusting for bank deposits by industry from the *Corporate Enterprise Statistics*. The excess of the effective rate and the interest rate charged by the public financial institutions was then multiplied by the average borrowings of the industry from such institutions to arrive at the reductions in the interest burden.
10. The Reconstruction Finance Corporation supplied the funds needed for acquiring ships to the Maritime Credit Corporation, which held the newly acquired ships jointly with the ship owners who were in turn allowed to buy up the Maritime Credit Corporation's ownership within a ten-year period.
11. During this period, the share of the JDB loans to the electric power industry fell below that of all banks.
12. For detailed historical discussions of the shipbuilding, automobile, and the iron and steel industries, see Chapters 11, 12, and 13 of this book.
13. The Japan Development Bank differs in behavior from the private financial institutions in that it can only lend to firms in those legally designated industries.
14. Since the data for the petroleum refining industry became available only after 1975, this is not shown in Figure 5.5.
15. Cf. Ogura and Yoshino [1985].