

## **Making Japanese Society More Resilient: To Improve Sustainability of Social Security in Japan \***

By Shinji YAMASHIGE\*\*

### **Abstract**

As the population in Japan has been ageing and declining, people have come to feel anxiety about their future. To find ways to improve sustainability of security of the people, I first provide basic facts about sustainability of social security in Japan. Then, I clarify the concept of sustainability and discuss ways to improve resilience of systems to prepare for and recover from various shocks that can collapse them. I claim that strengthening the supply side of the social security system and enhancing the resilience of the society by increasing efficiency, redundancy, diversity, and equity of the society, are the keys to improve sustainability of the social security in Japan. The argument allows us to understand, for example, why paying adequate wages to care workers, work-style reforms, and increasing diversity in the care sectors are all important for the sustainability of the social security in Japan. I also suggest, in the final section, that to improve the sustainability of the social security in the long run, it is important to foster future generations by increasing the social expenditure for families to support and strengthen families with children. The conceptual framework presented in this chapter, I hope, is useful to understand the discussion in this volume and to consider social security reforms in Japan.

JEL Classification Codes: I18, J11, P51

Keywords: Social Security System, Sustainability, Resilience

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## 日本社会の強靱化～社会保障の持続可能性を高めるために～

山重 慎二

### <要旨>

日本では、高齢化と人口減少が進み、人々は将来に対する不安を抱くようになってきている。人々の安心の持続性を高めるための方法を見出すために、まず日本の社会保障の持続可能性に関する基本的な事実を提示する。そして、「持続可能性」の概念を明確にした上で、システムを崩壊させる可能性があるショックに備え、ショックから回復するためのレジリエンス（強靱性）を向上させる方法について整理する。そのような枠組みに基づいて、日本の社会保障の持続可能性を高めるためには、社会保障制度の供給サイドを強化し、効率性、ゆとり、多様性、公平性を向上させることで日本社会の強靱化を図ることが鍵となることを主張する。その議論は、なぜ日本の医療、介護、保育などのケア・セクターにおいて、適切な賃金を支払い、働き方改革を推進し、多様性を高めることが、社会保障の持続可能性を高めるために重要なのかを理解しやすくする。そして最後に、社会保障の持続可能性を長期的に高めるには、やはり将来世代を育成することが重要であり、家族向けの公的支出を増やし、子育てをする家族を支援・強化することが重要であることを示唆する。この章で提示される概念的枠組みが、本号における議論を理解する上で、そして日本の社会保障改革のあり方を考える上で、役立つことを期待したい。

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Keywords: 社会保障、持続可能性、強靱性

## 1. Introduction

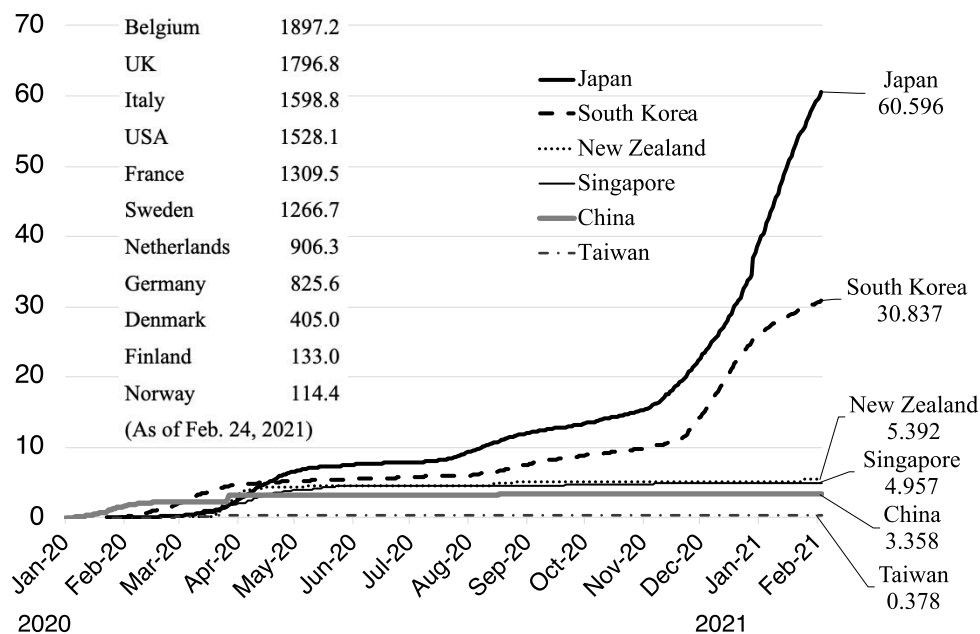
The sustainability of the social security system in Japan is in question. By “social security” in a broad sense, I mean (a state of) security of the people in our society, which includes how people feel about it. I say that the current social security will be sustainable if the level of the social security will stay within the “neighborhood” of the current one (c.f. Section 3.1 for a more formal definition).

Social security has been provided not only by the government via the social security system but also by families and communities via mutual help. The “social security system” in Japan consists of the public system of pension, healthcare, long-term care, and public protection for the poor. We regard families and communities (e.g., network of friends, neighborhood associations and NPOs) as the providers of social security because they were its main (and often only) providers in the long history of human beings and have close interactions with governments.

### 1.1 COVID-19 in Japan

The current COVID-19 problem illustrates our discussion on the resilience of our society for the sustainability of social security. Figure 1 shows the trend of the cumulative COVID-19 deaths per million people in Japan. Although it has been much lower than many other OECD countries, it has been higher than those in some Asian and Oceanian countries/regions. We are currently observing a rapid increase in the number of COVID-19 deaths in Japan.

Figure 1: COVID-19 Deaths per Million People



Source: Our World in Data, Covid-19 (<https://ourworldindata.org/covid-deaths?>).

It has been pointed out that the lives of some patients could have been saved if the social security system in Japan worked better. Under the pandemic, the state and sense of security about COVID-19 were lowered among people in Japan, like in other countries. The elderly and people with health problems lived in fear for the disease.

In tackling the COVID-19 pandemic, people needed to reduce their economic activities and this caused job losses. Some people who could not keep their jobs and income have committed suicide. Although the government increased public expenditure to support healthcare sectors and income of the people by accumulating public debt, social security in Japan seems to have been lowered.

To improve the sustainability of social security, it is necessary to make our society, which includes the social security system, communities and families, more resilient. It is important not only to prepare for shocks like pandemics and big earthquakes but also to deal with problems like population aging and accumulation of public debt, which seriously limit the use of resources in the society.

## 1.2 Research Question

The question is: how can we make our society more resilient and improve the sustainability of social security in Japan? To find answers to this question, we need to have a good understanding of Japan's current conditions and current system of social security, and identify their problems from the viewpoints of the sustainability of social security in Japan. This is the *basso continuo* in the papers in this volume.

In Section 2, I first provide basic data about sustainability of the social system in Japan. Section 3 is devoted to some theoretical considerations on the sustainability and resilience of the society with some emphasis on the relevance of viewing our society as a system of networks. Some concluding remarks are collected in Section 4. I hope that this chapter will be of some help for readers to understand the importance of the papers in this volume and to consider social security reforms in Japan.

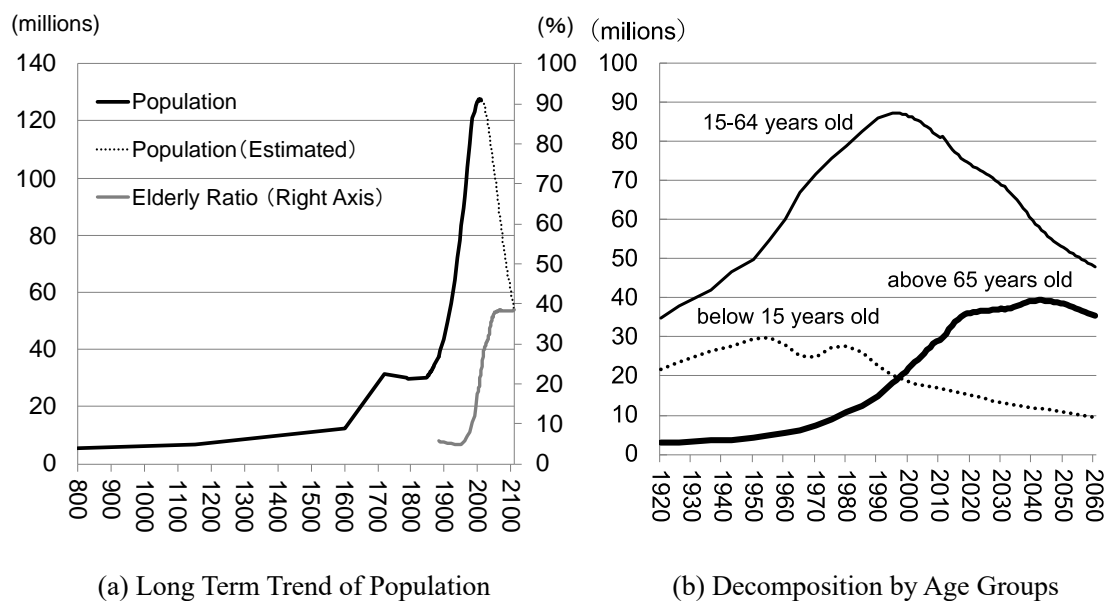
## 2. Sustainability of the Social Security in Japan

Let me overview current states of the Japanese society. We first look at demographic sustainability and sustainability of rural regions in Japan. Then, we take a look at some figures concerning the sustainability of the social security system and the fiscal system.

### 2.1 Sustainability of Demography and Workforce

Figure 2 shows the history and estimates of the Japanese population published by National Institute of Population and Social Security Research. Figure 2(a) indicates the trend of the total population since A.D. 800 in Japan. It shows that the total population roughly tripled in the 20<sup>th</sup> century, reached at its peak in 2008, and will go down to the level less than a half of its peak by the end of this century.

Figure 2: Demographic Transition in Japan



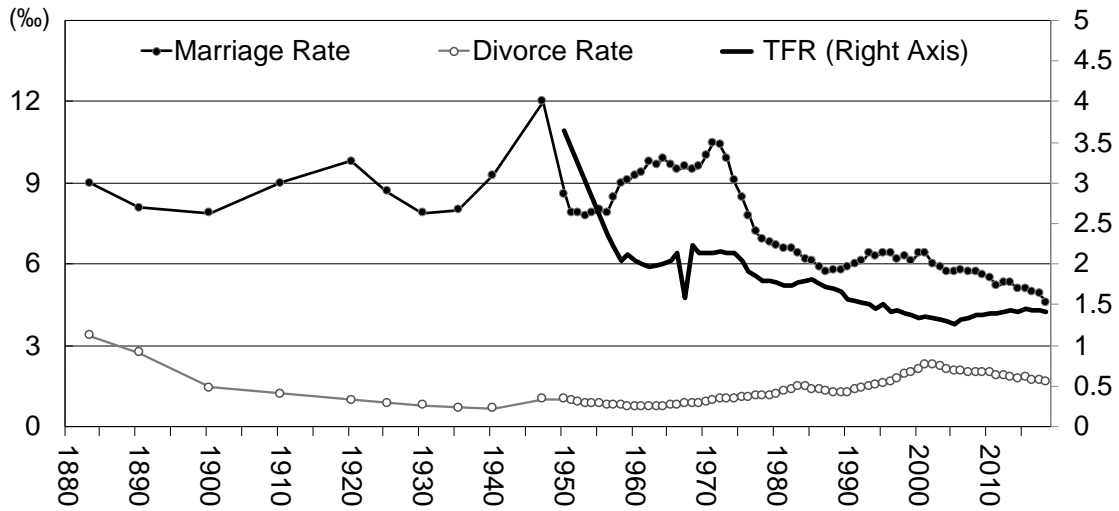
Source: Yamashige (2017, Fig.1.1).

Figure 2(b) shows the trend of population for three age groups. First, the population of the elderly above 65 years of age has been and is estimated to be increasing until 2042. The population below 15 years of age started to show a gradual decline in 1960s and 1970s. The decline of the young generations has accompanied the decline of the working-age population (between 15 to 64 years of age) since 1995. As the result of such changes, the total population started to decline since 2008. One of the consequences of the increase in the elderly and the decline in the population is the rise in the elderly ratio, the ratio of the elderly to the total population. Figure 2(a) shows that it will reach and stay around 40% in the second half of this century.

The main reason for such a rapid population aging and decline is the decline in fertility. As Figure 3 shows, since 1974, the total fertility rate (TFR) in Japan has declined below the replacement ratio 2.07 at which the population will be sustained in the long-run<sup>1</sup>. For more than 40 years, the population has been expected to start declining in Japan; and it did in 2008.

<sup>1</sup> The total fertility rate (TFR) is the average number of children that a woman in Japan will have in her lifetime. The replacement rate is the total fertility rate under which the society can sustain its population level. It should be above two because men cannot give birth to children.

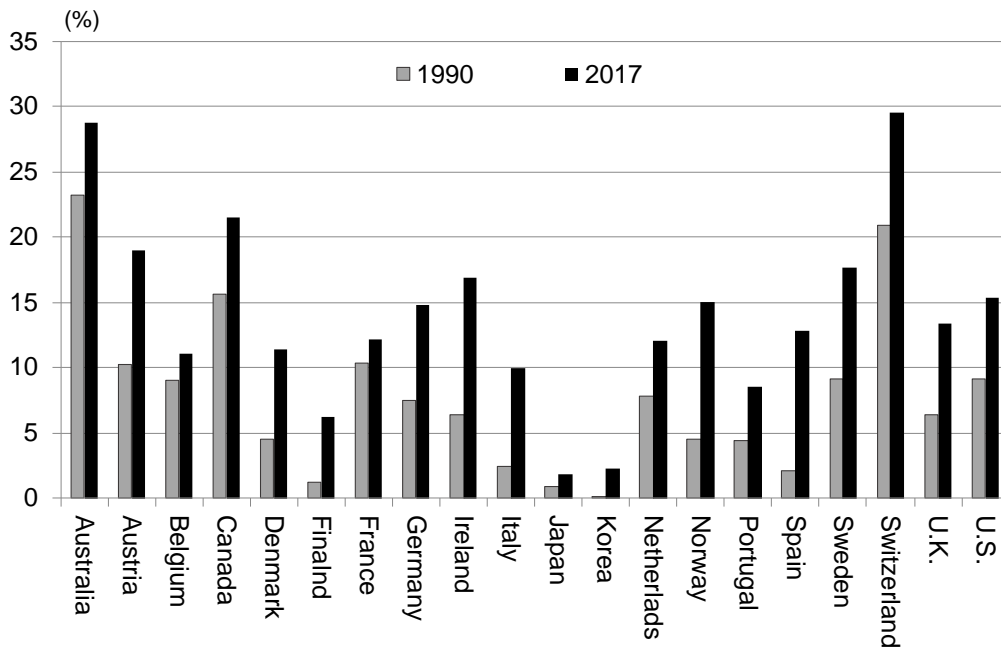
Figure 3: Trends of Marriage, Divorce and Fertility in Japan



Source: Yamashige (2017, Fig.1.5, Updated).

Even if the TFR were below the replacement rate, the population of Japan could have been sustainable by increasing the number of immigrants, as other developed countries did. Figure 4 shows that, even today, the ratio of the foreign and foreign-born population is at a low level in Japan.

Figure 4: Ratios of Foreign and Foreign-Born Population



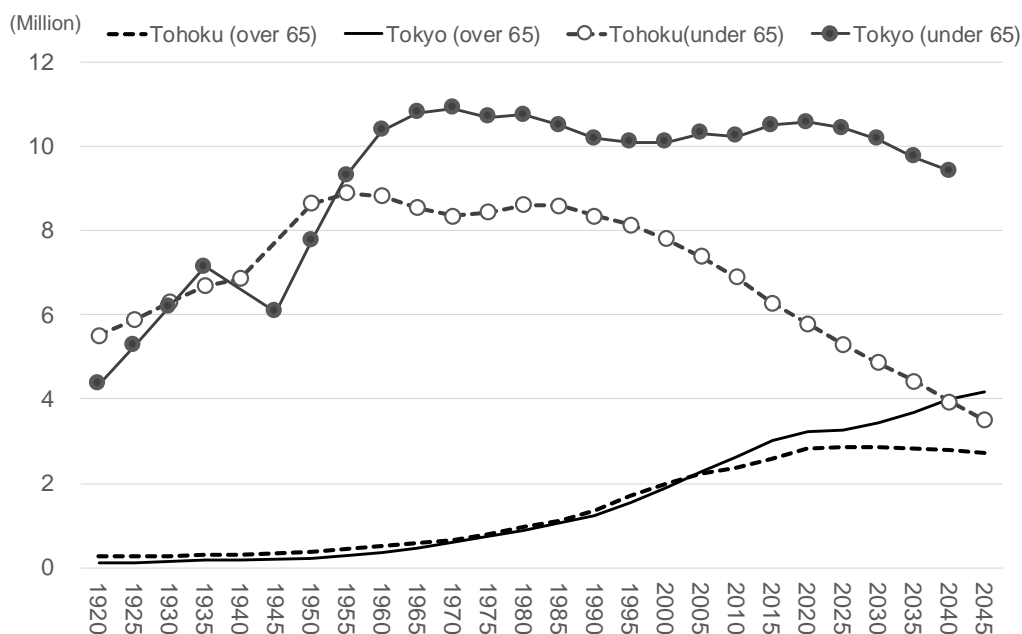
Source: Yamashige (2017, Fig.8.1, Updated).

## 2.2 Regional Sustainability

Population aging and decline are more serious in Japan's rural regions. Figure 5 shows the demographic trends of Tokyo and the total of five prefectures (Aomori, Akita, Iwate, Miyagi and Fukushima) in the Tohoku region. The population is decomposed into two age groups.

In 1920, the population in each age-group in Tokyo was smaller than that of the Tohoku region. But today, it is larger in Tokyo than that of Tohoku region. In Tokyo the young population is expected to stay at high level while it is rapidly declining in the Tohoku region. In about 30 years, the young population in the Tohoku region will be almost the same as its elderly population.

Figure 5: Demographic Differences between Urban Areas and Rural Areas in Japan



Source: National Institute of Population and Social Security Research (2020).

Another important fact is that the number of elderly people in Tokyo is expected to be rising strongly even after 2042, while it is expected to start declining after 2025 in the Tohoku region. Similar patterns of the increase in the elderly people are expected in the Tokyo region (i.e., Tokyo, Kanagawa, Saitama, and Chiba). The strong demand for healthcare and long-term care services will create labor shortages in urban areas and may accelerate the emigration of young people from rural areas like the Tohoku regions, which can further threaten the sustainability of rural areas in Japan.

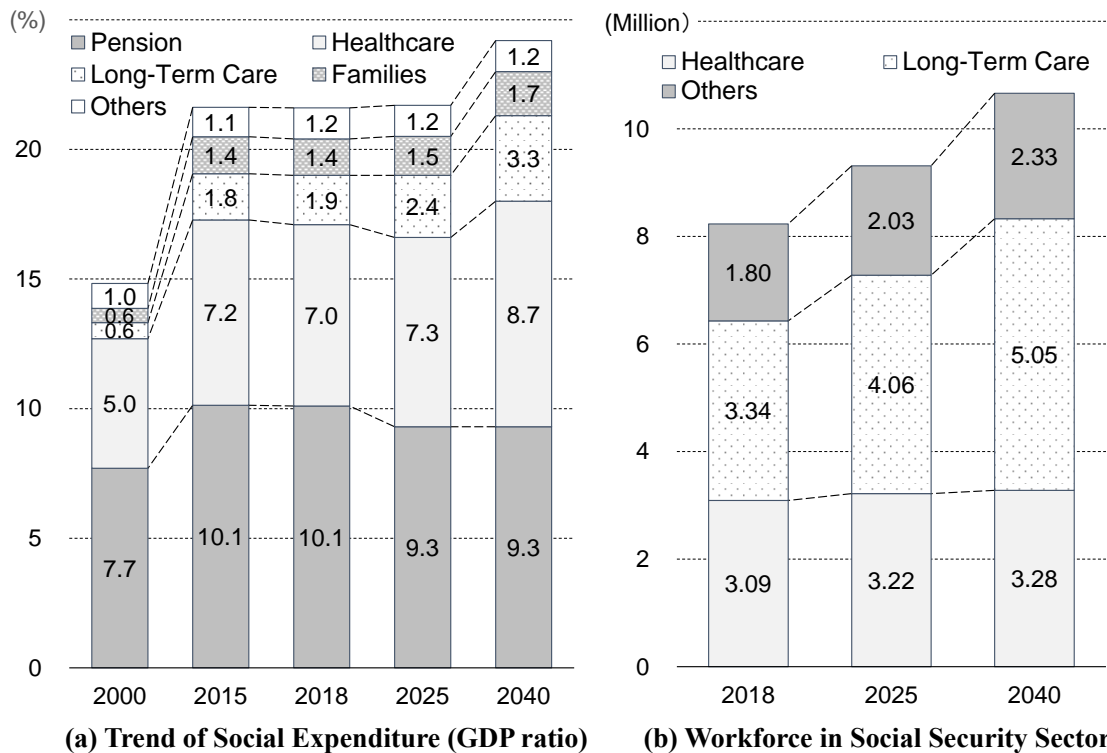
## 2.3 Sustainability of Social Security System

Now, let us consider the sustainability of the social security system. Figure 6 shows the estimates concerning the social security, which is prepared by the government for its committee to discuss the

social security system. In Figure 2(b), we saw that there would be a steady increase in the number of elderly people until 2042, but its increase from 2018 to 2042 will not be as large as the one from 2000 to 2018.

This is a reason for why, in Figure 6(a), the increase in public expenditure in the social security system (per GDP) from 2018 to 2042 (12.0%) is not as big as the one from 2000 to 2018 (45.7%). But, such a mild increase is a reflection of the government’s efforts to contain expansion of public pension and healthcare expenditure.

Figure 6: Expansion of the Social Security System in Japan



Source: Based on Data in “On Future Reform of Social Security System: Towards 2040.” (February 1, 2019) of Committee for Social Security System (in Japanese).

Such an expected effort can be also observed, in Figure 6(b), by a small increase in the workforce in the healthcare sector (i.e., doctors and nurses) from 2018 to 2040. The increase is only about 6% in the period when the elderly population will increase by approximately 10% and become more aged. It is in contrast with the expected increase in the workforce in the long-term care sector, which is much “less expensive” than the workforce in the healthcare sector.

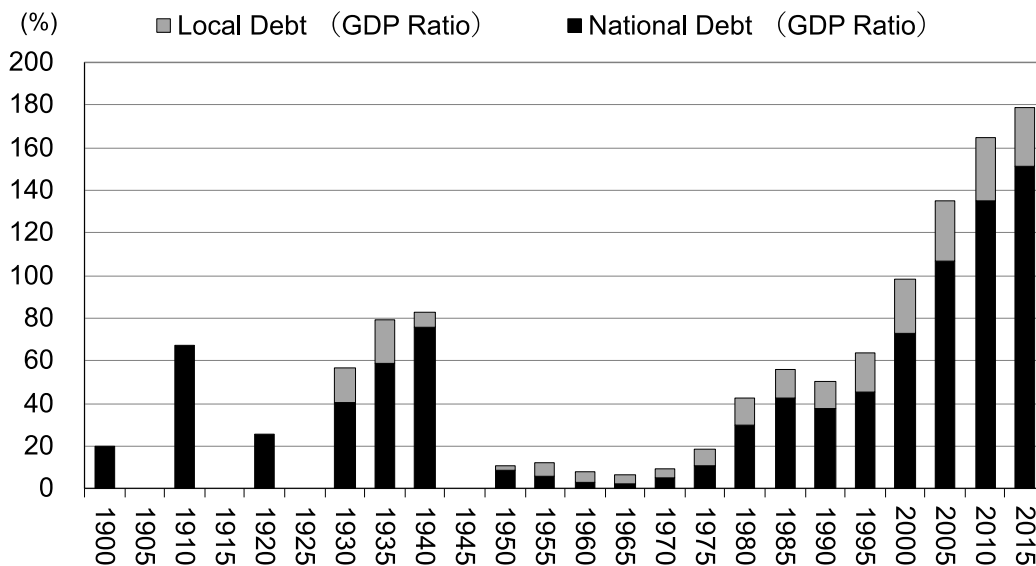
Although Figure 6(b) suggests that workers in the social security sector are expected to increase by about 2.4 million from 2018 to 2040, the increase in the expenditure for social security is expected to be contained, as shown in Figure 6(a).



## 2.4 Sustainability of Fiscal System

Such an effort to reduce the social security expenditure is required by Japan's tight fiscal conditions. As Figure 7 suggests, the ratio of Japan's public debt to GDP now exceeds the one before the second world war. The ratio in 2019 was 200%. In 2020, to tackle the COVID-19 problem, the total national government's public debt issue is expected to reach around 110 trillion yen, or about 20% of GDP. The public debt has been accumulated in Japan as the social security payment increased in response to the increase in the elderly while tax revenue and social security contribution did not due to the decline in the young generation.

Figure 7: Expansion of the Public Debt in Japan



Source: Yamashige (2017, Fig.1.3).

When fiscal sustainability is in question, so is the sustainability of the social security system. We need to find ways to maintain fiscal sustainability.

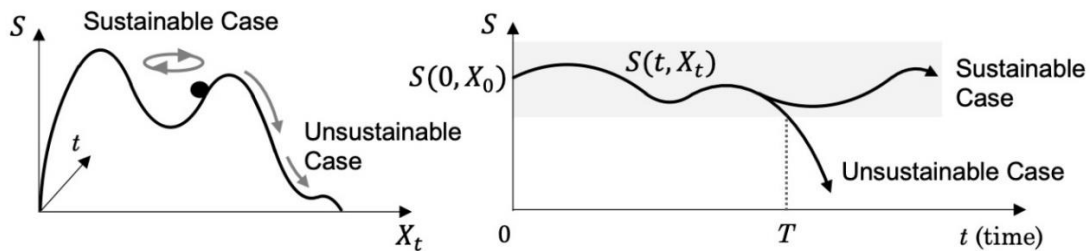
## 3. Designing a Sustainable Social System

The figures in the last section suggest that the sustainability of the social security in Japan is in doubt. In this section, after clarifying the meanings of sustainability of our social system, I will introduce some theoretical ideas on the resilience of systems to derive some implications for the sustainability of the social system.

### 3.1 Conditions for Sustainability

The state of our society can be understood as a state of a dynamic equation. Let  $S(t, X_t)$  be a state of the society at time  $t$ . It will be influenced by various factors  $X_t$  which include, for example, events in the past, current system, and expectations for the future. The current state  $S(0, X_0)$  is sustainable if there exists no  $T$  such that, for all  $t > T$ ,  $S(t, X_t)$  is out of the “neighborhood” of the current state  $S(0, X_0)$ . Its image can be illustrated in Figure 8.

Figure 8: Images of Sustainability



We say that a system is sustainable if the states under the system are sustainable. The sustainability of system may be well illustrated by the sustainability of the ecological system. In the long history of the earth, many species were generated but some of them have become extinct. Think of some beautiful coral reef at some point in time and place. It can be seen as an ecological system in which various creatures live together in certain balance. Although states of the coral reef are changing day by day, if it is expected to maintain its basic balance and beauty (in the eyes of human being), we may say that the current ecological system of the coral reef will be sustainable.

It is, however, well known that some coral reefs may not be sustainable. There are two patterns of “extinction”: gradual extinction and sudden extinction. For example, climate change may cause gradual extinction of a coral reef while an abrupt invasion of the crown-of-thorns starfish eating the coral may bring about the sudden extinction of the coral reef. Although some creatures may remain in the coral reef after these events, the new states will be very different from the current ecosystem. If the risks of facing such events are not small, we may say that the sustainability of the coral reef is in doubt.

In this analogy, Japan is the coral reef. The lives and welfare of the creatures in the coral reef is Japan's social security. The sustainability of the Japanese social system is in doubt because it faces the risk of gradual extinction (e.g., population decline) and the chance of a sudden extinction (e.g., fiscal collapse) does not seem to be small.

### 3.2 Interdependence of Networks in Social System

The social system consists of various sub-systems. The following institutions are especially important

in securing lives and welfare of the people: (1) Family and Communities, (2) Markets, and (3) Governments.

In the modern society, our lives are secured by transactions with others. To make transactions, each individual needs to be embedded in networks. Contract-based transactions are made in markets. But, it is well known that due to various “market failure problems” transactions of certain goods and services are not efficiently made in markets.

Many relation-based transactions are still made within the networks of families and communities. For instance, in most societies, transactions of babies are not allowed; and thus, people need to have some “marriage” if they want to have babies. The families then become important institutions for most people to have various transactions, especially to secure their lives and welfare. Such networks of transactions are often extended from nuclear families to communities (e.g., networks of extended families, friends, neighbors, religious groups, associations, NPOs and NGOs).

Although families and communities are important institutions of networks, not all individuals have good families and communities to make enough transactions to secure their lives. To support them, the governments have played important roles.

The government, just like markets, can be seen as an institution for the transaction as it has provided various goods and services to the people in exchange for their tax and social security contributions. Furthermore, the government can be seen as a complex system of networks. It consists of networks of politicians and bureaucrats, networks of the central government and many local governments, and networks of ministries and public enterprises.

If the social system consists of these institutions and networks, the sustainability of the social system must be characterized by their nature.

### 3.3 Making the Social System More Resilient

To have good understandings of the sustainability of the social system, let us learn more about the conditions for the sustainable ecological system. According to the Darwinian theory of evolution, species will become extinct when they cannot make adequate adoption to changes and shocks in the environment surrounding them. So, the question is what kind of properties of the system are useful for the survival of the system. Among various properties that have positive effects on the resilience of the system<sup>2</sup>, we will concentrate on the following three properties.

- (1) Efficiency
- (2) Redundancy
- (3) Diversity

First, when the environment becomes harsh for the survival of the species, those which can make

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<sup>2</sup> “Modularity” is a factor often listed as important one for resilience. See, for example, Kharrazi *et al.* (2020) and Carpenter *et al.* (2012).

the best use of the resources can have a higher rate of survival. For survival, we often need to cooperate with others; if we cannot, the survival rate will be lower. Thus, not only individual efficiency but also efficiency of networks is important.

Although efficiency is an important property, too much efficiency is, in a sense, not good for survival. It has been pointed out that some inefficiency or redundancy is useful, especially against big shocks that often cause sudden extinction. If there were no redundancy, the system would be broken when big shocks hit the system. Redundancy in the system can work as a shock absorber.

Finally, diversity is well known to work against various shocks. When there are several types in one species, even if some of them did not survive against shocks, the rest might survive; and, the survival rate of the species with high diversity will go up.

The importance of these properties in individual decisions is well known in economics. First, we are expected to make efficient choices under the various constraints we face. Second, when there is uncertainty, we often purchase insurance whose premium would be wasteful if there were no shocks. Precautionary savings or stocks of goods prepared for natural disasters may also be seen as a form of redundancy. Finally, effectiveness of having diversity to prepare for shocks is a familiar argument in economics and finance (e.g., diversification of financial assets to reduce fluctuations of returns from investment).

Now, let us consider if these properties are also important for the sustainability of our social system discussed in the last section. The applicability of the principle to our individual decisions under uncertainty suggest that all three factors should be effective to prepare for the risks that people would face in our society.

Although our social system is similar to ecological systems, there are some differences between them. One of the remarkable differences is that people “think” and “communicate” with others on the network, and we care about equity. I add one more factor: “equity” as an important property for the sustainable social system. In the history of human beings, there have been many events (e.g., civil wars, revolutions, and conflicts in 18<sup>th</sup> and 19<sup>th</sup> centuries) in which inequality is the main cause to endanger sustainability of the social systems.

Hence, the list of properties of a social system to enhance its sustainability is now given by (1) efficiency, (2) redundancy, (3) diversity, and (4) equity. We can use the list and the arguments above to gain a better understanding of the discussions in this volume.

For example, we argued that paying adequate wages to care workers, implementing work-style reforms, and increasing diversity in the care sectors are important to strengthen the supply side of the social security in Japan.

Paying adequate wages to the care workers is important for efficiency and equity in the labor markets for care workers. If the wages are inadequately low, care workers will lose motivation to provide care to others and may leave the jobs. Inefficient and inequitable wages will lead to the

collapse of care services, especially when negative shocks hit the sector.

The work-style reforms (e.g., reducing the overwork) are important from the viewpoints of redundancy, which allows care workers to respond properly to shocks. In the care sector, many workers are expected to respond to emergent events; and it is important for them to have room in their ordinary work.

The diversity of care workers, in terms of age, sex, and nationality, is increasing in the social security sector. Although the diversity management is not easy, it is important to look at positive sides of the diversity. Various shocks affect people differently; if the care workers consist of similar people, the supply of the care may be reduced suddenly when some shocks occur. Accumulating understanding of preferences and needs of care workers with different characteristics will make the employment and management of the diverse care workers easier. Many papers in this volume indeed clarify characteristics of care workers and will contribute to increasing the sustainability of the social security in Japan.

#### **4. Concluding Remarks**

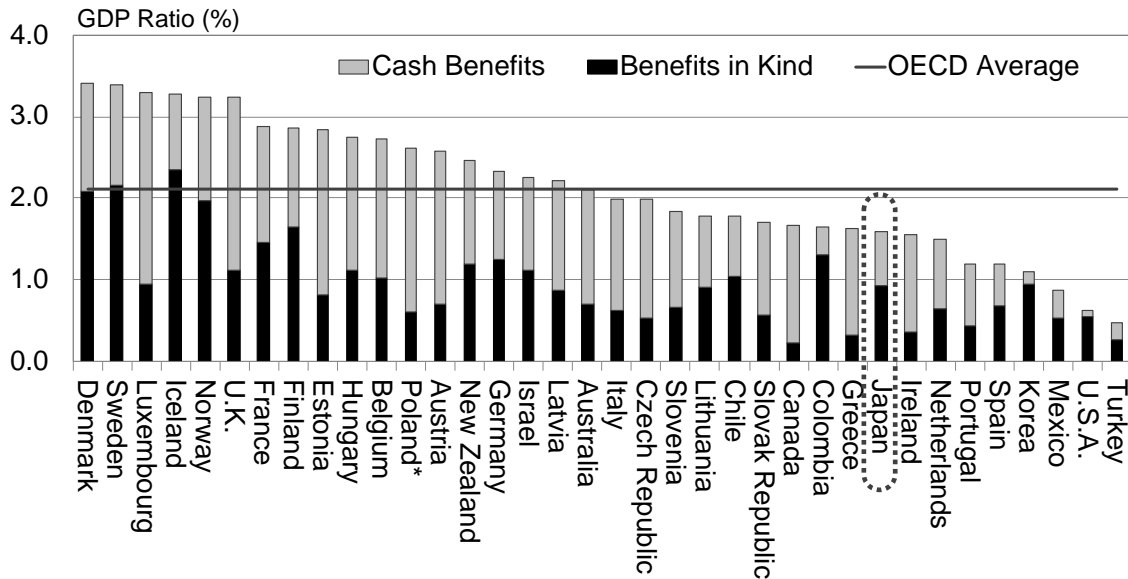
To facilitate understanding of the discussion in this volume and to consider social security reforms in the future, I overviewed some figures concerning the sustainability of demography, depopulating rural regions, the social security system, and the fiscal system in Japan. Although the government's forecast of the growth of social security expenditure to 2040 (Figure 6) does not look so bad, some careful examination suggests that it is based on the government's expectation that reforms of public pension and healthcare system go well. Such reforms, however, may reduce the redundancy of the social system, which not only can generate some resistance against them but also can weaken its resilience against risks that Japan will face.

Papers in this volume analyze the current conditions and systems of the social security in Japan and try to find ways to mitigate their problems. They suggest that, to improve the sustainability of the social security, it is important to strengthen not only the social security system but also families which provide security to others.

Families are still the foundation of our society: they provide labor and financial contributions to the social security system in which the young generation support the elderly generation. By powerfully supporting families, especially their raising children, the government can strengthen the social security system and may be able to reduce its burden with more mutual assistance within families.

Other developed countries, especially European countries, have increased their expenditure to support families. As Figure 9 shows, the average social expenditure for families in OECD countries is about 2% of GDP, and in some countries with high fertility rates and female labor participation rates, it exceeds 3% of GDP.

Figure 9: Social Expenditure for Families (GDP ratio) in OECD Countries



Source: OECD stat, Social Expenditure Database. The data for 2017.

In Japan, it is still around 1.6%; and it is expected to be around 1.7% even in 2040 (c.f. Figure 6(A)). To improve the sustainability of the social security in Japan, much more support should be provided to families.

To strengthen the social security system, the government also needs to have more control over the supply side of the system. Despite the fact that more than 20% of GDP is collected from the people to finance the social security system every year, the government of Japan has not managed healthcare, long-term care, and childcare sectors well.

To have a more resilient social security system, these sectors must be healthy in normal time. Care workers need to be adequately paid and well motivated in workplaces where psychological safety must be guaranteed. Improving the conditions of workers (i.e., work-style reforms) in the social security sectors is important.

When some big shocks hit the society and endanger the lives and welfare of the people, the social security system will be under strong stress, which can break down the system. The analyses in this volume suggest that care providers do not seem to have enough room (i.e., redundancy) to handle big shocks, especially in the government’s attempt to contain the growth of expenditure of social security.

In such a circumstance, the government needs to strengthen its control over the system so that the “small room” that each care provider has should be “collected” to help the parts that the shock most harshly hit. Because the care sector can be seen as a network of care providers, effective coordination among them is really important, especially during emergencies. The strategies are similar to

the ones in the wars against foreign invasion. The social security system must be well designed so that the government can make such controls and arrangements as quickly as possible.

One merit of having the care sectors in the public system (i.e., planned system) is that, compared with the case when they are embedded in the decentralized market system, the government can have various means to control them. Experience in fighting against COVID-19 in Japan suggest that the government need to redesign the social system to improve its resilience against various shocks that Japan will face. In the countries in which the rates of COVID-19 deaths are lower than Japan (c.f. Figure 1) and managed the problem relatively well, the governments took policies, with effective use of new information technologies, to strengthen their controls over the social system which includes the social security system, (centralized and decentralized) monitoring systems, and the market system.

Finally, to make social security more resilient against various shocks, sound fiscal conditions are important. To maintain room to increase the public debt is strategically important to prepare for the shocks that can threaten the lives and welfare of the people. One concern for the sustainability of the social security in Japan is indeed the lack of such room (c.f. Figure 7) to increase the public expenditure when big shocks like pandemics and earthquakes happen.

To improve the sustainability of the social security in Japan, further analyses on Japan's fiscal condition, as an important element affecting the supply side of the social security system, are also necessary, especially taking into accounts the effects of an increase in the public debt to tackle COVID-19.

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