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## *Human Capital Accumulation in Premodern Rural Japan*

J. I. NAKAMURA

Premodern human capital accumulation helps to explain the exceptional growth performance of the Japanese economy in the last hundred years. Prior to this century informal institutions were more important for human capital formation than were the more formal ones familiar today. This paper examines a few seminal changes—national market formation, population control, and the involvement of farmers in rural administration—that were primarily responsible for the emergence of economically responsive, more productive individuals in rural Japan.

**H**ISTORIANS, from the time that they began to ply their trade, have tended to feature the human factor as the central and critical instrument for the achievement of progress and the betterment of life.<sup>1</sup>

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<sup>1</sup> It is also true that man was the overwhelmingly important factor of production in premodern times. Land resources were still of limited importance because the technology required for their use remained at low levels, and capital was both primitive and limited in supply. The human factor of production also was primitive in nature; that is, human capital at that time remained shallow indeed, relative to what it is today.

Since the 1950s economists have defined and particularized this resource for their purposes, and they have emerged with a concept of human capital that has proved exceptionally useful in economic analysis. The paramount importance of human capital in the attainment of economic modernization and sustained economic growth is now openly and generally recognized;<sup>2</sup> in the past, however, its role was not always given its full due. Particularly in the period immediately following World War II, prominence was given to other factors such as the resource base, savings and investment, and technological change. The shift in emphasis to human capital is primarily due to the postwar experience of the less developed countries, where critical shortages have tended to exist in human, rather than physical, capital.<sup>3</sup>

On at least two occasions in Japanese history the failure to consider the role of the human factor has led to gross miscalculation of the country's economic performance. Immediately after World War II, economists citing the lack of basic resources and the serious shortage of capital predicted that Japan was doomed to low per capita income levels. Its postwar economic growth, which confounded these expectations, was chiefly due to the remarkable capability of the human factor.

Another instance of serious foreign miscalculation of the nation's economic potential occurred in the years soon after the Meiji government took effective control in 1868. Foreign writers who examined this non-Western country, whose social structure apparently differed from that of the developed nations, generally assumed or predicted the same economic stagnation for Japan as typified other non-Western nations of the time. And in comparing Japan with China, observers were far more optimistic about the latter's possibilities for growth. Why were these foreign observers unable to predict what did take place? The reason was that they were almost totally unaware of the human resource development that had taken place during the Tokugawa period (1600–1868) and earlier. What impressed them instead were those human elements in the country that were most conspicuous but least significant for economic development. Foreign observers were familiar with a Japan of effete urbanites and sword-wielding samurai with a penchant for cutting down bystanders, including Westerners. Thus it is hardly surprising that Japan was not seen as a prime prospect for Western-type development.<sup>4</sup>

<sup>2</sup> See for example Jacob Mincer, "Human Capital and Economic Growth" (paper presented to the conference on "Issues in Economic Development," Mexico City, Nov. 1980), pp. 1–27. The importance of human capital has long been espoused by Theodore W. Schultz. See his presidential address delivered at the 83rd annual meeting of the American Economic Association, St. Louis, Mo., Dec. 28, 1960 (rptd. in T. W. Schultz, *Investment in Human Capital* [New York, 1971], pp. 24–47).

<sup>3</sup> Mincer, "Human Capital," p. 14.

<sup>4</sup> Interestingly, at that time when Japan had only recently emerged from a seclusion of over 200 years during which only minimal contact was maintained with the rest of the world, the Japanese were highly optimistic about their capabilities. They believed that they could indeed achieve economic and military parity with the West within a foreseeable future. This is evident in a 10-year economic plan published in 1884. Yoshiko Kido, "Kogyo Iken and Its Production Targets," Master's essay (Columbia Univ., 1970).

The achievement of sustained growth by the end of the nineteenth century—an accomplishment not duplicated by any other non-Western nation until after World War II—has been attributed to a variety of factors too many and complex to note here. Along with many Japanese and Western scholars, I believe that two factors were of critical importance. They are (1) the presence of a remarkably flexible and economically responsive human factor developed even before the Tokugawa period, and (2) the introduction of the Western model of the capitalist market economy in the early 1870s for the achievement of national wealth (and military strength). The people had become familiar with the operation of the market and the social organization and responsibilities associated with it—that is, had become a remarkably urbanized population—and had an enormous appetite for the goods and services provided by it. Further market development was impeded by a proliferation of anachronistic social and economic restrictions. These constraints were the surviving elements of a disintegrating feudal structure and the mores of the time. What was needed to free the Japanese from their feudal fetters and thus enable them to respond to the economic opportunities at hand was the liberal economic philosophy introduced with the capitalist market economy.

This advanced economic performance not only was evident among Japan's political and economic elites, but was shared by the plebeian members of the society including farmers and *petit bourgeoisie*. William W. Lockwood directed attention to the enterprising spirit of "myriads of small, unknown entrepreneurs . . . and still larger numbers of humble workers who provided the growing pool of modern technological skills."<sup>5</sup> Thomas C. Smith's classic study of Tokugawa agrarian change is in an important aspect the story of the growing response of farmers to economic opportunity.<sup>6</sup> E. Sidney Crawcour wrote of the "responsiveness of the traditional economy" in his study of the Tokugawa legacy.<sup>7</sup> Many others, particularly Kozo Yamamura, have since expressed similar sentiments. What was either explicitly or implicitly stated in these studies was the idea that the foundation for the development of the people's productive potential was laid during the Tokugawa period.

Human capital may be broadly identified as labor skills, managerial skills, and entrepreneurial and innovative abilities—plus such physical attributes as health and strength. Today human capacities are believed to be "in large part acquired or developed through informal or formal education at home and at school, and through training, experience and mobility in the labor market."<sup>8</sup>

In the premodern period human capital formation was primarily an accumulation of learning by doing. Formal schooling appeared only as the

<sup>5</sup> W. W. Lockwood, *The Economic Development of Japan* (Princeton, 1954), p. 578.

<sup>6</sup> Thomas C. Smith, *Agrarian Origins of Modern Japan* (Stanford, 1959).

<sup>7</sup> E. Sidney Crawcour, "The Tokugawa Legacy," in W. W. Lockwood, ed., *The State and Economic Enterprise in Japan* (Princeton, 1965), p. 33.

<sup>8</sup> Mincer, "Human Capital," p. 3.

needs of a developing socioeconomic system demanded it. In most sophisticated premodern societies the drive for formal schooling was induced at a relatively early stage of development by the social and political need for literate people. But formal education to increase productivity in material production is a latecomer on the scene. When production was limited to relatively crude agricultural and handicraft commodities and labor was the primary input (other than land), learning on the job was regarded as all that was necessary for good performance.

More formal apprenticeship systems were required in more developed, more affluent premodern societies where production of a variety of quality goods had become the norm. Formal schooling for human capital formation became necessary when markets came into existence and the need arose to keep accounts and records, to read instructions on how better to conduct one's business (including farming), and to communicate and trade at a distance rather than by face-to-face contact.

During the Tokugawa period apprenticeship and schooling became necessary preparations for a host of commoners who engaged in the production of quality goods. The diffusion of schools for commoners (*terakoya*), particularly their accelerated growth during the second half of the period, has been discussed by Ronald P. Dore in *Education in Tokugawa Japan* (1965) and Herbert Passin in *Society and Education in Japan* (1965). Formal education—that is, learning to read, write, and calculate—played an important role in the commoner human capital formation that took place during the period.

This paper, however, examines institutions that formed the less formal bases of human capital accumulation in the rural domains during the Tokugawa period and earlier and laid the groundwork for both the demand for schooling and apprenticeship and the increasing growth of that demand during the latter half of the period. The paper focuses on the role played in human capital accumulation by the urbanization of rural Japan, concomitant market formation, extension of the market throughout the nation, and the rise in the standard of living, which increased the economic choices available to rural people. All of this in turn induced the remarkable propagation of literacy in the second half of the period, as has been shown by Dore and Passin. The present paper also discusses the growing social consciousness of farmers, a form of human development that plays a positive role in economic performance and that as such may be subsumed under human capital.

Human capital formation among rural people has not received the attention it merits. Indeed, its absence has been given much greater heed. Rural people constitute the vast share of the population in any premodern society. If the institutions and behavior patterns that typically exist among a modern people have incipient forms in a premodern country, then that country is better prepared for modernization. It is in the rural areas that these institutions and behavior patterns are less apt to be present, and it is

there that many of the more intractable problems of economic development arise. If, indeed, human capital formation does take place in rural areas, then the great mass of a nation's people are correspondingly more prepared for economic development, and growth would be much more likely to take place.

No attempt will be made to treat exhaustively human capital formation in Tokugawa Japan. For example, this paper will not deal with the samurai class or the citizens of the three principal cities, Edo, Kyoto, and Osaka—groups that have received much more attention than farmers. The principal aim is to show the effects of several institutions that played crucially important roles in *rural* human development. They will be examined under three general headings: (1) the development of rural market consciousness; (2) population control and its implications; and (3) the involvement of farmers in rural administration.

I would like to note here two political realities of the Tokugawa period that provided a helpful environment for rural human development. First, each of the many domains had a substantial degree of autonomy in fiscal and economic policy formation. Second, rural villages were expected to resolve civil problems and disputes without appealing to higher authority unless such problems involved other jurisdictions.<sup>9</sup>

#### DEVELOPMENT OF RURAL MARKET CONSCIOUSNESS

By rural market consciousness I refer to the farmer's active participation in the market because of his awareness of demand for his produce and services beyond those appropriated by his lord, consciousness of his own need for goods and services that he could not himself supply, and knowledge of a demand for his labor services in the private sector outside of agriculture. Postwar studies of the growth of rural trade during the Tokugawa period have made it clear that by the Genroku era (1688–1704), the farmer's consumption level had risen substantially and continued to rise, albeit slowly, to the end of the period.

Unlike non-European countries that failed to achieve modern economic growth, Japan quickly adopted the capitalist market economy of the West upon emergence from seclusion. Japan's success in implementing a market economy showed that the Japanese were familiar with the main features of the system. About a century before the Tokugawa shogunate there began to emerge various institutions that would familiarize more and more people with the market and its operations. This section will be devoted to the effect of several institutions in developing market consciousness.

Let us go back to the period of the warring states (Sengoku period, 1477–1558) and the birth of new castle towns, which were much bigger

<sup>9</sup> Dan F. Henderson, *Village "Contracts" in Tokugawa Japan* (Seattle and London, 1975), pp. 7–11.

than those of the past. During this period the decline of the Ashikaga shogunate and the increase of productivity on farms and in shops made possible the release and use of resources for war on an unprecedented scale. This activity led to the consolidation of territories under the Sengoku daimyo, and ultimately to the assembly of vassals in the castle town of the daimyo as a safeguard against their rebelling against him. The requirement for vassals to abandon their own castles and live in the domain lord's castle town was the prototype of that remarkable institution, the alternate attendance system (*sankin kotai seido*), which the Tokugawa shogunate formalized in 1635.

The mid-sixteenth-century arrival in Japan of the arquebus and cannon led to further enlargement of castle towns due to the changes they wrought in war tactics. The arquebus enforced group military training because tactically it required fighting in formation.<sup>10</sup> This further necessitated the stationing of all vassals and samurai in the castle town. From around 1580 to 1610, a thirty-year period, some twenty-five of the famous castle towns of the Tokugawa period were constructed.<sup>11</sup> An economically important characteristic of these towns was their location in a broad plain in order to facilitate supply of their basic agricultural needs.

The increase in population and the location of many castle towns in the middle of large, economically productive areas had important economic significance. The collection of the principal members of the feudal system's ruling elite into a single town in the domain caused the inflow and/or quick emergence of large numbers of artisans, merchants, and servants, who were required to serve the needs of these most affluent members of the domain. Some of the newly emergent townspeople were farmers attracted to the town when guilds and other associations restricting entry into crafts and commerce were abolished. But much more important for the bulk of farmers in the domain was the inevitable growth of specialization that accompanies the need to supply a large, nearby market. Moreover, a growing market inexorably increases the range of crops and goods demanded. Thus farmers, at one time largely subsistence peasants who were required to turn over to their lord a certain proportion of their limited number of crops, now became increasingly subject to the laws of the market and comparative advantage. Those farmers living near the market would tend to specialize in the production of perishables, primarily vegetables, which could be hauled to the market daily. In villages situated at a greater distance from the town, more durable staples or cash crops that could bear transportation of longer duration would have to be grown.

Depending on latitude, altitude, terrain, soil, availability of water, and

<sup>10</sup> Delmer M. Brown, "Impact of Firearms on Japanese Warfare, 1543-98," *Far Eastern Quarterly*, 7 (May 1948), 244-47.

<sup>11</sup> John W. Hall, "The Castle Town and Japan's Modern Urbanization," *Far Eastern Quarterly*, 15 (Nov. 1955), 44.

other conditions, each village—and more accurately each farm—would have comparative advantage in the production of some crops over others. The emergence of a nearby market increased the choice of crops the farmer could produce. In the southern part of the country, where multiple cropping was becoming the norm, choice of crops was extended even further. In addition, income depended on how long and intensively the farmer worked, and how well he allotted the time of working members of his family to the variety of tasks in which they could be productive.

The emergence of a castle town of the sort described here stimulated creative responses on the part of the farmer. He had to gauge the productive potential of his land for a variety of crops, and he was forced to assess market conditions for his crops and to plan accordingly. His exposure to the market itself made him subject to the effects of city consumption, which affected his own consumption patterns. The market, which provided the farmer with cash income from crop sale, likewise provided products for his purchase. He also found that his family labor had value in the castle town and in other urban areas and that he could maximize family income by placing some part of his family labor in such labor markets. This rise in consciousness was a part of the process of the urbanization of rural Japan.

In the latter half of the Tokugawa period, the population of Osaka, Kyoto, and most major castle towns declined, while the population of rural villages near these cities grew.<sup>12</sup> Essentially this change reflected a migration of the processing of agricultural commodities (oil pressing, cotton ginning, weaving, sake-brewing, and so on) and associated trade activities to the rural areas where the raw materials, labor, and even capital were available, usually at lower prices. Two developments were primarily responsible for this migration: the high cost of doing business in the cities and the growing shortage of labor, particularly in more developed parts of the country. In addition to higher wages, rent, and other costs, doing business in cities required payment of high guild membership fees and heavy forced contributions (*myoga-kin*) to city authorities, because by this time guilds had returned. Labor shortages occurred because farmers, with their greater incomes, had become less inclined to migrate to cities for temporary work, and business found it less costly to do business outside the cities, particularly where small-scale farmers, who would seek non-agricultural employment to supplement their farm income, were available.

This movement of business to the rural villages surrounding cities meant the movement to those areas of much of the urban environment, namely, labor markets, manufacturing, wholesaling, retailing, transportation, and the like. Farmers became increasingly familiar with the practices

<sup>12</sup> Thomas C. Smith, "Premodern Economic Growth: Japan and the West," *Past and Present*, 60 (Aug. 1973), 129–31.

and needs of a growing economic system. One important consequence of this flow of business to the countryside was the opportunity presented for rural landowners to engage in challenging and lucrative entrepreneurial activities. There came into existence a new group less bound by traditional practices such as guild membership, close ties with domain authorities, and the monopolistic business practices hamstringing businessmen in the castle towns and in Edo, Osaka, and Kyoto. In time these new enterprises were to become a merchant contingent supporting the overthrow of the Tokugawa regime. A second, perhaps more important effect of the emergence of processing and trading activities in the rural areas was the creation of a labor force inured to long hours of disciplined work. The availability of new goods and services raised the demand of rural folk for these new sources of satisfaction and caused them to work longer hours, not only on their farms and in their homes producing the products of cottage industries, but also in shops and manufacturing plants springing up in new towns.<sup>13</sup>

Now let us examine the impact of the alternate attendance system (*sankin kotai seido*) on the rural village and on the farmer. This institution profoundly affected economic policy and conditions within the domain. I shall examine this change from the following perspectives: (1) the effect of the extremely high costs incurred by the domain in maintaining this system; (2) the need to earn "foreign exchange" to cover these costs; and (3) the impact of the demonstration effect on both consumption and production in the domain.

The alternate attendance system, a security measure to deter rebellion, required that most daimyo and their retinues reside one out of every two years in Edo.<sup>14</sup> The daimyo's wife and children with their retinue remained permanently in Edo as hostages of the shogunate. Expenditures for travel to and residence in Edo were the responsibility of the domain, and both were extremely costly. The trip was an occasion for conspicuous display by the daimyo, a self-imposed extravagance. Conspicuous consumption also characterized the living style in Edo, but the fact that it was a huge and rapidly growing city also made its cost of living extraordinarily high. Thus although only a small fraction of domain samurai made the trip to Edo, the cost of the trip and of residence in the appointed year required more than half of a domain's annual revenue.<sup>15</sup>

The alternate attendance expenditures necessarily had to be made outside the domain itself. This meant that ordinary barter transactions were inadequate; a convenient medium of exchange had to be used. Over most of the country rice served this purpose well into the Tokugawa period, but

<sup>13</sup> Smith, *Agrarian Origins*, pp. 128-31.

<sup>14</sup> There are some exceptions to this rule. For a good historical study of the system see Toshio G. Tsukahira, *Feudal Control in Tokugawa Japan: Sankin Kotai System* (Cambridge, Mass., 1956).

<sup>15</sup> *Ibid.*, pp. 96-102. The shogunate was aware that these costs served its purposes by reducing the economic capability of the feudal lords to rise against it. (See also pp. 20-21, 35.)

increasing commercialization required a more easily portable money. Moreover, the money had to be acceptable forms of commodity money—gold, silver, and copper—and early in the period these forms were the chief universal medium of exchange. Although paper currency in various forms became available later, it was not acceptable everywhere. Most domains had to earn money acceptable in Edo and Osaka, and this could only be done by the shipment of goods and services to the markets in Osaka and Edo and to a limited extent to other domains with shortages. Essentially, then, domains were required to earn an enormous amount of “foreign exchange” to pay for their alternate attendance expenditures.

To meet this heavy burden, the various daimyo and the shogunate itself were forced to take measures to increase agricultural production early in the Tokugawa period. These included projects to reclaim undeveloped land, to convert upland fields to paddy fields, and to increase the availability of water for irrigation. Much stress was placed on increasing rice production because this commodity shipped well, was more durable than most agricultural produce, and demand for it grew rapidly owing to population increases, especially among the urban population, and the rise in per capita income. It was during this period that farmers turned their attention more and more to raising land and labor productivity to expand output. Among other things, use of commercial fertilizers increased, new and better seeds were introduced, better implements were developed, and multiple cropping became more widespread. Farmers were responding in new ways to changing economic conditions.

Later in the period, as the rise in the demand for rice slackened, the attention of the domains turned to the production of other commodities for which demand was growing. The rise in both per capita income and urban population induced growing demands for a wider variety of goods and services and for improvement in their quality. Farmers found it increasingly profitable to substitute commercial crops for rice and other staples. Among these new crops were cotton, rapeseed, silkworms and mulberry, tobacco, indigo, sugar, and tangerines.

Another aspect of the alternate attendance system requires our attention because of its impact on rural villages. This is the demonstration effect of Edo consumption patterns in the castle towns. Given the alternating one-year residence in Edo, the consumption habits of the circulating elite were strongly affected by the demand for goods and services that existed in the national capital. This demand was determined mainly by the huge population (the bigger the population, the greater the diversity of goods demanded), the extremely wide range in income distribution (the greater the range, the greater the variety and quality of goods demanded), and the diversity of people living in Edo, since they came from about 250 different domains (goods and services peculiar to one locality would be in demand in the national capital). Some goods and services that may have been unique to a certain region could over time be demanded nationwide.

The new demands meant the production of a wider range of crops by farmers and the processing of a wider range of goods in rural villages. It also meant that villagers themselves would acquire a taste for these new commodities, particularly as the per capita income level rose.

The most notable feature of the alternate attendance system for our purposes is that it diffused the rural modernization process to some 250 castle towns. Let us examine this institution on a comparative basis. The system required the circulating elite to reside in Edo—the national capital and the world's biggest city from 1700 to 1800—in alternate years for over 200 years. In other countries leading nobles have been ordered to reside at the national capital for varying—but much shorter—periods of time as a measure to deter rebellion, yet never was such a system so thoroughly organized over such a wide area and for such an extended period of time as under the Tokugawa shogunate. As far as I am aware, no other institution in any other premodern country remotely approached the effectiveness of this alternate attendance system as a source of the urbanizing process. As such it was a powerful long-term stimulant for economic development.<sup>16</sup>

For over 200 years, then, the circulating elite of roughly 250 domains regularly commuted between Edo and their castle towns. The domains were profoundly affected by the exorbitant costs of this institution, and similarly by the demonstration effect of Edo and other parts of the nation on consumption patterns and production technology. Given the many domains and the high degree of autonomy in fiscal and economic policy in each as noted above, human capital and social development did not proceed smoothly and in step over time, despite the similarities in institutional changes that occurred. For example, the speed of change in different domains was affected by geographic factors (such as whether a domain was situated in the northeast or southwest; on the Japan Sea, fronting the Pacific Ocean, or on the Inland Sea; and whether it lay on one of the principal alternate attendance routes to Edo), economic conditions (including fluctuations associated with the three major reforms of the period triggered by financial crises), the relative stage of economic and social development at the beginning of the Tokugawa period (the central regions of Honshu were much better developed and continued to lead the rest of the nation in socioeconomic change and maturity), the size of the domain and castle town, and the benevolence or harshness of domain rule.<sup>17</sup> Yet the institutional changes discussed above were so powerful that by the end of the Tokugawa period, the human capital and social development that constituted the prerequisites of industrialization had proliferated in varying degrees to the remote corners of the nation.

<sup>16</sup> James I. Nakamura, "The Alternate Attendance System and Japanese Economic Development" (unpubl. manuscript).

<sup>17</sup> A detailed study of a late developing domain is provided by Heinrich M. Reinhard, *The Tale of Nisuke: Peasant and Authorities in Higo around 1800* (Weisbaden, 1978).

## POPULATION CONTROL AND RURAL MODERNIZATION

The modernization of rural villages discussed in the previous section was vastly reinforced by the effective population control during the Tokugawa period. Before demonstrating this relationship, let us examine how population control came into existence.

In any society, when population begins to strain the productive capacity of available resources the question of whether to restrain the growth of population becomes urgent. It becomes a real concern first to the ruling class when it realizes that population growth will reduce its standard of living and/or weaken the economic (and therefore military) strength of the country. In the Tokugawa period the ruling class began to control population very early. The rationale for control was provided by the *ie* system, which can be translated as either household system or family system, though neither term conveys the rich meaning of the Japanese concept.<sup>18</sup>

The essence of the *ie* system, which originated in the Ashikaga period (1333–1558), was that *ie* (household) assets would not be divided but would be inherited by one heir. This institution was the only way for a feudal lord to insure that his designated heir would remain economically and militarily strong enough to survive in that period of civil strife, including the eighty-year period known as the Sengoku Jidai, the period of the warring states (1477–1558). The division of a domain among many sons would mean that each would be at the mercy of neighboring predatory lords. During this time, when fighting men were needed and their mortality was high, the samurai had no need to restrict population. But the arrival of Tokugawa peace completely changed the samurai perspective. In the first half of the Tokugawa period the samurai population, which constituted 5 to 8 percent (the exact figure is unknown) of the total population, was already too big relative to the commoner population (in Ch'ing China the gentry class constituted less than 2 percent of the population).<sup>19</sup> In time the number of samurai *ie* became fixed, and *ie* assets could be willed to only one successor. Excess males had no *ie* position available to them; thus they were relegated to *ronin* (masterless samurai) status, which usually meant a life without a recognized domicile or family of one's own. Confronted by this bleak prospect for excess children, the samurai class practiced population control, and the historical evidence, which suggests that the samurai population either remained constant or declined, shows how successful they were, particularly in the second half of the Tokugawa period.

In contrast to the more affluent ruling class members, the masses of

<sup>18</sup> James I. Nakamura and Matao Miyamoto, "Social Structure and Population Change: A Comparative Study of Tokugawa Japan and Ch'ing China" (forthcoming in *Economic Development and Cultural Change*).

<sup>19</sup> Chun-li Chang, *The Chinese Gentry* (Seattle, 1970), p. 141.

people in premodern societies existed at or near the subsistence level. Their concerns were not with the amenities of life, such as guided the behavior of the ruling class, but with two simple principles: to survive and to obtain what pleasure they could out of existence. Survival was believed to be a matter left largely in the hands of gods. If the gods smiled, one survived and prospered; if not, it was fate. Pleasure was usually associated with family, children, and friends in one's small community. Population control was hardly a concern, an attitude which appears to be true even today among the lowest income families of the highly developed countries.

Historically, when the level of income of the masses of people rose substantially above subsistence, population control became important to them as well. The very low birth rates prevalent today in the economically developed countries are evidence of this change. In Tokugawa Japan, too, the above pattern appeared to develop, but in a modified form. Let me suggest how population control took hold in rural villages.

When the relatively rapid population growth of the early seventeenth century led to increasing pressure on land, the ruling class in the shogunate territories and the domains was confronted by a decline in the surplus available for appropriation from the villages (at first in the more developed regions of the nation). To prevent further decline, the ruling class invoked two measures, essentially attempts to induce population control in the rural villages. One, *Denchi Eidai Baibai Kinshi Rei* (issued in 1643) bound the farmer to his land by forbidding its alienation; it aimed to insure that he would remain on the land and pay his taxes. The second, *Bunchi Seigen Rei* (first issued in the Tokugawa territories in 1673), prohibited the division of cultivated land into plots too small to support a family and pay the prescribed taxes. *Bunchi Seigen Rei* induced the emergence of the *ie* system in the villages by decreeing that any cultivated land holdings below a certain limit (as a rule 20 *kokudaka*) could not be further subdivided. Since most *ie* holdings were below this level and land constituted the bulk of family assets, it effectively insured that the assets of most families would be inherited by the next *ie* head. Because wealth and status were correlated, wealthy, high-status families tended to pass their assets on to a single head to insure that they would maintain their status in the village. Because of this need they also restricted their population. Even the lowest income families in the village restricted their members because the village control system, including the five-man group (*gonin-gumi*), provided the mechanism for a consensual village view on the numbers appropriate to a family of a given income class.<sup>20</sup>

In the first half of the Tokugawa period farm incomes were rising. Continued improvements and innovations—intensified use of fertilizers, im-

<sup>20</sup> *Gonin-gumi* is literally translated as five-man group. Neighborhood group conveys the meaning somewhat better. Its functions are described later in this section.

proved crop varieties, more commercial crops, increased multiple cropping, more effective farm implements, extension of irrigated land, better transportation—helped the farmer to raise both land and labor productivity. Not all of the gain was taxed away. In fact, during the second half of the period the farmer retained an ever larger share of the increment in output. Beginning in the middle of the seventeenth century farmers in the more developed areas of Japan confronted the fact that they had exhausted land available for reclamation, given the available technology; that is, leeway for further family formation in these villages had disappeared.<sup>21</sup> Furthermore, migration to other parts of the country was strongly inhibited by the feudal belief that one domain's loss of manpower was a gain for a prospective enemy. Thus the conditions that led to population control among samurai were now approximated among farmers. As time passed available reclaimable land disappeared in more and more domains. The farmer then faced the choice of restricting family numbers or sacrificing both status and other forms of consumption. Although per capita income was almost certainly much lower than that of present day people who practice population control, the farmer was led to population control by the combination of the rise in income and the powerful impact of the *ie* system. The near constancy of population during the second half of the Tokugawa period (1721 to 1846, for which commoner population data are believed to be relatively reliable) indicates how successful rural population control was.

Now let us turn to the question of how this population control enhanced the effect of urbanization by preparing the rural people of Japan for economic responsiveness. The modernizing effect of the urbanizing process that began in the sixteenth century was discussed earlier. Effective population control in the villages reinforced this modernizing effect by causing a labor shortage, which raised the income of the commoner labor force, vastly enriching the material and nonmaterial aspects of their lives. Let us briefly examine some of these developments.

The rise in rural income reached the lowest income families. The increasing labor shortage affected both the urban and the rural sectors of the economy. Competition between the two sectors was effectively expressed in the form of higher real wages.<sup>22</sup> Farmers who were most likely to have labor services for sale were those with the least amount of land to farm—specifically the lowest income farmers. Despite restrictions on migration, economic forces could not be curbed, and both intradomain and interdomain labor movements took place from surplus to shortage areas.

<sup>21</sup> An illuminating study of population control in a village appears in Thomas C. Smith, *Nakahara: Family Farming and Population in a Japanese Village, 1717-1830* (Stanford, 1977). See particularly chap. 7, pp. 107-32.

<sup>22</sup> Osamu Saito, "Labor Market in Tokugawa Japan: Wage Differentials and the Real Wage Level, 1727-1830," *Explorations in Economic History*, 15, 1 (January 1978), 84-100. Also see Smith, *Agrarian Origins*, pp. 120-23.

Farmers' services were in demand not only in urban labor markets but also on the farms in their own or nearby villages. The moves these farmers made were seasonal, permanent, or for specified terms—a year or years of indentured labor. As the labor shortage reached into all parts of the country, competition for farmers erupted among the domains, for they found it expedient to subsidize the immigration of farmers from other domains who might work arable land that had been rendered idle through population decline in some parts of the country, particularly following periods of major crop failures. These movements expanded the capabilities of the migrants and equipped them with skills, know-how, and familiarity with economic conditions elsewhere—all of which are basic elements of human capital.

The rise in rural income increased the demand for goods and services and enlarged the rural market. For the first time there emerged a national market for goods consumed by the masses of people,<sup>23</sup> instead of just by members of the ruling elite and their affluent merchant suppliers, as had been the case in the past. Rural people developed new modes of thought and behavior as they confronted the problem of choosing among a variety of ways in which the added income could enrich their lives, including travel, religious pilgrimages, purchase of books, and purchase of better quality commodities.

The rise in income also elevated the demand for education in rural villages. From about the beginning of the nineteenth century an amazingly rapid growth in the number of *terakoya* took place.<sup>24</sup> The need for education in the villages sprang from a number of roots. Literacy was required of village leaders and their clerks because their official positions required them to compile village reports and convey written directives and advice from higher authorities to villages. It was usually necessary for even the heads of each five-man group (*gonin-gumi*) to be literate. Literacy was also desirable for many farmers because information on how best to cultivate the expanded variety of crops and even how to maximize profits could be obtained in handbooks becoming more available from the Genroku period (1688–1704).<sup>25</sup> Farmers also began to show an interest in keeping records of farm (and in some cases village) developments. Village affluence was making available to villagers greater quantities of other forms of literature: stories, cartoons, travel books, religious tracts, and the like. Another effect which we cannot overlook is that conservative rural folk of Japan were strongly subject to the intravillage demonstration effect (a phenomenon that seems to persist even today, on a national basis);

<sup>23</sup> Crawcour, "The Tokugawa Heritage," pp. 41–42.

<sup>24</sup> The numbers are spectacular. New *terakoya* established to 1804 are said to be 558. Then in the next 40-year period (1804–1843), newly established ones numbered 3,050; and in the following 24 years (1844–1867), the number was 6,691. (Ken Ishikawa in *Nihon Shomin Kyoiku-shi* [Tokyo, 1929] as quoted in Herbert Passin, *Society and Education in Japan* [New York, 1965], p. 14.)

<sup>25</sup> Thomas C. Smith, "Okura Nagatsune and the Technologists," in Albert M. Craig and Donald H. Shively, eds., *Personality in Japanese History* (Cambridge, Mass., 1970), pp. 127–54, particularly p. 147.

the fact that more and more children, even those of low status *mizunomi hyakusho*, were attending the *terakoya* must have been a powerful stimulant for higher status *honbyakusho* to provide their children with education.<sup>26</sup>

It is not necessary to demonstrate the role of education in expanding knowledge and intelligence and in promoting the modernization of a people. Yet we should note that Japan's more than 40 percent level of male literacy at the end of the Tokugawa period was probably as high as that in the most literate large countries of the same time.<sup>27</sup> Surely this is one measure of Japan's readiness to make the quantum leap to industrialization when the nation came out of seclusion.

#### FARMER INVOLVEMENT IN RURAL ADMINISTRATION

Earlier we noted that the samurai had been withdrawn from their rural bases and assembled in castle towns for security and military purposes. Let us now look at this same event from the perspective of the farmer and the rural village. The withdrawal of samurai from rural areas meant that villagers no longer had their traditional ruling elite residing among them.<sup>28</sup> This separation was symbolized by a Hideyoshi edict of 1588 pop-

<sup>26</sup> Originally, *mizunomi hyakusho* referred to landless farmers and *honbyakusho* to independent landed farmers. These social status terms tended to cling to families in the rural areas to the end of the Tokugawa period, but the economic positions of the two types of farm families were often reversed over that long period.

<sup>27</sup> Passin, *Society and Education in Japan*, p. 47. Data on literacy at this early date are probably more available for Japan than for any other large country.

Small countries, particularly those whose urban sector is disproportionately large relative to most countries, or whose political and social developments are unusual, can have much higher rates of literacy and more reliable data than large countries. One example is Sweden where universal elementary education had become available by the late 1850s. Lars Sandburg attributes this headstart to "religious, cultural and political phenomena" rather than to economic factors. ("The Case of the Impoverished Sophisticate: Human Capital and Swedish Economic Growth before World War I," this JOURNAL, 39 [March 1979], 225-26, 229-30, 237-41.) Sweden's high literacy rate in the early nineteenth century (adult literacy in 1850 was about 90 percent, the highest in Europe; *ibid.*, p. 230), did not induce sustained rapid growth. But from 1860 to 1913, when technological change and expansion of the market through increasing foreign trade raised the need for educated labor, Sweden had the highest growth rate of per capita gross national product in Europe (*ibid.*, pp. 225, 227-29). Similarly, the availability of a potentially productive stock of human capital toward the end of the Tokugawa period did not cause the Japanese economy to achieve sustained rapid growth. Modern economic growth had to await the end of seclusion in the 1850s; the release from the remaining feudal restrictions following the Meiji Restoration of 1868; the coming of science, scientific methodology, and foreign technology with the opening to foreign contacts; and the challenge of Western imperialism. It was the availability of a stock of human capital that had prepared the two countries to respond to the new economic opportunities when they arrived.

<sup>28</sup> This requires qualification. In some domains the rural samurai (*goshi*) remained in the villages, and they usually assumed leadership positions. In general, the three important village positions (*san-yaku*) were filled by members of leading families who were thus regarded so for hereditary reasons. In the traditional status society of Tokugawa Japan, the rest of the villagers tended to pay obeisance to them as a matter of course. For our purposes, however, the separation of samurai and farmers was the important fact that enabled the gradual erosion of hereditary distinctions among village families over the course of the Tokugawa period.

ularly known as the "sword hunt," which established that weapons of war—the gun, the sword, the short sword, the spear, the bow—could be retained only by members of the samurai class. One purpose of this edict was to preclude the possibility of village uprisings and establishment of independent governments by groups of villages, as had occurred during the Sengoku period. This policy was maintained to the end of the Tokugawa period.

The most significant effect of the separation of the samurai and the farmer was the necessity for the rural commoner class to manage its own affairs. Taxes had to be assessed and collected for forwarding to the feudal lord, and political, social, and fiscal matters of the village had to be administered. This included allocation of responsibility for village functions necessary for its smooth operation (such as assessments to finance the village government and maintain roads, bridges, and irrigation systems), allocation of village water rights, and conciliation or adjudication of village disputes. Because the operation of village affairs was to be placed in the hands of inexperienced farmers, an effort was made to facilitate the work of overseeing village administration. The existing complex and diverse regulations and practices on landholding and tax payments were simplified and unified by Hideyoshi. This change involved a nationwide cadastral survey to establish the ownership and productivity of each piece of cultivated land. Tax payment now became the responsibility of individual farmers who had proprietary rights to a piece of cultivated land. The village was held responsible for tax payments by every taxpaying farmer in the village and for the annual allocation of taxes to each.

At the beginning of the period the village administration was placed in the hands of the *shoya* (village head), almost invariably the head of the family of highest status, and therefore usually the one with the greatest land holding and highest annual income. As time passed two other positions assumed importance: the *kumigashira* (head of the five-man groups) and the *hyakushodai* (farmers' representative). The *kumigashira* was in charge of an administrative apparatus that originated in the Tokugawa territories and became diffused throughout the nation. This was primarily a device for social control and to assure tax payment by making each member of the five-man group (*gonin-gumi*) mutually responsible for the good behavior of every other member. Good behavior included among other things disciplined work habits, faithful payment of taxes, assisting members of the same group when they became ill or were otherwise unable to perform their duties, shunning Christianity, and reporting misbehavior within the group or village. Clearly the *kumigashira* was an important village position, one assigned only to prestigious members of the village. The *hyakushodai* came into existence as the influence of the ordinary farmer became stronger over time. He represented the interests of individual farmers who felt they had been unfairly treated in such matters

as the allocation of the village tax (*nengu*) and other assessments and benefits. Someone representing the interests of lower status farmers necessarily had to be from a prestigious family in order for his views to carry weight.

The wealth and income of various village families could, and usually did, change over time. Some high status families in some villages lost all their property, and some very poor, landless families of the early Tokugawa period became the principal landowners of the later period. Because of the persistence of the notion that heredity was the basis of status, the influence of the old high status families tended to endure, assuring them the three village leadership positions. But over the long years of the Tokugawa shogunate, the economic power and social influence that wealth inevitably confers eroded the influence of the economically declining high status families and elevated that of newly wealthy lower status families. Despite the tendency of the rural areas, particularly in the backward areas of the country, to cling to the conservative behavior patterns of the past, by the end of the Tokugawa period there had emerged various new practices for the selection of village leaders, including elections in which even the low-status *mizunomi* farmers were given the right of an equal vote in some villages, and in some rare cases even the right to hold one of the three village offices.

What had taken place in the villages conformed to the necessary pattern for any small, relatively isolated community of about 200 persons with a stable size and structure of population and family: the characteristics and functions of every village institution had become common knowledge, and every member of the community had become familiar with the behavior, position, wealth, and opinions of every other member. In such a village all problems beyond those restricted to a family tend to be a matter of common knowledge and the subject of almost endless discussion until their orderly resolution. What emerges in this environment is government by consensus, essentially a democratic resolution of village problems. Since hereditary authority no longer was needed and could not be asserted where these conditions held true, village leadership could be turned over to any villager with the requisite energy and concern for village welfare, regardless of his status. This was becoming true for an increasing number of villages as the Tokugawa period neared its end.

There was, then, a great deal of autonomy in the operation of the villages. If control from the domain offices had been more intensive, the impersonality of such a relationship would have given each farmer less incentive to concern himself so minutely with village problems. But village autonomy gave the voice of each villager evident influence in village affairs, providing sufficient reason for every person to be intimately involved in the process of governance. This was an important element in the development of human capital in the villages of Japan.

## SUMMARY AND CONCLUSION

Although reluctance of peasants to accept change is legendary, the change in the Tokugawa farmer was revolutionary. In the sixteenth century he had been a traditional peasant engaged in subsistence agriculture. We saw above how the enlargement of the feudal domains and the assembly of samurai in the domain capital increased the population of castle towns, in turn leading to the growth of market consciousness in the rural villages surrounding them. We indicated how this urbanization process was enhanced by the alternate attendance system, which induced increased production in all of some 250 domains, forced the growth of trade between each domain and the rest of the country, and raised domain consumption through the demonstration effect of Edo consumption conveyed by the circulating elite. We also showed that the decline in the size of most cities in the second half of the Tokugawa period was an indication not that the urbanization process was being reversed, but that it was reaching into the villages surrounding these cities, and was therefore a progressive step toward the urbanization and modernization of the rural people. We considered the ways effective population control in the villages strengthened the urbanizing and modernizing effect of the changes described earlier. Finally we treated the influence of enforced village autonomy in building an intense interest in the problems of village governance among commoners.

Most of the changes observed had their origin in a political or a military measure: consolidation of territories, separation of the farmer and the samurai by the transfer of almost all the latter to the castle town, the alternate attendance system, laws that prohibited the subdivision of small plots of land, laws that banned the alienation of cultivated land, and village self-government in internal matters. Each of these measures was undertaken to enhance shogunate or domain security, to relieve the ruling class of responsibilities, or to increase its share of income.

The response of farmers to these measures was to control their population, cause a redistribution of income favoring rural people, establish *terakoya* to educate the young, develop a sophisticated market consciousness, become business entrepreneurs in their own right, and achieve an understanding of the social and political processes and problems of a small community. That is, by the end of the Tokugawa period farmers had become socially conscious, economically responsive modern individuals.<sup>29</sup>

For the argument of this essay, let us comment upon a few exceedingly

<sup>29</sup> After the Tokugawa seclusion came to an end and foreign goods began to compete in the Japanese market and Japanese goods found markets abroad, the economic responsiveness of the farmer caused a rapid change in the structure of agricultural production. The story of this change is told in Hiroshi Shimbo, "An Aspect of Industrialization in Japan: In Its Formative Stage," *Kobe University Economic Review*, 13 (1967), 19-42.

important responses. A few rural people did have the capital, knowledge, and energy for those innovative responses to the incipient opportunities that helped to industrialize and transform the nation rapidly. It was at least equally important that farmers could be transformed into a pliable, disciplined labor force to run shops and factories. It is also noteworthy that from the rural people came most prefectural and local officials, agricultural technicians, and innumerable schoolteachers who were an important part of the human capital legacy provided by the Tokugawa period. The institutional changes described did indeed promote—with the aid of the more formal institutions of human capital formation they induced—the appearance of these types of modern persons in rural Japan. Such individuals helped to change the country from a preindustrial economy to a vigorously industrializing one within a generation after the overthrow of the Tokugawa shogunate.

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