

Research on the development model of commercial health insurance based on big data

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Abstract. Despite the rapid development of commercial health insurance in China, compared with developed countries, there are still gaps in product types, product design, risk control, preferential tax policies, business models and consumer value-added services. In recent years, everything around us has been "digitized", and emerging concepts and technologies such as smart medical care, Internet of Things health care, and mobile medical care have attracted the general attention of the medical and health industry and the information and communication industry, and are being widely used. With the rapid development of big data, it brings opportunities for the development of commercial health insurance. It not only changes the market-oriented product design, but also pays more attention to customer needs. It also provides data support for the accurate pricing of commercial health insurance, and forms health intervention for consumers in the whole process before and after the event, which makes it possible to promote the sound and rapid development of commercial health insurance. Based on this background, this paper intends to study the development model of commercial health insurance products under the background of big data.

Keywords: Big data; Commercial health insurance; Development model.

1. Introduction

The medical security system is very important for any country, which is not only closely related to the medical conditions and levels of the nationals of various countries, but also the embodiment of the level of national welfare. As an important part of the medical security system, health insurance plays an important role. As the second largest economy in the world, China's medical security system is very important. The more perfect the medical system, the better the people's living and medical conditions, and the richer the benefits they enjoy.

At present, the development of China's commercial health insurance is in a phase of gradual rise, and there is still a large market space. However, due to technical problems and historical problems, the problems faced by insurance enterprises, such as product design and development, sales cost management, and insurance rate determination, still have a large development space, and need more technical support and relevant policies to solve them [3-4]. The author believes that the establishment of healthcare big data is an opportunity for further reform of commercial health insurance. How to apply healthcare big data to the commercial health insurance industry is a problem worth studying and discussing.

Through the research of this paper, I hope to help commercial health insurance enterprises in the direction of development mode; It is conducive to increasing the core competitiveness of health insurance enterprises and promoting the sound and rapid development of the commercial health insurance market; It is conducive to giving play to the important role of big data in the commercial health insurance industry.

2. The situation of commercial health insurance

2.1 Present situation and problems of commercial health insurance development in China

With the increasing population, deepening aging, accelerating urbanization, growing middle-income groups, rising gross national income and per capita disposable income, it has laid an economic foundation for the health insurance market. With the upgrading of consumption structure and the

improvement of health awareness, consumers' demand for high-quality and diversified commercial health insurance products is constantly expanding, and higher requirements are put forward for health insurance, which in turn requires that the health insurance market must quickly provide products that meet consumers' needs, constantly complete product updating and iteration, accelerate the development of commercial health insurance market, and make China's health insurance development officially enter the stage of "overtaking in corners". The overall premium growth rate of commercial health insurance is accelerating, the competition pattern of insurance subjects is expanding, and insurance products are basically covered. The health insurance market is increasingly diversified, from a single insurance company to the Internet, medical institutions and health management institutions. Figure 1 shows the main body of health insurance.

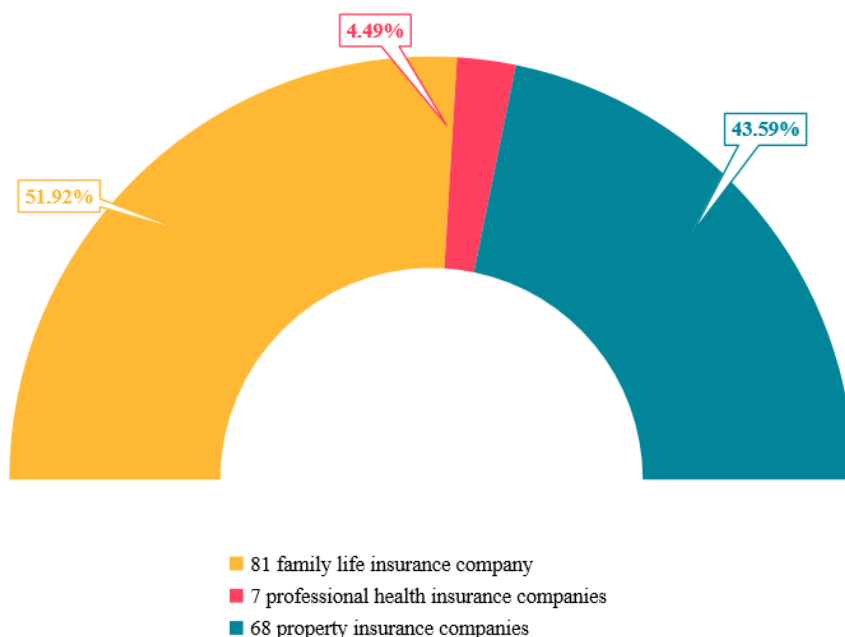


Figure 1. Health insurance theme map

At the same time, there are still many problems in China's health commercial insurance. The lagging development of commercial health insurance is due to both external reasons and the deficiencies of the industry itself. The external difficulties are mainly due to the lack of fiscal and tax support policies. According to international experience, tax preference is one of the most effective policy levers for developing commercial health insurance. At present, China only provides supplementary medical insurance to enterprises within 5% of total wages before tax, and there is no tax preference for individuals to purchase commercial health insurance. The problems existing in the development of the industry mainly include: first, the professional ability is insufficient, the professional advantages can not be fully brought into play, the commercial health insurance business is highly professional, and the requirements for the talent team and information construction of insurance companies are very high. Secondly, it cannot be integrated into the health industry chain.

2.2 Current situation of foreign health insurance

Worldwide, commercial health insurance has a long history, and has formed some inherent models, including the market-led commercial health insurance model adopted by the United States, the universal free medical care model adopted by the United Kingdom, and the government-market compound commercial health insurance model adopted by Germany. Although these models are in line with the national conditions of each country, exist independently of each country, and have certain limitations, they are also gradually established by each country through continuous exploration. Therefore, they have certain reference significance and value for China at the initial stage.

The United States is a highly market-oriented country that pursues individualism, and all walks of life participate in market competition. Therefore, its commercial health insurance industry also fully reflects this: among all developed countries, the United States is the only country that has not implemented the universal health insurance policy. The development model of commercial health insurance adopted by Britain is the health insurance model under the background of free medical care for all. As a high welfare country, the UK began to implement the national health service security model very early. Its structural model is shown in Figure 2. This model is composed of three important components: the British national health service system, commercial health insurance and social medical assistance. Germany's health insurance development model is a commercial health insurance model under the background of government and market composite medical care. The national commercial insurance provided by the government is compulsory insurance and provides basic protection for the majority of the people.

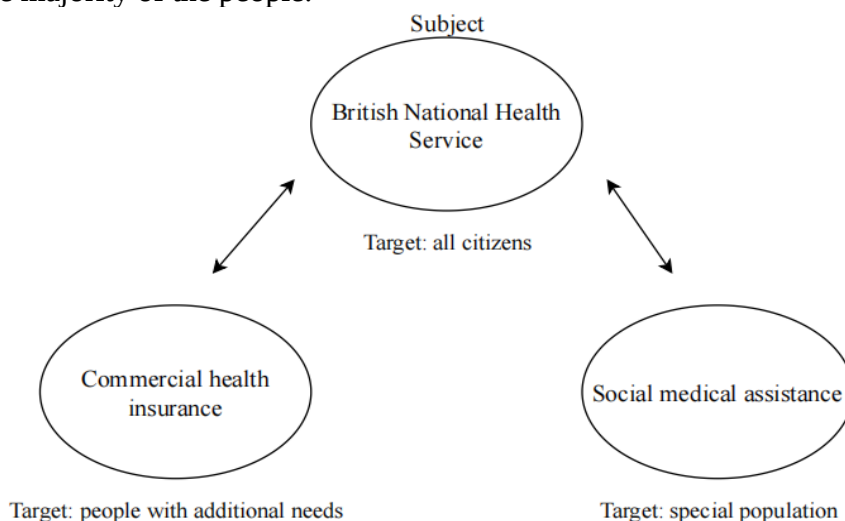


Figure 2. Structure diagram of the national health service guarantee model in the UK

Although the development models of commercial health insurance in the United States, Britain and Germany have caused many problems, as countries with long-standing health insurance, their development models can still bring many inspirations to China.

3. Big data and health business insurance

3.1 Big data concept

There is no completely unified definition of big data in the literature. Big data mainly refers to the collection of data that can not be collected, stored, managed and analyzed by existing traditional data processing tools within a time range that is large enough to bear. It has the characteristics of massive data scale, low value density, dynamic circulation and diverse structure types. Big data is a massive data set, including structured, semi-structured and unstructured data. Unstructured data is the main part of big data. This is its first meaning and also the foundation of the construction of big data in the early 1.0 era; Secondly, on the basis of ensuring the amount of massive data, big data began to analyze and predict massive data through big data algorithms in an attempt to find hidden information. This is the era of big data 2.0; When massive data and analysis are mature, when they are applied to specific scenarios or applications, and big data is integrated into life and work scenarios, the 3.0 era will emerge; In terms of application, developing new independent big data products is the era of 4.0. At present, we are in the era of 2.0 and moving forward to the era of 3.0.

3.2 Big data is beneficial to the development of commercial health insurance

China's health insurance industry has only developed for 30 years, and it is still in the stage of rapid development. "Big but not strong" is the main feature at this stage. China's health insurance

products are in a transitional period, and there are some problems, such as unbalanced product structure, single product, low level of protection and homogenization of products. Big data is conducive to improving the problems of commercial health insurance products and the development of insurance[10].

In the era of big data, the convenience of the Internet and the use of wearable devices have generated a large number of customer diversity information data, which not only expanded the information channel of customer needs, but also reduced the cost of insurance companies to obtain customer needs. In the process of product innovation, the needs and experience of users are the core of product innovation. Through the continuous mining of customer needs through big data technology, the consumption habits and preferences of customers are analyzed in depth, so that in the design of insurance products, the transition from product orientation to customer orientation is realized, more attention is paid to the leading role of customer needs in insurance design, and more humanistic attention is paid to the satisfaction of customer needs and customer experience. This helps to improve the misplaced positioning of customers' protection needs for health insurance products due to lack of interaction with customers in product design. Moving from health insurance to health management is an important experience of the health insurance market in developed countries in Europe and America. It has advantages in reducing the incidence of diseases and medical expenses, and is an important chip for insurance companies to solve the problem of product homogeneity and occupy a dominant position in the future ecology.

3.3 Development direction of health insurance in the context of big data

Medical insurance design uses big data technology to broaden and optimize health management in the scope of insurable risks. It can be studied in two directions: First, combine health management with medical insurance to carry out health intervention and reduce medical expenses. The second is to bring chronic diseases into medical insurance coverage to increase the function of security. Health insurance companies should get used to the impact brought by the era of big data. The huge value brought by big data is gradually recognized and tapped by people. It provides people with a new perspective to look at the world through technological changes and product innovations. Therefore, facing the background of the era of big data, we should accept and change the traditional thinking mode, abandon our decision-making methods that rely too much on experience and habits, and let the data speak in an objective and scientific way. Establish the requirements of the new era of data sharing and data fusion.

First, develop industrial data sharing and establish a "mutually beneficial symbiosis and win-win cooperation" model; Second, health insurance enterprises should actively integrate their own internal data; Third, in the era of big data, external data is often even more important than internal data.

4. Conclusions

At the present stage, the third-party management mode is suitable for the development of China's commercial health insurance industry. When it develops to a certain extent, it should implement a mode that combines the advantages of the three modes of the United States, the United Kingdom and Germany and combines the national conditions of China. However, to choose a model suitable for the development of China's health insurance, we need to make appropriate improvements and adjustments according to China's current situation and problems. Because, after adjustment, the health insurance market can have a foundation for steady development.

In the future health insurance market, under the background of big data, insurance technology will flourish, and insurance technology will run through the whole insurance process. From front-end sales to underwriting, to claims service, insurance technology will greatly improve efficiency, enhance customer experience, and even subvert the existing operation mode. However, insurance technologies are interdependent and mutually integrated. At present, the four fields of artificial intelligence,

blockchain, cloud computing and telemedicine have received much attention, and there are preliminary explorations in the field of insurance.

References

- [1] Ma R, Huang L, Zhao D, et al. Commercial health insurance – a new power to push china healthcare reform forward? [J]. Value in Health, 2015, 18(3): A103-A103.
- [2] Krolop, S/ Souchon, Henri. 13. Big Data in Healthcare from a Business Consulting (Accenture) Point of View: Big Data in Medical Science and Healthcare Management Diagnosis, Therapy, Side Effects[J]. Malaria Journal, 2015, 11(4):1-10.
- [3] Brunner, Thomas. 4. Big Data from a Health Insurance Company's Point of View: Big Data in Medical Science and Healthcare Management Diagnosis, Therapy, Side Effects[J]. American Journal of Public Health, 2015, 93(8):1316-1320.
- [4] Baione F, Levantesi S. A health insurance pricing model based on prevalence rates: Application to critical illness insurance[J]. Insurance Mathematics & Economics, 2014, 58:174-184.
- [5] Zhang X, Fei M, Zeng L, et al. Coupled and Coordinated Development of Medical and Commercial Insurances Based on Cognitive and Behavioral Science[J]. NeuroQuantology, 2018, 16(5):611-618.
- [6] Zhang, K, S, et al. DISCUSSION ON THE DEVELOPMENT STRATEGY OF COMMERCIAL HEALTH INSURANCE[J]. Basic & clinical pharmacology & toxicology. 2016, 119(Suppl.4):59-60.
- [7] Falsafi B, Grot B. Big Data [Guest editors' introduction] [J]. IEEE Micro, 2014, 34(4):4-5.
- [8] Mehta N, Pandit A, Shukla S. Transforming healthcare with big data analytics and artificial intelligence: A systematic mapping study[J]. Journal of Biomedical Informatics, 2019, 100:103311.
- [9] Brunner, Thomas. 4. Big Data from a Health Insurance Company's Point of View: Big Data in Medical Science and Healthcare Management Diagnosis, Therapy, Side Effects[J]. American Journal of Public Health, 2015, 93(8):1316-1320.
- [10] Erdman A G, Keefe D F, Schiestl R. Grand Challenge: Applying Regulatory Science and Big Data to Improve Medical Device Innovation[J]. IEEE transactions on bio-medical engineering, 2013, 60(3):700-706.