

A Brief History of Markets, Households & Infectious Diseases in Japan



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The fight between human beings and Covid-19 has just begun, but epidemiological surveys show that the relationship between inhabitants of particular locations and infectious diseases is affected by various human behaviors based on history and culture. For example, there has been much talk about the correlation between risks of developing severe conditions from Covid-19 and the rate of BCG vaccinations or the infection rate of the sexually transmitted disease chlamydia. It goes without saying that BCG vaccinations have a close relationship with tuberculosis (a chronic infectious disease), and Japan continued to see a recurrent rise in tuberculosis mortality rates from the “coming back home having been struck ill” phenomena, in which infected migrant worker patients did not remain in the cities but went home to their villages, until the late 1930s, a rare experience for an industrialized nation (“Urbanization, Industrialization and Mortality in Modern Japan” by Makoto Hanashima and Kenichi Tomobe, *Annals of GIS*, Vol. 18 (1), 2012). But according to a study of historical demography, this relationship was observed as late as in the 18th century in the rural farming village of Mino (in present day Gifu Prefecture). In other words, the average death age of children who came back to villages after experiencing working as servants in cities was significantly lower than those who experienced working as servants in villages (*The Historical Demography of Pre-Modern Japan*, by Akira Hayami, University of Tokyo Press, 2001). In addition, it is widely known that in Japan, sexually transmitted diseases such as syphilis ravaged the country from the Edo Period (1603-1867) onwards. Each was a consequence of a market mechanism called labor transfer.

Looking plainly at the relationship between human beings and infectious diseases, one will note that movements of goods, people and information via the market play a significant role. In addition, it is also apparent that the other critical factor was that the formation of households, an infrastructure of livelihood for humans, has been a platform for transmitting infectious diseases. This article will draw on this perspective and briefly examine how the three phenomena of household formation, contraction of infectious diseases, and market growth have been correlated throughout Japan’s long history, from ancient to modern times.

Ancient Japan: Market Mechanism, Michizane Sugawara & Smallpox

Recent advancements in archeology have been astounding and it

has been revealed that by the Jomon Period (a time in Japanese prehistory traditionally dated from around 14,000 to about 1,000 BC), commodities such as amber, agate, obsidian, and natural asphalt were already being traded long-distance domestically. In this respect, measuring historical markets requires a different scale than used in modern capitalism. But as French historian Fernand Braudel noted, if international long-distance trade=capitalism, then its qualitative difference is not big. Here, the argument will be developed by defining a market to be just as old as the existence of mankind, and a mechanism that transfers people, goods and information in order to adjust supply and demand (price formulation) and create order.

Generally, markets begin to function with the transfer of people and various goods, and with these transfers, viruses, bacteria, and parasites begin to be carried too. Authorities and states have created historical periods by absorbing this market mechanism, or sometimes by taking a step away from it. This is especially apparent after the Kofun Period (c. 300-538, in which a tumulus was commonly recognized as the tomb of a nobleman). *Gishi Wajinden*, an ancient Chinese chronicle of the late 3rd century that talks of ancient Japan, relates that “cities are everywhere, and its trade was supervised by the state.” Historian Hidehiro Okada noted that small states in this period, called *Kuni*, can be considered market states where cities grew – as palace walls surrounded an area, its landmarks were enshrined as *Dosojin* (the god of preventing evil and disease), and an entrance fee was collected (called *So*, the origin of taxation) – and eventually evolved into ancient city-states. In an era where rice farming was still unstable, trade of commodities such as iron must have been the center of profit.

The enormous building structures which succeeded ancient tombs were ancient temples and shrines. The influential power of this mechanism had already reached all areas of the market economy. The impact of the quantity system which originated in the use of temple measurement units at Kofukuji temple and Todaiji temple continued on until the Edo Period. Turning to labor transfer, the market for 8th century workshop labor to construct Todaiji was booming, but this also brought on an occupational hazard called mercury poisoning. During the same period, there was a negative legacy of the market in the form of a rise in the starving population. *Nihon Ryoiki*, a collection of anecdotes promoting Buddhism written from the late 8th to early 9th century, raises the issue of whether wage labor was more rational than family labor employment or vice-

versa in 9th century households. Indeed, these are the results of people's struggles with the introduction of the market, its operation and consequences.

In the 9th century, Michizane Sugawara (845-903), a central government official who embodies these market patterns of ancient Japan, enters the scene. The collection of his poetry known as *Kanke Bunso* published in 900 clearly shows his awareness of markets. "Salt prices will crash if dry weather continues," he wrote, indicating his understanding of the market mechanism where if production of salt (supply) increases, the (standard) price of salt falls. This was a basic education required of central government officials and also served as the governing technology when issues occurred in local regions.

As such, transfers of people and goods were frequent in locations where a market mechanism was developing (markets and castle towns), both in central and regional areas. The *Harima-no-kuni Fudoki* (a public report in the 8th century on the nature, culture and history of the Harima region, corresponding to Hyogo Prefecture in western Japan) notes traces of movements of many people during the early Nara Period (710-794). According to the *Shoku Nihon-gi*, an official history book on the Nara Period, during the Tenpyo Era (729-749) fishermen in boats sailing out to the Genkainada sea (the southwestern part of the Sea of Japan) became infected with smallpox and then brought the disease back to Japanese ports, from where it spread across the country. The sea was also a territory where a market mechanism was protected in the form of freedom of voyage. But the size, structure and mode of succession (paternal, maternal, or both) of households, where people conducted their daily lives, was still diverse despite efforts by the central government for standardization through equally allotted rice fields among men and women respectively.

Medieval Japan: Factor Market, Migration & Malaria

At the core of the economic structure of medieval Japan were the *Shoen* manors, private landed estates. Temples and shrines dominated these donated land-based manors. People were free to walk about in the mountains and fields, and access the rivers and seas through the market mechanism, and with that, goods and information moved about, as did the spread of infectious diseases. Despite the impression they may have given, *Shoen* manors only consisted of an in-house management office, uncultivated land and cultivated land with no dedicated peasants exclusive to the manor, and cultivation was left in the hands of peasants in the surrounding areas working as tenant farmers. Eventually, small-scale outsourced management to surrounding farms and large-scale agricultural management by the manor lords came to coexist. The ratio is said to be roughly half and half. Both were originally peasants who under the ancient *Ritsuryo* legal system owned allotted rice fields. In other words, small-scale peasants who received allotted rice fields were

faced with a disproportion between labor, a production factor which heavily fluctuates, and their allotted rice fields, and were unable to pay taxes, and so incorporated themselves into large-scale farmers. The structure of *Shoen* manors was a system that allowed for liquidation of land that was fixed under the *Ritsuryo* system by accommodating it to the fluctuations of labor. It showed that the more the *Shoen* manor system became necessary, increasing numbers of peasants fled the *Ritsuryo* rice field system. These groups of moving people, whom historian Yoshihiko Amino termed "drifters", not only included craftsmen but must have also included many peasants who had abandoned their fields and fled. Looking at one of the very few historical resources on the 10th century population called the *Suoh-no-kuni Kuga-gun Koseki* (a record of family registers in the Western part of Japan), there appear to be a few unnatural instances of households with no changes, but there is indeed a lack of documentation of adult males and the younger generation.

Once the *Shoen* manor system had expanded to various regions, the local clan became the "head" of local cultivators farming a "myo" (unit of rice field to be taxed) who were built into the *Shoen* system, and once they began to conduct direct management of private rice fields, permanent settlement by drifters as a labor force in farming villages progressed. It is safe to assume that in the Nanboku-cho Period (1336-1392), the old powers of manor lords and the new and rising powers of the local "head" lords in provincial regions were in rivalry. American historian William Wayne Farris has estimated that Japan's total population from the latter half of the 13th century to probably the early 17th century was increasing at an annual rate of around 0.2% (*Japan's Medieval Population: Famine, Fertility and Warfare in a Transformative Age*, University of Hawaii Press, 2006). The main factors are thought to be the growth in the population of those who were apprehended by power and shifted from being drifters to settled cultivators, and the increase in the fertility rate due to household formation by settled peasants.

The capturing of drifters by power continued into modern Japan. According to a 1593 regional survey (*Gamoh Ryonai Chosa*) north of Fukushima-Shirakawa-seki (the most northern region where drifters ended up), the percentage of "people with unverified backgrounds" in the population was around 10%, but in regions where population movement occurred both ways, the percentage is thought to be many times larger. According to a regional survey conducted 286 years later in the present-day Yamanashi Prefecture (*Kai-no-kuni Ninbetsu Shirabe*, 1879), the percentage was down to around 0.5%. The police force during the Meiji Period (1868-1912) had become powerful, and the apprehension of drifters became even more aggressive.

In addition to this settlement process on land, the settling down of people of the sea must also not be forgotten. Economic historian Yuukichi Habara has pointed to the widespread existence of fishermen who upheld what was called the *Ebune* (drifting

fishermen) culture. It is an undisputed fact that the *Ebune* of the Setonaikai (the Inland Sea) were still active in the 1980s. *Ebune* and the unique culture and history of the Ama fishermen were formed as a result of population transfers around the seas, and soaring cases of infectious diseases such as temperate malaria (*vivax malaria*) should be considered as evidence of this. Folklorist Kunio Yanagita has noted it is highly likely that in medieval Japan where climate warming had progressed, “swamps and ponds” were formed in downstream river basins leading to breeding of malaria-transmitting mosquitoes. The plagues which were the subject of incantations and prayers in the 11th century *Midou Kanpakuki* (The Diary of Fujiwara Michinaga, a powerful nobleman) or *Genji Monogatari* (The Tale of Genji) must have been *Okori* (malaria), and it is even pointed out that in Kyoto in this period, *Okori*, which was an acute infectious disease, may have been established as a chronic endemic disease.

In progressive agricultural villages after the 13th century, household formation proceeded among servants who became independent from their masters, and a structure of living separately, although still living on a master's property, gradually progressed. The concept of privacy came about, and servants dreamed of having the lifestyle of masters or local samurai and aimed to realize this dream. This is a straightforward example of how a structure called a household under a particular agricultural land development circumstance changed its nature and its propensity for consumption to utilize the market effectively.

Early Modern Japan: Rulers, Households & Syphilis

Connecting these various changes that occurred during medieval Japan into developing a market economy was carried out under three rulers – Nobunaga Oda, Hideyoshi Toyotomi and Ieyasu Tokugawa – from the end of the 16th century to the beginning of the 17th century. The work of Nobunaga was in developing a market infrastructure. It is thought that a quantity system was developed with temple- and shrine-based donated land-based manors spreading across Japan in the previous period, and standard measures which originated from temple measures being used across wide areas. There are no clear answers as to how the *Kan-daka* system (land valued in terms of cash) transitioned to the *Koku-daka* system (rice crop-based), but had standard measures not been accepted as a standard for volume measurement, such a decision would not have been made. In addition, with a system reform called the *Rakuichi Rakuza*, a decisive introduction of a market mechanism at the end of the 16th century by Nobunaga, the market was placed at heart of people's lives, and he sought to rule Japan through expansion of the market. Hideyoshi aimed at national standardization of the cultivation system by *Taiko Kenchi*, a series of land surveys of Japan. As more peasants settled into villages and became independent of their masters or local head lords, the standard of

cultivation shifted from ownership to a right based on the fact of who has been continuing to cultivate that piece of land. Lastly, Ieyasu's greatest contribution was the establishment of a currency system which is the lifeblood of a market economy. In the late 10th century Japan had abandoned its national prerogative to mint coins, using Chinese coins instead, but Ieyasu, the founder of the Tokugawa Administration in the Edo Period, restarted money minting in Japan early in the 17th century, which at last led to the establishment of the Tokugawa coinage in the Edo Period.

The work of these three rulers was to activate the function of market, and through its institutionalization stabilize the economic development on a national level. The ruling system in the Edo Period consisted of many provincial independent governments following the authority of Tokugawa Central Government eventually. Those provincial governments in the need for enriching each province succeeded in bringing waves of technological innovation to each individual peasant home and completing them as base points for agricultural production processing. By the time the ports were open at the end of the Edo Period and the Japanese economy then faced a significant flow of imports, with completion of the base points for agricultural production processing promoted by each provincial government, they had achieved robust domestic production of principal agricultural processing product items such as raw silk, then a major product maintaining the nation's economy. Thus, they already achieved economic development based on import substitution: i. e. economic development without depending upon imports even before opening the market to the rest of the world. Capital markets for rural village industrialization also grew steadily, and by the 18th to 19th century, a long-term and steady downward trend in interest rates was observed at a national level. This wave of industrialization of rural villages moved from West Japan to Northeast Japan. It is estimated that the Tenmei famine of the 1780s served as a turning point for Japan to enter a growth trend that led to modern economic growth.

The number of servants who established homes on different land, away from their masters' estates, to become full-time peasants also increased with time. Population growth during the 17th to early 18th century was up to an annual rate of 0.4 to 0.5%. The contribution of household formation to population growth was enormous. Households became the basic unit of livelihoods which included production and consumption. Rural sociologist Kizaemon Aruga described peasant households as “the last fort of social security”, and considered them to be structures that cannot be an alternative to a market economy, but the formation of those peasant households was strictly lineal, meaning only the eldest son could succeed his father, and this formation excluded other members of the family such as his brothers and sisters and other relatives from their households in a village, and they did not have any choice but to join the labor market in a city or adoption markets in a village.

At the same time, a new risk emerged which was the spread of

infectious diseases with households serving as the basis point. In particular, a sexually transmitted disease such as syphilis was clearly a disaster which was brought into a household by a member of it. The rise in the independence of households and the acceleration of the market economy heightened the speed of transmission in a single stroke, and in addition to the three major cities (Edo, Kyoto, Osaka), the disease also spread to surrounding areas. A miracle drug, penicillin, became available in Japan after World War II and infections were finally contained. It has since been discovered that in the meantime treatments using Chinese medicine and Dutch medicine developed by Japanese scientists were tried, and an arsenic compound drug which was the same as Salvarsan, a modern treatment drug, was developed at Tekijyuku, a medical school in Osaka, during the end of the Edo Period. Japanese private health care faced the risks and played a central role in Asia's medical system based on Chinese medicine, but it was still set apart from the knowledge system of the West where the cause and effect relationship was coherently recognized and organized.

Modern Japan: Living Standards, Tuberculosis & Infant Deaths

What were the family heads of farms in modern Japan fighting against? Toson Shimazaki of the Meiji Period wrote in his novel *Ie* (The Family) how traditional extended family ties, patriarch-like attitudes, ancestry, and heredity related to syphilis led to the fall of farms. But the mission of the family head of farms was not just to fight such negative spiral events which literature is great in capturing; they were also tasked with protecting positive linkages such as life, production, and livelihoods.

Pre-war family heads were first entangled in an exchange economy of transactions between communities/hamlets. Administrative villages since the Edo Period normally consisted of several communities. Homogenous farms of the same descent or same family names were gathered together to form one community, and daily livelihood in the community was managed through barter exchange. But goods and services which required coordination between communities were generally acquired through an exchange economy. Production factors such as land, labor and capital were exactly the core goods and services that were traded in an exchange economy between communities. During the Edo Period, these were administrated by the village (*murauke*, the village responsibility system). But in modern Japan, land dealings for example were managed by the landlord-tenant system.

Thus, modern family heads were required to know the average prices of various goods and services that were traded in the daily exchange economy, and with respect to land and labor, intra-village exchange transactions were frequent. These occurrences of prices and the attitude to “measure” gave the family heads not only a guideline of their own labor productivity or labor drudgery, but also

provided them with an opportunity to briefly consider whether the labor productivity of family members and their living and child support expenses were balanced. Moreover, the decision to introduce rural industries within the household was the result of balancing utility and drudgery. The outcomes of these choices and decisions determined whether a family head was good or bad, and after twists and turns built the history of that household.

Another important role of a family head was to save the lives of family members. In utilizing the expanding market, it was essential to go to urban areas as migrant workers. Even if they stayed in the household, being unable to manage the standard of living, there was a need to determine whether to work as migrant workers, having considered the risk of being infected with chronic infectious diseases such as tuberculosis or syphilis in urban areas. For villages which had experienced urbanization, it was common knowledge that the decision to “emigrate first” was careless. Whether the household had a family head who was able to make decisions on how one was raised and when and to where the family member was to emigrate, sealed the fate of the family.

In the Shimo-Ina province of Nagano Prefecture, working side jobs in carp farming and sericulture had a huge impact on children's physical growth. In addition, tuberculosis became an external risk factor and a target of farmhouse head's risk management by no later than the Tenmei famine, dating back farther than had originally been thought.

Of course, family heads in urban areas were no exception. In modern Osaka, the infant mortality rate which was highest in the early 20th century dropped to below average within the next few decades. On the back of this was the resolute response from the patriarchs against infectious disease and beriberi, coupled with effective social policies from the municipalities and the great support of social capital in the early days.

Just by this brief overview of Japanese history, one can see that the situation which has become visible from the epidemiology of aggravated conditions of Covid-19 infections in modern Japan overlaps, to some extent, with the history of contracting chronic infectious diseases such as syphilis or tuberculosis. In other words, the present day is still on the path of evolution, and what is required in this fight with a new infectious disease is a common recognition that the present is closely linked to history. We must also fully understand that this fight is closely linked to market utilization and that the two are complementary. **JS**

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