

## MIGRATION AND THE POPULATION POTENTIAL OF MONSOON ASIA<sup>1</sup>

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**T**HREE hundred years ago there were fewer than 300 million people in non-Soviet Asia. Today there are 1.2 billion. Three hundred years from now, if the demographic history of the East were to parallel that of Japan or the West, there would be from four to eight billion. It is not likely that such populations will actually exist in the Asia of the future, but they would exist if the agricultural-industrial revolution of the last three centuries should continue to develop and diffuse throughout the non-Western world, with demographic consequences similar to those that accompanied the economic transformation of Europe and Japan.

Asia's peoples have been increasing at perhaps three-fourths of one per cent per year; continued increases of at least this order of magnitude are inevitable in the coming decades unless political instability, the disintegration of local and regional order, economic retrogression, and the correlated famines and epidemics result in drastic increases in death rates. But indefinite continuation of growth is impossible. In the long run, the population increases created by declining mortality can lead only to greater decimations by famine and disease unless they are gradually lessened and ultimately eliminated by declining fertility. The present report is a tentative and partial assessment of the factors involved in the past and potential future growth of Asia's people, with the emphasis placed on the role of migration in the acceleration or retardation of that growth. It is unfortunate that study must be limited to the experience of those admittedly selected areas which have reasonably accurate statistics. Analysis by illustration is always dangerous, but for Asia there are no alternatives.

<sup>1</sup> From the Office of Population Research, Princeton University. The studies of the demography of Eastern Asia which form the factual basis for this analysis would not have been possible without the continuing cooperation of Edwin G. Beal, Jr., Division of Orientalia, Library of Congress.

Asia is an area without unity other than by geographic definition. There are many regions, and in each the present and potential relation of people to resources assumes different forms.<sup>2</sup> In the Near East, population is dense in relation to developed resources and the rate of population increase is high, but the major barriers to the achievement of demographic balance at adequate levels of living are political and ethnic rather than economic. In arid regions across the continent nomads still increase or decrease in numbers according to the varying hazards of nature. In the mountains, semi-nomadic peoples clear the forests by fire, plant their crops for a season or two, and move on when the soil is exhausted. Across the continent and in the islands there are enclaves of primitive peoples, some in process of depopulation, some in symbiotic relationships with the encroaching civilized groups. Most of these people live in precarious dependence on the meager subsistence available to them locally, but their numbers are relatively small, their economic relationships limited. The problems they pose to Asia and the world are only tangential to those created by the proliferation of peoples that has accompanied the impact of the West on the rice cultures of the low-lying plains and river valleys of Monsoon Asia.

#### THE DEMOGRAPHY OF RICE AGRICULTURE

The major key to the settlement, distribution, and growth of population in the great coastal arc stretching from India through Southeastern Asia and the Netherlands East Indies to China and Japan is irrigated rice.<sup>3</sup> Broadly speaking, the great

<sup>2</sup> A brief statement of the thesis which follows was presented to a joint meeting of the Academy of World Economics and The Industrial College of the Armed Forces on May 3, 1946 and published in *Social Research*, October 1946, xxi, No. 4, pp. 306-309, as Trends of Population in Non-Soviet Asia.

<sup>3</sup> Wickizer, Vernon D. and Bennett, M. K.: *THE RICE ECONOMY OF MONSOON ASIA*. Stanford University, California, Food Research Institute, Grain Economic Series 3, 1941, 358 pp. For Japan: Trewartha, Glenn T.: *JAPAN. A PHYSICAL, CULTURAL AND REGIONAL GEOGRAPHY*. Madison, The University of Wisconsin Press, 1945, 607 pp. For Java and the Philippine Islands: Pelzer, Karl J.: *PIONEER SETTLEMENT IN THE ASIATIC TROPICS*. New York, American Geographical Society, 1945, 288 pp. The more detailed pattern of agricultural utilization and population distribution in

historic and contemporary cultures have been rooted in the river valleys and the low-lying plains. Here rural settlement is extraordinarily dense, reaching as high as two thousand persons per square mile of land area in the Ganges Valley of India, the Tonkin delta of French Indo-China, and the valleys of China. But adjacent to the areas of extremely dense settlement are relatively empty spaces, areas that might support much denser settlement than they now have under some type of agricultural utilization other than rice. In French Indo-China 38 provinces outside the rice area occupy 72 per cent of the total land area of the country but contain only 18 per cent of the total population.<sup>4</sup> In 1930, Java and Madura supported 818 persons per square mile, the Outer Islands 28. In Monsoon Asia density is largely a function of the relative prevalence of delta, plain, and mountain land. Within low-lying areas, it is roughly proportionate to the extent and the antiquity of rice agriculture.

The universality of the relationship between paddy rice agriculture and rural population density is due in part to the large subsistence which can be derived from given areas of land, in part to the institutions and values which have evolved and survived as adjustments to the imperatives of a rice economy. Permanent rice agriculture within a given region requires the continuing cooperation of the generations in a stable pattern of relationships. The building of the dykes and irrigation systems, the maintenance of the fertility of the soil, the preparation of the irrigation systems—these represent, not the work of one generation, but the cumulative contributions of generations of men.

The familial social organization which has such high survival value in creating continuity and stability also insures the production of the children who are essential both for biological

relation to the prevalence or absence of lowland rice agriculture can be traced for the various regions of the continent in George B. Cressey's *ASIA'S LANDS AND PEOPLE*. New York, McGraw-Hill Book Co., 1944, 608 pp.

<sup>4</sup> French Indo-China: Demographic Imbalance and Colonial Policy. *Population Index*, April, 1945, xi, No. 2, pp. 68-81.

survival and for economic welfare. The population of a village or a region may be superabundant, but the individual couple without attachment to a larger family group or the labor of their children would be in a hopeless economic situation.

The peoples of the rice areas of Monsoon Asia have always expanded beyond the margin of permanent subsistence, whatever the system of technology.<sup>5</sup> The pressures developed in the settled areas forced expansion outward whenever and wherever technical and cultural conditions permitted. Traditionally such expansion was a slow movement that left relatively untouched the strong familial and local area focus of existence. The Yamato people reached southern Honshu by the first century A.D., but it was a thousand years before they reached northern Honshu, while Hokkaido remained empty in the late nineteenth century. The Annamite peoples reached the Tonkin delta in the tenth century A.D., but it was the nineteenth century before they penetrated the Mekong delta of Cochin China.<sup>6</sup> Closely related to this process of agricultural expansion was the flight from calamity that must have been periodic in all areas prior to the modern period, just as it is today in the famine provinces of North China. There was a development of cities as centers of government, of trade, and of luxurious living for the elite. All these movements produced physical changes in the distribution of people; some of them, especially the agri-

<sup>5</sup> Dr. Chen tentatively explains the cyclical nature of Chinese political and demographic history in terms of this recurrent tendency to the over-production of people. Chen, Ta: *POPULATION IN MODERN CHINA*. Chicago, The University of Chicago Press, 1946, p. 4.

<sup>6</sup> Occasionally these movements may have been merely the outward thrust of individual families escaping the hard existence within the settled center. More often they were the population correlates of an organized extension of the area of occupancy made possible by military, technological, or financial expansion. The Japanese expansion northward in Honshu was the result of military activities, government extension of irrigation systems, subsidized settlement, etc., while the southward expansion of the Annamites occurred through an organized system of military-agricultural colonization. The migrants into Manchuria followed technological developments (the railroads) and capital investments that provided employment opportunities superior to those in the land of origin. But the pressure of people on the resources available to them was so ever-present that out-movements could and did occur whenever changed political, technological, economic or social factors made them possible. The nature of historic and contemporary Asiatic movements is discussed in Part I of Bruno Lasker's *ASIA ON THE MOVE*. New York, Henry Holt and Co., 1945, 207 pp.

cultural expansion, increased the resources available for the support of the population. But they were fundamentally movements within an agrarian matrix that left growth dependent on a high and fluctuating mortality. Even in the seeming exception, Tokugawa Japan, infanticide and abortion were comparable psychologically to a premature infant mortality rather than to fertility control in the modern sense. Migrations were a necessary reaction of people to the vicissitudes of existence. They served to expand cultivated area and to increase the number of people, but they could be only temporary palliatives for the perennial problem of the rice areas, the growth of population beyond the possibilities of subsistence on the land and with the resources and techniques available to it.

#### THE IMPACT OF THE WEST<sup>7</sup>

The economic and demographic impact of the expanding culture of the West on the rice economies of Monsoon Asia differed only in degree from previous changes that had operated to expand the resources base and quicken the rate of population increase. The gradual penetration of the West meant the extension of areas of civil order, epidemic control, minimum protection against endemic disease, and famine limitation through regularization and increase of production and emergency relief. It meant the increase of subsistence both through increased yields from already cultivated acreage and through increased acreage under cultivation. Mortality was limited sufficiently to produce rapid growth as long as the fertility patterns essential to survival in the premodern period continued intact—and as long as subsistence increased rapidly enough to permit the maintenance of the lowered death rates.

The dynamics of population in Formosa reveal in miniature

<sup>7</sup> A comprehensive analysis of both the static and dynamic relationships between population and resources in the Pacific area has recently been published by Warren S. Thompson as: *POPULATION AND PEACE IN THE PACIFIC*. Chicago, University of Chicago Press, 1946, 397 pp. *See also*: Pelzer, Karl J.: *Population and Land Utilization. Part I in* Field, Frederick V. (Editor): *AN ECONOMIC SURVEY OF THE PACIFIC AREA*. New York, International Secretariat, Institute of Pacific Relations, 1941, 215 pp.

the interplay of geographic, cultural, economic, and political forces which created the population growth that was the almost insoluble dilemma of prewar colonial administration.<sup>8</sup> Formosa was a relatively empty island until the seventeenth century, when it was added to the Empire of the Manchus. Immigration from the crowded mainland provinces of Fukien and Kwantung and high fertility resulted in irregular but continuing population increase, despite economic and health difficulties and a general state of political turbulence. By the end of the nineteenth century the island's population numbered perhaps three million. Then in 1895 the Treaty of Shimonseki awarded Formosa to the Japanese. The effective occupation of the island required the restoration or the imposition of order, while economic exploitation required the development of health and sanitary conditions that would attract Japanese migrants and insure the maintenance and increase of the local labor force. Water works were constructed in the cities, and compulsory vaccination was introduced. Roads and railroads were constructed to permit the expansion of military and civil control and to move the products of the land to the coastal cities for shipment to Japan or abroad. The cultivated area was expanded, techniques were improved, better varieties of crops were introduced, and production was concentrated on those commodities needed by Japan. The native Chinese peoples were maintained in relative isolation from the outside world, with minimum possibilities for individual or group cultural and economic advancement. Their function was that of labor in a commercial agriculture that was to assist in eliminating the dependence of Japan on foreign sources and to contribute to her foreign exchange.

The inevitable result of Japanese administration in Formosa was a decline in the death rate without either a concomitant or a delayed decline in the birth rate. Recorded death rates decreased consistently from 33 per 1,000 population in 1906-1909

<sup>8</sup> Colonial Demography: Formosa. *Population Index*, July, 1944, x, No. 3, pp. 147-157.

to 20 in 1935–1937, aside from a temporary increase during the period of the First World War. By 1926–1930, the infant death rate had been reduced to 174 per 1,000 live births, while the expectation of life at birth for males had reached 39 years. Birth rates, on the contrary, remained relatively constant, ranging from 40 in 1906–1909 to 44 in 1935–1937. The gross reproduction rate was 3.4 in both 1929–1931 and 1934–1936. Net reproduction rates were above 2.0.

The story of Formosa was repeated in its essential details in Korea, Manchuria, the Philippine Islands, the Netherlands East Indies, French Indo-China, Thailand, and India. In some areas, as in Manchuria, there were substantial possibilities for increased agricultural productivity and hence for the continued maintenance of an increasing population within the existing political and technological system. In others, notably Java, the Tonkin delta of French Indo-China, the middle Ganges, and parts of Korea, the population was or soon would have been beyond the limits of permanent subsistence at existing technological levels.

Theoretically there were two solutions to the demographic dilemma of Monsoon Asia: the one, to initiate the transformations that would lead to a reduction of the birth rate; the other, to further intensify and expand production within the existing territory or move people outside into whatever empty or sparsely utilized areas were available. The former solution, which would have tended to an eventual balance between people and resources within given areas, could not be adopted because it would quicken social mobility and discontent among the native peoples and undercut the economic basis of the colonial system itself. The latter, the intensification or extension of agricultural cultivation, was made difficult by the increasing capital expenditures required and the relative scarcity of other than sub-marginal land. Even if temporarily successful, the intensification of agriculture and the expansion of land settlement in the existing cultural matrix could only postpone the population problem created by the profit-motivated dif-

fusion of Western technology.<sup>9</sup> Migration which lessened the number of people within a fully utilized area or increased the amount of land available for their support might result in a temporary improvement in levels of living, but its permanent effect could be nothing other than an increase in the number of people and the equalization of poverty in the old and the new areas.

### THE FUTURE

The colonialism of the nineteenth and early twentieth centuries created the demographic basis from which the future of most of Monsoon Asia must evolve. One billion people now live where only one-fourth that number lived three centuries ago. To project this past trend into the indefinite future could be nothing other than an exercise in the arithmetic of extrapolation. The trends of the past could not have continued for other than a limited period of time, even without the war. How limited it would have been, no one can predict; it would have depended on the extent to which order and stability were maintained, the rapidity of the technical developments, the intensity of the ameliorative programs, and the extent to which the entire product of the land was devoted to the sustenance of people. Sooner or later, unless the economic and cultural changes that lead to the alteration of familial mores and declining fertility had been introduced, demographic catastrophe would have been inevitable.<sup>10</sup> Perhaps it would have come through political disorders, famines, and epidemics, perhaps

<sup>9</sup> The literature on the potentialities and limitations of international migration as partial or complete "solution" to Asia's population problems is immense. Perhaps the most comprehensive of the pro-migration pleas is Radhakamal Mukerjee's *MIGRANT ASIA*. Comitato italiano per lo studio dei problemi della popolazione, Pubblicazioni, Ser. III, Vol. I. Roma, Tipografia I. Failli, 1936, 310 pp. The most incisive statement of the limitations to such migration is W. D. Forsyth's *THE MYTH OF OPEN SPACES*. Melbourne, Melbourne University Press, 1942, 226 pp.

<sup>10</sup> This same statement might have been made of the Europe of the early nineteenth century as described by Marcus Hansen in *THE ATLANTIC MIGRATION*. Cambridge, Mass., Harvard University Press, 1940, 391 pp. Hansen compares the role of the potato in the Western Europe of the early nineteenth century with that of rice in China. Malthus' own work was an extrapolation of the then existing conditions into the future on the assumption that fertility remained relatively unchanged, and hence is directly comparable to the projection of the dynamics of this prewar demographic situation of Southern and Eastern Asia into the indefinite future.



through the less spectacular process of progressive enervation and slowly mounting mortality.

To say that demographic catastrophe was inherent in the continuation of the trends of the prewar period is not to say that it is inevitable. If the fertility of the peasants of the cultures that fringe the Asiatic continent were unalterable, then indeed lowered mortality could be only transitory, but there is abundant empirical evidence within Asia itself that fertility is a culturally determined variable. Its seeming stability reflects merely the essential continuity of the social and economic environment over the endless generations in which men have tilled the soil. Within the Korea of the 'twenties and 'thirties crude birth rates were 46 to 48 per 1,000 total population, while gross reproduction rates approached 3.5.<sup>11</sup> But both crude birth rates and gross reproduction rates revealed wide variations within this general pattern of high fertility, the lowest rates being found in the relatively urban provinces of the South and West, the highest rates in the agricultural and less densely settled provinces of the North and East (Figure 1). Urban-rural differentials were pronounced; the gross reproduction rate of each city in Korea was appreciably below that of the province in which it was located. This same general pattern of fertility differentials existed in Kwantung and Manchuria. In all regions, rural and urban, industrial and agricultural, fertility was lower for the economically dominant Japanese than it was for the Chinese, the Manchus, and the Mongols.<sup>12</sup> The highest fertility was that of the agricultural Koreans of Chientao Province, where the gross reproduction rate of 3.6 reached the heights characteristic of the parent population within the northern provinces of Korea itself. The gross reproduction rates for the Manchurian population reached 3.4 in East Hsingan, declining progressively with increasing urbanization and

<sup>11</sup> Korea in Transition. Demographic Aspects. *Population Index*, October, 1944, x, No. 4, pp. 229-242. Taeuber, Irene B.: The Population Potential of Postwar Korea. *The Far Eastern Quarterly*, May, 1946, pp. 289-307.

<sup>12</sup> Manchuria as a Demographic Frontier. *Population Index*, October, 1945, xi, No. 4, pp. 260-274.

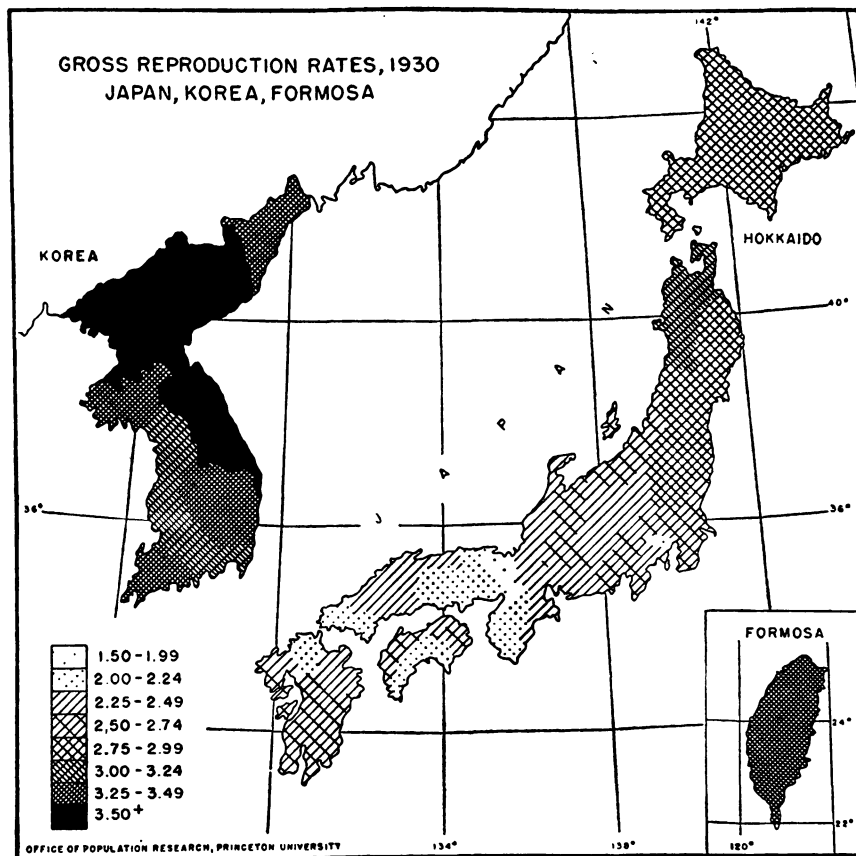


Fig. 1. Gross reproduction rates, 1930. Japan, Korea, Formosa.

increasing migration to reach a low of 2.6 in Kwantung and the South Manchuria Railway Zone in 1935. The reproductive performance of the Manchurian people within the cities is indicated by the gross reproduction rates of 2.2 for Mukden and 2.3 for Harbin in 1940.

This experience within Asia itself indicates that the high and relatively unchanging fertility of the peoples of Southern and Eastern Asia may be due only to the fact that the groups subject to the influence of the new constitute such a small proportion of the total population.<sup>13</sup> If so, the technological and

<sup>13</sup> For an analysis of the experience of India, *see*: Davis, Kingsley.: Demographic  
(Continued on page 31)

social changes essential to the increase of industrial product and the improvement of levels of living may be accompanied by declines in fertility, just as they were earlier in the West. But here there is another demographic difficulty. If the East follows the West, the initial effect of the industrial and agricultural developments essential to the increase of product will be further decreases in mortality and an accelerated rate of natural increase. The increase thus generated may jeopardize or make impossible the increasing levels of living that would hasten the diffusion of patterns and values that lead ultimately to slowing fertility and the cessation of growth. The crucial demographic problem for the Asia of the coming decade thus becomes the rate of decline in fertility.<sup>14</sup> The decline in mortality is a dependent variable; to attempt to prevent it would not only be contrary to basic humanitarianism but would retard the rapidity of the economic and cultural transformations on which the attainment of ultimate balance probably depends.

The future population problems of an industrializing Asia can be seen only dimly. The integration of research on agricultural, industrial, and resources potentialities and capital formation is a necessary precondition to meaningful assessment of the demographic future of the area as a whole or any of its regions. Unless and until this is done, discussion of population trends remains somewhat vague and conjectural. None the less, in Asia the numbers are so great, the pressure of people on the land so intense, that analysis of economic potentialities without consideration of existing demographic conditions and the effect of economic changes on population dynamics would be naive if not futile. The intricate interrelationships that will exist between agricultural and industrial developments, popu-

Fact and Policy in India. A chapter in DEMOGRAPHIC STUDIES OF SELECTED AREAS OF RAPID GROWTH. New York, Milbank Memorial Fund, 1944, pp. 35-57. Also: Human Fertility in India. *The American Journal of Sociology*, November, 1946, lii, No. 3, pp. 243-254. For China, see: Chen, Ta: *Op. cit.*, pp. 25-31. For a broad resume of historical and contemporary non-European patterns of differentials in urban-rural fertility, see: Jaffe, A. J.: Urbanization and Fertility. *The American Journal of Sociology*, July, 1942, xlviii, No. 1, pp. 48-60.

<sup>14</sup> Notestein, Frank W.: Problems of Policy in Relation to Areas of Heavy Population Pressure. In Milbank Memorial Fund, *op. cit.*, pp. 138-158.

lation redistribution, and rates of population increase can be illustrated from the experience of Japan, the one area within Monsoon Asia that achieved both a substantial degree of industrialization and a rapid decline in fertility.<sup>15</sup>

#### THE EXPERIENCE OF JAPAN<sup>16</sup>

The population of Japan had changed relatively little in the hundred and fifty years prior to 1868, but the apparent stability was the result of a precarious balance between high mortality, periodically raised by famine and epidemic, and high fertility, irregularly undercut by abortion and infanticide.<sup>17</sup> Four of every five persons were directly dependent on agriculture; only one in twenty lived in a city of 50 thousand or more. The transition to an industrial, urban economy was rapid. By 1930 only 47 per cent of the total gainfully occupied population was in agriculture (Figure 2). Both mortality and fertility declined, but the prior decline of mortality resulted in an accelerating rate of natural increase and an increasing labor force. The total population increased from 34.8 million in 1872 to 73.1 million in 1940. The need for migratory outlets for this expanding people was a recurring motif in the literature on Japan's population problem. The need for land for the surplus peasants of Japan was used to rationalize the occupation of Formosa, Korea, and Manchuria, while the failure of land settlement in these areas became the basis for the thesis that the

<sup>15</sup> Here again, in order to make even a broad resume manageable within a few pages, emphasis will be placed on the formal description of the urban transformation and its impact on fertility. A more detailed description and analysis of the interrelationships between migration and the economic and demographic transition that occurred in Japan in the seventy-five-year period from the Meiji Restoration of 1868 to the Surrender of 1945 will be presented later as a section of a monograph on the demography of Japan. The industrial developments that underlay the demographic transitions of the recent period, and the population changes themselves, are described in: Schumpeter, E. B. (Editor): *THE INDUSTRIALIZATION OF JAPAN AND MACHOUKUO, 1930-1940. Population, Raw Materials and Industry*. New York, The Macmillan Co., 1940, 944 pp. See especially E. F. Penrose's section, Japan, 1920-1936, pp. 80-270.

<sup>16</sup> Detailed citations to the sources used in the analysis of both migration and fertility can be found in: Taeuber, Irene B. and Beal, Edwin G., Jr.: Guide to the Official Demographic Statistics of Japan. Part I. Japan Proper, 1868-1945. *Population Index*, October, 1946, Supplement xii, No. 4, pp. 1-36.

<sup>17</sup> Taeuber, Irene B. and Beal, Edwin G., Jr.: The Dynamics of Population in Japan. A Preliminary Report. *In* Milbank Memorial Fund, *op. cit.*, pp. 1-34.

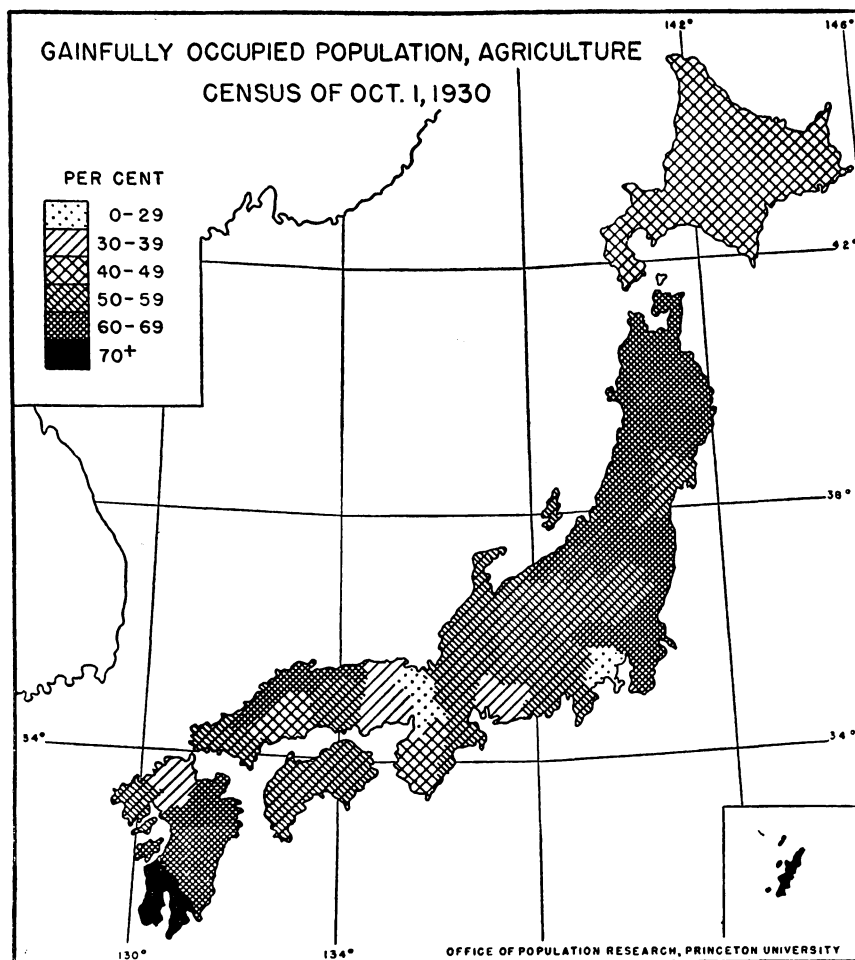


Fig. 2. Japan. Per cent of gainfully occupied population in agriculture, census of October 1, 1930.

Japanese would not migrate and hence that international migration was not relevant to the solution of their problems.

Actually, the Japanese did move, both within and without the empire. During the long seclusion of the Tokugawa Shogunate there were by legal definition neither Japanese abroad nor aliens in Japan. In 1880 there were only five thousand Japanese civilians outside Japan Proper; in 1920 there were 1.3 million; in 1940, there were 3.6 million. Between 1920 and 1940 there was a net out-migration of 1.7 million civilian

Japanese aged ten or above, most of them to the prewar empire or the conquered areas. Japanese outside Japan Proper in 1940 amounted to almost 5 per cent of the 75.4 million Japanese in the world; the increase in their numbers between 1872 and 1940 amounted to approximately 10 per cent of the increase of 37 million which occurred within Japan Proper. The movement was highly selective as to both social-economic status and age. While Japanese moved out to achieve superior status in the government and industry of the conquered areas, Koreans moved in to supply Japan's needs for labor in agriculture and in industry. Numerically the two movements approximately balanced. In the absence of any international or inter-empire migration between 1920 and 1940 the Japanese population of Japan in 1940 would have been only one half of one per cent above the total population enumerated in the census of October 1, 1940. International and inter-empire movements were primarily the human correlates of the economic and imperial expansion of the nineteenth and twentieth centuries, not the exodus of poverty-stricken peasants to a life offering only subsistence on an agricultural frontier.

There was frontier expansion to serve as a demographic safety valve for Japan during the early decades of industrialization and modernization, but it was an internal movement to the northern islands of Hokkaido.<sup>18</sup> In 1868, Hokkaido's 89 thousand square kilometers were inhabited by only 60 thousand Japanese and a few thousand Ainu; in 1940, the 3.3 million Japanese in Hokkaido constituted almost one-twentieth of the Japanese resident in Japan Proper. Between 1868 and 1920, Hokkaido's population increase of 2.4 million was 11 per cent of the total increase of 21 million that occurred within Japan Proper. Even this over-all rate of absorption does not measure the contribution of the northern frontier to the demographic difficulties of an industrializing Japan, for Hokkaido's migrants came predominantly from the more backward areas

<sup>18</sup> Hokkaido and Karafuto: Japan's Internal Frontier. *Population Index*, January, 1946, xii, No. 1, pp. 6-13.

of Honshu; she had absorbed 10 per cent of the total number of provincial migrants enumerated in the 1930 census, but 37 per cent of those from the six northern provinces. This frontier movement was minor after 1920, however, for the youth of Hokkaido were maturing. By 1930 surplus manpower was moving out to other regions of Japan Proper, to Karafuto and to Korea.

Japan's extension of land settlement within the southern islands and her frontier expansion into Hokkaido were integral parts of the planned transformation of the handicraft feudalism of the Tokugawa period into the military-industrial feudalism of the modern period. The increase of agricultural production within Japan Proper and the development of the resources of Formosa and Korea supported the total population of Japan Proper at generally increasing levels of per capita consumption, while Hokkaido formed a part of the expanding mining, industrial, and commercial nexus of the new Japan. In fact, Hokkaido illustrates in almost experimental form the contributions and the limitations of pioneer settlement, whether agricultural or industrial, as a solution to problems of population pressure in densely settled regions with high rates of natural increase. The emigration of a portion of the surplus population of the densely settled rural areas to the frontier contributed to an increasing national income and an improving balance between people and resources, but its contribution to the reduction of national fertility was limited. The migrants to the expanding frontier in the north retained relatively intact the high fertility patterns of the rural areas from which they came. There was a secular drift downward, since the people of the maturing frontier were also subject to the economic pressures and the cultural transformations of the larger industrializing society. Land settlement and frontier expansion, whether within or outside Japan, were demographic palliatives during a period of rapid economic transformation. They were not permanent solutions, for, once occupied, the frontier regions became areas of population pressure that required still fur-

ther migratory outlets to maintain a continuing balance between expanding numbers of youth and employment opportunities.

For Japan as a whole, the primary migratory process was neither international migration, movement within the Empire, land settlement, nor frontier expansion, but the absorption of the natural increase of the rural areas in the cities and in non-agricultural occupations. The farm population remained superabundant even for the technological levels of Japanese agriculture, but there was no general pile-up on the land during Japan's period of rapid increase. If the occupational statistics can be trusted, the number of families dependent on agriculture in 1939 was actually less than it had been in 1886.

Analysis of the detailed dynamics of change in the population of the rural areas of Japan is handicapped by the fact that there is no meaningful classification of urban and rural in the Japanese statistical system. If we use the official Japanese definition of "rural" as including all people outside the boundaries of incorporated municipalities, the "rural" population increased from 45.9 million in 1920 to 46.6 million in 1935, then decreased to 45.5 million in 1940. If we hold the incorporation factor constant by taking the population living at each census date within the boundaries of cities as they existed in 1941, then the "rural" population increased from 39.4 million in 1920 to 44.7 million in 1940, a 14 per cent increase in twenty years. If we take the population living outside towns of 10 thousand or more, which Japanese students regard as a more realistic definition of rural, then there was a decline from 37.9 million in 1920 to 36.6 million in 1940. This comparison is invalidated to an unknown extent by the fact that towns may increase to over 10 thousand either by population increase or by consolidation, and there is no measure of the latter.

Whatever measure of the rural population is taken, it is apparent that it changed relatively little in the period from 1920 to 1935, and decreased from 1935 to 1940. However, there were wide regional variations, with a pile-up in the agricultural



provinces of the northeast and depopulation in the regions surrounding the large cities and in the southwest.

The population increase of any limited area is a function of both natural increase and net migration. In Japan, as in all countries of the West, fertility was highest in the most agricultural provinces, lowest in the most urban provinces (Figure 1). Migration, on the other hand, was related not only to the existing pressure on the land and the theoretical availability of migrants but to the nearness and the desirability of employment opportunities outside agriculture and the suitability of the potential migrants to take advantage of the employment opportunities available. In the period from 1920 to 1940 all Japan contributed to the development of eight provinces: the six containing the cities of Tokyo, Yokohama, Nagoya, Osaka, Kobe, and Kyoto, and the newer mining and heavy industry centers of Fukuoka and Yamaguchi, the latter gaining only in the armament period from 1935 to 1940. Interprovincial migration was highest, not where fertility was highest and economic levels lowest, but where opportunities were most easily accessible and a tradition of migration established. The provinces losing the largest proportion of their natural increase by net migration were those adjacent to the Big Six metropolitan provinces and the southwestern provinces; the provinces with the highest rates of natural increase were those of the northeast.

The impact of this pattern of provincial gain and loss by migration on the labor force and the social-economic structure was greater than even the overall numbers indicate. The 1930 place-of-birth statistics show that the provinces containing the Big Six cities and Fukuoka had had a net gain by interprovincial migration amounting to 24 per cent of their 1930 population, while the other 40 provinces had had a net loss of 11 per cent (Figure 3). But at each age between 15 and 50 the seven metropolitan provinces had gained over 30 per cent of their manpower by net migration, while the other 40 provinces had lost over 15 per cent. The age pattern of this migration is

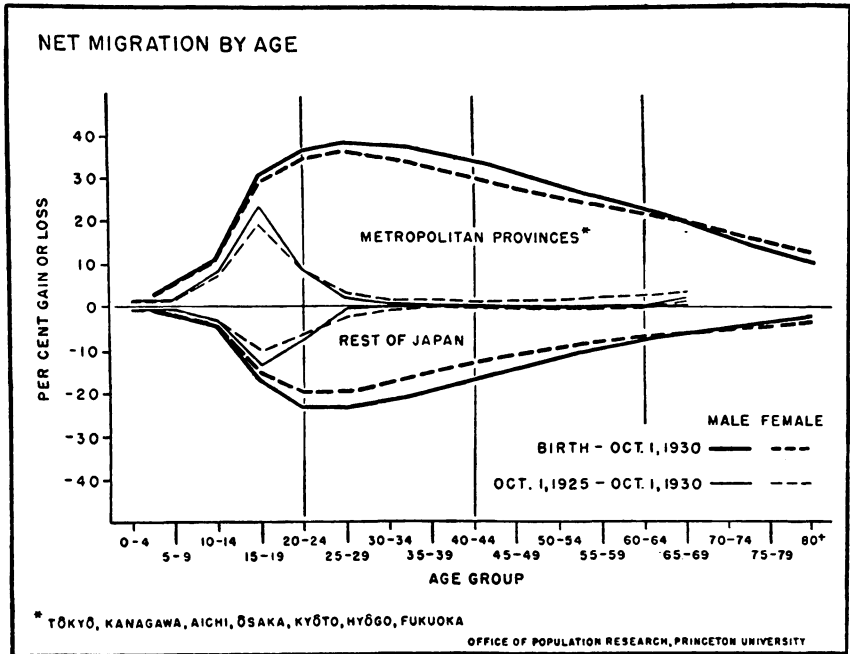


Fig. 3. Net migration by age, metropolitan provinces and remainder of Japan from: I. Birth–October 1, 1930 II. October 1, 1925–October 1, 1930.

indicated roughly by the age pattern of the net migration between 1925 and 1930. Net gain or loss by migration reached its maximum in the age group 15–19, where for males the seven metropolitan provinces gained a number equal to almost one-fourth their total 1930 population, while the other 40 provinces lost 14 per cent. An analysis of the age pattern of net migration for these same areas at successive censuses indicates that the seven metropolitan provinces held the high net immigration at ages 15–19 and absorbed still more migrants at ages 20–24 and 25–29. After age thirty, gains and losses by migration approximately balanced.

The net movement of youth from the farms and the rural areas of Japan prevented the development of an increasing pressure of population on the land while Japan passed through her period of rapid population increase. It also provided the demographic base for the rapid growth of cities that accompanied the transition from agrarian feudalism to industrial

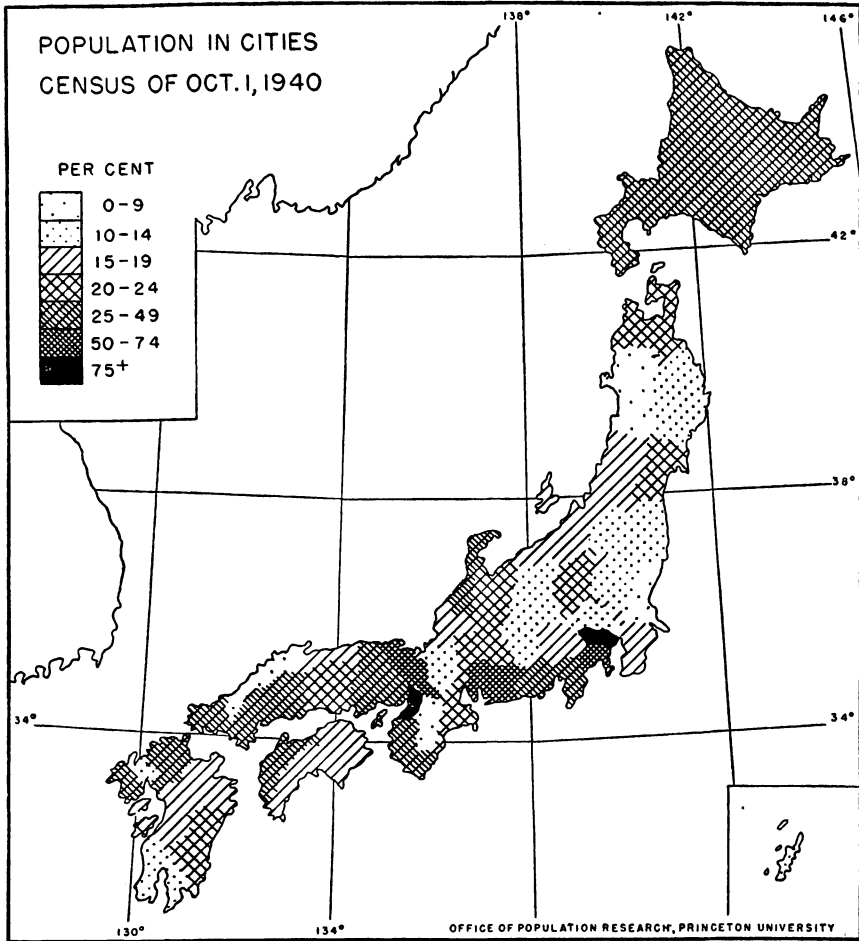


Fig. 4. Japan. Per cent of the population in cities, census of October 1, 1940.

militarism. In 1940, 27.6 million people, 38 per cent of the total population of Japan, lived in the 168 incorporated cities. One-fourth lived in cities of 100 thousand and over, 18 per cent in the Big Six cities alone (Figure 4).

If the progressive urbanization of Japan had been accompanied by no changes in fertility, it would have meant only temporary escape from the perennial problem of the rice areas, the balancing of numbers and the means for their subsistence. Urbanization, however, was more than the physical movement

of people from one area to another. It was a transition from the countryside to the city, from agricultural to non-agricultural work, from a subsistence to a money economy. It lessened the rigidity of the family system and the compulsive force of the traditional mores. Furthermore, the children who were essential to economic well-being and social status in rice agriculture depressed the level of living and increased the inconvenience of life in the cities. The traditional family patterns of the Japanese peasant migrant yielded and fertility declined rapidly.

Fertility at the time of the Meiji Restoration was probably at a level represented by a gross reproduction rate of 3.2 to 3.6. By 1920 the gross reproduction rate for the nation as a whole had declined to 2.7. From 1920 to 1940 decline was characteristic of all areas of Japan. The gross reproduction rate for all cities declined from 2.1 in 1920 to 1.8 in 1935; that for the Big

Table 1. Japan. Gross reproduction rates, 1920-1940, actual and hypothetical.<sup>1</sup>

AREA	1920	1925	1930	1935	1940
	ACTUAL TRENDS				
TOTAL <sup>2</sup>	A.2.66 B.2.70	2.61 2.57	2.40 2.36	2.31 2.21	2.06 2.04
Non-city	2.86	2.76	2.56	2.49	—
City	2.07	2.02	1.82	1.75	—
Under 50,000	2.09	2.14	1.86	1.84	—
50,000-99,999	2.19	2.09	1.93	1.81	—
100,000 to "Big Six"	2.28	2.12	1.92	1.81	—
"Big Six"	1.98	1.93	1.73	1.70	1.61
	HYPOTHETICAL TRENDS				
I. City Population as in 1920, Fertility Changing	2.70	2.61	2.43	2.37	2.37
II. City Population Changing, Fertility as in 1920	2.70	2.67	2.64	2.56	—
III. City Population and Fertility as in 1920	2.70	2.71	2.72	2.73	2.74

<sup>1</sup> Age distributions from the Census of October 1, 1940 are available only for the total country, provinces, and the "Big Six" cities.

<sup>2</sup> Actual Total A is based on the most precise possible estimate of the number of births for Japan as a whole; Actual Total B is based on the sum of the estimated number of births occurring in city and non-city areas.

Six cities of Tokyo, Yokohama, Nagoya, Osaka, Kobe, and Kyoto declined from 2.0 in 1920 to 1.6 in 1940; that for the population outside cities declined from 2.9 in 1920 to 2.5 in 1935 (Table 1).

The influence of urbanization is measured only in part by decline in the fertility of the city population, for the continuing movements of people between urban and rural areas facilitate the diffusion of urban influences throughout the countryside. The movement of an increasing proportion of the total population from high-fertility rural areas to low-fertility urban areas further depresses national fertility. This influence of the changing proportions of city and non-city populations on national fertility can be assessed quantitatively. The national gross reproduction rate for Japan declined from 2.7 in 1920 to 2.3 in 1935. Two-thirds of this decline in national fertility was due to the decline in the fertility of city and non-city areas, one-third to the transfer of people from one type of area to the other.<sup>19</sup> If we add to this one-third the proportion of the decline in national fertility that was due to the decline of fertility within cities and the proportion of the decline in non-city fertility that was due to the influence of the rural-urban movement, it becomes apparent that the decline in fertility was essentially a correlate of the urbanization process.

#### SUMMARY AND CONCLUSIONS

From the first movements of Stone Age men into the low valleys along the Pacific shores, Asia has been at once the land of the peasant and the land of the migrant. Permanent rice agriculture required the continuing cooperation of the generations in a stable pattern of relationships. Traditional behavior, the identity of past, present, and future as an eternal and unchanging process, the repudiation of the deviant, the abhorrence of change—these were the psychological characteristics that accompanied the familial social structure and, in conjunction with it, facilitated survival in the rice deltas for hundreds

<sup>19</sup> This transfer may be due to physical movement or to the incorporation of a non-city area of residence into a city.

or even thousands of years. But biological survival was achieved at the cost of a recurrent over-production of people in relation to the resources available for their support. Periodic maladjustments within the settled areas generated pressures that forced peasants outward to occupy new lands, but since the familial mores were transferred intact the ultimate effect of such migrations was not the relief of pressure but an increase in the number of people living under pressure. Migrations throughout the long history of Asia served to diffuse people, culture, and poverty, not to solve population problems.

The family and local group mores that had facilitated survival in the premodern period produced severe maladjustments when Western economic and political expansion resulted in a lessening of the forces of mortality that had made high fertility essential. The international migrations, the intensification and rationalization of agricultural production, and the settlement of new lands which accompanied the colonialism of the nineteenth and twentieth centuries were palliatives for this imbalance between levels of fertility and mortality, not permanent solutions in the sense that they contributed materially to the achievement of a balance between people and developed resources within local areas or for the continent as a whole. It is the fundamental tragedy of Asia that three centuries of population increase had to occur with only minimal declines in fertility, without which there can be no permanent humanitarian solution to the population problem. Population quadrupled, the empty lands were utilized, but population potential remained essentially unimpaired.

Neither international migration nor land settlement which occurs within the existing economic and cultural matrix can do more than postpone briefly the demographic tragedy inherent in the continued proliferation of Asia's peoples. But international migration, land settlement, internal redistribution, and urbanization which are aspects of expanding agricultural and industrial economies can contribute substantially both to the support of Asia's population during the period of accelerated

growth that accompanies modernization and to the retardation of that growth. In Japan, international migration and land settlement provided support for appreciable proportions of the natural increase generated by the modernization process and contributed to the economic and political development of both Japan Proper and the Empire, but it was the movement of the peasant to the city that was of preeminent importance. Urbanization reduced the pressure of people on the land, lowered the fertility of the peasant migrant in the city, and diffused the new values throughout the rural areas.

The demographic history of Imperial Japan parallels that of the nations of the West, except that both urbanization and the transition from high to low fertility were accelerated. If this experience of the one nation in Monsoon Asia that has achieved a substantial degree of industrialization can be transferred to project the future of the other cultures, industrialization and urbanization will lead eventually to declines in fertility that will first lessen and then eliminate the growth that accompanies modernization. There are two major uncertainties, however. The first concerns the validity of the assumption that the East is to achieve internal order, increasing agricultural productivity, and an expanding industrial economy. The second is whether, even under these circumstances, international movements, frontier expansion, urbanization, and declining fertility can operate rapidly enough to permit an accelerating decline in mortality such as that which accompanied the industrialization of the West and Japan. In Asia numbers are so great, the pressure of people on subsistence so intense, that time is crucial. Asia cannot afford to permit the transition from high to low fertility to evolve as a by-product of the pressures and the stimuli generated by the urbanization process. Levels of living, perhaps existence itself, for a large portion of that half of the world's people who live within Monsoon Asia may depend on the rapidity of the cultural developments through which numbers are related directly to the potentialities for their support within the familial social structure of the rural areas themselves.