Changes in Dietary Habits over 50 Years in Japan

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1. Introduction

Objectives of this paper are analyzing the current situation by tracing the change of dietary habits of Japanese over 50 years, and looking forward to the future of eating habits through international comparison〔1〕. According to statistical analysis, it can be pointed out that the change in calorie supply in Japan over 50 years is a phenomenon caused by a change in food consumption pattern from rice-based food composition to diverse food composition including livestock products.

Changes in the pattern of food consumption in Japan have reduced consumption of domestically produced rice and increased the consumption of livestock products produced mainly by feed grains imported from the United States. Furthermore, the change became one of the main factors that lowered the Japanese self-sufficiency ratio〔2〕.

Changes in Japanese dietary habits over the last 50 years have also been a factor that causes an increase in lifestyle diseases such as metabolic syndrome.

2. Transition of the daily calories supplied per citizen and economic growth

Fig. 1, which was prepared using the "Food balance sheet" of the Ministry of Agriculture, Forestry and Fisheries, and "Main Statistical Data Sheet" of the Japanese Cabinet Office shows the transition of calories supplied per citizen per day for Japanese and economic growth rate in Japan over 50 years.

Going through the period of hunger shortly after the end of World War II, the calories supplied in 1960 achieved 2,290 Kcal. It further increased with income increase due to high economic growth, reaching 2,570 Kcal in 1973. However, when the economic growth rate plummeted due to the first oil crisis in 1974, the calories supplied also decreased. It increased again due to the subsequent economic recovery, reaching the highest historical record of 2,670.4 Kcal in 1996.

However, the situation changed completely the year after the peak. When the consumption tax was raised from 3% to 5% in 1997, the calories supplied turned into a declining trend. In addition, it further declined due to the slowing of the economic growth rate caused by the financial crisis in 2008 and incidents of insecticide contamination of Chinese food products of the same year〔3〕. It is currently depressed to 2,417.5 Kcal. The downward trend is still continuing.

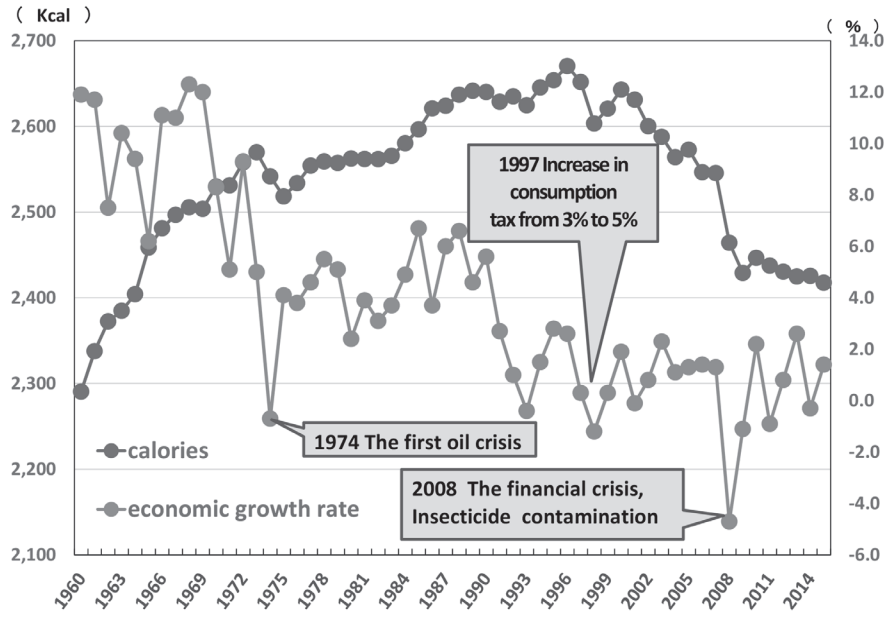

Fig. 1 Transition of the daily calories supplied per citizen and economic growth

Source: MAFF, Food balance and Cabinet Office, Main statistical data sheet.

Fig. 2 shows the daily calories supplied per citizen by items. In the first half of the 1960s, the percentage of the calories supplied from rice, called a staple food, accounted for about 50% of the total. However, since 1965 the consumption amount of rice declined sharply as described below, the percentage of calories supplied from rice also declined. Conversely, the percentage of calories supplied from meat, milk and dairy products, fats and oils expanded rapidly, and the percentage from rice was only 22% in 2015. In the current diet, rice is not a staple food any more, and the Japanese diet is in a state of mixed eating, consisting of cereals, livestock products, fats and oils.

Fig. 3 shows the relationship between world per capita nominal GDP and the daily calories supplied per citizen in 2011. Except for Japan, calories supplied per citizen will increase with economic development.

In conclusion, it can be pointed out that Japan deviates from the trend of the world and the level of calories supplied is very low.

3. Transition of the annual net food supply per citizen

Using the Food balance sheet of the Ministry of Agriculture, Forestry and Fisheries, we can clarify the transition of the quantity of the annual net food supply per citizen over 50 years in Japan. Also, net food is calculated by multiplying raw food with the utilization ratio. It

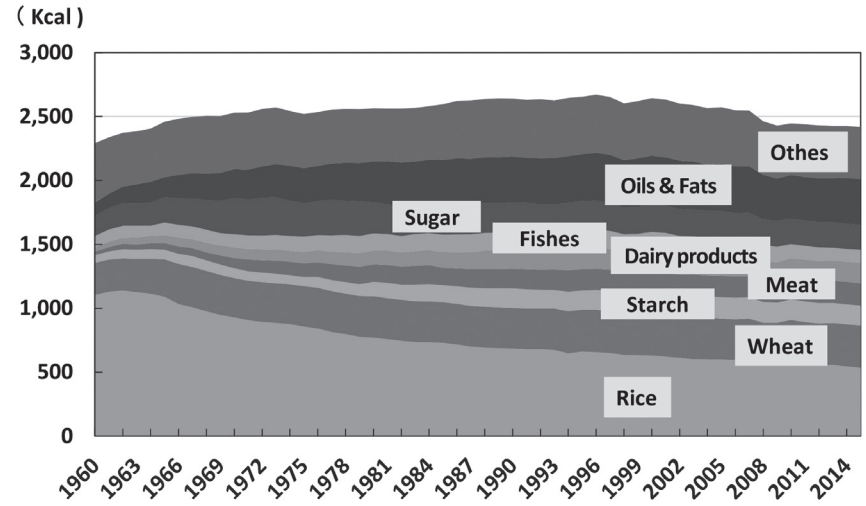

Fig. 2 Transition of the daily calories supplied per citizen by item

Source: MAFF, Food balance sheet

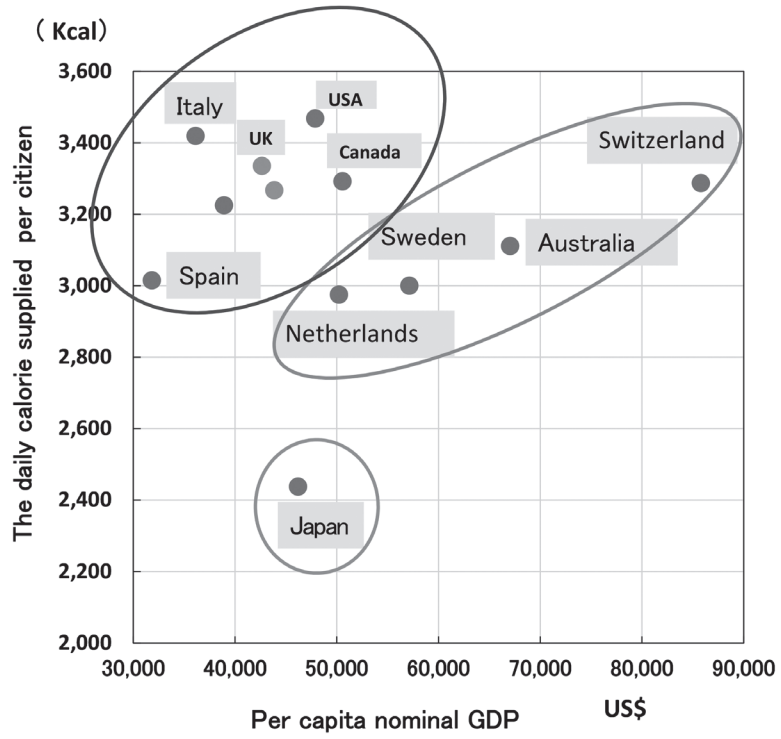

Fig. 3 Relation between world per capita nominal GDP and the daily calories supplied per citizen

Source: MAFF, Food balance sheet, MIAC, World statistics

represents the quantity of food form that can be directly used for human consumption.

Fig. 4 shows the transition of the annual net supply of grains per citizen. Rice continues to decrease with peak at 118.3 kg in 1962. It has been pointed out that the supply of rice generally decreased due to the increase in imported wheat, but it turned out that the wheat did not increase markedly from the figure.

Fig. 5 shows the transition of the annual net supply of vegetables and fruits per citizen. Vegetables continue to show a downward trend after reaching a peak of 124.3 kg in 1968. Fruits also declined after the peak of 44.4 kg in 1994 and is still decreasing now.

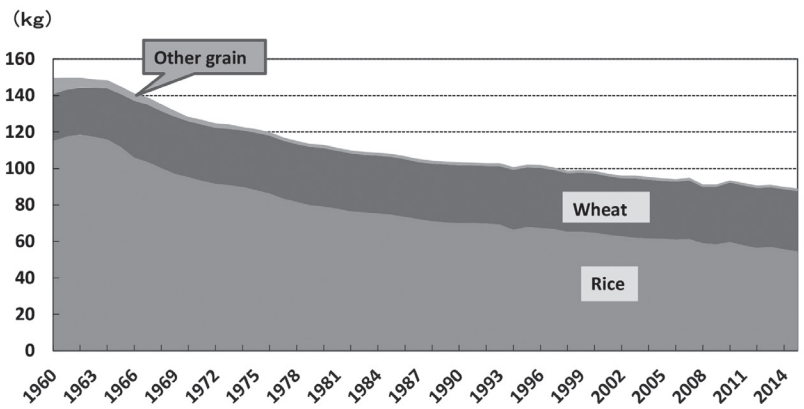

Fig. 4 Transition of the annual net supply of grains per citizen

Source: MAFF, Food balance sheet

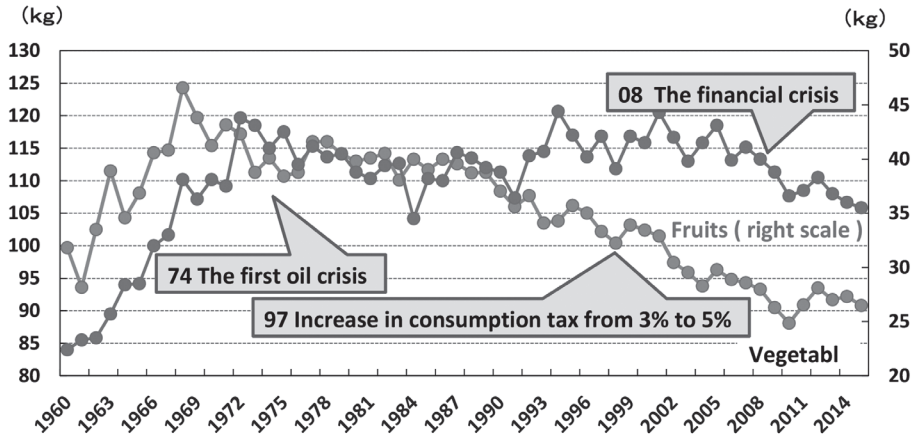

Fig. 5 Transition of the annual net supply of vegetables and fruits per citizen

Source: MAFF, Food balance sheet

Fig. 6 shows the transition of the annual net supply of meat per citizen. It is understood that the supply amount of beef, pork and chicken increased remarkably. The supply of meat is from imported and domestic production. Importing grains as feed is indispensable for domestic production of meat. This is a major factor to lower the self-sufficiency ratio of calorie base in our country.

Fig. 7 shows the transition of the annual net supply of eggs, milk and dairy products, and fish and shellfish per citizen. Eggs have stabilized at 16 to 17 kg after 1987. Fish and shellfish decreased after the peak of 40.2 kg in 2001 and are

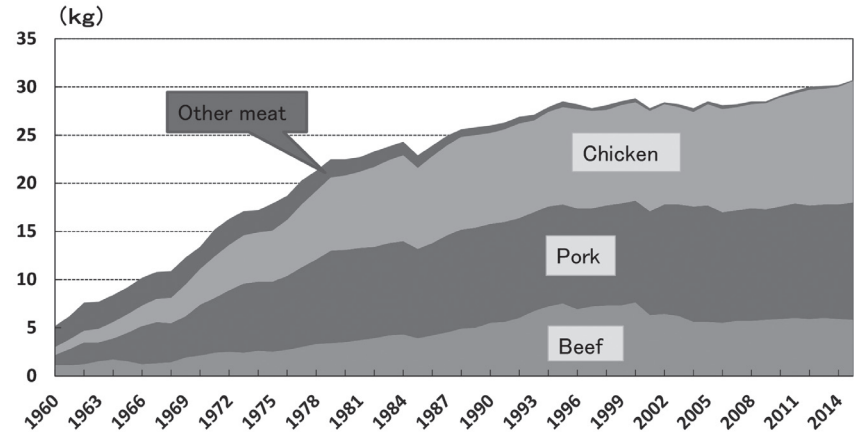

Fig. 6 Transition of the annual net supply of meat per citizen

Source: MAFF, Food balance sheet

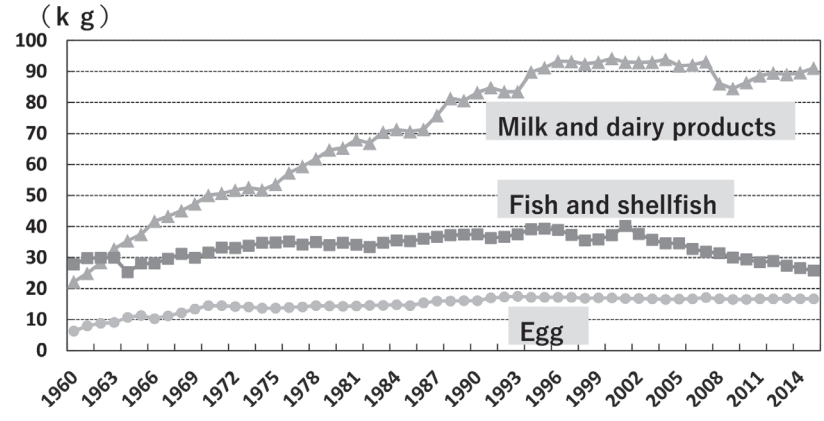

Fig. 7 Transition of the annual net supply of egg, fish and shellfish, milk and dairy products per citizen

Source: MAFF, Food balance sheet

still decreasing now. Fish has bones and internal organs, and it is inconvenient for short-time cooking, so the supply volume is decreasing. On the other hand, milk and dairy products decreased slightly after the peak of 94.2 kg in 2000, and now it has been around 90 kg.

Fig. 8 shows the transition of the annual net supply of fats and oils per citizen. Animal fats increased to 2.6 kg in 1980, but then declined. Vegetable oils have continued to increase, and even now it has exceeded 13 kg.

Fig. 9 shows the transition of net

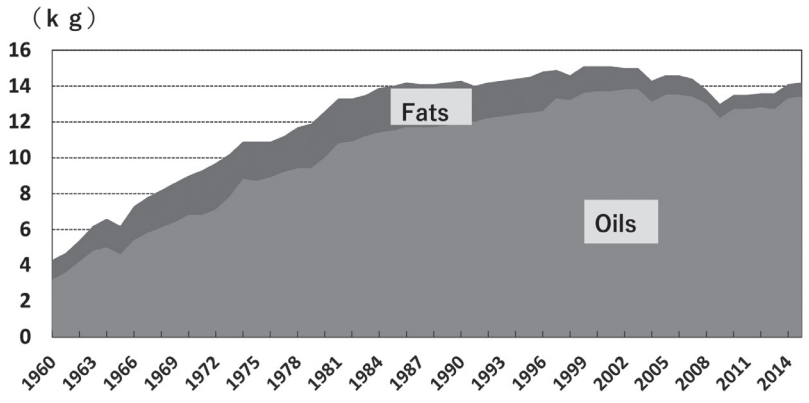

Fig. 8 Transition of the annual net supply of fats and oils per citizen

Source: MAFF, Food balance sheet

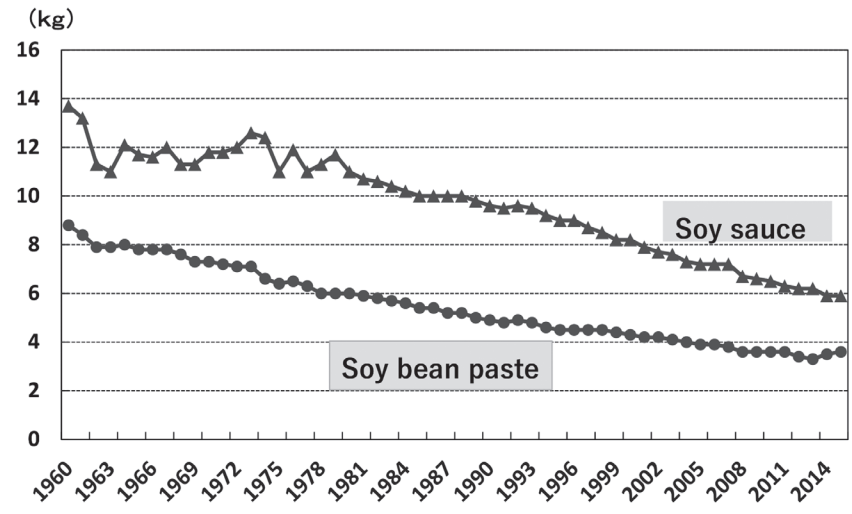

Fig. 9 Transition of the annual net supply of soy sauce and soybean paste per citizen

Source: MAFF, Food balance sheet

supply of soy bean paste and soy sauce, a traditional seasoning, per citizen. Soy bean paste has decreased from 8.8 kg in 1960 to 3.64 kg in 2015. Similarly, soy sauce has decreased from 13.7 kg to 5.9 kg in the same period. The decline in these traditional seasonings is consistent with the reduction in supply of rice and vegetables.

4. International comparison of the annual food consumption per citizen and self-sufficiency ratio

Using USDA (PS & D Online, October 2017), we can compare food consumption per capita per person for Japan and the world.

Fig. 10 shows the transition of rice consumption per citizen per year for 57 years from 1960 to 2017 in Japan. It has decreased by 46.2% (=(126.5−68.1)×100/126.5) from 126.5 kg in 1960 to 68.1 kg in 2017. On the other hand, the world average has increased 26.3% from 51.4 kg to 64.9 kg in the same period, indicating that the decrease in rice consumption in Japan is very large. Incidentally, China has increased from 71.3 kg to 101.0 kg in the same period, and in recent years also 100 kg has been maintained.

The self-sufficiency ratio of rice shown in Fig. 11 has decreased from 98.3% to 89.4% during the same period. However, in China, it has risen from 90.1% to 101.2%

Fig. 12 shows the transition of wheat consumption. It has increased by 15.1% in Japan from 44.5 kg in 1960 to 51.2 kg in 2017. Meanwhile, the world average increased by 33% from 75.2 kg to 100.0 kg in the same period. Also, China has increased from 36.7 kg to 82.3 kg in the same period, but it has been decreasing slightly in recent years.

Australia has increased by about 1.7 times from 191.3 kg to 318.3 kg in the same period, which is phenomenal. Also, the USA has increased from 89.0 kg to 94.3 kg in the same period.

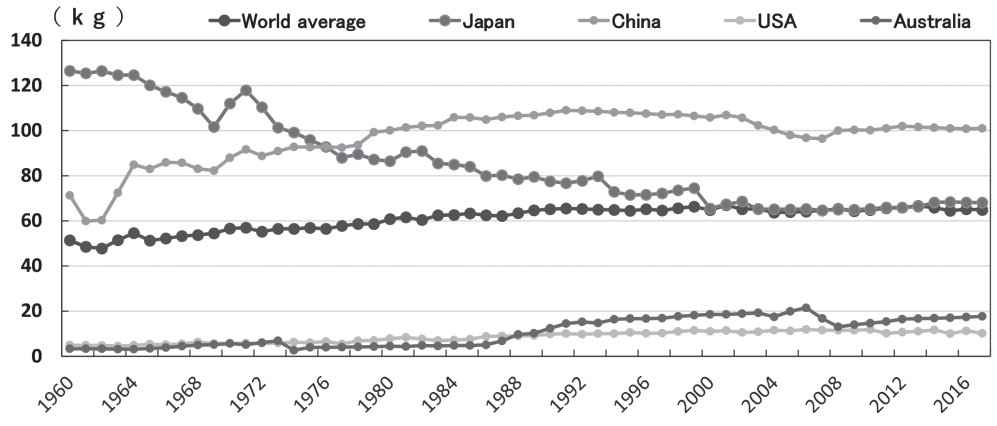

Fig. 10 Transition of the annual consumption of rice per citizen

Source: USDA, PS&D Online, October 2017

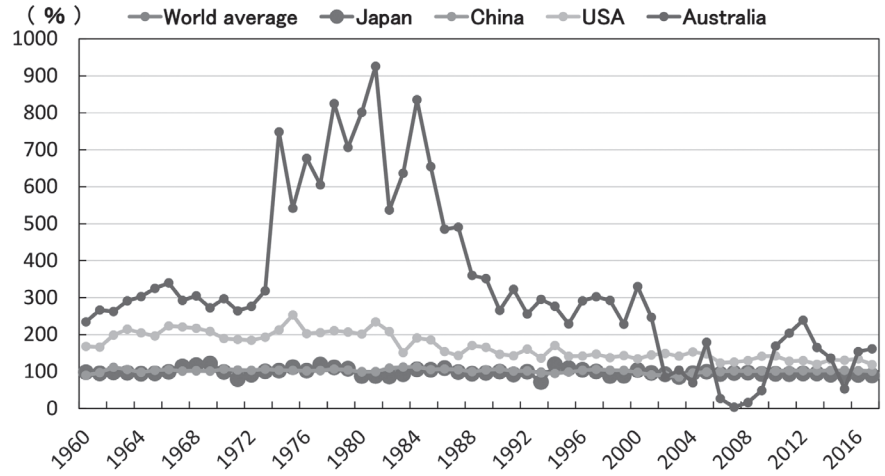

Fig. 11 Transition of the self-sufficiency ratio of rice

Source: USDA, PS&D Online, October 2017

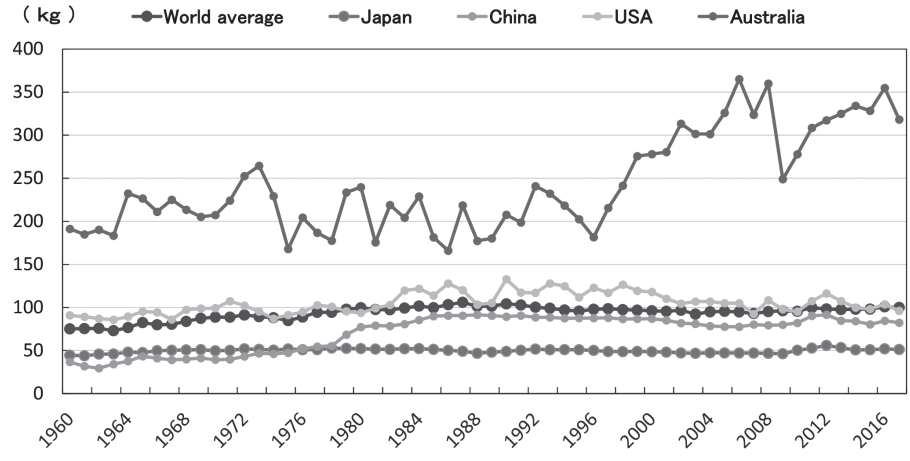

Fig. 12 Transition of the annual consumption of wheat per citizen

Source: USDA, PS&D Online, October 2017

The self-sufficiency ratio of wheat in Japan in Fig. 13 has dropped from 36.6% in the same period to 12.8%, but in China it has risen from 87.7% to 112.1%. By the way, in the USA, it decreased from 229.3% to 153.2% in the same period, and in Australia from 375.9% to 307.1%. However, it can be said that the production volume far beyond their own consumption is maintained in both countries.

Fig. 14 shows the transition of beef consumption. Japan has increased by 531.3% from 1.6 kg in 1960 to 10.1 kg in

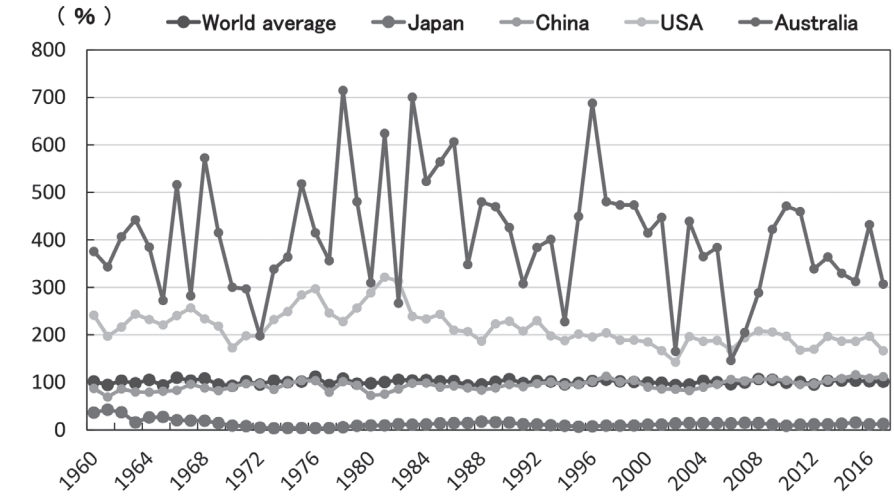

Fig. 13 Transition of the self-sufficiency ratio of wheat

Source: USDA, PS&D Online, October 2017

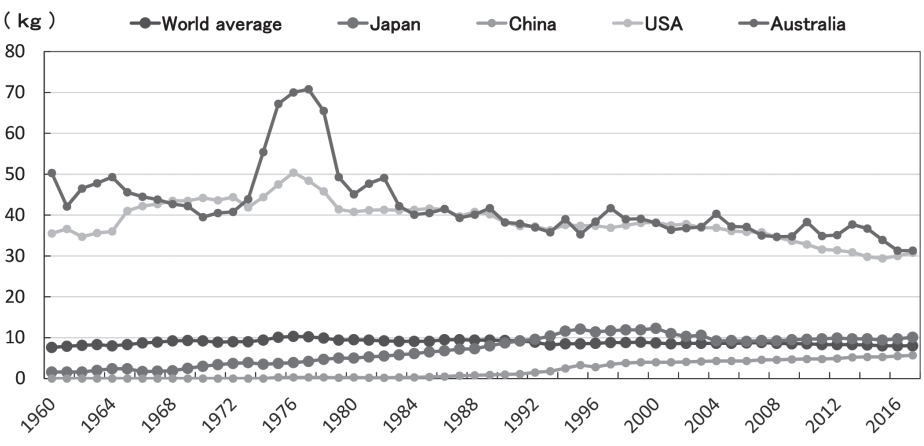

Fig. 14 Transition of the annual consumption of beef per citizen

Source: USDA, PS&D Online, October 2017

2017. On the other hand, the world average increased by only 5.3% from 7.6 kg to 8.0 kg during the same period.

Australia has decreased from 50.3 kg to 31.3 kg in the same period. In the USA also decreased from 41.2 kg to 37.2 kg.

Japan's self-sufficiency ratio of beef in Fig. 15 has decreased from 94.0% to 36.9% in the same period. Conversely, in the USA, it is rising from 96.6% to 99.3%. By the way, in Australia it has risen from 131.5% to 308.4%. Especially in Australia, production is more than three times the consumption of the people.

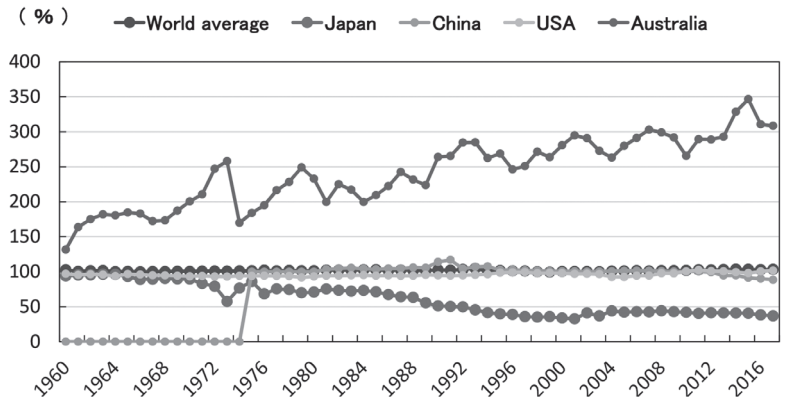

Fig. 15 Transition of the self-sufficiency ratio of beef

Source: USDA, PS&D Online, October 2017

Fig. 16 shows the transition of pork consumption. Japan has increased by 1,176.5% from 1.7 kg in 1960 to 21.7 kg in 2017. Meanwhile, the world average increased 150.0% from 6.0 kg to 15.0 kg in the same period.

Australia increased from 10.3 kg to 26.4 kg and the USA also decreased from 35.5 kg to 29.3 kg. By the way, China has soared from 7.6 kg in 1975 to 39.0 kg in 2017.

Japan's self-sufficiency ratio of pork in Fig. 17 has declined from 94.2% to 47.1% over the same period. In the USA, it is rising from 98.3% to 122.1%. There is more pork produced than the people's consumption. This is a factor that the National Pork Producers Council (NPPC) strongly urges other countries to open the market in international negotiations. By the way, in Australia, it decreased from 100.0% to 69.0% in the same period.

Fig. 18 shows the transition of cheese consumption. Japan has increased from 0.3 kg in 1967 to 2.6 kg in 2017. Meanwhile, the world average increased from 1.4 kg to 2.5 kg in the same period.

Australia increased from 3.8 kg to 11.6 kg and the USA increased from 3.8 kg to 12.9 kg in the same period.

The self-sufficiency ratio of Japanese cheese in Fig. 19 has decreased from 22.6% in 1967 to 14.1% in 2017. Australia has declined from 155.6% to 126.0 kg, and in the USA from 97.7% to 101.2%. Both countries are producing more than the people's consumption.

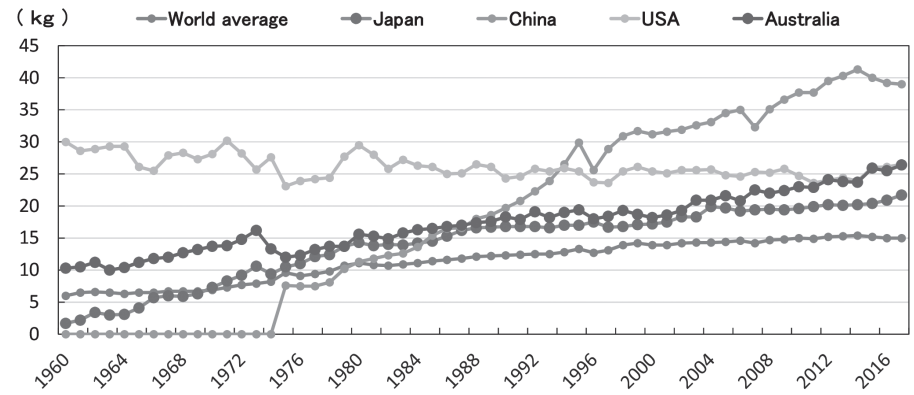

Fig. 16 Transition of the annual consumption of pork per citizen

Source: USDA, PS&D Online, October 2017

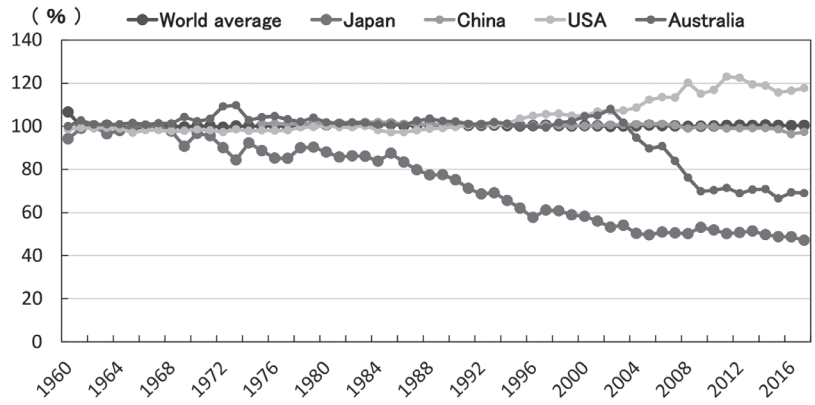

Fig. 17 Transition of the self-sufficiency ratio of pork

Source: USDA, PS&D Online, October 2017

5. Conclusion

In order to obtain the current situation and future prospects of Japanese dietary habits, we traced dietary changes of about 50 years and compared the result internationally.

After the period of starvation immediately after the end of the Second World War, the diet of Japanese became enriched with economic development. The daily calories supplied per person increased from 2,290.6 kcal in 1960 to 2,670.4 kcal in 1996. However, due to an increase in consumption tax of 3% to 5% on April 1, 1997, the calories supplied began to decrease from that year.

The financial crisis in America in 2008 caused the Japanese economy to fall into

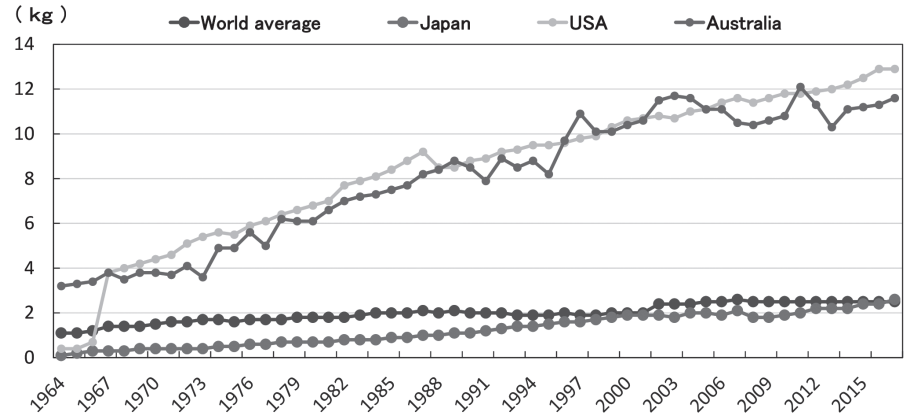

Fig. 18 Transition of the annual consumption of cheese per citizen

Source: USDA, PS&D Online, October 2017

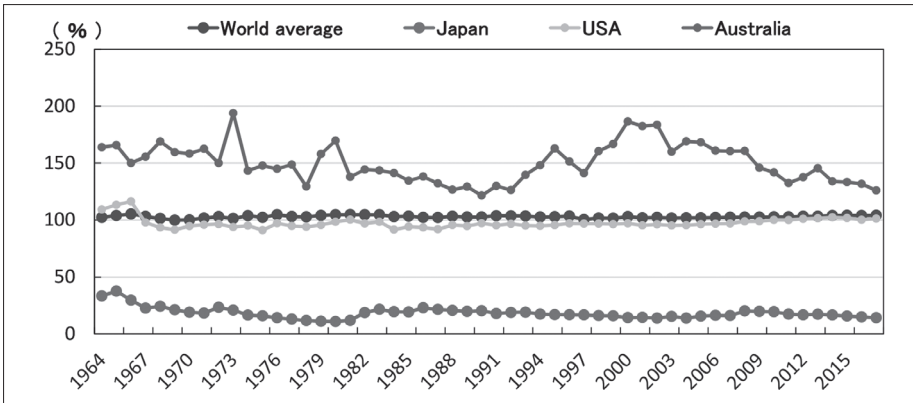

Fig. 19 Transition of the self-sufficiency ratio of cheese

Source: USDA, PS&D Online, October 2017

recession. In that year an accident occurred in which melamine was detected from confectionery and frozen pizza made in China, and insecticide ingredients were also detected from Japanese foods. These factors acted in a complex manner, and the calories supplied drastically decreased.

The change in the daily calories supplied per citizen in Japan is the result of the decrease in calories supplied from rice since 1962 and the increase in the calories supplied from livestock products and fats and oils that complemented it. However, the change from rice to livestock products and fats and oils is up to 1996, and it is understood that the consumption increase tax from 1997 suppressed consumption of livestock products and fats and oils.

In contemporary Japan, the traditional diet that is seasoned with soy bean paste and soy sauce on rice, fish and vegetables has retreated, and new dietary habits including livestock products and fats and oils are being developed in them. Considering the relationship between world economic power and calorie supply, the diet deviates from the global trend and is abnormally low.

References

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《Special note and acknowledgment》

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