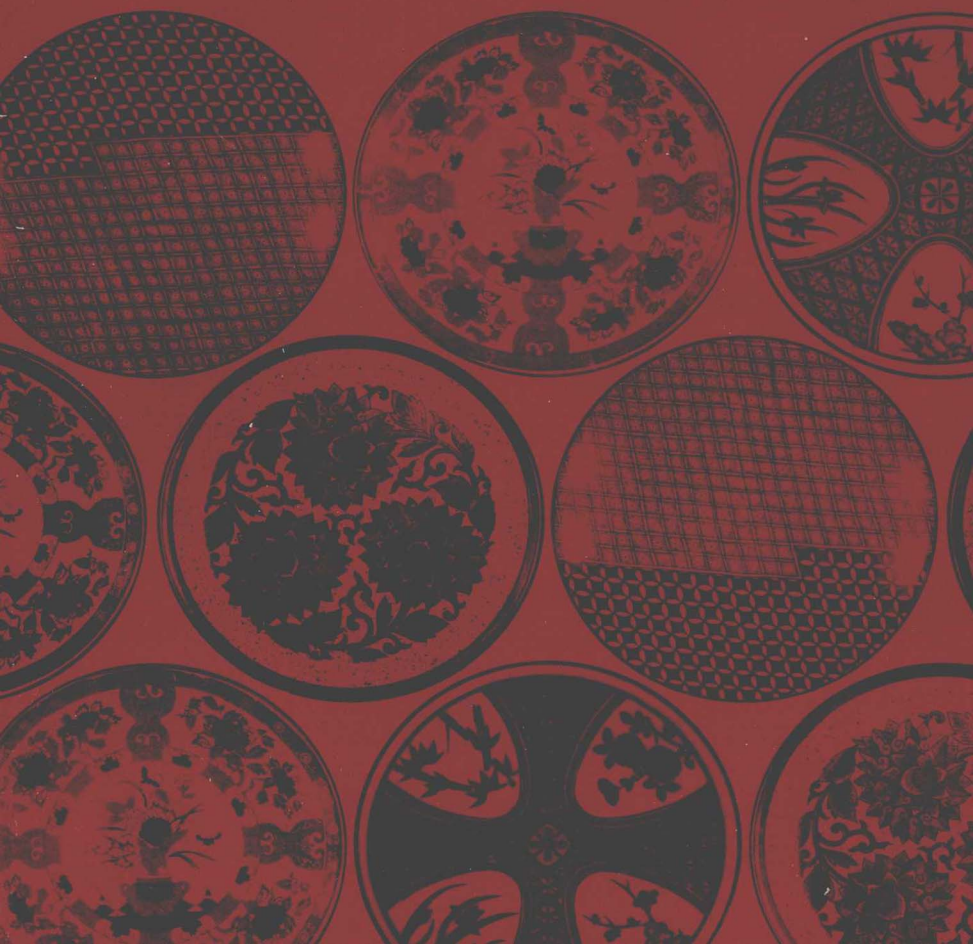


Human Resources in Japanese Industrial Development

*by Solomon B. Levine and
Hisashi Kawada*



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Preface

THIS monograph deals with the process through which Japan generated human skills and talents required by modern economic activities since the beginning of Japanese industrialization more than a century ago. Because of the vast scope and complexity of the process, the authors decided to focus primarily on institutions established or utilized in major large-scale modern industries that have been leading sectors in Japan's achievement to become the second largest national economy of the world. We have examined these institutions against the background of Japan's overall economic and educational development. However, many other areas of the Japanese industrializing experience deserve treatment that we were unable to include in this study. In narrowing the scope of this work, we wished to concentrate on those large-scale industries that appear to represent the greatest departures and challenges for an agrarian society, such as Japan was in the 1870s, in developing human resources for industrialization. The reader will recognize that this is not the entire story and that a full analysis would include still other large-scale modern industries as well as agriculture and small-scale industrial and commercial sectors.

We have not gone deeply into the problems of human resource development that confront Japan at the present time. Rather, our chief concern was to present the historical context in which present-day problems have emerged. This is not to deny the importance of the latter, but it was our belief that an in-depth history of the institutions for generating industrial skills and talents is crucial to understanding the present situation.

We began this study about fifteen years ago as part of our ongoing joint work in analyzing the development of the Japanese

industrial relations system in the post-World War II period. The opportunity to focus on the historical process of industrial skill generation was facilitated by assistance from the Inter-University Study of Labor Problems in Economic Development, which about that time was redesignated the Inter-University Study of Human Resources in National Development. We are most grateful for the guidance provided by the members of that project, which had embarked upon a wide variety of parallel and complementary studies in this field throughout the world. The help of the Inter-University Study permitted several collaborative research efforts for extended periods by the authors in Japan and the United States.

Similarly, we wish to express our gratitude to the Industrial Relations Exchange and Research Program conducted jointly by the Institute of Labor and Management Studies of Keio University in Tokyo and the Institute of Labor and Industrial Relations of the University of Illinois at Urbana-Champaign, under a generous grant from the Ford Foundation. The authors shared major responsibility for implementation of that program, including gathering and analyzing widely scattered materials for the present study, and in this connection are greatly indebted for the colleagueship of the late Professor Keizo Fujibayashi and Professor Bernard Karsh.

We wish particularly to thank various participants in the Keio-Illinois program for their assistance in preparing data for this work. They include Tsuneo Hasegawa, Dominick Horvath, Toshiaki Izeki, Chieko Kanno, Ryuji Komatsu, Yoshio Kunieda, Elizabeth J. Levine, Akira Matsumura, Chiyo Matsuura, Yoshihiro Mizuno, Yasumitsu Nihei, Ken Sakurai, Yoko Sano, Haruo Shimada, Kunio Shimada, Ari Uchida, and Masu Uekusa. We are especially indebted to Professor Charles A. Myers for his helpful comments on the drafts of the manuscript and his cheerful encouragement and enduring patience over the long period during which this study was in preparation. Also, we are grateful for val-

uable comments from Professors Frederick H. Harbison, Clark Kerr, and John T. Dunlop, as the other members of the Inter-University Study, and from Professors Haruo Shimada and Mikio Sumiya, who took time to review the manuscript. One of our greatest debts is to Catherine Ganshert, who labored over the typing and retyping of successive drafts of the study, with its enormous difficulties of Japanese names, places, and terms. In the text and footnote references to works in Japanese, we have followed the standard practices of citing names in Japanese order with surname first, italicizing Japanese terms, and using macrons to indicate long vowels except in familiar names and place names.

We dedicate this book to the memory of the late Frederick H. Harbison, whose leadership in the field of labor and human resources studies has been truly inspirational.

SOLOMON B. LEVINE

HISASHI KAWADA

April 23, 1979

Regrettably, Professor Kawada passed away while our study was being prepared for publication. It is my great privilege to have been so closely associated for more than 25 years with this wise, talented, and independent-minded individual. Professor Kawada was devoted to his many students and colleagues at home and abroad; and, with Mrs. Kawada, he spent his life promoting friendship among the peoples of this world.

S.B.L.

July 15, 1979

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Human Resources in Japanese Industrial Development

I.

Human Resources in Modern Economic Development

THIS study deals with institutions—in particular, educational and training institutions that generate the human resources required by modern economic enterprises. The study focuses on how these institutions emerged and evolved in Japan since that country began its transformation from a traditional agrarian society in the mid-nineteenth century to an advanced industrialized nation during the first half of the twentieth century. It fills a gap in the knowledge about the process by which an economically less developed country begins and sustains modern economic growth. Only in recent years has there been systematic treatment of the elements involved in such growth. Especially confounding is that part of the process whereby developing nations foster the human skills, knowledge, and abilities for launching and elaborating the new industrial undertakings.

The Japanese case is especially relevant for the insights to be gained not only because of Japan's unusually high rate of economic growth in recent years but also because Japan has been the only nation outside the Western world that succeeded in achieving a steady self-sustaining transformation beginning at least a hundred years ago.¹ Japan's modern economic development over

¹ Much has been written on various aspects of Japan's experience with economic growth. See in English the following studies: Marius B. Jansen, ed., *Changing Japanese Attitudes toward Modernization*, 1965; William W. Lockwood, ed., *The State and Economic Enterprise in Japan*, 1965; R. P. Dore, ed., *Aspects of Social Change in Modern Japan*, 1967; Robert B. Ward, ed., *Political Development in Modern Japan*, 1968; Donald Shively, ed., *Tradition and*

this period provides one of the most dramatic examples of human resource generation demanded by the process.

In general, the modernization of a "backward" economy requires increased proliferation, employment, and organization of previously unlearned and often highly sophisticated manual and mental skills throughout a developing nation's population in order to operate complex technologies and to staff large-scale enterprises efficiently. Acquisition of such skills depends upon a "strategy," conscious or unplanned, for tapping, changing, and enlarging the capacities of the nation's people and imparting to growing numbers of the population those types of knowledge of which there is little or no awareness or use within the society in the pre-modern era. Skill, capacity, and applied knowledge are the outputs sought in this strategy. Indeed, as others have pointed out:

In the final analysis, the wealth of a country is based upon its power to develop and effectively utilize the innate capacities of its people. The economic development of nations, therefore, is ultimately the result of human effort. It takes skilled human agents to discover and exploit natural resources, to mobilize capital, to develop technology, to produce goods, to carry on trade, and to structure effective organizations for these purposes. Indeed, if a country is unable to develop its human resources, it cannot build anything else, whether it be a modern political system, a sense of national unity, or a prosperous country.²

Modernization in Japanese Culture, 1971 (all Princeton: Princeton University Press). See, also, Kazushi Ohkawa and Henry Rosovsky, *Japanese Economic Growth: Trend Acceleration in the Twentieth Century* (Palo Alto: Stanford University Press, 1971); and Hugh Patrick, ed., with the assistance of Larry Meissner, *Japanese Industrialization and Its Social Consequences* (Berkeley: University of California Press, 1976).

² Frederick H. Harbison and Charles A. Myers, *Manpower and Education: Country Studies in Economic Development* (New York: McGraw-Hill Book Co., 1965), p. ix. See also Frederick H. Harbison, *Human Resources as the Wealth of Nations* (New York: Oxford University Press, 1973).

Ample evidence now exists demonstrating the economic contribution of formally organized schooling (presumably transmitted into new capacities, knowledge, and skills that are put to use in modern productive processes) to the growth of economies.³ Although it has proved difficult to measure precisely this contribution, either to the individual or society at large, there is little doubt of its eventual importance as a major source of increased national income in virtually every country that has developed a modern economy. For example, in the last three or four decades in the United States, additional investment in formal education alone is believed to have accounted for at least one-fifth of the rise in national income during that period. Over roughly the same time span, the contribution in Japan is calculated at about 25 percent.⁴ If one could take account also of all the nonformal and informal ways in which new knowledge and skills are acquired and utilized and estimate their economic costs and benefits to society, in all likelihood the contribution of such human resource development would be even greater.

The relationship between education and economic growth no doubt deserves careful measurement. While education alone, even though necessary, is probably not a sufficient condition for growth, it may be "a more realistic and reliable indicator of modernization or development than any other single measurement."⁵ Education, whether formal or not, certainly warrants as careful

³ See, for example, Theodore W. Schultz, *The Economic Value of Education* (New York: Columbia University Press, 1963), especially its "Selected Bibliography," pp. 71-89; and Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, 2nd ed. (New York: Columbia University Press, 1975). For a critical review of the evidence, see Mark Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *The Journal of Economic Literature*, Vol. XIV, No. 3, September 1976, pp. 827-856.

⁴ Ministry of Education, Government of Japan, *Japan's Growth and Education* (Tokyo, July 1963), pp. 143-148.

⁵ Frederick Harbison and Charles A. Myers, *Education, Manpower, and Economic Growth: Strategies of Human Resource Development* (New York: McGraw-Hill Book Co., 1964), p. 14.

scrutiny as that given to material capital formation, population and labor supply, physical resources, structural change in the economy, industrial organization, international trade, monetary and fiscal management, consumption and savings, mobility of labor and capital, utilization of modern science and technology, and similar aspects that have been customarily dealt with in analyzing the processes of modern economic growth. This is not to claim that the sole function of educational and training institutions—in Japan or elsewhere—has been economic; education undoubtedly makes its contribution in the spheres of cultural, social, and political development as well.

“Strategy” in Human Resource Development

The process of modern economic development has required in all known cases the lifting of a nation's stocks of human resources from “lower” to “higher” levels as measured by the amount and types of education and training obtained by the population. What is not clearly understood is how an industrializing nation moves from the lower to higher levels. In general, however, a strategy usually involves a sequence of choices, although often difficult to identify and unconsciously determined. The choices in human resource development may be categorized among a number of dimensions: levels of education, duration of each level, quantities of enrollment at each level, quality of instruction and learning content, stress on subject matter (science, engineering, law, social sciences, arts, humanities, professional, technical, etc.), formal, nonformal, and informal programs, public and private auspices, rewards and penalties for obtaining schooling and applying learning and skills, and so forth.⁶ Such an array of dimensions permits a wide variety of choices in the course of economic modernization; that is, strategies need not be uniform for all countries. Moreover, any given strategy adopted by a country at one

⁶ *Ibid.*, pp. 173-174.

time may be altered over time. What is not known with any degree of certainty is whether modern economic growth is compatible with just a few or a much larger number of strategic approaches.

In our view, to focus on the choices made for human resource strategy requires more than a quantitative analysis of the enrollments in, expenditures on, and other measures of the size and output of the various types of education and schooling that come into existence in the process of modern economic growth.⁷ It also calls for examining the nature of educational and training institutions—their objectives, organization, administration, and relationships to one another. Study of human resource strategy thus embraces dimensions that are best understood by probing the history of the institutions that are created and evolve. This study, therefore, emphasizes the qualitative rather than quantitative aspects from the historical point of view of determining how educational and training institutions became established and underwent change during the 100 years of Japan's industrialization.

Japan's Human Resource Strategy: Universal or Unique?

Recent studies have begun to clarify the historical development of formal education in the emergence of industrialized Japan.⁸ As in other economically advanced nations, Japan's formal

⁷ This is not to imply that we already know all that is to be quantitatively measured about human resources. See, especially, Frederick H. Harbison, Joan Maruhnic, and Jane Resnick, *Quantitative Analyses of Modernization and Development* (Princeton: Princeton University, Industrial Relations Section, 1970); and Charles N. Myers, *Education and National Development in Mexico* (Princeton: Princeton University, Industrial Relations Section, 1965), which analyzes regional differences in human resource development within one country rather than focusing on the national aggregate.

⁸ For recent English language studies, see Ronald P. Dore, *Education in Tokugawa Japan* (Berkeley: University of California Press, 1965); Herbert Passin, *Society and Education in Japan* (New York: Columbia University, 1965); Ronald S. Anderson, *Japan: Three Epochs of Modern Education* (Washington, D.C.: