

Weather, rice harvest, and mortality crisis in northeast Japan during the 18th century

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In this paper, I will discuss the relationship between the rice harvest and the mortality crisis in the latter half of the 18th century around the Village of Kanaizawa, Koya- Kumi, Aizu County, the Province of Mutsu.

Total population in northeast Japan started to decrease as of the beginning of the 18th century. Population in the Province of Mutsu in 1786 dropped 80 percent compared with the population in 1721. Some historians considered the main cause of population decline might be the great famines in 1755, 1783, and the 18340s. On the other hand, historical demographers pointed out that the mortality crisis had attacked frequently, and the great famines in 1755, 1783, the 1830s were only three out of many mortality crisis years. Therefore, it is still unknown the actual condition of the mortality crisis. In order to find the real cause of the population decline and mortality crisis, we need to find historical documents concerning the weather, the rice harvest, the crop distribution, the food consumption, and the population.

In Kanaizawa, the village head family had kept the observation note of the rice harvest, the diaries for farming recording the daily weather and details of farming, and the vital statistics survey notes reporting the names of the dead, new born babies, those who moved into the village, and those who moved out the village. Moreover, the Buddhist temple death registers in Temple A and B have been recording the dead in eight villages including Kanaizawa in Koya-Kumi. With these historical documents, it is possible to investigate the unusual weather, the rice harvest, the farming conditions, and the number of deaths over 150 years as of the 1750s around Kanaizawa.

The mortality crises attacked Koya-Kumi in 1768, 1776, 1780 and 1784. However, the rice harvest in 1768, 1776, and 1780 were good during the 41 years from 1759 to 1799. The mortality crisis in these three years were not related to the poor harvest of rice. The percentage of young deaths under 15 years old in the total number of deaths were very high. The sex ratio of young deaths was comparatively balanced. Therefore, the main cause of deaths in these three years were not starvation or undernourished.

The most serious mortality crisis attacked Koya Kumi in 1784, the next year when the rice harvest was the lowest level in 1783. In 1784, the percentage of the young deaths in the total number of deaths was only 5 percent. Many elderly people were the victims of the famine. The sex ratio of the dead was 153 percent. 33 percent of the dead in 1784 passed away in July, August and September, when the prices of crops rose sharply. In Kanaizawa, the crude death rate reached 35‰ and the out-migration rate reached 81‰. There were more peasants escaped from their village than the dead.

On the other hand, the rice harvest in 1786 was the second to the worst harvest in 1783. But the number of deaths was under average during the 40 years as of 1760 to 1799. The number of deaths varied according to the level of rice harvest even in the poor harvest years.

We can distinguish the mortality crisis related to poor harvest and some other mortality crisis years

unrelated to rice harvest. I want to emphasize that cool summer and poor harvest did not always bring the mortality crisis. These findings provide the basic data in order to approach the real cause of population decline in the 18-19 century. We must discuss the population decline not only with the unusual weather and the crop harvest but also with epidemics of infectious diseases as well as the farming technology, the crop distribution, the food consumption, and the anti-famine efforts.

Keywords: unusual waeather, rice harvest, mortality crisis, Buddhist temple death register