

# The role of insurance in public health emergencies ——Comparative analysis at home and abroad

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**ABSTRACT.** *A novel coronavirus pneumonia outbreak in 2020 has attracted worldwide attention. The strong infectious capacity of the virus has caused severe epidemics both at home and abroad. As a risk management system and "social stabilizer", insurance should play an important role in epidemic prevention and control. This paper compares and analyzes the role of domestic and foreign insurance in public health emergencies from three aspects: medical insurance system and relief payment, commercial insurance economic compensation and insurance investment in disease prevention, and puts forward corresponding policy suggestions to improve the insurance system, so as to enhance the ability of China's insurance to deal with public health emergencies.*

**KEYWORDS:** *novel coronavirus pneumonia, epidemic prevention and control, insurance, comparison*

## 1. Raising of the problem

2020 A sudden outbreak of novel coronavirus pneumonia has attracted worldwide attention in recent years. The strong infectious capacity of virus has caused severe epidemic situation both at home and abroad. Novel coronavirus pneumonia has reached 19893290 cases in the United States at 17 hours Eastern time, and the total number of deaths reached 344399 cases, while the total number of deaths in China has reached 344399, while the total number of deaths in China has been around one hundred thousand, with more than 4000 deaths, the public health emergency has caused great harm and loss to society, and insurance has been used as an insurance policy at the time of December 31, 2020. As a basic means of risk management and an important part of social security system, insurance should play an important role in epidemic situation.

2003 During the SARS epidemic period in 2003, the coverage of China's medical insurance system was narrow, the objects of basic medical insurance system were only limited to urban workers, and the vast number of farmers and unemployed

elderly and minors in urban areas were not included in the system. By the end of 2003, the number of insured people was only 109 million. In terms of commercial insurance, the personal insurance premium income in 2003 was 301 billion yuan, accounting for 2.2% of GDP. In this case, the role of insurance is very limited, it is difficult to play the role of security to deal with public health emergencies. By 2018, China will have 1344.59 million people participating in the national basic medical insurance, with a stable participation rate of more than 95%, basically realizing full coverage of personnel; the life insurance premium income is 262.6 billion yuan, accounting for 2.9% of GDP. Novel coronavirus pneumonia has expanded the scale of insurance industry from a vertical angle. It has effectively enhanced the support capability for coping with the new crown pneumonia epidemic situation. Compared with the horizontal international perspective, it can clearly see the advantages and disadvantages of our insurance relative to other countries in dealing with public health emergencies. This paper compares and analyzes the role of domestic and foreign insurance in public health emergencies from three aspects: medical insurance system and relief payment, commercial insurance economic compensation and insurance investment in disease prevention, and puts forward corresponding policy suggestions to improve the insurance system, so as to enhance the ability of China's insurance to deal with public health emergencies.

## **2. Comparative analysis of the anti epidemic effect of insurance at home and abroad**

The novel coronavirus pneumonia has caused great harm and loss to people's health and social and economic normal operation. In the face of such a universal risk for the whole society, insurance can play its due role in social security. The following will introduce the main role of insurance in public health emergencies, and make a comparative analysis with the situation at home and abroad.

### ***2.1 Comparative analysis of medical insurance system and relief payment***

According to the source of funds, there are three representative medical insurance systems in the world: social medical insurance system represented by China, Germany and Japan, commercial medical insurance system represented by the United States, and national medical insurance system represented by Britain and Italy. In 2016, China's health expenditure accounted for 5% of GDP. Due to the privatization of the insurance system, the United States accounted for 17%, while other developed countries generally accounted for about 10%. China's per capita health expenditure was 398 US dollars, the United States was 9869 US dollars, while other developed countries were around 3000-5000 US dollars. From the perspective of medical insurance coverage, the coverage rate of American medical insurance was about 90%, which was more than 90%. More than 27 million Americans have no health insurance in any form, and the coverage rate in China and other developed countries has basically reached 100%. From the effect of medical

insurance, the average life expectancy in China is about 77 years old, that in the United States is 78.8 years old, and that in other developed countries is generally 80.7-83.9 years old. It can be seen that China's relatively developed countries still have a lot of deficiencies in the investment in the health system, but the effect is relatively good. The insurance system of the United States, which is dominated by the market and operated by private medical insurance institutions, can not bring good medical services to most Americans.

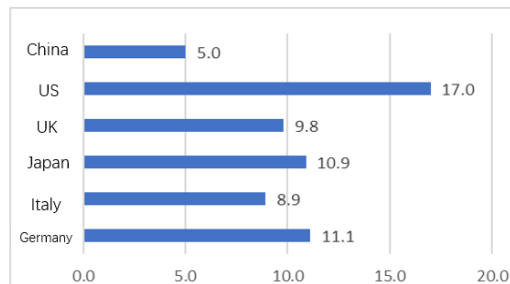


Figure. 1 Health expenditure as a percentage of GDP in 2016

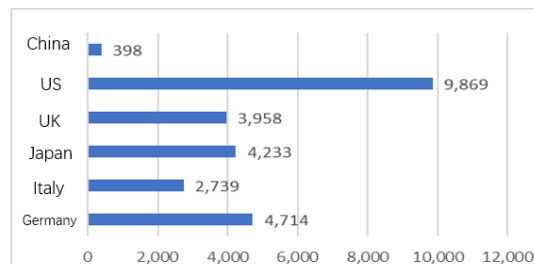


Figure. 2 Per capita health expenditure in 2016 (US dollars)

Source: World Bank Database

In novel coronavirus pneumonia, the shortage of American commercial medical insurance system is not only reflected in daily medical treatment, but also in the new crown pneumonia epidemic. Shilly Shally novel coronavirus pneumonia has been hesitant to consider whether the new crown pneumonia is a policy liability in the US, but the medical expenses of the United States have been deterred by many patients, which seriously hampered the early prevention and control of the epidemic. Novel coronavirus pneumonia was not accepted until March 10th when Vice President Burns and private insurance companies met, and the cost of testing for new crown pneumonia was agreed to and the coverage of treatment costs was appropriately expanded. For Americans who don't have health insurance, they can't

even get free testing opportunities and treatment costs. Novel coronavirus pneumonia was immediately introduced to novel coronavirus pneumonia patients after the outbreak of the new crown pneumonia. All medical expenses of patients diagnosed and suspected of new coronavirus pneumonia were almost entirely covered by the medical insurance fund and financial subsidy, and no personal payment was needed. This greatly alleviated the economic burden of the patients with the epidemic, and played a role in encouraging the patients to get medical treatment in time and controlling the spread of the epidemic. Japan, which is also a social medical insurance system, and other countries that implement the national medical insurance system will also provide free testing and treatment for patients with new crown fees. It can be seen that the commercial medical insurance system of excessive profit seeking can not play the role of relief payment in public health emergencies, which is fatal to the prevention and control of the epidemic. Because of fairness and accessibility, social medical insurance system and national medical insurance system can better play the role of relief payment in the epidemic situation, reflecting the spirit of mutual aid of insurance.

## ***2.2 Comparison of economic compensation function of commercial insurance***

The epidemic often causes people's lives to suffer permanent damage or even death. In addition to the role of relief payment, insurance can also provide economic compensation for the permanent damage caused by the epidemic, such as life insurance and serious illness insurance. After the novel coronavirus pneumonia outbreak, novel coronavirus infection prevention and control insurance service was announced by the CIRC, requiring the insurance agencies to expand their insurance responsibilities appropriately, giving play to the insurance protection role in the critical period of epidemic prevention and control. Novel coronavirus pneumonia has been insured by novel coronavirus pneumonia. As of February 6th, nearly 40 insurance companies in China have committed to expand some of the insurance product liability and include the new crown pneumonia into the protection. As of March 10, the total number of exclusive anti epidemic claims in the insurance industry reached 122000, and the total amount of compensation was 180 million yuan.

Obviously, life insurance can provide additional economic compensation to the victims of the epidemic, and it plays a good role as a social stabilizer. However, due to the underdevelopment of China's insurance industry, the role of economic compensation in the epidemic is limited. Compared with Japan, which implements the social medical insurance system, China's commercial insurance still has a lot of room for development. Japan is a big country in the global insurance industry, with 6.5 insurance policies per capita, while China has only 0.13 insurance policies per capita, and the life insurance policyholders only account for 8% of the total population. The depth of life insurance in Japan in recent ten years is more than 6%, while that in China in 2018 is only 2.9%, less than half of that in Japan, which is equivalent to the level around 1978; in 2018, the density of life insurance in Japan is 2600 US dollars, while that in China is 270 US dollars, which is only one tenth of

that in Japan. It can be seen that due to the lack of development of life insurance in China, it can not give full play to the function of economic compensation in public health emergencies.

In addition to the compensation for personal injury, China's and foreign insurance industry play a limited role in the economic compensation for business interruption losses. Although the coverage rate of business interruption insurance in foreign countries is higher than that in China, it is difficult to compensate for the economic losses caused by the epidemic because it generally takes the epidemic as the exclusion liability.

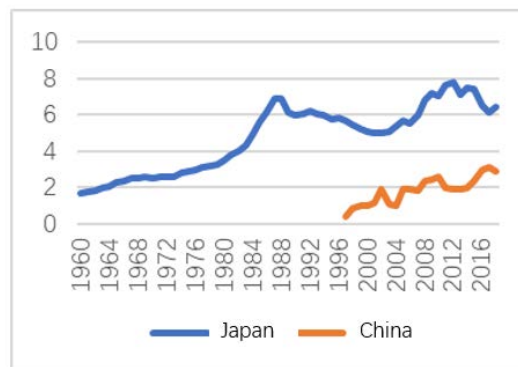


Figure. 3 Depth comparison of life insurance between China and Japan

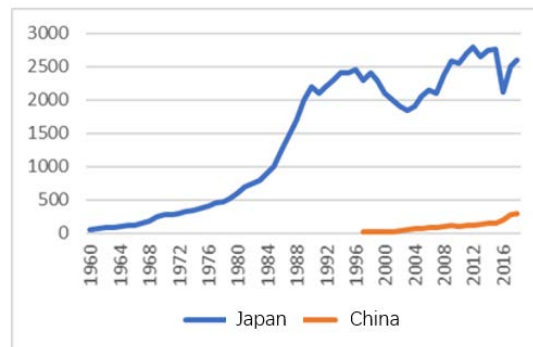


Figure. 4 Density comparison of life insurance between China and Japan

Data sources: CIRC, Swiss Re Research Institute, China Industrial Information Network

### 2.3 Comparative analysis of insurance funds in disease prevention

The novel coronavirus pneumonia and SARS in 2003 do not have specific drugs for the virus. Patients need to fight their own immune system to fight against the virus. As of February 3, according to the data of the National Health Commission, most of the death cases are elderly people, more than 80% of them are elderly people over 60 years old, more than 75% of them have one or more basic diseases, and these basic diseases are cardiovascular and cerebrovascular diseases, diabetes, and some patients have basic diseases such as tumor. Therefore, in the public health investment, disease prevention should be ranked first. More limited medical insurance funds should be invested in the field of disease prevention, which can not only control the growth of medical expenses, but also improve people's physical quality, enhance immunity and resistance, and effectively reduce the incidence of infectious diseases. Since the medical insurance system reform started in the mid-1980s in China, in order to simplify the expenditure and improve the use effect of medical insurance funds, medical insurance only covers the medical expenses for diagnosis and treatment after the occurrence of diseases, while the services for disease prevention and health promotion are not included in the scope of protection. The original combined public health system is abandoned, and its function is gradually weakened. It is an economic means to solve the problem of medical expenses, rather than welfare measures to improve the health level of all members of society. In China, physical examination is not included in the scope of medical insurance. In 2015, only 380 million people participated in physical examination in China, and the coverage rate of physical examination is less than 30%. However, the coverage rates of physical examination in Germany, the United States and Japan are 97%, 72% and 72% respectively. In 2014, the treatment cost of chronic diseases in China accounted for 70% of the total medical expenses. These phenomena show that China's medical insurance has insufficient investment in the field of disease prevention, and there is a big gap with developed countries.

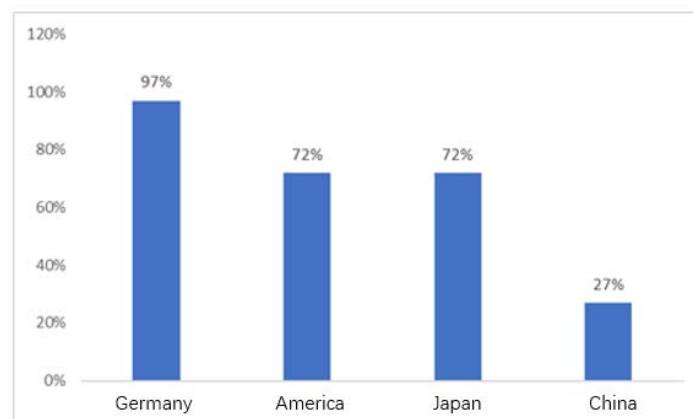


Figure. 5 Physical examination coverage

Data source: Research Report on the development trend and investment strategy of China's health examination industry from 2015 to 2020

### **3. Policy suggestions**

From the novel coronavirus pneumonia, SARS influenza H1NI, 2003 influenza virus, 2009, and the latest "new crown pneumonia" epidemic, we have warned that public health emergencies are a long battle that will never disappear. Although the medical insurance can not be used as the security system of public health emergencies, the establishment of a perfect insurance system can play a positive role in the prevention and control of public health emergencies. By comparing the role of insurance at home and abroad, we can put forward the following suggestions for China's insurance mechanism.

#### ***3.1 Adhere to and develop the social medical insurance system and improve the ability of timely assistance***

The commercial medical insurance system in the United States is characterized by high investment and low output, which does not cover all citizens, poor accessibility and lack of fairness. Therefore, it can not play a timely and effective role in public health emergencies. China's social medical insurance system shows a strong spirit of mutual aid in the epidemic, which strongly supports the epidemic prevention and control work. China should adhere to and develop the social medical insurance system. For the defects in the implementation details of medical insurance assistance payment reflected in the epidemic, we should improve the emergency medical assistance mechanism to ensure that medical institutions first treat and then charge in case of public health emergencies.

#### ***3.2 Accelerate the development of commercial insurance and enhance the function of economic compensation***

Compared with Japan, the development of China's insurance industry still has a lot of shortcomings, which can not make good economic compensation for the patients affected by the epidemic situation. Therefore, China should vigorously develop commercial insurance. The first is to develop life insurance, cultivate the health risk awareness of Chinese people, and greatly improve the coverage and depth density of life insurance. We can use actuarial and big data technology to innovate the supply side of insurance products, take the risk of public health emergencies into account, as an additional insurance of life insurance, and form a long-term mechanism for epidemic prevention and control. Second, in view of the business interruption losses caused by the epidemic situation, the proportion of enterprise property insurance in the premium of property insurance industry in 2019 is less than 4%. As an additional insurance of enterprise property insurance, business interruption insurance has a lower coverage rate. This novel coronavirus pneumonia epidemic should be taken as an opportunity to enhance the risk awareness of

business interruption. In addition, we should innovate in property insurance, study the business interruption risk with narrow liability coverage, and join the risk factors of public health emergencies, so as to raise the insurance's compensation function for the loss of business interruption.

### ***3.3 Increase the investment of insurance in the field of disease prevention, improve the role of health management***

Compared with the United States, Germany and Japan, China's medical insurance has a serious lack of investment in the field of disease prevention. In the future, medical examination and other items that can effectively prevent diseases should be included in the reimbursement of medical insurance as soon as possible to maximize the benefits of medical insurance. In view of the current shortage of funds, we can learn from Japan's "health care law for the elderly", and adopt the method of establishing a hierarchical medical insurance system. First, we can separate the medical services and health care services of the elderly who are relatively low in physical fitness and easy to be infected by the epidemic from the conventional system, and provide free physical examination and health care services for the citizens over 40 years old, and then wait for the insurance funds to be fully utilized. After Pei gets up, it gradually expands the audience. In the future, when increasing the investment in health services, we can increase the investment in the field of disease prevention, and enhance the role of insurance in health management.

### ***3.4 Give full play to the monitoring role of medical insurance institutions***

Infectious disease monitoring is an important part of the public health system to prevent and control infectious diseases. If we can find the source of infection in time at the early stage of the epidemic and take effective measures, we can strangle the infectious diseases in the cradle and avoid the occurrence of large-scale epidemic. Therefore, the advanced epidemic monitoring system is particularly important. The medical insurance industry has inherent advantages in disease monitoring: first, the medical insurance industry has detailed data of all aspects of the individual, including age, gender, residential address and other privacy data, which provide more effective information for the modeling of infectious disease monitoring; second, the participation of the medical insurance industry covers the majority of the total population, and the audience is very broad. Rich people or poor people, whether urban residents or rural residents, whether patients are in the same hospital or go to different hospitals for medical treatment, all need to be reimbursed through the individual's unique medical insurance account. Compared with the hospital disease monitoring system with geographical segmentation and relative lack of other effective information of patients, the case data is more accurate. It has more advantages in quality and quantity. Therefore, in some developed countries, the medical insurance industry will use the case data of medical insurance to participate in the disease monitoring system.



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