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## Japan's High Technology Industries: Lessons and Limitations of Industrial Policy

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JAPAN'S HIGH TECHNOLOGY INDUSTRIES: LESSONS AND LIMITATIONS OF INDUSTRIAL POLICY. Edited by *Hugh Patrick*. Seattle: University of Washington Press. 1986. Pp. xxi, 277. \$40.

*Japan's High Technology Industries* is a collection of essays developed as part of a project organized in 1983 "to provide a careful, objective analysis and evaluation of Japanese high technology industrial policy and assess its relevance for the United States" (p. ix). This project was sponsored by the Committee on Japanese Economic Studies (p. x). As outlined in the book's introduction, the authors are not in complete agreement with each other's analyses and conclusions (pp. x-xx). Thus, the book offers the reader a variety of perspectives on Japan's high technology industries, by which the authors generally mean the microelectronics<sup>1</sup> and biotechnology industries. Hugh Patrick<sup>2</sup> edited the collection, provided a thoughtful introduction, and also authored the first essay, an overview of Japan's high technology industrial policy. The authors of the individual essays are professors of business or the social sciences in the United States and Japan. Consequently, the book is not written in the style of a legal treatise; its discussions of industrial policy provide few citations to legal materials and do not emphasize the role of law. Thus, while this book may be of limited practical value to lawyers, it does provide an interesting and useful introduction to Japanese industrial policy.

Patrick's opening essay provides a broad conceptual overview of high technology industries and industrial policy in general and a description of Japanese industrial policy in particular. Japanese industrial policy has been motivated by a pragmatic desire to foster the rapid growth of future key industries while easing the decline of uncompetitive industries, or as Patrick puts it, "picking winners and phasing out losers" (p. 10). His examination of Japanese industrial policy shows that it has been responsive to market forces and changing economic analysis, but not always well conceived.<sup>3</sup> Indeed, he finds

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1. The authors include semiconductors, computers, and telecommunications within the microelectronics industry. P. xiii.

2. R.D. Calkins Professor of International Business in the Graduate School of Business, Columbia University. Other works include *JAPAN AND THE UNITED STATES TODAY: EXCHANGE RATES, MACROECONOMIC POLICIES AND FINANCIAL MARKET INNOVATIONS* (H. Patrick & T. Ryuichiro eds. 1987); *JAPANESE INDUSTRIALIZATION AND ITS SOCIAL CONSEQUENCES* (H. Patrick ed. 1976); *ASIA'S NEW GIANT: HOW THE JAPANESE ECONOMY WORKS* (H. Patrick & H. Rosovsky eds. 1976).

3. P. 9. Since World War II, Japan's industrial policy has often been ad hoc, neither carefully thought out nor well focused. During the postwar period, the goals of Japanese industrial policy have slowly evolved. Initially it was oriented toward the domestic market and favored heavy manufacturing and transportation industries. P. 9. During the 1960s, the government promoted the growth of energy-intensive industries that were subsequently rendered uncompetitive by the energy price increases of the 1970s. P. 18. Government attempts to restructure the

that while Japan's industrial policy has been somewhat beneficial for its economy, the effects have been vastly overrated.<sup>4</sup> After discussing the successes and failures of Japan's industrial policy, Patrick turns to Japan's current policy needs, which have changed significantly in the last fifteen years.<sup>5</sup> He concludes by discussing the relevance of Japanese industrial policy for the United States.<sup>6</sup> Patrick argues that as long as the multilateral exchange rate system<sup>7</sup> "is truly open, multilateral, freely operating, and based on the free flow of goods, services, and capital," it serves as a mechanism of adjustment that incorporates differences in economies and industrial and economic policies.<sup>8</sup> Thus, American policy should work to improve the exchange rate system in order to integrate the Japanese economy into the world economic system (p. 31).

The succeeding chapters provide in-depth descriptions of individual Japanese policies and examine the effects of those policies on various high technology industries. While a variety of topics, including education, government agencies, government procurement, and research financing, appears intermittently throughout the book, perhaps the most interesting discussions concern the following three phenomena: *gyosei-shidō* or "administrative guidance," the form of business combination known as *keiretsu*, and cooperative research ventures. The following paragraphs consider the authors' descriptions of each of these in turn.

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petroleum refining industry also failed, at a high social cost. P. 22. As late as the mid-1970s, there were few sectors in which Japanese research and development activities represented the leading edge of technology. P. 10. Remarkably, the automobile and consumer electronics industries received no special treatment from the government during their formative years, but succeeded on their own. P. 18.

4. P. 18. Not only have some supported industries failed while other, unsupported industries have become very successful, *see note 3 supra*, but some scholars view Japan's vigorous private sector as the principal cause of the country's economic growth. Patrick believes that industrial policy may have influenced Japan's economic growth, but probably was not the primary force behind it. Pp. 18-22.

5. P. 22. It is no longer possible for Japan to identify the important technologies of the future by observing the United States. Since Japan now stands at the frontier of technology in most sectors, its industrial policy must be increasingly innovative. In addition, Japan's place in the world economy has diminished its ability to use trade barriers to promote the growth of its high technology industries. P. 23.

6. *See* pp. 25-31. In each policy area, the United States may respond to Japanese policy by taking no action, seeking Japanese reform, emulating Japanese policy, or counteracting the effects of Japanese policy on American industries. P. 25. The effects of Japanese policy have increasingly been the subject of debate in the United States. P. 26. Patrick outlines the possible consequences of various American responses to Japanese policy. *See* pp. 27-31.

7. This is the system of floating currency exchange rates adopted by the major trading nations of the world since the breakdown of the Bretton Woods exchange rate system in 1973. *See* S. BLACK, *FLOATING EXCHANGE RATES AND NATIONAL ECONOMIC POLICY* 1 (1977).

8. P. 31. Patrick is not the first scholar to note that exchange rates provide the link between national economies and the world economy. *See, e.g.,* Bernstein, *The Economics of Fluctuating Exchange Rates*, in *EXCHANGE RATE FLEXIBILITY* 9 (J. Dreyer, G. Haberler & T. Willett eds. 1978). *See generally* *EXCHANGE RATE REGIMES AND POLICY INTERDEPENDENCE* (A. Hooke ed. 1983).

The Japanese Ministry of International Trade and Industry (MITI) and other government agencies may offer administrative guidance (informal guidelines without legal sanctions) to help specific industries with difficult problems. Administrative guidance is described in some detail in Daniel Okimoto's<sup>9</sup> essay and reappears at several points later in the book. Okimoto asserts that administrative guidance has proved quite valuable, since it permits MITI to tailor policies selectively to meet changing circumstances without undergoing the rigors of the political process (p. 77). While this technique gives a significant amount of power to MITI, the agency may not exercise it without limits.<sup>10</sup> In high technology industries, administrative guidance has most often been used to prevent price cutting abroad (p. 77) and to reduce the risks involved in rapid expansion of capacities (p. 183).

Okimoto also describes what is perhaps the most distinctive feature of Japanese business organization, the *keiretsu*. A *keiretsu* is a group of related companies held together by "close and enduring bonds that transcend ties of legal contract or short-term market considerations" (p. 58). Hitachi, Mitsubishi, Toshiba, and Toyota are examples of *keiretsu*.<sup>11</sup> *Keiretsu* are characterized by the presence of a dominant firm which organizes and partially finances the other associated companies,<sup>12</sup> "extensive intra-*keiretsu* stockholding" (p. 47), and frequent purchases of intermediate goods from other *keiretsu* members.<sup>13</sup> Okimoto argues that while *keiretsu* impose certain costs in terms of economic efficiency, those disadvantages are outweighed by the desirability of the information-sharing function of *keiretsu*, the horizontal linkages represented by *keiretsu*, and the risk diversification resulting from intercorporate stockholding and other financial ties (p. 47). Okimoto also examines the additional effects of extensive intercorporate stockholding, and concludes that the practice has relieved compa-

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9. Associate Professor of Political Science and Co-Director of the Northeast Asia-U.S. Forum on International Policy at Stanford University. Other works include *COMPETITIVE EDGE: THE SEMICONDUCTOR INDUSTRY IN THE U.S. AND JAPAN* (D. Okimoto, T. Sugano & F. Weinstein eds. 1984); *JAPAN'S ECONOMY: COPING WITH CHANGE IN THE INTERNATIONAL ENVIRONMENT* (D. Okimoto ed. 1982).

10. In a 1974 criminal action against oil refiners and distributors, the Tokyo High Court ruled that because of government involvement the corporate defendants committed no criminal offense by joining a price fixing cartel created through MITI administrative guidance. However, the court found that the cartel itself was illegal because MITI is bound by Japan's Petroleum Industry Law of 1972. Some limits, the court believed, had to be imposed on uses of administrative guidance. G. ALLEN, *THE JAPANESE ECONOMY* 42-43 (1981); see also p. 78.

11. P. 47; G. ALLEN, *supra* note 10, at 126.

12. G. ALLEN, *supra* note 10, at 126.

13. P. 85. Okimoto also identifies "heavy reliance on the main *keiretsu* bank for debt financing" as a characteristic of *keiretsu*. See p. 47. However, Professor Allen of the University of London suggests that while this was the common practice before World War II, increasing competition within the Japanese banking industry has since led *keiretsu* members to seek financing from outside banks. See G. ALLEN, *supra* note 10, at 126.

nies of concern for short-term profit maximization, allowing them to reinvest a larger share of their earnings, which in turn has accelerated growth (p. 48).

The essay by Kozo Yamamura<sup>14</sup> and, to a lesser extent, the essay by George Eads<sup>15</sup> and Richard Nelson<sup>16</sup> consider the antitrust implications of the cooperative research projects fostered by the Japanese government. During the 1950s and 1960s, various laws freed the large corporations in high technology industries from virtually all antitrust concerns (p. 183). Even without formal exemptions, all cooperative research projects seem outside the scope of the Japanese Antimonopoly Act.<sup>17</sup> Two particularly important cooperative research projects that have been completed are the super-high-performance computer project, which lasted from 1972 to 1976, and the VLSI (very large scale integration) project, undertaken between 1976 and 1979 (pp. 185, 252). Both of these projects involved extensive cooperation by such corporate giants as Fujitsu, Hitachi, NEC, and Toshiba (p. 188). In all, MITI has led several dozen cooperative projects (pp. 185-93). Over thirty national projects are presently in progress.<sup>18</sup> MITI not only tolerates cooperative research, but occasionally uses its influence to coerce companies into participation (p. 252). Eads and Nelson suggest that MITI does so because most cooperative research projects are of a sufficiently large scope that single companies would be unwilling or unable to undertake them and because cooperative research is a highly efficient way of using resources (pp. 253-54).

Yamamura provides a brief overview of several key sections of the Japanese Antimonopoly Act.<sup>19</sup> The Act created the Fair Trade Commission (FTC), which has certain limited powers to control monopolies.<sup>20</sup> Even if the FTC establishes that a monopoly exists, which is by

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14. Professor in the Jackson School of International Studies, University of Washington. Other works include *POLICY AND TRADE ISSUES OF THE JAPANESE ECONOMY: AMERICAN AND JAPANESE PERSPECTIVES* (K. Yamamura ed. 1982); S. HANLEY & K. YAMAMURA, *ECONOMIC AND DEMOGRAPHIC CHANGE IN PREINDUSTRIAL JAPAN* (1977); K. YAMAMURA, *ECONOMIC POLICY IN POSTWAR JAPAN* (1967).

15. Dean of the School of Public Affairs at the University of Maryland. Other works include G. EADS, *RELIEF OR REFORM: REAGAN'S REGULATORY DILEMMA* (1984).

16. Elizabeth S. and A. Varick Stout Professor of Social Sciences in the Department of Economics, Yale University. Other works include R. NELSON, *HIGH-TECHNOLOGY POLICIES: A FIVE-NATION COMPARISON* (1984); *GOVERNMENT AND TECHNICAL PROGRESS: A CROSS-INDUSTRY ANALYSIS* (R. Nelson ed. 1982); R. NELSON, T. SCHULTZ & R. SLIGHTON, *STRUCTURAL CHANGE IN A DEVELOPING ECONOMY* (1971).

17. P. 252. For additional information on the Antimonopoly Act, see notes 19-22 *infra* and accompanying text.

18. S. TATSUNO, *THE TECHNOLIS STRATEGY* 36 (1986).

19. Act Concerning Prohibition of Private Monopoly and Maintenance of Fair Trade, Law No. 54 of 1947, as amended in 1982. For the full text of the Act in English, see H. IYORI & A. UESUGI, *THE ANTIMONOPOLY LAWS OF JAPAN* 213-64 (1983). Yamamura's overview may be found at pp. 194-95.

20. The FTC may only prosecute a "monopolistic situation" when an industry's annual sales exceed fifty billion yen, one company's share of the market exceeds 50% or the shares of the

no means easy, and overcomes the political challenge sure to be mounted by MITI, the FTC can not act if such action would "cause a loss of international competitiveness" (p. 196). Thus it is perhaps not surprising that, although there is an inherent tension between patent protection and antitrust laws,<sup>21</sup> the Antimonopoly Act has only rarely been used against large holders of patents. Only four Japanese cases involve conflicts between patent law and the Antimonopoly Act (p. 197).

*Japan's High Technology Industries* was intended to provide an objective analysis and evaluation of Japanese high technology industrial policy. In actuality it is largely descriptive of Japanese high technology industries and government policy toward them, although it does carefully examine the success or failure of certain policies. Many of the essays compare Japanese and American industries and industrial policy; two also draw comparisons with Europe. Although there is an extensive literature on the subject of Japanese industrial policy, the number of works emphasizing international comparison is fairly small. The number of works devoted strictly to high technology industries is smaller still. The book's strength is its contribution to this area of study.

This book is of practical value to only a small portion of the legal community. Those concerned with trade with Japan may find that the book contains some helpful information on the structure of the economy and of various industries. Similarly, those interested in the comparison of American and Japanese law, particularly in the antitrust field, may find that certain sections of this book provide a general introduction to the subject. The primary audience for *Japan's High Technology Industries* consists of observers of Japanese industrial pol-

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largest two exceed 75%, entry into the industry is extremely difficult, changes in price over time are extremely large or small vis-à-vis supply and demand fluctuations, profits or expenses of the companies in question are excessive, and the FTC has notified the ministry having jurisdiction over the industry (often MITI) and conducted a public hearing. P. 196. No private plaintiff has ever successfully brought an antitrust suit in Japan. P. 253.

21. Patents provide a limited monopoly over the exploitation of some inventions, while antitrust laws promote competition. The conflict between the rights afforded by letters patent and antitrust laws is an old one. In the first reported case addressing the issue, Chief Justice Popham wrote,

[S]uch charter of a monopoly, against the freedom of trade and traffic, is against divers acts of Parliament, . . . notwithstanding any charter of franchise granted to the contrary, or usage, or custom, or judgment given upon such charters, which charters are adjudged by the same Parliament to be of no force or effect, and made to the derogation of the Prelates, Earls, Barons, and grandesees of the realm, and to the oppression of the commons.

*Darcy v. Allein*, 11 Coke 84b, 87b-88a, 77 Eng. Rep. 1260, 1265 (K.B. 1602). Many American courts have been asked to resolve the tension between the patent law and the Sherman Act. See, e.g., *United States v. Studiengesellschaft Kohle*, 670 F.2d 1122, 1127 (D.C. Cir. 1981) ("[T]here has been a stream of litigation down through the years flowing from the conflict between the monopoly rights created by the patent laws on one hand and the national policy favoring competition expressed in the antitrust laws on the other."). For a more detailed discussion of this conflict, see Annotation, *Bringing of Patent Infringement Suits as Violation of §§ 1 and 2 of Sherman Act* (15 USCS §§ 1, 2), 62 A.L.R. FED. 203 (1983).

icy; even armchair observers should find the book both accessible and interesting. It may well lay the groundwork for further discussion of high technology industrial policy within that community.

— *Steven R. Englund*