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Whither the Future of Japanese Industrial Development Policies?

Merit E. Janow*

There is nothing especially mysterious about the way that the Japanese government has fostered economic growth and industrial development. In analyzing specific policies employed by the government, including quantifiable measures such as tax benefits and credit allocations and qualitative measures, such as future-oriented "visions" designed to outline broad policy directions, it appears that Japan has used standard policy instruments that other countries have also used. The main strength of Japanese industrial policies has lain not in any particular instrument or set of instruments, but rather in the way in which these various instruments have been used together to directly or indirectly complement one another.¹ Indeed, to a degree that is probably unmatched elsewhere, Japan has formulated and held to a more or less clear policy of emphasizing economic growth as a basic national goal. And, throughout the process of industrial and economic development, the government evaluated policy measures by whether they promoted this goal of growth and investment.

This article describes past and present Japanese industrial policies. After discussing the evolution of Japanese industrial policies generally, it addresses the specific instruments of those policies including those intended to assist declining industries as well as those intended to promote the development of new indus-

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Most of this essay is based on earlier primary research conducted with Thomas Pepper and Jimmy W. Wheeler, members of the senior professional staff of Hudson Institute.

1. Specific strengths of individual instruments are discussed in greater detail in T. PEPPER, M. JANOW, & J. WHEELER, *THE COMPETITION: DEALING WITH JAPAN* (1985).

The term industrial policy has been used to encompass almost any relationship between the economic policies of a government and the economic activities of society as a whole. To avoid this ambiguity, industrial policy in this article refers to the specific use of policy instruments to foster growth or rationalization in particular sectors, industries, or firms. This definition distinguishes between policies that apply only to particular sectors, industries, or firms, and broad, economy-wide policies and practices. However, even given this narrow definition of industrial policy no accepted methodology exists or can be developed to measure quantitatively the impact on industrial developments of these policies as against market forces and more general macroeconomic policies. Nevertheless, one can certainly identify various development policies that contributed to economic growth and industrial development that would have occurred even in the absence of such policies. For a discussion of this methodological point, see J. WHEELER, M. JANOW, AND T. PEPPER *JAPANESE INDUSTRIAL DEVELOPMENT POLICIES IN THE 1980S: IMPLICATIONS FOR U.S. TRADE AND INVESTMENT* xvii-xix (1982) [hereinafter *JAPANESE INDUSTRIAL DEVELOPMENT POLICIES*].

tries. Finally, this article suggests that government guidance of Japan's industrial sector has decreased and is likely to decrease further still in the future.

I. THE EVOLUTION OF JAPANESE INDUSTRIAL POLICY

After its defeat in World War II, Japan was intensely interested in attaining the same level of economic development as western industrialized countries. This goal translated into policies emphasizing high growth through the promotion of savings and investment and, more specifically, the promotion of high levels of investment in sectors believed to be critical to the growth process, specifically Japan's basic manufacturing industries.²

In 1949, the government amalgamated the Ministry of Commerce and Industry and an occupation-organized Board of Trade to form the Ministry of International Trade and Industry (MITI).³ Although subject to budget restraints imposed by the Ministry of Finance (MOF),⁴ MITI has had more influence on Japanese industrial policy than any other ministry or government agency. As the economy has grown, however, MITI's direct influence on the economy and most industrial sectors has diminished. In the early postwar years, the government influenced both the types of products produced and the levels of production attained.⁵ Its main goal during that period was to revive and expand Japan's basic manufacturing industries in a manner that would also produce goods for export.⁶

The postwar system of laws and regulations governing foreign trade exemplify the government's and MITI's role in industrial development.⁷ This system gave officials the authority to allocate foreign exchange for the purchase of imports, capital equipment and raw materials. It appears that government officials decided, based on their interpretation of the national interest, which particular activities deserved highest priority. They did this forcefully, particularly in the early postwar years. In those early days MITI officials approved any foreign trade transaction that was not based on the standard method of payment. Thus intimately involved in business decisions from its beginning, MITI evolved into a very powerful ministry.⁸

2. The process of promoting economic growth began when the war ended and accelerated in 1948-49 when the U.S. began to encourage Japan's reemergence as a major power in order to counter the perceived threat of the Soviet Union and the Peoples Republic of China.

3. C. JOHNSON, *MITI AND THE JAPANESE MIRACLE: THE GROWTH OF INDUSTRIAL POLICY 1925-1975* at 191 (1982). MITI was created to oversee industrial production, productivity improvements, and foreign trade. MITI Establishment Law, Law No. 102 of 1949.

4. See *id.*, at 321.

5. See generally M. SHINOHARA, *STRUCTURAL CHANGES IN JAPAN'S ECONOMIC DEVELOPMENT* 15-16 (1977).

6. See generally J. HIRSHMEIER AND T. YUI, *THE DEVELOPMENT OF JAPANESE BUSINESS* 294 (1981).

7. The specific laws and ordinances governing foreign trade in the early years include: Law of Management of Foreign Exchange and Foreign Trade, Law No. 228 of 1949; System of Centralization of Foreign Exchange, 1949-1972; Ordinance for the Management of Export Trade, Ordinance No. 64 of 1949; Ordinance for the Management of Import Trade, Ordinance No. 77 of 1949. Krause & Sekiguchi, *Japan and the World Economy in ASIA'S NEW GIANT* 411 n.30 and accompanying text (H. Patrick & H. Rosovsky eds. 1976).

8. Krause & Sekiguchi, *supra* note 7, at 411. Under the "standard method of payment," export

Despite the emphasis on increasing exports, new Japanese products were not developed exclusively for overseas trade. In almost every case, a domestic market was developed before export markets were sought, thereby giving producers long production runs through which they could achieve the economies of scale that enabled them to export their goods at competitive prices. Throughout the 1950s and 1960s, government policy discouraged imports of almost everything except industrial raw materials, capital goods not yet manufactured in Japan, and some types of food.⁹ Typically, intermediate goods for the producing sector were licensed for import with little difficulty; consumer imports, however, were almost non-existent.

In effect, Japanese producers enjoyed considerable infant-industry protection for most of the first 20 years of the postwar period.¹⁰ They were able to develop domestic markets in part because competition from imports was almost non-existent. This pattern of industrial development, together with the policies supporting the development of basic manufacturing industries discussed in Part II, continued without interruption through 1965, when Japan's balance of merchandise trade turned positive.¹¹

Once the balance of trade turned positive, various restrictions on imports of goods and capital became increasingly unjustified and pressures for change from trading partners, most notably the United States, grew stronger.¹² Publicly, Japan did little more than fight a series of holding actions against criticism of its residual trade restrictions. However, within the government, and particularly within MITI, the period was one of considerable ferment. Still, actual changes in industrial and trade policy during these years were minimal.

In the years between 1965 and 1973, MITI was in the midst of a major debate on the future direction of the Japanese economy and its role in that future.¹³ The policies that were appropriate for a period of recovery from war became inappropriate and under attack once the economy had gained some vitality. In 1970,

transactions were treated more generously than imports, financial resources were directed toward tradeable goods and thus away from goods produced only for domestic consumption, and imports were limited to allegedly essential goods. Financial preferences for foreign trade, in the form of lower interest rates, were not completely eliminated until August 1971. *See id.*

9. The various commercial policies that limited the entry of competitive goods into Japan through the mid 1960s are discussed in detail by Krause and Sekiguchi. They note, for example, that as of April 1962, 490 items were still under quota restrictions. *See Krause & Sekiguchi, supra* note 7 at 412.

10. *Id.*

11. JAPAN ECONOMIC YEARBOOK 64 (1967). There were small surpluses in earlier years, but a positive trend was established after 1965. *Id.*

12. *See C. JOHNSON, supra* note 3, at 263. In 1964, Japan, with U.S. sponsorship, was admitted to membership in the Organization for Economic Cooperation and Development (OECD)—with the specific implication that it was joining the ranks of the developed countries. The Japanese government was thus committed to follow the same policies of relatively free trade and investment that already prevailed among other OECD countries. Furthermore, in declaring article 11 status in the General Agreement on Tariffs and Trade (GATT) in 1963, Japan committed itself to removing certain export subsidies and foreign exchange allocations. Japan also shifted from article 14 to article 8 status in the International Monetary Fund in 1964, requiring it to end controls on foreign exchange used for current account transactions and restrictions on yen convertibility by nonresidents. These steps were followed in 1967 by a phased program of liberalization of capital account transactions. *See id.*

13. *See C. JOHNSON, supra* note 3, at 275–304.

the Asahi Shimbun¹⁴ launched its *kutabare* GNP (down with GNP) campaign, and the caustic slogan "Gross National Pollution" gained public appeal. The public began to criticize MITI for serving the interest of business rather than society as a whole, and for a brief period a public reaction mounted against economic growth as a national goal. In response to these criticisms, MITI assumed a role in the newly important field of environmental protection.¹⁵ More important, however, MITI began to formulate and publish broad-based plans outlining what it believed were Japan's essential industrial development strategies. Specifically, MITI called for a shift away from basic manufacturing toward so-called "knowledge-intensive" industries. These plans were made public in various papers or "visions,"¹⁶ produced either by MITI or by various quasi-public advisory groups, the most notable of which was the Industrial Structure Council.¹⁷ Yet, even in cases where certain preparatory plans were put forward as prospective courses of action, many of the detailed provisions were not actually carried out until much later, if at all.

The effect of increased energy prices in 1973-74 on Japanese industrial development was also far greater than any policy measures taken up to that point. Initial energy price increases were passed on to consumers. Meanwhile, the government instituted a series of sweeping energy conservation measures.¹⁸ However, it took a second round of price increases in 1979-80 to bring about many of the actual changes in industrial structure that MITI planners had talked about for more than a decade. Specifically, various energy-intensive manufacturing industries, such as aluminum smelting, suddenly became much less competitive.

In the aftermath of these energy price increases and the resulting shifts that occurred in Japan's comparative advantage, Japan faced, and still faces, serious adjustment problems associated with industrial change.¹⁹ As more basic manufacturing industries become less competitive, whether because energy costs are higher in Japan than in other countries or because various newly industrialized countries (NICs) are producing competitive goods, MITI is finding itself in-

14. The Asahi Shimbun is one of Japan's major newspapers.

15. See C. JOHNSON, *supra* note 3, at 305-324. MITI reorganized its vertical, industry by industry bureau structure, introducing horizontal bureaus covering broad policy areas. The aim was to promote greater consistency both within MITI and among ministries. See *id.*

16. Such "visions" have been produced at various times since 1963. Scholars, officials, business executives, and journalists disagree as to their importance, in real or symbolic terms. In June 1970, Yoshihisa Ojimi, then Administrative Vice Minister of MITI, presented the best known "vision" to a meeting of the OECD Industry Committee in Tokyo. OECD, *THE INDUSTRIAL POLICY OF JAPAN* (1972).

17. The Industrial Structure Council and its many subcommittees composed of academics, journalists, government officials, and business representatives from various fields is MITI's major source of advice. The subcommittees are structured around various functional areas.

18. For example, industrial firms were encouraged to shift from oil to coal burning furnaces and various new research projects were initiated in solar and other energy-saving technology areas.

19. For example, in a concluding section to a statement presented to the Industry Committee of the OECD in March 1981, Makoto Kuroda, then Director-General of MITI's Research and Statistics Department, said "the smooth implementation of industrial policy is becoming increasingly difficult." JAPAN REPORTING JR-4, JAPANESE INDUSTRIAL POLICY 15 (1981).

creasingly constrained in its ability to use industrial policy instruments for their preservation.²⁰ Indeed, the difficulties that MITI has encountered in its efforts since the mid-1970s to accelerate or facilitate capacity reductions in the petroleum refining, petrochemical, and aluminum industries, suggests that the implementation of future Japanese policies is likely to become increasingly difficult. Some MITI officials suggest that the government should expand its role and explicitly subsidize weaker industries, whether in the name of national security (the term employed in the MITI statement is "economic security"), or in the name of long-term viability achieved through short-term assistance.²¹ Previously, most of Japan's industrial policy efforts were focused on protecting newly developed infant industries from international competition. Changes in Japan's comparative advantage are forcing Japanese policy makers to focus on phasing out some portion of Japan's basic manufacturing industries.

This decline in the competitiveness of certain Japanese manufacturing industries in the 1970s suggests that global market pressures, rather than government policies per se, were the decisive factor leading to economic restructuring. Perhaps because some of the market pressures of the decade crystallized so suddenly in the form of large-scale energy price increases, the changes that subsequently took place in certain Japanese industries seem, at first glance, to have stemmed from government policies. To the degree that the energy price increases were more sudden than most other price increases, they hastened changes that would doubtless have come about eventually. Yet, the basic direction of Japan's industrial shifts has depended often on outside shocks. Such shocks have indeed played a role in determining Japanese industrial policy—a role that is fostered by Japanese officials using alleged foreign pressure as a bargaining lever in their own domestic debates. Although such shocks or external pressure are neither the single or even the major determinants of Japanese policy or actions, their effect has been significant. More importantly, whatever the role of government policy, the actual behavior of firms has been determined by overall supply and demand pressures.

In general, the sum total of government intervention to promote industrial development has declined over time while intervention for other reasons, including environmental protection, promotion of social welfare goals, and regional development, has increased. Where the government continues to intervene in the economy in a narrowly targeted way, to promote industrial development, it does so mainly at the beginning of a product cycle to help launch new industries, or at the end of a cycle to help declining industries adjust or liquidate. Specific industrial development instruments and the ways that they have complemented one another are discussed briefly in the following section.

20. See Miyamoto, *What Is Happening to Japan's Industrial Structure*, 1 JOURNAL OF JAPANESE TRADE AND INDUSTRY 31, 37–46 (1982).

21. *Id.* Both arguments are familiar to Americans, who heard and accepted them in debates over the proposed government bailouts of Lockheed and Chrysler, the institution of trigger prices for steel imports, and the restrictions on imports of Japanese automobiles. The second argument, however, is relatively new for MITI.

II. INSTRUMENTS OF INDUSTRIAL POLICY

A. *The Promotion of Growth*

1. *Government Financing*

In the financial environment of Japan's early postwar years when credit was rationed, direct lending by government institutions played an important role in the implementation of industrial policy objectives of the period.²² Government lending has always been aimed at a variety of objectives, but different goals have received preferential treatment at different times. In the 1950s and early 1960s, when economic growth was the dominant goal of the Japanese government, certain basic manufacturing industries considered essential to future growth received funds on otherwise unavailable terms directly from government financial institutions. However, after the extraordinary growth of the 1960s, the need for such direct lending decreased, and the government's share of total lending declined from 12.9 percent in 1956, to 9.9 percent in 1971. The subsequent increase in direct government lending from 9.9 percent in 1971 to 14.6 percent in 1982 stemmed from the emergence of new government priorities and objectives, of which economic growth was but one.²³

Government lending supporting public policies is still channeled through the Fiscal Investment and Loan Program (FILP). Independent of the general account budget, this entity is administered by a bureau in the Ministry of Finance.²⁴ It lends funds to various policy-implementing financial institutions, including the Japan Development Bank (JDB),²⁵ the Export-Import Bank²⁶ and local governments.

The Japan Development Bank is perhaps the the most important policy-implementing financial institution that receives funds from the FILP. In the years immediately after its formation, the JDB concentrated on lending for the reconstruction of basic manufacturing industries. Since then, the bank has diversified the range of potential loan recipients according to guidelines established by the Prime Minister and his cabinet. Each fiscal year the cabinet prepares a basic

22. For a detailed discussion of the historical importance of direct government lending to private business, see E. SAKAKIBARA, R. FELDMAN, & Y. HARADA, *THE JAPANESE FINANCIAL SYSTEM IN COMPARATIVE PERSPECTIVE*, 97th Cong., 2d. Sess. (1982) (prepared for the Joint Economic Committee).

23. See JAPAN DEV. BANK, *FACTS AND FIGURES ABOUT THE JAPAN DEVELOPMENT BANK* 45 (1982).

24. The Fiscal Investment and Loan Program (FILP) was created in 1953 by the Ministry of Finance. For more details on its source of funds and structure see JAPAN DEV. BANK, *FACTS AND FIGURES ABOUT THE JAPAN DEVELOPMENT BANK* 40 (1981).

25. *Id.* The JDB was established in 1951 as a successor to the occupation-founded Reconstruction Finance Corporation. Its principal business has been the extension of long-term, low-interest loans for capital investment in new industries. The government's Trust Fund Bureau (the main organization in FILP) is the JDB's main source of capital. *Id.*

26. NIHON YUSHUTSUUNYO GINKO SANJU NEN NO AYUMI (1983); Y. ITO, *THE ROLE PLAYED BY THE EXPORT-IMPORT BANK OF JAPAN IN JAPAN'S ECONOMIC DEVELOPMENT AND IN ECONOMIC RELATIONS BETWEEN THE U.S. AND JAPAN* (1983) (draft paper prepared for the Japan Economic Seminar, George Washington University).

lending policy for the JDB. Annual loan patterns reflect these broad policy guidelines. Nonetheless, the JDB operates as an autonomous financial institution, evaluating specific loan applications according to normal banking practices. Interest rates on JDB loans cannot drop below its cost of funds and may range up to what the JDB calls its prime rate.²⁷ Different categories of loans carry different interest rates depending upon the guidance provided by the cabinet. For example, resource and energy projects have been targeted as priority areas and may borrow at minimum interest rates. Loans for technology development have also typically carried minimum rates, although certain computer-related loans have been assigned higher-than-minimum rates in the belief that the industry has become too successful to justify a high degree of subsidization.

Table 1 summarizes the distribution of JDB loans from the early 1950s through 1980. As this table indicates, the government has historically provided explicit financial support to priority sectors and industries. The share going to resources and energy, by far the largest item in the 1950s, declined sharply until the mid-1970s when energy emerged as a critical area. Development of technology has grown in importance since 1951. Its more or less constant share since the mid-1960s, reflects the fact that some targeted new technologies, for example energy production, are listed in other categories. Policy concerns regarding the development of a merchant fleet and the maintenance of shipbuilding production facilities can be seen in the rising share of loans devoted to ocean shipping through the late 1960s. The success of this effort is manifest in the investment decline in 1971. Urban and regional development loans have absorbed a growing share of the lending funds over the years. Similarly, quality of life loans, including those for the development of pollution control devices, grew rapidly in the 1970s.

There have been advantages to loans from the JDB as against commercial loans. In many cases, interest rates have been (and are still) lower and loans can be extended for longer time periods. A recent study by the United States International Trade Commission estimated that the subsidy effect of JDB loans is very small—ranging from 1.6 percent to 2.0 percent of the total loan value.²⁸ Nevertheless, the loans directed toward the private sector have been narrowly targeted and have doubtless had a greater impact on decision making than either the number or the magnitude of the loans might indicate. A major effect of government financial assistance on manufacturing has been the implicit guarantee that the government's imprimatur gives to particular projects.²⁹ Increasingly, however, funds from policy implementing financial instruments, including the JDB, have been directed toward a variety of goals in addition to industrial development.

27. In early 1983, these rates were 5.5 and 8.5 percent respectively. Interview between M. Janow and J. Wheeler and JDB officials (March 1983).

28. U.S. INT'L TRADE COMM'N, Pub. No. 1437, FOREIGN INDUSTRIAL TARGETING AND ITS EFFECTS ON U.S. INDUSTRIES, PHASE I: JAPAN 94 (1983).

29. Participation by the JDB in a consortia loan tends to reduce, although not eliminate, the risk to participating private institutions. In private discussions, however, commercial bankers and officials from the JDB and the Export-Import Bank have argued that the once close relationship between government support of a project and the implicit backing of commercial banks has greatly attenuated in recent years.

2. *The Tax System*

Although Japanese tax measures are not unknown in other advanced industrial countries, in Japan's case they have clearly contributed significantly to Japan's post-World War II economic growth. The major contribution of the Japanese tax system to the country's industrial development was the creation of an environment favorable to saving and investment particularly in basic manufacturing industries. Although specific measures directed at particular industries or groups of firms have been important, this pro-investment environment was created mainly through the use of broad-based measures. The former are the primary focus of this discussion.

Japan's individual income tax system has indirectly supported economic growth through the provision of exemptions, credits, and deductions favoring saving and investment. For example, interest received on small-size savings accounts and certain accounts in the postal savings system are exempt from taxation.³⁰ This has stimulated savings by the ordinary citizen—all the more so because multiple accounts under various guises have been tolerated by officials of the postal savings system in spite of the continued disapproval of tax officials in the MOF.³¹ In addition, interest rates and deposit regulations have been manipulated in favor of the postal savings system, thereby diverting much of the small savings that might otherwise go to banks into the postal savings system—and therefore into government hands for investment in favored areas.³² Capital gains accrued from the sale of shares or other kinds of securities are also excluded from individual taxation. For these reasons, capital gains are more attractive to stockholders than dividends, which are taxed.

Other measures within the corporate tax system promote specific industrial policy objectives. The most widely used of these measures fall into three categories: added depreciation, tax-free reserve funds, and tax credits. Although depreciation rules in Japan are similar to those in other advanced industrial countries, Japanese officials have applied them more flexibly and with specific policy objectives in mind. Special depreciation measures are intended to stimulate the private sector to purchase particular types of assets.³³ These measures are available to firms submitting a "blue return."³⁴ Recent legislation on special

30. The Postal Savings system is a mechanism by which the Post Office serves as a financial institution which accepts savings deposits from individuals. It then channels these funds into the FILP. TAX BUREAU, MINISTRY OF FINANCE AN OUTLINE OF JAPANESE TAXES 1984, at 44 [hereinafter cited as AN OUTLINE OF JAPANESE TAXES 1984]. Savings accounts in the postal savings system up to ¥three million (\$13,636 at ¥220 = \$1) are tax free.

31. One indication of the degree of tax evasion permitted through the postal savings system is the number of deposits—over twice Japan's population. MOF officials were sufficiently dismayed by this that in 1981–82 they tried to introduce a system called a "green card" that would record transactions on a computerized record. This was opposed by so many that it eventually died. Interview between the author and Ministry of Finance officials of the Tax Bureau.

32. T. ADAMS & I. HOSHI, A FINANCIAL HISTORY OF THE NEW JAPAN 138 (1972).

33. AN OUTLINE OF JAPANESE TAXES 1984, *supra* note 30, at 46.

34. "Blue returns" require that corporations and individuals follow certain designated accounting principles and provide more information to the government than required on a "white return." In practice, most special tax benefits are available only to those firms that file a blue return. Special depreciation is available in two broad types: increased initial depreciation and accelerated deprecia-

depreciation measures shows that the incentives provided are of a relatively narrow and specific nature. Indeed, many of the measures are for "designated plant and equipment."³⁵ This permits detailed but nevertheless discretionary government intervention for one or another policy goal. The pattern of special depreciation measures is also biased towards manufacturing industries that the government would like developed domestically.

Tax-free reserve funds provide a means of tax deferral; although initially deductible from income as expenses, they must eventually be added back into income.³⁶ Perhaps the main benefit of tax-free reserves is the availability of cash before the expenses or losses are incurred. For highly leveraged Japanese corporations, use of this up-front cash is particularly valuable.³⁷ Many types of tax-free reserve funds are permitted, including a reserve against losses resulting from fluctuations in the market price of inventories, a reserve to stimulate overseas investment, and a reserve for losses caused by the repurchase of electronic computers among others.³⁸

Besides targeted depreciation allowances and tax-free reserves, still other special tax measures address specific industrial policy goals. For example, a corporation deriving income from overseas sales of technical services is permitted a special deduction from taxable income.³⁹ This incentive is designed to stimulate export of domestically developed patents, copyrights, and such technical services as planning, consulting, and supervision related to the construction or production of plant and equipment or to specified technical services for agriculture or fishery. Accelerated depreciation, tax-free reserves, and similar general tax measures built into the Japanese corporate tax system have helped to provide an environ-

tion. In the former case this simply means that, in addition to deductions allowed on the ordinary depreciation schedule, the firm can deduct a specified portion of the acquisition cost of an asset during the first accounting period in which the asset was acquired. In the second case, firms may deduct part of the acquisition cost of the asset over and above the ordinary depreciation schedule for a designated number of consecutive accounting periods. In neither case can cumulative depreciation exceed acquisition cost.

35. MINISTRY OF FINANCE, AN OUTLINE OF JAPANESE TAXES, 1981, at 79-86 (1981) [hereinafter cited as AN OUTLINE OF JAPANESE TAXES 1981]; Y. GOMI, GUIDE TO JAPANESE TAXES, 1981-82, at 308-24 (1981).

36. For example, corporations can establish a reserve for bad debts based on expected losses in the collection of receivables. With the bad debt reserve, the amount credited in each period must be added back, in full, to income in the succeeding accounting period; the measure amounts to a one-year tax postponement.

37. Japanese corporations are generally highly leveraged. Debt-equity ratios, though declining, are still much higher than in other advanced industrial countries. Thus, increases in available cash flow especially during periods of recession or slow growth are particularly valuable.

38. Japanese tax law classifies tax-free reserves in two groups: *hikiatekin* and *junbikin*. The former are roughly those justified by general accounting principles, such as the bad debt reserve. The latter are those introduced to achieve certain economic policy goals, even though they may not be fully justified by generally accepted accounting principles. Obviously, *junbikin* is the more important category for identifying specific industrial policy incentives. If, however, the reserve is defined in such a way that the contingency costs for which it was designed never equals the size of the reserve (which appears to have been the case for the bad debt reserve, for example), then the distinction between *hikiatekin* and *junbikin* becomes considerably less useful. See AN OUTLINE OF JAPANESE TAXES 1981, *supra* note 35; Y. GOMI, *supra* note 35.

39. See AN OUTLINE OF JAPANESE TAXES 1981, *supra* note 35; Y. GOMI, *supra* note 35.

ment that encouraged investment overall, as well as investment in priority sectors.

Starting in the late 1960s, the specific benefits and incentives incorporated into the Special Tax Measures Law began to be curtailed. A good indication of this trend is the dramatic decline since the early 1970s of government revenue losses (tax expenditures) from the Special Tax Measures Law.⁴⁰ The fall-off in benefits to companies has been particularly notable. Losses from special tax measures benefiting corporations declined from 9.0 percent of corporate tax revenues in 1972 to an estimated 2.7 percent in 1983.⁴¹ When their impact was larger than it has now become, these measures were unquestionably an important instrument through which MITI could influence the decisions of individual industries or firms. The now lessened impact of these measures represents a decline in MITI's influence.

In general, the Japanese government's promotion of saving and investment has been more important to economic growth and industrial progress than the various special tax measures designed to aid specific industries. This has been particularly true since the early 1970s when the total benefits provided by special tax measures began to decline precipitously. Yet, two characteristics of targeted tax policy in Japan remain important: (1) it is used as a carrot to improve cash flow or profits rather than a stick to penalize actions already taken, and (2) it is used to grant benefits to both producers and consumers of the particular sectors or goods chosen for promotion.

3. *Assistance to New Industries: Government Support to the Computer Industry*

The Japanese government has typically made no sharp distinction between policies to promote the development of science and technology and industrial policies; enhancing technological progress has always been an integral part of the promotion of targeted industries. Thus, the Japanese government has directly and indirectly supported projects that had the promise of commercial applications.⁴² Typically, government support for science and technology-related projects has been heavily concentrated in the development of technologies with commercial

40. Revenue losses due to special tax measures as a percent of general account revenue dropped from 6.6 percent in 1972 to 3.3 percent in 1981. TAX BUREAU, JAPANESE MINISTRY OF FINANCE (Fall 1982) (unpublished material); JAPANESE INDUSTRIAL DEVELOPMENT POLICIES, *supra* note 1, at 98. Revenue losses are only estimates. The data shown here was provided to the authors by MOF officials. The authors were not provided, nor could they discover, the methodology or the assumptions used by the MOF. Thus, they have no basis for evaluating the quality of these estimates.

41. Revenue losses are only estimates. The data here was provided to the author by MOF officials. The author was not provided the methodology or the assumptions used by the MOF, thus there is no basis for evaluating the quality of these estimates.

42. Quantitatively, direct support of science and technology by the Japanese Government has been no greater than, and often less than, that of other developed countries—a fact that makes the qualitative success of Japanese science and technology policy all the more remarkable. For example, Japan ranks third in absolute amounts of research expenditures (¥4.08 trillion in fiscal 1979, as compared with ¥11.9 trillion for the United States, ¥6.77 trillion for the U.S.S.R., ¥3.19 trillion for West Germany, and ¥2.24 trillion for France). SCIENCE AND TECHNOLOGY AGENCY, A SUMMARY OF FY 1980 WHITE PAPER ON SCIENCE AND TECHNOLOGY IN JAPAN 10–11 (1981) (unofficial translation by the Foreign Press Center, Tokyo).

applications. The government has developed an extensive network of institutions to provide direct and indirect support for investment, specifically investment in high technology areas. This network includes, for example, the various research centers and laboratories of MITI, such as the Agency for Industrial Science and Technology (AIST),⁴³ the Science and Technology Agency (STA),⁴⁴ and the Machinery and Information Bureau (MIB) in MITI⁴⁵; various government-private coordinating and advisory councils; and various private-sector development programs such as the Japanese Research and Development Corporation (JRDC).⁴⁶ Nowhere has the impact of government support been more concentrated than in the case of the computer and electronics industries.

Because of their importance for many future manufacturing activities, their relatively low labor requirements, and their relatively high added value, the Japanese government has considered the computer and computer component industries strategic industries.⁴⁷ From the founding of the computer industry in the late 1950s, the Japanese government, especially MITI as the major government ministry responsible for the manufacturing sector, committed itself to the development of a domestic computer industry.⁴⁸ Government support is grounded in law, exemplified in loans, subsidies, and tax measures, and facilitated by various institutions, both advisory and operational.

The statutory basis for government support of the computer and related electronic industries is embodied primarily in three laws. The first, the Law on Extraordinary Measures for the Promotion of Electronic Industries, was enacted in 1957. It gave MITI the authority to formulate overall plans for a reorganization of the then-nascent computer industry, as well as the authority to design specific support packages for the industry.⁴⁹

43. Established in 1948, the AIST is explicitly oriented to engage in research and development of technologies with industrial applications, infrastructure technology, and medical equipment technology. See AGENCY FOR INT'L TRADE AND TECHNOLOGY, AIST (1981).

44. The STA, established in 1956, is responsible for planning, formulating, and promoting basic science and technology policies in Japan. The STA is more oriented toward basic research than any other government ministry. See SCIENCE AND TECHNOLOGY AGENCY, STA: ITS ROLE AND ACTIVITIES (1981).

45. The Machinery and Information Industries Bureau of MITI, formed in 1973, is responsible for supervising a broad range of industries, including consumer electronics, communications, computers, and electronic test and measuring equipment.

46. The JRDC is the STA's vehicle for disseminating new technologies. Private companies are given inducements, usually in the form of financial aid, to undertake development work for commercialization purposes. For additional discussion of the activities of the JRDC, see STA: ITS ROLE AND ACTIVITIES, *supra* note 44.

47. MITI's definition of the electronics industries includes consumer electronics, communications, computers, components, and electronic testing and measuring equipment.

48. Merton Peck and Shuji Tamura argue that Japanese Government was more extensively involved in the computer industry than any other in the post war period. Peck & Tamura, *Technology in ASIA'S NEW GIANT* 571 (H. Patrick & H. Rosovsky eds. 1976).

49. See *High Technology and Japanese Industrial Policy: A Strategy for U.S. Policy Makers: Hearings Before the Subcomm. on Trade of the House Comm. on Ways and Means*, 96th Cong. 2nd Sess. 8-9 (October 1, 1980) (testimony of Julian Gresser, Harvard University Law School) [Hereinafter cited as *High Technology Hearings*]. For a more in-depth analyses of this legislation and earlier computer-related support measures during the period before foreign investment in the industry was permitted, see HOUSE SUBCOMM. ON TRADE, HIGH TECHNOLOGY AND JAPANESE INDUSTRIAL

In 1971 the government implemented the Law on Extraordinary Measures for the Promotion of the Electronics and Machinery Industry. The law was designed in part to counter foreign investment, which, it was feared, might lead to more foreign ownership of the computer industry than either government policy makers or the domestic producers preferred. It covered 37 types of machinery in the electronics industry and 58 types in the machinery industry itself. The major purpose of this law was to raise levels of technology in both the machinery and the electronics industries. The law encouraged the improvement of production and manufacturing methods and prototype research in a variety of specific areas.⁵⁰

The Law on Extraordinary Measures for the Promotion of Specific Machinery and Information Industry, enacted in 1978, replaced the Law on Extraordinary Measures for the Promotion of the Electronics and the Machinery Industry. It sets forth plans for specified industries, provides for tax measures to facilitate the availability of investment funds, and can also be used to initiate large-scale undertakings. Currently, this law is being used to promote software production.⁵¹

Through financing, taxes and legislation, the government has also fostered an institutional infrastructure for computers and electronics. It has, for example, created a Machinery and Information Bureau⁵² within MITI that has several divisions closely monitoring, and in some cases running, computer-related programs. Its bureau has had administrative responsibility over government computer projects. It exerts strong influence over AIST's activities, and it also aims to improve and develop the machinery and information industries.

Moreover, the government has also encouraged the pooling of financial resources among the computer manufacturers. One of the best examples of this is the Japan Electronic Computer Company (JECC), founded in 1961 to lease hardware and software purchased from shareholder companies. The JECC is financed largely by computer manufacturers; with the pooled capital of these manufacturers it has been able to leverage low-interest loans from the JDB.⁵³ According to the 1981 JECC Annual Report:

As a result of the establishment of JECC, indigenous computer manufacturers in Japan have freed themselves from the otherwise tremendous task involved in the procurement of the very substantial amount of operating capital required, and the work of attracting investment capital. This has allowed them to concentrate on further research and development for computer hardware and software and on expanding the computer market. . . . In order to meet the rapidly growing need for funds, JECC has also put considerable effort into raising loans. These consist mainly of long-term low-interest loans provided through the Japan Development

POLICY FOR U.S. POLICY MAKERS, 96th Cong. 2d Sess. (1981); COMPTROLLER GENERAL OF THE UNITED STATES, JAPAN TRADE: ISSUES AND PROBLEMS (1979); JAPAN INFORMATION PROCESSING CENTER, GOVERNMENT POLICY (1978).

50. See *High Technology Hearings*, supra note 49 at 11-12.

51. See *id.* at 15.

52. See *infra* note 45 and accompanying text.

53. The shareholding companies in the Japan Electric Computer Company (JECC) are Fujitsu, Hitachi, Toshiba, Oki, Mitsubishi Electric, NEC and NEC-TOSHIBA Information Systems.

Bank from the funds for public financing, and the various credit arrangements granted by a wide range of private financial institutions such as city banks, trust banks, local banks, and life and other insurance companies, even including foreign banks.⁵⁴

This description of the JECC's achievements does not provide a complete picture of the company's operation. As manufacturers were obliged to buy back machines from the JECC, one disadvantage of the leasing system became apparent when new models were rapidly introduced and old models were then returned to the JECC.⁵⁵ To respond to these rapid changes in the market, a new tax measure was adopted in the 1960s allowing manufacturers to create a tax-free reserve of up to 15 percent of the value of sales to the JECC. This was intended to cover losses that might accrue when models were bought back from the JECC.⁵⁶ Such predictable up-front cash was extremely useful to Japanese computer firms, which have typically been highly leveraged with high fixed costs.⁵⁷

Discussions with government and industry representatives also suggest that the very success of the JECC contributed to its diminished importance. Some of the manufacturers participating in the program began to do so well that they no longer found it advantageous to use the JECC and preferred to establish leasing programs of their own.⁵⁸ Although the usefulness of the JECC to the major computer manufacturers may be declining, it remains a good example of a task-oriented, government-facilitated technology organization.

In addition to the JECC, numerous other government and quasi-government organizations have facilitated the development of an information infrastructure. Figure 1 and the attached annotations describe the major subsidies that have been applied to the computer industry during the last two decades.

Great variation among government sponsored computer projects precludes all but the most general comments regarding their common characteristics. Nevertheless, several generalizations are possible regarding funding methods and the development of patents. In joint government-private sector projects, funds are only distributed to sanctioned research associations. When projects are supported entirely by the government, funds are generally made available in the form of consignment payments. If government backing is only part of the total funding,

54. JECC, JECC ANNUAL REPORT 2-3 (1981). The Foreign bank referred to is Morgan Guaranty Trust Company of New York.

55. See Japan Information Processing Center, Computer White Paper 1980 (1980).

56. The reserve amount was later raised to 20 percent, and in 1978 companies were allowed to put aside even greater reserves if they could demonstrate larger buy-back obligations.

57. Moreover, the subsequent need to increase the amounts that could be set aside in a reserve suggests that, at least until 1978, the buy-back requirements were sufficiently burdensome that the initial reserve allotments were not in excess of manufacturer needs—not, in other words, an egregious subsidy.

58. In late 1976, for example, MITI and JECC wanted to increase JECC's net worth, and asked the major computer manufacturers to increase their capital participation by a total of ¥ five billion. Hitachi, having already established its own rental program, rejected the proposal. Toshiba, Mitsubishi, and Oki also rejected it. The proposal was accepted, at least in part, when Fujitsu agreed to pay 80 percent (¥ four billion) and NEC agreed to pay the remaining 20 percent (¥ one billion). Interviews with JECC officials (Nov. 1981).

projects tend to receive conditional loans, repayment of which is dependent on the degree of success achieved in the project.

In many of the more recent computer-related projects, the resulting patents are either directly controlled by MITI or indirectly under MITI's purview. Those evolving from 100 percent government-funded projects are, naturally enough, owned by the government. It is less clear who owns those evolving out of joint government-private sector projects, such as the Very Large Scale Integration (VLSI) effort. Joint ownership of such patents is possible or priority access may be given to participating companies. Indeed it was precisely this uncertainty about the ways in which patent rights were to be distributed that led to international criticism of the VLSI program.⁵⁹

4. *Implications of the Computer Industry for Japan's Future in New Industries*

Japan's success in the computer industry has led many to wonder whether, and to what degree, targeted government support is responsible for the success of Japan's high technology industries and whether such support can continue to promote such success. In the view of this author, neither of these concerns can be given a single conclusive answer in large part because no definitive methodology exists for quantifying the relative impact of government policies versus private sector initiatives in the development of the computer industry. Government support in the form of indirect measures is especially difficult to measure. In terms of direct government support, one can be somewhat more conclusive. It is clear, for example, that specific industrial policy instruments, taken individually, appear to have had only limited impact. According to data compiled by MITI and the JDB, loan allocations to the machine and information industries as a percent of total investment in those areas, have always been relatively small.⁶⁰ Even at the

59. The United States Government has argued that Japanese support of the VLSI program provided an unfair advantage to Japanese producers, given (1) that patents were distributed, at least initially, only to participating companies through a research association, and (2) that foreign firms were excluded from participating in such projects or even from acquiring licenses based on VLSI-derived patents. IBM Japan, a wholly-owned subsidiary of IBM of the United States, was excluded from the program even though by law it is a Japanese company and has manufacturing facilities in Japan. In 1979, perhaps under U.S. pressure, MITI altered its position and indicated that it would license patents developed by government researchers to foreign as well as domestic firms. Moreover, patents owned by the VLSI Technology Association would also be made available to foreign firms. At least in principle, therefore MITI indicated that technology jointly or partially owned by the government would henceforth be open to international licensing; similarly, privately held patents would be open if negotiations among the specific parties could produce an agreement. In this same spirit, in February 1982, MITI announced that new patents resulting from the next generation basic technologies project will be available to foreign semi-conductor makers. Later in late April 1982, MITI announced that it would review the entire subsidy system and study how and under what conditions foreign firms could be eligible for consignment payments, and how a foreign firm could join a research association. Despite the seemingly straightforward arrangement that has now been developed, considerable ambiguity about the access available to foreign firms still remains. *High Technology Hearings*, *supra* note 49.

60. MINISTRY OF INT'L TRADE AND INDUSTRY, JAPAN DEVELOPMENT BANK, PLANT AND EQUIPMENT PLANS OF KEY INDUSTRIES (1980) (unpublished questionnaire and analysis).

height of infant industry protection in the 1961–65 period, loan allocations only amounted to 2.5 percent of total investment.⁶¹

Still, government support to the computer industry almost certainly has had an effect that is larger than numbers alone would indicate. For example, while laws in any country are both indicative and operational, with varying degrees of specificity, in Japan they are particularly indicative. The laws for the promotion of the computer and electronics industry discussed in the previous section are good examples. They were primarily designed to serve as a general framework within which government officials were provided with a great deal of discretionary authority. For example, in the Law on Extraordinary Measures for the Promotion of Specific Machinery and the Information Industry, certain types of machinery were designated as deserving of support, but a detailed list of machine types to be supported and the specific promotion plans to support these types were left to be drawn up after the law had been promulgated. In this way, the law indicated a shift in priorities, yet left open the issue of just what support would be provided. This law thus provided a basis for continued government support before the specific design of the support that would be given was known.

As mentioned in the discussion of methods of government finance, indirect effects of specific instruments of government support can be just as helpful as direct support. In the case of JDB loans, for instance, the size of the loan is probably less important than the implication of a JDB loan vis-a-vis a manufacturer's application for commercial loans. The JDB's technical and credit review procedures are considered highly rigorous. Thus, once the JDB has analyzed and approved loans to a particular company producing a new technology or process, that company is "cleared" for some amount of commercial lending.

At minimum, by explicitly linking science and technology policies and industrial policies, the Japanese government has helped create a political and economic environment that directly and indirectly encourages investment and research in high technology areas. This general commitment to technological development is supported by more specific policies aimed at fostering priority areas. For more than a decade, the government has sought to foster an environment that promotes continual economic growth through the development of knowledge-intensive industries. The government has seen its own role as that of a mediator, encouraging collaborative research among otherwise competitive firms, and providing inducements in the form of matching grants, loans, or indirect financial support to project participants. This pattern of government involvement in technological development is likely to continue even as the specific means of promoting technological development change.

B. Assistance to Declining Industries

Having reached a level of development that is now threatening to other developed countries, Japan has also reached a point where many of its basic manufacturing industries are being, or need to be, scaled down or phased out.

61. *Id.*

The decline in a broad range of basic manufacturing industries is a new problem for Japan. Recently, the aluminum and nonferrous metal industries, petrochemical producers, petroleum refiners, paper and pulp producers, and even some parts of the steel industry, have run into serious trouble and are increasingly seen as unlikely ever to regain their previous levels of competitiveness. Other basic material industries, particularly those requiring large amounts of energy are also coming under increasing pressure; as a result, imports of nickel, ferro-nickel, and other ferro-alloys have increased markedly in recent years.⁶²

Although the sharp increase in energy costs during the 1970s is the immediate reason for the loss of competitiveness in these industries, in many cases these energy cost increases simply accelerated trends already in motion as a result of rising labor costs and increasing competition from newly industrialized countries. Market forces will continue to drive, or at least to influence, structural change in Japan. Thus, the "phasing out" process for basic manufacturing industries is only beginning. To the extent that economic progress means the emergence of new industries and a contraction of older industries, this turn of events is inevitable. Still, structural change involves painful adjustments for both management and labor.

Many countries pay at least nominal attention to the need for shifts in industrial structure in the face of major economic changes and changes in comparative advantage.⁶³ Yet, in many developed countries there has been a marked unwillingness to bear the costs associated with such shifts including unemployment and worker retraining, and the contraction and, in some cases, liquidation of certain traditional industries. Many so-called positive adjustment measures in Europe have actually subsidized continued production in declining sectors.⁶⁴ In some sense, then, such "temporary adjustment assistance" has amounted to indefinite non-adjustment assistance.

In Japan, however, there appears to be consensus behind the general idea that the future economic health of the country is dependent on its ability to adapt its industrial structure to changing world and domestic economic conditions. Specifically, there appears to be a widely shared belief in the desirability of genuine positive adjustment, and a recognition that Japan's economic future lies in high technology manufacturing and high value-added services.⁶⁵ Nevertheless, it is too soon to be sanguine that Japan will be able to deal with these adjustment

62. For example, aluminum imports went from 40 percent of domestic production in 1976, to 344 percent in 1982. Data provided by MITI. Imports as a percent of domestic production of nickel have gone from 52 percent in 1976 to over 80 percent in 1981. For additional discussion of nickel and ferro-alloy market developments, see JAPANESE INDUSTRIAL DEVELOPMENT POLICIES, *supra* note 1, at 180-85.

63. This much is made clear by the principles of "positive adjustment policies" agreed upon by the OECD Council of Ministers. The key documents of these policies are reprinted in OECD, THE CASE FOR POSITIVE ADJUSTMENT POLICIES (1979).

64. See generally W. DIEBOLD, JR., INDUSTRIAL POLICY AS AN INTERNATIONAL ISSUE (1980); OECD, TRANSPARENCY FOR POSITIVE ADJUSTMENT: IDENTIFYING AND EVALUATING GOVERNMENT INTERVENTION (1983).

65. For a government document that outlines this point of view, see MITI, HACHIUU NENDAI NO TSUSAN SEISAKU BUON (VISIONS OF TRADE AND INDUSTRY POLICY FOR THE 1980s) (1980).

issues. In the early 1970s, Japan's problems with structural adjustment were fairly limited, and the country's then high rate of economic growth eliminated the need for a full complement of special policy measures to facilitate adjustment. In recent years, however, as more industries face competitive pressures the Japanese government has had to formulate additional measures to facilitate rationalization in declining sectors of the economy.⁶⁶

Assistance measures have typically been grouped together in a package tailored for the particular industry in trouble and reinforced by other more general policy programs. For example, in 1976 the Ministry of Finance proposed an adjustment plan for the shipbuilding industry.⁶⁷ In 1978, an adjustment plan was finally agreed upon by industry and government representatives. It recommended the closure of some firms, capacity reductions in others, and a redesign of the industry itself to induce it to focus on new activities. Total planned cutbacks were 35 percent of shipbuilding capacity.⁶⁸ Furthermore, as a result of having been designated as a "structurally depressed" industry in the 1978 Law on Temporary Measures for Specific Depressed Industries, government financial support also became available.⁶⁹ Importantly, from the standpoint of adjustment, this as-

66. The Japanese wording of the law concerning structural adjustment is *Tokutei fukyo sangyo anteiri rinji sochiho*; literally the Law on Temporary Measures for the Stabilization of Specified Depressed Industries. The phrase *fukyo sangyo* is normally translated as "depressed industry." The usual English translation of the currently applicable law on declining industries is misleading in American usage. The law as a whole is specifically designed to deal with structural, rather than cyclical, problems, and the word "depressed industry" in English normally carries the connotation of a cyclical downturn. Thus, the phrase "declining industry" is used to refer to those industries thought to be suffering from long-term, or structural, problems. Because this law is so frequently referred to in standard English-language material on Japan as the Depressed Industry Law, this usage is used in reference to the law itself, however, the difficulties referred to are predominantly structural rather than cyclical.

67. After the first oil shock in 1973, the world tanker market collapsed. The industry then faced a cyclical problem of excess capacity. Moreover, there was an obvious structural problem in the form of growing competition from lower priced producers in newly industrialized countries, such as Brazil and the Republic of Korea (South Korea). As one indication of this decline in Japan's position, current orders for ships over 2,500 GT from Japanese yards declined from 33.8 million GT in 1973 to 9.4 million GT in 1974. By 1978 this had fallen even further to 3.22 million GT. For further discussion, see JAPAN CONFEDERATION OF SHIPBUILDING AND ENG'G WORKERS UNION, *LABOR UNION'S ADAPTATION TO THE STRUCTURAL CHANGES IN THE SHIPBUILDING INDUSTRY* (Aug. 1980).

68. *Id.*

69. The Law on Temporary Measures for the Stabilization of Specified Depressed Industries was enacted in 1978. For an excellent Japanese Government commentary on this law, see MITI, KOZO FUKYO HO NO KAISETSU (A COMMENTARY ON THE STRUCTURALLY DEPRESSED INDUSTRIES LAW) (Trade and Industry Policy Bureau ed. 1978). The Law identifies several specific sectors, including shipbuilding, aluminum refining, synthetic-fiber manufacturing, and open-hearth industries, as possible candidates for government support. An industry is eligible for help when: it is suffering severe overcapacity (with little likelihood of a turnabout in economic conditions); more than one-half of the firms in the industry are in dire financial condition; firms representing two-thirds of the industry have signed a petition seeking designation under the law; and there is broad agreement that some scrapping of facilities is necessary to overcome the situation. Even then, an industry must be specifically designated by a ministerial order. Once an industry is so designated, the ministry with jurisdiction over its activities (usually MITI) drafts a basic stabilization plan outlining possible plant reductions, employment measures, and other conversion measures. See *id.*

sistance was conditioned on the agreement that capacity reductions would occur.⁷⁰

In this way, direct government assistance for structural adjustment has been contingent on some adjustments actually taking place. In most cases to date, the government has acted as a coordinating body among firms and, in some cases, between management and labor within individual firms. Programs for structural adjustment have worked particularly well in instances where they included positive incentives for management and labor to shift to new product lines. The Law on Temporary Measures for the Stabilization of Specified Depressed Industries, passed in 1978, allows the government, at the request of an affected industry, to draft a basic stabilization plan outlining possible plant reductions, employment measures, and other conversion measures. When this particular law is brought into play the specified industries are then obliged to work directly with the government officials, usually from MITI, on enforceable industry-wide agreements. In such cases they are also exempt from antitrust regulations.⁷¹

Like the governments of other advanced industrial countries, the Japanese government is facing increasing demands to keep declining industries afloat. In some cases, the consensus-based negotiations between government and industry have reduced conflicts of interest and smoothed out the process of adjustment. This process was noticeably successful in the shipbuilding industry.⁷² Yet, adjustment proceeded more or less smoothly in large part because of the vigor of the industry itself, and because various "special" conditions allowed the industry to diversify into other profitable areas. Other areas where contraction is currently underway, including the petrochemical and petroleum refining industries, have proceeded less smoothly.⁷³ Significant price differentials have developed between domestic products and imports, and profitable areas of new business are not yet

70. For example, under article 3 of the Law on Temporary Measures for Specific Depressed Industries, a Depressed Industries Fund was formed and industry and government pooled ¥two billion for purposes of leveraging loans for the acquisition of assets from those firms that were reducing capacity. For more details on this, see JAPANESE INDUSTRIAL DEVELOPMENT POLICIES, *supra* note 1 at 165-70. In addition to the Law on Temporary Measures for Specific Depressed Industries, government officials, point to the National Employment Insurance Law as an example of this link between government assistance and mandatory industry adjustment. Under this insurance system, benefits are only dispersed to workers if they agree to participate in retraining and placement programs. Interviews with officials of Ministry of Finance, Ministry of Transportation, and Ministry of International Trade and Industry (Nov. 1981).

71. See generally *supra* note 69.

72. In 1978 the stabilization plan in shipbuilding was agreed upon and a fund was established for its disposition. Industry efforts were so vigorous, that by 1980 the basic stabilization plan had been more than achieved, utilizing less than one-half of the money available for adjustment purposes.

73. The 1962 Petroleum Industry Law provides MITI with wide discretionary powers over the petroleum industry, including control over entry, capacity, and production levels. Moreover, under the umbrella authority of this law MITI requires Japan's petrochemical firms to purchase domestically produced naphtha (a petrochemical feedstock) from domestic petroleum refineries. Both the petrochemical and the petroleum refining industries now face severe overcapacity, and domestic naphtha prices are far above world rates. Petrochemical firms are pushing for full liberalization of naphtha imports and petroleum refineries are opposing this because it would intensify their current capacity problems. Although various informal agreements have been reached in MITI-led negotiations between the petrochemical and petroleum industries, the situation is still unresolved and major capacity reductions have yet to occur.

obvious. In these cases, the initial reaction of both industry and government was to attempt to impose trade restrictions, which were opposed by the U.S. and other countries. Nonetheless, it is fair to say that in all cases to date, the government's monitoring and mediating role has helped to facilitate negotiations between firms in hard hit sectors. Yet, the government has not been particularly successful in anticipating problems ahead of time, nor has it managed to formulate generally applicable policies to deal with declining industries. Rather, it has applied various measures on an ad hoc basis.

III. CONCLUSION

This discussion of the specific instruments used by the Japanese government to promote industrial growth and the more general discussion of the overall direction of Japanese industrial policies, suggests that industrial policies in Japan have changed considerably in the course of the country's postwar development. This review also suggests that the effectiveness and scope of these specific and general measures has decreased as the Japanese economy has matured. Virtually all areas of industrial policy reflect a decline in government involvement for industrial development purposes and an increased emphasis on other goals. This is not to say that industrial policies have become unimportant; rather, relative to Japan's own past, industrial policies have become less important. This decline is virtually certain to continue as the economy develops further.

Regardless of how effective Japanese industrial policy instruments have been in the past, the combination of market pressures, budgetary constraints, and domestic and international political pressures, require the continual evaluation of the goals and methods of industrial policy. The industrial policy apparatus in Japan will have to compete with an increasingly heterogeneous set of goals for Japanese society as a whole.⁷⁴ This heterogeneity will constrain the government in its ability to target resources for industrial development purposes.

Indirect government control through "administrative guidance," has also become more difficult to implement since it often relied on an implicit threat of some potentially costly action that the ministry in question (usually MITI) might take if a firm failed to comply with its suggestions.⁷⁵ Now that many of the

74. Pressures for change also include the growing rivalry among various government ministries. Interministerial conflict between MITI and the Ministry of Post and Telecommunications (MPT), for example, has held up the integration between computers and data processing on the one hand and data-based communications on the other. The MPT, with a tradition of working through monopoly corporations, has allowed data-based communications to proceed with advances in communications technology at a much slower pace than the computer industry, which is under MITI's jurisdiction and whose firms have been encouraged to compete actively among themselves. Apart from interministerial battles, the increasing pluralism of Japanese society itself has contributed to a proliferation of competing interests.

75. This is all the more likely as many of the Japanese firms which once benefited from past policies have now become so large and so diversified internationally that government penalties or assistance have become a much less important factor, relative to other factors, in their business decisions. Consequently, government requests for industry cooperation are likely to meet with greater resistance.

detailed controls over businesses such as trade, capital, and foreign exchange restrictions have been minimized or eliminated, and many of the benefits that government can offer, such as tax breaks and low interest rate loans, have been eroded, reliance on informal administrative guidance is likely to decrease as the implicit threat behind such instruments of indirect influence is reduced.

Moreover, as more industries lose their competitive position and the process of adjustment becomes correspondingly more difficult, it will probably come to more closely resemble the patterns of adjustment in other developed countries. Though government officials and industry representatives support the general notion that Japan must phase out uncompetitive, basic manufacturing industries and move into higher value-added, knowledge-intensive industries, Japan now has many more industries under pressure to retrench than at any point in the postwar period. Resistance to large-scale adjustment will probably increase, as it has in other advanced industrial countries. The past successes of the Japanese government in facilitating industry adjustment will be harder won in the future. Thus, the government is likely to seek new legislative authority in the hopes of strengthening its ability to deal with the adjustment process—either by delaying it where feasible, or at the very least by making it easier to provide some support for affected industries without fear of antitrust violation. Even with such added authority, however, the government can at best only facilitate the adjustment process; it will be unable to reverse fundamental loss of competitiveness.

Despite a decline in the overall effectiveness of industrial development policy, the relative importance of those instruments targeted at the fostering of new industries and the phasing out of declining industries will remain. As the Japanese economy has become more developed, less general support by the government for individual firms is needed. By the same token, firms or product lines at the beginning or end of a product cycle often need (and seek) government assistance. The government, however, will probably have more trouble providing meaningful assistance to such industries. Policies for new industries or technologies have traditionally included a heavy dose of infant industry protection. This is more closely scrutinized by foreign governments than ever before, and criticism will be raised, and probably heeded, if new protectionist measures are attempted. Some assistance to computer and other high technology firms will doubtless continue through Japanese Development Bank loans, JRDC subsidies, joint government-private research and development projects, and various tax breaks. But again, even these terms of support will be limited by criticism from the international community. At the very least, any additional support to high technology firms, and any attempt to broaden the legislative basis for that support, will be monitored closely by other countries.

This article suggests that an important strength of Japanese industrial policy has been the way in which the various policy instruments directly or indirectly complimented each other. Their strength derived from a commitment to economic growth, a policy process that encouraged discussion of planning assumptions and forecasts, and a tendency to design policies in packages that applied several instruments to a single specific task. Until the early 1970s, global conditions largely worked to reinforce these domestic characteristics. However, with

the growing affluence and diversity of Japanese society, many new goals and special interests have had to be (and continue to be) accommodated in the policy process. This trend is likely to continue, and will doubtless result in the further diminution of industrial policies.