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## A FEW ASPECTS ABOUT THE ECONOMIC GEOGRAPHY OF JAPAN\*

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Japan is a narrow and mountainous country with a very high population density. The total area of several hundreds of islands is smaller than the two states of Washington and Oregon, combined, and the population of Japan reached the 100 million mark last summer.

Japan is a surprisingly hilly country. She is a group of mountainous islands off the big Asian continent. If I could overexaggerate, you might compare Japan as your Pacific coastal range appearing above the ocean, with the lowland running from the Puget Sound to the Willamette Valley drowning under the sea level.

The climate of Japan is as a whole subtropical, warm and rainy. The climate of our capital, Tokyo, can be compared with that of Richmond, Virginia.

But it is not well known that Japan is rather cold in winter and a big part of Japan facing northwest has much snow in winter. This fact is not well known even by the Japanese people who live in such big metropolitan centers as Tokyo and Osaka which lie on the southeastern side where the weather is dry in winter. But with a two hour train ride to the north they can ski in deep snow.

The major islands of Japan except Hokkaido were settled from the very old time by people who lived by agriculture. Rice cultivation was introduced scores of centuries ago and has been the dominant type of agriculture since. The yield of rice per acre is high and it can be grown on the same field year to year successively. Japan is an island-country and fortunately was separated from the political changes and wars on the continent and has a peaceful history. The population increased continuously and reached some 30 million just three centuries ago. This 30 million meant that population density of Japan was 250 person per square mile or more than 1500 per square mile of land in cultivation. Then came two centuries of stagnation of population. Japan could not feed a larger population.

In 1868 we had a big political change. The old system of many semi-independent feudal states (controlled loosely by the central government) was switched into a regime of a powerful central government lead by enlightened

\* This article is based on a lecture given to the students from Portland, Ore. in the summer 1967.

officials. The closed-door policy was abolished. Modernization on education and all branches of productive industries took place. To understand the condition of present-day Japan, it is important to know the condition of life in Japan a century ago. Japan was then a pure agricultural country with five-sixths of people living by agriculture. In a few places there existed rudimental manufacturing industries, especially textile industries. We had a few big cities, two or three of them, like Edo (now Tokyo), Kyoto and Osaka with more than half a million population where merchants and craftsmen prospered. But as a whole Japan was a densely populated, poor, agricultural country without any modern techniques and stock of capital. Please imagine a country where there was not one mile of road adequate for horse-wagons and no bridges nor ferryboats on big rivers. Cargo had to be carried on horseback or human shoulders. People crossed rivers on sedans or usually on their legs.

One point could not be missed, however. Because of the long internal peace we had accumulated a degree of technical skill in the field of production and public education was developed fairly. From several sources we can estimate the rate of literacy in Japan were about 45-50 percent for men and 20-25 percent for women at the end of this era.

I will not discuss the economic development of Japan in the last century. But always we has suffered from the lack of natural resources and stock of capital. The population has increased from 30 million to 100 million in a century and this has had two different effects: first, always we had problems of underemployment and unemployment, on the other hand with low wages we could compete favorably in the export market. And savings and investment have always had high level.

The industrialization of Japan started with textile industry. We had technical experience and a domestic supply of one material: raw silk. Then cotton spinning and weaving became more important, as we began importing cotton from India and the United States. The cotton spinning industry was located first in the big cities but moved afterwards to the rural area, seeking cheaper wages and to-day you can not find any cotton mill in Tokyo. Our cotton industry had its best time in 1920's and 30's. It is not so prosperous now and is fighting with the products from Hong Kong, India or China.

Our iron and steel industry has an unusual history. Japan is not rich in iron ore and coking coal. Always we have had to import these materials. For steelmakers it was more profitable to import scrap steel from the United States and turn these scraps again into steel, using an open hearth or electric hearth. They sold the final rolled products to the arms or machine industry. So some biggest steel mills were located next to the piers of our biggest harbour: Kobe. We had only one steel mill with blast furnaces in north Kyushu, using imported iron ore and coking coal from China, and this

company could not make a profit and was supported by government money.

Since World War II, the whole structure has changed. The government company, divided into two by antitrust law and without government support, had to fight for survival. They introduced very efficient continuous rolling mills. They began to sell their rolled sheets and plates on the market. Open hearth steel mills had a difficult time because supply of scrap steel from the United States and pig iron from government companies were not ample enough and they had new rivals in the market for their products. So they constructed new blast furnaces and tried to integrate and modernize their mills. Competition was fierce among companies. But as a whole this fierce battle had good effects for the Japanese steel industry. With new investments and new techniques, Japan is now the third biggest steel producing country in the world only after the United States and the Soviet Union. We are now exporting large amounts of steel. The cost of production per ton of steel is the lowest in the world and this must be a little amazing for a country without iron ore nor coking coal. We have six big steel companies and these six have some dozen steel mills. All of them are located on the seacoast with their own berths for the big ore-carriers. A few of them have the world's biggest blast furnaces (4500-5000 ton capacity). Most of them are equipped with Basic Oxygen Furnaces and modern rolling mills. We import iron ore from many overseas countries, coking coal mainly from Hampton Roads ports.

Because we had no tradition of using modern equipment, our machine industry developed rather slowly. The textile machine industry was the first section with any success, then came arms industry, stimulated by the big demands from army and navy. After the war, all arms industries were destroyed, but the techniques accumulated by the arms industry had some effects upon the post-war development of our shipbuilding and auto industries.

The electric machine industry existed before the war, mainly making generators, locomotives and such heavy commodities, but after the war it developed remarkably by the new demand of such durable consumer goods as washers, refrigerators and television sets. The location of electric industries is around the two big metropolitan areas: Tokyo and Osaka, but recently began moving to the interior seeking a labour force.

Automobile manufacturing was limited to the production of trucks and buses for a long time. Even in the year 1954, an authority predicted the impossibility of making passenger cars profitably in Japan. But last year we produced more than three million cars, the third after U.S.A. and Germany.\* The biggest car company is located near Nagoya. The location is historically

\* In 1968 Japan produced 4.1 million cars and became no. 2 car producing country in the world.

explained: this automobile company had close relation to an old textile machine company in that area. With the exception of this company and another one at Hiroshima, all of our automobile companies have their plants in Tokyo area and this will be of critical importance for the future of our two biggest industrial areas: Tokyo and Osaka.

Japan is leading the world in the shipbuilding industry and each of her five big shipbuilding companies is now working busy. We have built the world's biggest tanker, about 200,000 dead-weight tonnage, and all of the big companies began re-designing their docks to make capable of handling ships of 300,000 or half a million tonnage. Big shipyards are located on the Pacific Ocean side from Tokyo Bay to the Inland Sea and north Kyushu.

Chemical industry is the section developed later than other branches of the manufacturing industry. Although fertilizer production has a long history, synthetic fibers and plastics are rather new. Yet in this field too, we are competing with the Soviet Union, Britain and Germany for the position of world No. 2 producer. We have to import almost all materials for our chemical industry from overseas countries and again big refineries and petrochemical complexes are found on the Pacific coast. In a few towns with petrochemical works we have the problem of air pollution.

The major plants of our manufacturing industry are located along the Pacific coast, west of Tokyo. This is very natural and also logical. This area has the biggest concentration of population, important as labor force as well as consumer, and the easiest accessibility to all imported materials. The system of communication, accumulation of capital, and last but not the least, the pool of educated people, all these are favorable for the development of this manufacturing belt in Japan. This belt consists of four cores and two corridors connecting these cores. Two biggest areas, Tokyo-Yokohama and Osaka-Kobe, have one half of Japan's manufacturing production between them.

Around 1965 Tokyo had a population of nineteen million in an area with a diameter of 100 kilometer. (Tokyo-Yokohama conurbation). The Osaka area (Osaka-Kobe conurbation) had twelve million population and Nagoya had six million. As a whole, the area consisting of these three urban centers has some 40% of Japan's population. It is a long and narrow area with the size of Puget Sound-Willamette Valley area stretching from Everett, Wash. to Eugene, Ore. A few scholars began to call this conglomeration of cities the Japanese megalopolis and this megalopolis has as its traffic artery the New Tokaido Line, a completely new electrified railroad with no level crossings. Every day 60 trains leave Tokyo for Osaka, each with 1000 passengers in a twelve car train. Half of them cover the 320 miles in three hours and ten minutes, stopping at two stations, the other half in four hours with ten intermediate stops. But I would suggest you who are

interested in the development of manufacturing industries in Japan a ride on the old Tokaido railroad though it takes eight hours for the same distance. The new line avoids the densely built urban area as far as possible. The old line has views of blighted areas around cities, new suburban housings, and especially views of old dirty factories and modern manufacuing plants located in green areas with their sometimes funny big signs.

It is a safe estimation of our statisticians that this megalopolis will have a population of 70 million in a few decades and although this tendency is considered natural by the shift of our working population into industry and the concentration of management activities into fewer centers, we have to recognize that we shall face many difficulties caused by this big concentration of population.

The zone of dense population continues westward along the coast of the Inland Sea to north Kyushu. Many new factories are being constructed along the Inland Sea. And as the axis for the future extension of the megalopolis, we have already begun constructing a new high-speed railroad in this area. By 1975 the 670 miles between Tokyo and north Kyushu will be connected by this economical and fast mass transit system. Engineers have already prepared their plans for the new line between Tokyo and Sapporo, to complete the trunk line system of ground transportation in Japan. But we can not be optimistic for an overnight train trip between Tokyo and Sapporo. First we have to conquer the difficulties of a ten mile long undersea tunnel, for which we are now boring a test tunnel.

The number of people engaged in agricultural production remained almost on the same level for three quarters of a century, from 1868 to 1940, that is, thirteen or fourteen million (and also we have to remember that Japan had the same number working in field for two centuries preceeding 1868). After the war the number went as high as eighteen million or one half of our working population, because many people could not find jobs in the destroyed cities. But in the last two decades more and more people have left their rural homes to work in the mills, shops and offices of the towns. Ten million people, one-fifth of our working population, are now engaged in agriculture, fishing and forestry. In the last five years we have had a phenomenon never known in Japan except in war time: shortage of manpower. It looks like the Japanese people are now free (not completely free, of course,) from thier chronic or perennial problem, overpopulation, and I am very happy about this. (My home is in a poor quarter of the town and when I was a child, in the days of the great depression, I was impressed so much by the conditions of jobless people.)

Japanese agriculture has been concentrated on food production. We had horse and oxen on our farms but only few efficient plows and we did not milk

cows. The cultivation of cotton, sugar cane and dye plants were destroyed when we opened our market for overseas countries, so traditionally Japanese agriculture has only a few main crops...rice, barley, vegetables and mulberries for feeding silk worms. Today dairy products are getting importance but still the majority of Japanese farms produce rice and live by rice, our dominant crop. By the rapid urbanization and demand for working power in the cities, our farming areas are being transformed into two major types. One is the type of agriculture in the wide rural-urban zone near the big urban agglomeration. This is where the majority of farms are part-time farms, with one or two members of the family working in town, commuting by train, bicycle and motorcycle. (In the future they may commute by car). Among these many part-time farms we have a small number of commercialized farms...specializing in vegetables, fruits, chickens, or dairy cows...utilizing their favorable market conditions. Another type is the farming par excellence. This is where farmers produce such staple commodities as cereals (this means rice), peas and beans, root crops, processed milk products. Northeast Japan with Hokkaido and central and south Kyushu are classified as such areas.

One big problem of Japanese agriculture is the price of agricultural products. With the decrease of people working on farms labor income of our agriculture has been increasing. But this increase can not be compared to the gain in productivity of our manufacturing industries. So, to have a parity of income, farmers have to ask for higher prices of crops which are under price controls by the government. Every year we have a hot "battle of rice prices" between government, consumers and federations of farmers. Farmers can be a strong pressure group with controlled voting powers and this is very true in Japan where farmers are big in numbers, completely organized under powerful federations and where so called agricultural fundamentalism has been strong. But ten or fifteen years of this policy has had the results that the prices of all agricultural commodities are higher, sometime 100% higher, than the price in the world market. A few people are now seriously searching for a more rational policy about our agricultural production and the improvement of farmers' conditions.

I will spend a few minutes talking about the commercial geography and the cities of Japan. For centuries, Osaka had been the commercial capital of Japan. It was an emporium where feudal lords had their warehouses and stocked the products from their territories. At Osaka they sold their commodities. There they borrowed money from the money marchants. Osaka had a degree of independence and the air of the city was full of the spirit of money-making. Education, literature and art prospered under the sponsorship of rich merchants. Whereas Edo, the political center, had many officials of the central government, officials from feudal territories, many crafts-

men making expensive articles for them, and some rich merchants. These merchants became rich, sometimes very rich, due to their personal relations with important persons in the government. So after an occasional shift of power in the government, some of the merchants could lose their fortune rapidly.

Today, Tokyo and Osaka are the two national commercial centers. Almost all the big firms have their headquarters in one of them. For the wholesale trade they are still fighting for first place, for the banking business and stock volume exchanged, however, Tokyo is leading Osaka by the ratio of 2:1. I sincerely hope that a good balance will be kept between these two centers, but slowly the gravity is moving more and more to Tokyo, the political center. How can we avoid this concentration or is it inevitable in an age of centralized information and management? An interesting thing is that even today, a wholesale dealer in Osaka is only sensitive to the price and quality of goods. In Tokyo they say once you have a good personal relation with retail merchants or a banker, then you are in a safe position. It may be an oversimplification. But still there are contrasts between the old merchant's citadel and the governmental town-turned-business capital.

We have four regional centers of commerce, all with a population between a half million and a million, namely Sapporo, Sendai, Hiroshima and Fukuoka. They can be called quadruplets. They are, in the structure of occupational population and functions, the center of a region with a 5-10 million population. All have a very high percentage of the population of business, banks, insurance companies, colleges and schools. Manufacturing industries are not important in these cities, as they are only represented by plants of local importance, food (especially brewing), printing, furniture and so. The only exception is an automobile factory at Hiroshima.

Fukuoka is one of the oldest commercial centers of Japan. It is still a very busy town, enthusiastic about festivals.

Sapporo is the youngest of the four, founded less than a century ago. It is a town without tradition, and has a rather cool and indifferent air.

Sendai is the most conservative of the four and is proud of its conservatism, but, funny thing, it has a Socialist mayor.

Hiroshima, which before the war was a peaceful, clean town loved as a residence of retired pensioners, lost most of its people by the bomb and when the rootless people moved into the town to make money it became a noisy, busy city without the old atmosphere.

Nagoya is a big town, with a population of two million, between Tokyo and Osaka. It has an active wholesale and retail business and it is the third biggest city in Japan. But it has its headaches today. With the new super-railroad, Nagoya is only one hour from Osaka and two hours from Tokyo.



Every five or ten minutes trains arrive from Tokyo or Osaka. Hotel business is already declining in Nagoya and the town is afraid of losing management functions. In the future Nagoya can be only a big manufacturing center, getting directions from the people sitting in headquarters in Tokyo or Osaka.