

BOOK REVIEWS

Agricultural Production and the Economic Development of Japan, 1873–1922 by James I. Nakamura, Princeton, New Jersey, Princeton University Press, 1966, xxiii+257 pp.

A most of the scholars in Japan today who attempt to study economics more or less empirically are the people born after the late Meiji era. In other words, we could say that they are the people who have experienced, directly or indirectly, the boom after World War I, the great depression in the 1930s, World War II, the postwar recovery, and high economic growth, and who have become, as it were, immunized to economic convulsions. Therefore, to men who were themselves caught in the vortex of fluctuation, it was only natural to assume as an unquestionable fact that in the Meiji era, in which Japan had “taken off” in its economic development, a similar fluctuation must also have been experienced. That the thesis of Professor Ohkawa¹ concerning the high rate of growth of the Japanese economy during that period had been accepted for a considerable period of time was presumably because of this background, though upon reflection we were really careless not to have noticed it.

Dr. James I. Nakamura at Columbia University, a Japanese-American, who, while being in a position to understand Japan easily, has been outside the convulsions of Japanese economy and thus may be said to have been in a position to be able to view the country in more objective terms than Japanese economists. The high growth rate of the economy in the early Meiji era had been supported by the comparatively high growth rate of agricultural production. This high growth rate was possible only with the extremely low level of production in the early years of Meiji as the starting point. On the other hand, this low level of agricultural production would provide extremely low caloric intake per person. Such a caloric intake was lower even than the per capita caloric intake of a developing country today. Indeed, it could hardly guarantee mere subsistence, let alone the vigorous activities of the Japanese in the early years of the Meiji era. Dr. Nakamura’s study develops from the starting point of this question.

To state his conclusion in advance: The production level of agriculture in the early years of Meiji, as an extension and growth of the production levels of the Edo period, levels supported by a long, undisturbed peace, was not by any means so low as has been alleged. This very fact would not only lower the growth rate of agricultural production, as compared to the up-to-now established theory, but would also reduce the general economic growth rate for Japan. This conclusion is rather important. Since Japan is the only non-European country which has so far succeeded in economic development, its high economic growth rate has, more often than not, been seen abroad as something rather mysterious. Indeed, when linked with Rosovsky’s data for capital formation,² a growth rate is, in effect, Kuznets’ low ratio of marginal

¹ Ohkawa, K. et al., eds. *Nihon keizai no seichōritsu* [The Growth Rate of the Japanese Economy since 1878] (Tokyo: Iwanami shoten, 1959).

² Rosovsky, H. *Capital Formation in Japan, 1868–1940* (New York: Free Press of Glencoe, 1961).

capital to output³ and thus presents to developing countries a model of inexpensive economic development.

However, Dr. Nakamura has now shown that no such conjuring tricks exist. In Japan, as well as in European countries, a high level of agricultural production had already been attained at a stage that could lead to industrialization. The slow, enduring efforts of generations had had the effect of preparing a platform on which the more readily noticeable structure of a modern, industrial economy might be easily built.

Before Dr. Nakamura's study, there had been certain revisions to Professor Ohkawa's estimates, one by Bruce F. Johnston⁴ and the other by Saburō Yamada.⁵ Both estimates are based on the production quantity index, which is different from the production value index used by Ohkawa. The estimate by Ohkawa of the growth of agricultural production gives an annual rate of 2.4 per cent, while the Johnston estimate and the Yamada estimate show considerably lower values, i.e., 1.9 per cent and 1.8 per cent, respectively. The Yamada estimate includes more commodities than the Johnston estimate and furthermore takes into account to a certain extent the problems raised by Dr. Nakamura. (Dr. Nakamura's study grew out of his doctoral dissertation, and his thesis had already been known in Japan before the publication of this book.)

According to Dr. Nakamura, however, the Yamada estimate, not to speak of the Johnston estimate, has failed in substantial instances to get at the root of the matter. For the essence of Nakamura's methodology lies in his feeling that the official statistics in the Meiji era are questionable and therefore must be corrected. If estimates are made without making such corrections, the growth rate of agricultural production will come out 2.0 per cent, a figure not much different from the outcome of the other estimates. However, if essential correction is made, the growth rate of agricultural production will become 0.8–1.2 per cent, or 1.0 per cent if the median value is taken, thus giving a figure roughly half as large as those given by other estimates.

What then is his essential correction? He takes the 1913–17 period as the base year for the value of agricultural products. Thus, the problem would be in estimating the quantity of agricultural products. The quantity is broken down into yield per acre and yield per unit area, each quantity being corrected. Also, crops are classified into rice and non-rice crops and examined separately. In this way, the Nakamura estimate may be said to be arithmetical in principle and to follow a very simple procedure. On the other hand, if it is assumed that farmers sought to lighten the burden of the land tax and that this trend caused official agricultural production statistics of the Meiji era to deviate in a downward direction, we can easily imagine that the difficulty of the operation of making corrections would be of no common order.

Dr. Nakamura's study is composed of two parts. One demonstrates the existence of downward deviation in official statistics and the other corrects the deviation and prepares appropriate statistics. He succeeds admirably in the first part of the study, but the latter part leaves some problems. To begin with, we shall consider acreage.

³ Kuznets, S. "Quantitative Aspects of the Economic Growth of Nations: VI, Long-term Trends in Capital Formation Propositions," *Economic Development and Cultural Change*, Vol. 9, No. 4, Part 2 (July 1961).

⁴ Johnston, B. F. "Agricultural Productivity and Economic Development in Japan," *Journal of Political Economy*, Vol. 59, No. 6 (December 1951).

⁵ Yamada, S. "Nōgyō sanshutsugaku no suikei" [An Estimate of Agricultural Output], *Keizai kenkyū*, Vol. 15, No. 1 (January 1964).

In order to lighten the burden of the land tax, the fact that certain areas were under cultivation was concealed from officials and further the amount of land under cultivation was deliberately underestimated. There were two methods of concealing the existence of cultivated land: non-registration and deliberately erroneous classification. Among land prices, as paddy field was the most expensive, it was often incorrectly classified as another type of land and thus much of the area used for wet rice cultivation was officially underestimated. Yet, no method can be found to correct this classification.

In contrast, concealment by non-registration has been rather positively dealt with. For, if we follow the rate of change in the area of taxed land for the period 1880–1920, we will notice a marked rate of increase during the period 1885–90. Broken down by years and by prefectures, this steep increase is found to be concentrated almost within a single year. These facts show that the lands unregistered until then were registered suddenly and at once.

Thus, it becomes necessary to revise the acreage estimates for the period preceding 1889. In the case of paddy rice, using the data for its acreage during the period 1890–1910 and in the case of upland crops using the data for their acreage during the period 1889–1917, the author has obtained respective trend formulae and made corrections to the acreage estimates by applying the formulae to the period preceding 1889.

Underestimation of cultivated land had been taken as a measure to lighten the burden of the land tax since the Edo period and naturally existed on into the early years of Meiji. On the assumption that such underestimation was basically revealed and the official records corrected by 1880 or 1922, the author corrected the acreage estimates.

Viewed in this light, in correcting acreage estimates, the most important problem is the estimation, by means of the trend formula, of the extent of the area whose existence and/or use was concealed. The trend formula is ordinarily linearly expressed, but there exists no guarantee of the validity of such linearity before 1889.

When considering the major factors which contributed to Japan's successful economic development, Dr. Nakamura emphasizes the fact that the government of the Meiji Restoration, by overthrowing the feudal structure and thus increasing the mobility of productive resources, carried out a redistribution of income from the warrior class, a basically extravagant class, to classes spending money in a more productive way. The classes who spent money productively included landlords, and this fact, he presumes, helped to transfer the accumulation made by agricultural production to non-agricultural sectors. Actually, it was not until the Taishō era that landlords became really parasitic and that the government came to take over the role of landlord in agricultural production. At least until the middle of the Meiji era, active agricultural investment seems to have been made by landlords resident in rural districts.

If so, it is naturally conceivable that the landlord should have directed farmers to reclaim wasteland. If that is the case, acreage would have increased at a faster rate than indicated by a linear formula.

The price of land (as the basis of the land tax) depends on the price of farm produce, interest rates, and yield per tan (about 1 acre). Of these, the first two are values which cannot be freely changed by farmers. Consequently, farmers seek to manipulate the price of land by underestimating the per acre production. The average per acre rice yield reported in the 1870s is not much different from the one reported two hundred years ago. The average per acre rice yield reported in the 1875–82

period was below that level, though it returned to that level in the 1893–99 period. Dr. Nakamura assumes that this fact is obviously due to reports which underestimated the yield. Thus, he has corrected the per acre yield at the end of the nineteenth century, by calculating back from the 1918–22 period, for which the true yield is presumed to have been reported.

As to the per acre yield of upland crops, positive evidence is lacking, but it may be true that reports underestimating the yield were made. Official statistics put the rate of increase of the per acre yield of upland crops at a level 13.6 per cent higher than that of paddy rice, and thus an increase rate 13.6 per cent higher than that of the corrected rate for paddy rice has been applied to the per acre yield of upland crops.

For Dr. Nakamura, as has already been mentioned, such correction of the per acre yield is justified, as no other yield could possibly give enough per capita calory intake to assure people of subsistence.

However, an examination of the per acre yield in terms of per capita calory intake is not without problems. Minor grains, soya beans and vegetables will suffice to fulfil, at the most moderate prices, the requirements of nourishment of the Japanese at the current food prices. This result has been worked out by the present writer by means of linear programming.⁶ As may be seen from this, in securing the caloric levels necessary for sustaining life, we do not necessarily have to attach primary importance to rice. As rice was a superior commodity, it would hardly be possible to assume that average farmers depended fully upon a rice diet, especially if rice were exported. If this conjecture of the present writer is correct, it will follow that the Nakamura estimate may have overestimated the per acre output of paddy rice and underestimated that of upland crops. The estimate will be all the more thrown off, if it is not clear whether or not the per acre yield of rice of two hundred years ago really indicates the national average.

⁶ Kumagai and Ōishi, eds. "Nōgyō mondai" [Agricultural Problems], *Ōyō keizaigaku* [Applied Economics], *Kindai keizaigaku* [Modern Economics], Vol. 2, p. 189. A menu of the lowest cost was computed by the linear programming method under the constraints: the per capita amounts of required nourishment for the Japanese in 1970, the nutritive ingredients of each of foodstuff, the saturation level of the weight of food taken by the Japanese, and the retail prices of foodstuffs in 1955, 1960, and 1965. The results are following:

	Pure Food at Lowest Cost per Person per Day Required to Meet the Amount of Nourishment Needed in 1970		
	1955 price	1960 price	1965 price
Wheat	150	—	—
Minor grains	—	115	784
Soya beans	426	462	198
Vegetables	167	168	169
Fish & shellfishes	20	—	—

Sources: The following data were used:

Ministry of Health and Welfare, *On the Standard Amount of Nourishment and Standard Composition of Food for the Target Year of 1970* (1963); Science and Technology Agency, *Third Revision of Standard Composition Table of Japanese Food* (1963); Science and Technology Agency, *Table of Amino Acid Composition of Japanese Food* (1966); National Academy of Sciences, *Recommended Dietary Allowances* (1964); Prime Minister's Office, *Annual Report on Household Economy* (1955, 1960, 1965).

Dr. Nakamura seems completely right when he points out that the official statistics of the Meiji era were based on underestimated returns, a means by which farmers tried to lighten the burden of the land tax. Further, the growth rate of agricultural production, that is, 1.0 per cent, a value which has been worked out on the basis of his correction in this respect, does not seem so bad. The figure not only corresponds to the number of those occupied in agriculture (the Hemmi estimate),⁷ but also tallies with the long-range growth rate of the gross value-added of agriculture since 1910, according to the estimate of the present writer.⁸ However, as has been pointed out above, if we consider collectively the efforts of agricultural production under the landlord system in the Meiji era and the change in the pattern of food consumption during this period, we feel we may be justified in putting the growth rate at a level somewhat higher than that under the Nakamura estimate insofar as the Meiji era is concerned. However, unless some new sources of information are discovered, it would be impossible to demonstrate this.

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Asian Population Problems: With a Discussion of Population and Immigration in Australia edited by S. Chandrasekhar, London, George Allen and Unwin, 1967, 311 pp.

It has only been since World War II that population problems have begun to attract the world's serious attention. The changes in population trends which have been taking place throughout the Asian countries since World War II, are recognized as signifying a population explosion derived from a dramatic decline in mortality and a continuing high rate of fertility. Asian countries, with the exception of Japan, are now experiencing a greater than 2 per cent annual population increase. In these countries, therefore economic development plans have encountered difficulty in achieving their anticipated goals due to the unexpected population increase. Thus, population increase now forms one of the major factors preventing economic development in these countries, where a huge amount of demographic investment is required merely for the maintenance of the present standard of living.

In this sense, there is clear awareness at the administrative level of the necessity to check population increase or to control high fertility. Population policy to cope with this problem is devised and carried out by the government of each country. However, it cannot necessarily be said that the population policy in any particular country has worked effectively and attained successful results. The reason for this is that, as has been clearly pointed out in the book under review, because fertility is complex and conditioned by various socio-economic factors, realization of fertility control is particularly difficult. Therefore, the great significance of a study of Asian population problems lies first, in the collection and analysis of accurate data concerning demographic phenomena, and second, in the elucidation of the mutual relationship between fertility and socio-economic factors on the basis of the results of this research.

This book gives us a bird's-eye view of population trends and problems in Asia

⁷ Hemmi, K. "Nōgyō jinkō no koteisei" [Permanency of the Farming Population], in *Nihon no keizai to nōgyō* [Japan's Economy and Agriculture], eds. S. Tōbata and K. Ohkawa (Tokyo: Iwanami shoten, 1956).

⁸ Yuize, Y. "Nōgyō ni okeru seisanshizai no chōkisuikei" [Long-range Estimate of Productive Materials in Agriculture], *Nōgyō sōgō kenkyū*, Vol. 21, No. 3.