

# Preface

In 2011, the tsunami caused by the Great East Japan Earthquake swallowed rural towns in the north-east coast of Japan and took the lives of about 15,000 people. It also caused the meltdown of the nuclear reactors at the *Fukushima Daiichi* nuclear power plants. Japan has been recovering from the damages caused by the earthquake and tsunami, but has to live with the aftermath of the nuclear meltdown for a long time. It will take at least 30 years and ¥20 trillion to deal with the nuclear disaster.

Furthermore, two big earthquakes are expected to hit two urban areas of Japan in the near future. An inland earthquake in the metropolitan Tokyo area and one in the *Nankai* Trough in the Pacific Ocean are estimated to occur with 70% probability within the next 30 years, respectively (Fig. 1). As the two earthquakes are going to hit big cities, the damages caused by them and the resulting tsunami are estimated to be far more than those of the Great East Japan Earthquake. The earthquake in the Tokyo area can have a death total of 23,000 and cost around ¥95 trillion in damages, whereas the earthquake in the *Nankai* Trough, which has a very high risk of causing tsunami, is estimated to kill as many as 320,000 (Cabinet Office (2016) *Disaster Management in Japan* ([http://www.bousai.go.jp/1info/pdf/saigaipanf\\_e.pdf](http://www.bousai.go.jp/1info/pdf/saigaipanf_e.pdf))).

Given such a high probability of the earthquakes and tsunamis, the Japanese government should have a good recovery plan to cope with these disasters. However, the Japanese government has already accumulated a huge public debt. The debt-to-GDP ratio now exceeds 200%, the highest among the OECD countries. When an earthquake hits Japan, how can the Japanese government, with further losses in tax revenues, finance the recovery? Japan seems to have been enjoying the prosperity but its prosperity is built on very fragile grounds.

Although the land of Japan will not be sinking, the Japanese society is sinking especially with regard to its population. The Great East Japan Earthquake hit the country just after its population peaked in 2008 (c.f. Fig. 1.1 in Chap. 1). The population has been declining since then. Further, the elderly ratio, which is the

**Another Large Earthquake Anticipated:**

**Chubu and Kinki Region Inland Earthquake**

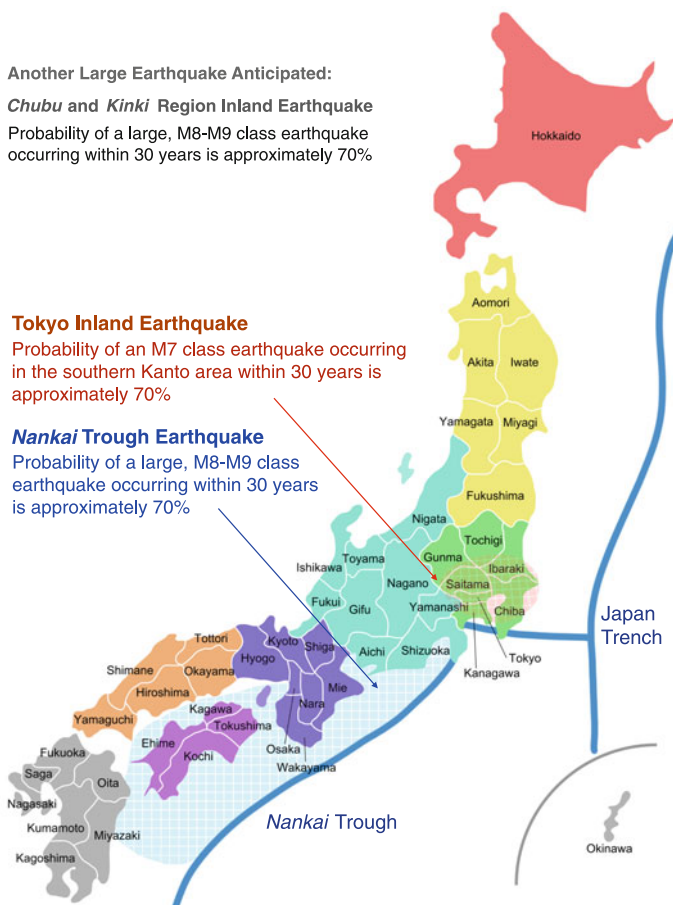
Probability of a large, M8-M9 class earthquake occurring within 30 years is approximately 70%

**Tokyo Inland Earthquake**

Probability of an M7 class earthquake occurring in the southern Kanto area within 30 years is approximately 70%

**Nankai Trough Earthquake**

Probability of a large, M8-M9 class earthquake occurring within 30 years is approximately 70%



**Fig. 1** The Anticipated Big Earthquakes. *Source:* Cabinet Office of Japan (2016) *Disaster Management in Japan*, and Wikipedia for a map at [https://commons.wikimedia.org/wiki/File:Regions\\_and\\_Prefectures\\_of\\_Japan\\_2.svg](https://commons.wikimedia.org/wiki/File:Regions_and_Prefectures_of_Japan_2.svg)

ratio of elderly people above 65 years of age to the total population, is increasing rapidly because the number of the elderly people is projected to be increasing until around 2040. The elderly ratio is estimated to reach around 38% in 2050 and stagnate there throughout the rest of this century. This is the future of Japanese demography that has been forecasted by the Japanese government.

Japan has a generous social security system and has maintained it so far by accumulating public debt. The decline in younger generations, increase in the number of elderly people, and large accumulation of public debt all suggest that Japan will not be able to sustain the current social security system. In the near future, the Japanese government will face a financial collapse and need to downsize the social security system to a large extent. When one of the two big earthquakes

hits Japan, it will suffer from a further loss of resources and will face more serious difficulties.

The lack of tax revenues and an inability to borrow money with the huge public debt will push the country into big troubles (e.g., hyperinflation under the monetization of public debt and/or many tragedies under the forced cuts of the government expenditure). The government may also face difficulty in finding young people to rebuild the country because almost 40% of the Japanese would already be over 65 years of age by then. Japan will have to accept a large number of foreign workers. A sudden increase in foreign workers will also create disorders in the Japanese society.

Based on various facts and scientific data, we expect that the prosperity enjoyed by Japan in the past 50 years will decay in the near future unless some unimaginable events (e.g., big increase in tax burden, big cuts in social security benefits, or sudden decrease in the elderly ratio due to, for example, pandemics) or miracles (e.g., findings of oil/gas fields in Japan or sudden increase in the fertility rate) happen. The collapse may occur within the next several years and will certainly occur within the next few decades.

From a scientific point of view, an interesting research question is why Japan has come to face these problems and has not been able to implement policies to mitigate them. It was 1979 that Ezra Vogel published a book titled *Japan as Number One*, which praised the success of the Japanese economy. However, Japan is falling now.

In this book, we try to analyze the rise and fall of Japan before it really experiences the ultimate fall. There are two goals of writing such a book. First, we hope that the book can make some contributions to minimizing the damages of the collapse and increasing the possibility of its recovery from it. Second, even if it fails in achieving the first goal, we hope that this book contributes to the formulation of better policies in other countries by analyzing how and why Japan failed to implement public policies to make its society sustainable. The Japanese experience will be especially useful for developing countries that have not yet fully developed their social security system.

In this book, we pay attention to the roles of families and communities in sustaining the society as they form the basis of our society. The most fundamental and important viewpoint of this book is that public policies can transform families and communities. As public policies need to respond to changes in families and communities, there exists a cyclical relationship between public policies and families and communities. Recognizing this relationship is really important because it suggests that we need to formulate policies considering their side effects on families and communities. In a sense, this is a casebook that illustrates such a claim based on the Japanese experience. We hope the case will be beneficial for other countries that are facing or may face similar problems.

To analyze the impacts of public policies on families and communities, we will heavily rely on the economics of families and communities. Although they are relatively new areas of economics, the economics of families has been growing fairly rapidly since the seminal works of Gary Becker who received the Nobel prize in economics in 1992. There are also many important economic analyses on

communities, which have shed a new light on our understanding of communities. The fact that Elinor Ostrom, who studied how common resources have been managed and maintained in communities across the world, received the Nobel Prize in economics in 2009 together with Oliver Williamson who studied the functions and structures of corporations, may suggest that “communities” are now well recognized in economics as important institutions in our society just like corporations.

It may be worth noting that the development of the economic analyses of families and communities was brought about by the rapid development of game theory. Most of the transactions in families and communities are not monetary and could not be analyzed well with the traditional economics. By regarding such transactions as games among members of families and communities, economists realized that interesting and fruitful analyses can be conducted. Based on economic and game-theoretic analyses of families and communities, we examine the transformations and interactions of families, communities, and public policies in Japan. The book consists of three parts.

In Part I, we provide an overview of the transformation of the Japanese society, which occurred mainly in the twentieth century (Chap. 1). Then, we present our analytical framework to analyze the social transformation and provide the basic argument on how public policies should respond to such a transformation (Chap. 2). Finally, as a preparation for making in-depth analysis, we introduce readers to the basics of decision theories (Chap. 3), including game theory, which plays important roles in analyzing families and communities.

In Part II, we present the economic analyses of families and communities, which is the core of this book. We first show the economic analyses of family formations such as marriages, births, and raising children (Chap. 4). Then, we discuss the economic models of resource allocations within families such as bequests and care between children and parents (Chap. 5). The second half of Part II is devoted to the introduction of the economic analyses of communities. We first present the analyses of traditional communities, such as local communities, and see their internal instability (Chap. 6). Then, we attempt to have a good understanding of new types of communities, which are expected to substitute and complement the traditional ones. Concepts such as NPOs and social capital play important roles in understanding the new communities (Chap. 7).

Given the analyses in Part I and Part II, we discuss in Part III how public policies should be formulated in response to the transformation of the Japanese society. We address three social problems: population crisis (Chap. 8), poverty (Chap. 9), and regional disparities (Chap. 10). For each problem, we apply our economic analyses of families and communities and derive policy implications from them. Finally, in the epilog (Chap. 11), we summarize our discussion, try to clarify reasons for why Japan went wrong, and discuss lessons from the Japanese experiences for developing countries. We argue that current problems in Japan can be explained by the “moral hazard problems” or “free rider problems” under the generous redistributive system (c.f. Remark 3.7 in Chap. 3) and the lack of policies to mitigate them.

In reading the book, readers who are not interested in theoretical analyses can skip theoretical chapters, from Chap. 3 to 7, and read the rest of the book. In the discussion on public policies in chapters from Chap. 8 to 11, we provide intuitive explanations for theoretical results to justify our analysis and proposals. It should be possible for the readers to understand the essential arguments presented in this book without having to read the theoretical chapters.

On the other hand, if readers are interested in how economics can be used to analyze social transformation and public policies, we encourage them to read the theoretical chapters. We hope that they can help students and researchers to see how economics can be useful in the analysis of various social problems and contribute to the further development of economics.

In this book, we consider a family as a form of communities at times, and try to understand the relationship among markets, communities (including families), and the government, for instance, in Part I. However, we often differentiate families from other types of communities and analyze them separately, for instance, in Part II. Families are very special forms of communities in most societies. Boundaries and roles of family members are usually defined clearly in legal terms, while other types of communities do not have such clear definitions.

The title of this book “Economics of Families and Society” indicates our emphasis on “families”. Other types of communities are included in the term “society” which also includes the market system and the government (c.f. Fig. 11.3). From an academic perspective, our economic analyses and discussions on “communities” are something that can rarely be found in other books; and thus they can be considered as the special characteristics of this book. Although there are some economic analyses on communities, as we have argued above, the research in this field is still limited. As families and communities are very important elements in the discussion of public policies, we hope that our book contributes to enriching the economic framework for analyzing public policies.

We wish that our analysis on the Japanese experiences will contribute to a better understanding on public policies that have strong powers to change and determine the future of our society.

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