

Corona measures depend on each country's values

Taisuke Nakata, University of Tokyo

December 3, 2021

Since December 2020, I have been conducting research on the compatibility of infectious disease control and socioeconomic activities. When we add economic activities to the standard epidemiological model and perform various analyses, we see that infectious disease control and economy are not a simple trade-off (conflict).

For example, when we analyze the criteria for the lifting of emergency declarations before vaccination begins, we find that ①there is no simple trade-off between the two in the following way.

The higher the number of people for which the declaration is lifted, the shorter the current declaration will be, which is good for the economy in the short term. However, if a rebound occurs easily after the declaration is lifted, another declaration will have to be issued, which is not necessarily good for the economy in the mid- to long-term. On the other hand, if the declaration is continued for a long time and infection is controlled to some extent, it will be difficult for the economy in the short term, but it will buy time for vaccination. This not only reduces the total number of deaths, but also reduces the risk of another declaration being issued, which is not necessarily negative for the economy in the medium to long term.

An analysis of the relationship between post-vaccination infection and the economy revealed that while controlling the spread of infection is effective in reducing the number of deaths in the short term, ②it does not necessarily reduce the cumulative number of deaths until herd immunity is acquired in the long term. This suggests that a temporary expansion of the health care capacity as much as enough to avoid behavioral restrictions in the next wave, may promote the economy without increasing the cumulative death toll.

These findings are true in the model, and we do not know to what extent they are true in the real world. However, there is some truth in the finding that there is not necessarily a trade-off between infectious disease control and the economy in the medium- to long-term time horizon.

The complexity of the relationship between infection and economy can be confirmed by looking at the extent of economic loss and coronary deaths caused by the new coronavirus disaster in various countries and regions. The economic losses and coronary deaths vary from country to country (see Figure 1).

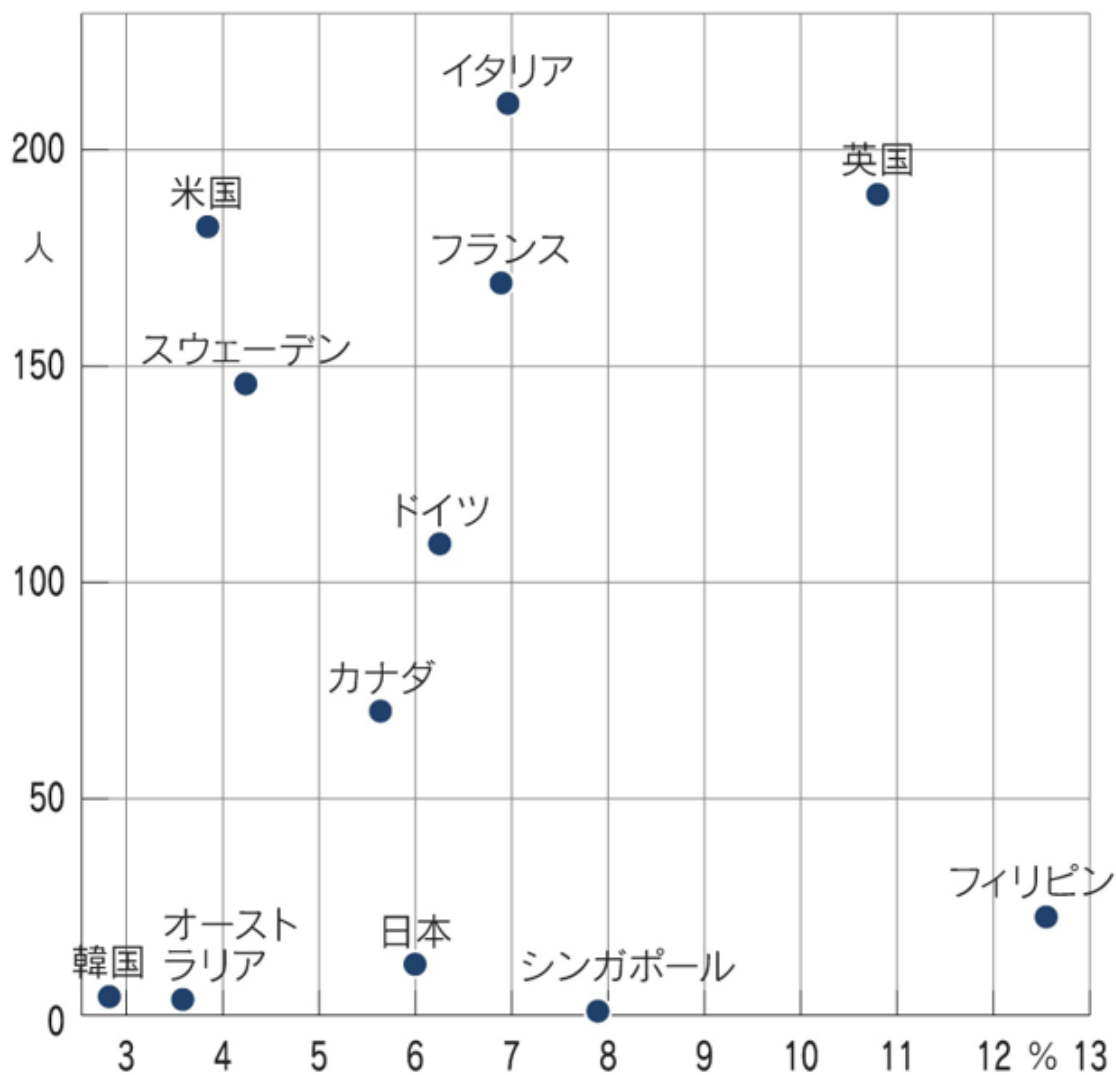


Figure 1

Vertical axis: accumulated deaths

Horizontal axis: economic loss

We are now addressing the question of what factors account for the differences in coronary deaths and economic losses among regions. As mentioned above, there is no simple trade-off between infection and economy. However, given the conditions related to "constraints" in the broad sense of the word, such as the infectivity of the virus in each region, mortality rates,

economic policies, medical systems, and the timing of the declaration of a state of emergency, there is a trade-off between "making the economy run a little more" and "controlling infection a little more. And the optimal balance depends on values.

Using high frequency infection and economic data, we can get some idea of the constraints faced by each region. This allows us to calculate how much economic restraint is needed to reduce the number of coronary deaths by one more person. Then, by applying the concept of "revealed preference," the values of the balance between infection control and the economy in the region can be revealed.

If we use this method to estimate how much economic sacrifice people are willing to make in order to reduce the number of coronary deaths by one, we can see that there are large differences among regions.

③The economic loss people willing to sacrifice for one more reduction in coronary deaths in Japan and Australia is about 2 billion yen and 1 billion yen, respectively, which is higher than the US's 100 million yen and the UK's 0.5 billion yen. There are also regional differences, with Tokyo and Osaka prefectures having incomes of about 500 million yen, while Tottori and Shimane prefectures have incomes of over 50 billion yen. Assuming that the annual income of a household is 5 million yen, it can be said that in order to reduce the number of deaths by one person, people in Tokyo and Osaka are willing to sacrifice about 100 years of annual income, and in Tottori and Shimane, more than 10,000 years.

This may seem like a cruel and ruthless estimate, but the "statistical value of life," which is calculated based on a similar concept, has long been used in policy. The U.S. Environmental Protection Agency (EPA) uses statistical life value calculations based on environmental disaster risk in its cost-benefit analysis of environmental policies. The numbers used in such analyses in developed countries are usually in the hundreds of millions of dollars.

These estimates are largely dependent on the method of analysis, so the numbers themselves have no deep meaning. However, in ④Tottori Prefecture, where a total of five people died, the gross domestic product (GDP) fell by about 7% (about 150 billion yen), and in the United States, where a total of over 700,000 people died (about 140,000 times as many as in Tottori Prefecture), the GDP fell by about 4% (about 90 trillion yen, about 600 times as much as in the United States). I would guess that ⑤differences not only in "constraints" but also in "values" are important to explain the differences between regions.

Values capture a variety of factors other than the value of extending life expectancy. Fear of unknown viruses, attitudes toward risks that cannot be quantified, and fear of sequelae. It also includes factors such as peer pressure to refrain from travel, even if one is not personally afraid. Please consider that this estimate includes various factors other than such "restrictions".

Every year, 1.3 million people die from a variety of causes. This study does not calculate how much we are willing to sacrifice to reduce the number of deaths due to causes other than the corona by one. However, if we were to accept such a huge economic loss as we have calculated for some parts of Japan in order to reduce the number of deaths from other causes, socioeconomic activities would be greatly curtailed. Imagine, for example, banning driving in order to reduce the number of people killed in traffic accidents. You can see how important it was to reduce the number of coronary deaths in some parts of Japan.

If we take these values as a given and predict the future socio-economic situation in Japan, we can say that it will take a long time for Japan to return to its pre-Corona lifestyle relative to other countries. Some service industries may not be able to fully return to pre-Corona conditions. The decline in marriage and birth rates may become a mid- to long-term issue. It may take some time for international exchange in education and culture to recover.

British Prime Minister Churchill said, "Do not let a crisis go to waste." ⑥The Corona crisis is an opportunity to improve those unhappy systems.

The negative effects of more than a year and a half of suppressed human connection are manifold. One example is the increase in the number of suicides, with my team estimating that by the end of September 2009, approximately 4,400 people had taken their own lives as a result of the Corona crisis. Many of these excess suicides have been committed by the younger generation, with women in their twenties accounting for the largest number at about 700. Other negative effects of long-term behavioral restrictions on society are estimated to be multifaceted, but they have been surprisingly underreported during the corona crisis.

Dr. Taisuke Nakata was born in 1980. D. from New York University. Specializes in macroeconomics. Former FRB chief economist.

Adapted and translated by Ryoichi Imai with help of DeepL.
Originally published in Nikkei Shinbun.