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Effect evaluation of China's public long-term care insurance system: a review

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Abstract. With the deepening of aging, the number of disabled elderlies in China is increasing, and the demand for long-term care services is becoming increasingly prominent. In this context, the government has carried out the pilot work of the public long-term care insurance system. This paper summarizes the literature on the effect evaluation of long-term care insurance system, and concludes that long-term care insurance improves the quality of life of the disabled elderly, and may reduce the utilization of medical services and medical consumption expenditure. In addition, the system can also reduce the burden of caregivers and increase their labor participation. However, the current system also has some problems, such as narrow coverage, poor quality of nursing services and high dependence on the social medical insurance fund, which still need to be continuously optimized and improved.

Keywords: long-term care insurance, effect evaluation, medical service utilization, health effect, spillover effects

1. Introduction

With the continuous investment of the Chinese government in medical and health infrastructure, the in-depth reform of the medical insurance system and the continuous optimization of the allocation of medical resources, China's medical and health undertakings have made considerable progress, and the average life expectancy of Chinese people has increased from 63.2 years in 1978 to 78.6 years in 2022.[1] With the continuous growth of life expectancy and the gradual emergence of the problem of low birth rate, the population structure of China is also changing. According to the standards proposed by the United Nations, China has entered the "aged society" since 2021.In 2023, China's aging level was further deepened, with 216.76 million elderly people aged 65 and over at the end of the year, accounting for 15.40% of the total population. The old-age dependency ratio rose further to 22.5%.[2] In the future, as the population cohorts formed by the second (1963-1972) and third (1986-1990) birth peaks enter the old age period one after another, the degree of aging will further deepen. Wang Guangzhou predicts that the proportion of the elderly population aged 65 and over will exceed that of the children around 2024, and will be close to 30% around 2049 [1]. Du Peng and Li Long predict that the proportion of the elderly population aged 65 and over will be close to 22% in 2035 and 29% in 2050 [2].

With the rapid deepening of population aging, a series of challenges have also arisen: the pension and social security system is facing huge economic pressure, and the risk of financial imbalance in the pension insurance system has increased; The elderly often need more medical services, rehabilitation care, home care and other support due to chronic diseases, disability and other health problems, which brings a shortage of medical resources; Changes in family structure have reduced the number of family supports that older people can rely on and increased the financial pressures on young people..... Among them, the elderly disabled population has also attracted more and more attention from the society. According to the estimates, the total number of disabled elderly people over 60 years old in China is 42.37 million in 2020, and 98.87 million in 2050 [3]. Disabled elderly people are often weak and sick, unable to independently complete the basic activities of daily life, which has a huge demand for daily life care, medical care and so on. Faced with the huge number of disabled elderly people, the Chinese government has formulated a long-term care insurance system and carried out pilot projects in several cities.

[1] Source: World Bank database

[2] Source: National Bureau of Statistics

2. Pilot project of social long-term care insurance system in China

In 2012, Qingdao took the lead in exploring the public long-term care insurance system. Since then, Weifang, Changchun, Nantong and other cities have also explored the long-term care insurance system. In 2016, the Ministry of Human Resources and Social Security promulgated the Guiding Opinions on the Pilot Project of Long-term Care Insurance System. Fifteen cities, including Shanghai, Guangzhou and Chengdu, were selected to carry out the pilot work of long-term care insurance, and Jilin and Shandong provinces were the key pilot provinces of the country. In 2020, the National Healthcare Security Administration of China promulgated the Guiding Opinions on Expanding the Pilot Project of Long-term Care Insurance System, further promoting the pilot project of long-term care insurance system and increasing the number of pilot cities such as Tianjin and Kunming. By the end of 2023, long-term care insurance has made great progress: the number of people participating in long-term care insurance in 49 pilot cities is 183.31 million. And the number of people receiving insurance benefits is 1.34 million. In 2023, the fund income is 24.36 billion RMB and the fund expenditure is 11.86 billion RMB. There are 8080 designated service institutions for long-term care insurance and 302.8 thousand nursing service personnel all around the country.[3]

The effects of the long-term care insurance policy cannot be realized without the construction and optimization of the nursing system. The National Health Commission of the PRC has successively promulgated the National Nursing Care Development Plan (2021-2025) and the Action Plan for Further Improvement of Nursing Care Services (2023-2025), aiming to comprehensively enhance the development of China's nursing industry and build a high-quality and highly efficient nursing service system covering the entire population throughout the life cycle, in order to satisfy the people's growing health needs. Pilot cities have actively cultivated and developed nursing service organizations and strengthened the nursing service workforce. By the end of 2023, the total number of registered nurses nationwide will reach 5.63 million, the number of registered nurses per 1,000 population will reach 4, and more than 80% of nurses have tertiary education or above, with the overall quality of the nursing workforce significantly improved, realizing the goals of the National Nursing Development Plan for the 14th Five-Year Plan period ahead of schedule. Through the pilot work of “Internet + Nursing Service”, a total of more than 3,000 medical institutions have provided more than 60 service items in seven categories of basic nursing care, rehabilitation nursing care, psychological nursing care and other services that are commonly used and urgently needed by the public. This approach extends professional nursing services from institutions to the community and the home, effectively increasing the supply of at-home nursing services for the elderly and other mobility-impaired people.

Summarizing the successful experience of the pilot cities, the National Healthcare Security Administration of China promulgated the National Occupational Standard for Health Care Nurses (Long-term Care Nurses) in February 2024, and has successively issued the Measures for the Designated Management of Institutions Assessing the Disability Level of Long-Term Care Insurance (for Trial Implementation), Long-Term Care Insurance Handling Procedures (for Trial Implementation), and Measures for the Management of Designated Nursing Care Service Institutions for Long-Term Care Insurance (for Trial Implementation), Implementation Opinions on Promoting the Recognition of Occupational Skill Levels of Long-Term Care Nurses. These policy documents regulate the handling process, disability assessment agencies, nursing service agencies and vocational skill level recognition, further improve the long-term care insurance system, enhance the professionalization and standardization of the nursing service, ensure the safety of the long-term care insurance fund, and improve the efficiency of the fund's use. In addition, the NHSA set up a new section of long-term care insurance on its official website in November 2024, aiming to improve the transparency of information disclosure, make timely interpretation of relevant policies, and make it convenient for the public, experts, scholars and business entities to understand the policies. At the same time, the policy has been publicized through “media publicity” and “video broadcasting” to enhance public awareness and acceptance.

With the extension of the pilot time and the public availability of data, the effect evaluation of long-term care insurance policy has also become a hot issue in academic research. The following part of this paper will first sort out and review the literature on the effect evaluation of long-term care insurance policies abroad. Then it focuses on combing the literature of the effect evaluation of the long-term care insurance system in China, and summarizes the empirical and case support. Finally, some policy suggestions are put forward.

3. Literature review

3.1. Research abroad

The social long-term care insurance system originated in the Netherlands in 1968. Subsequently, Germany, Japan, South Korea and other countries have designed and launched their own social long-term care insurance System [4-6]. The social long-term care insurance system in these countries has been developed for a long time, so there are abundant research literatures on the social long-term care insurance system. In the aspect of evaluating the effect of the social long-term care insurance system, the research mainly focuses on health effect, medical service utilization and spillover effect, and a large number of empirical research results have been achieved.

[3] Data source: Statistical Bulletin on the Development of National Medical Security in 2023.

In terms of health effects, scholars from various countries use various data and different measurement methods to explore the impact of long-term care insurance on the health of the cared, and come to a relatively consistent conclusion: long-term care insurance can maintain or improve the health level of the cared. Tomata et al. empirically found that community oral health programs in Japan's long-term care insurance system can reduce the risk of accidental disability [7]. Minsung et al. found that the mortality rate of long-term care service users of home care in Korea was more different than that of institutional care users due to income gap [8]. Lee et al. found that the cognitive ability and physical function of dementia patients declined more slowly under the day care mode [9].

In terms of the utilization of medical services, the conclusions of foreign studies are relatively consistent: long-term care insurance helps to reduce medical expenditure. Tamiya et al. estimates that the cost of family formal care has been reduced by 5% after the introduction of long-term care insurance system in Japan [10]. Kim and Lim found that long-term care insurance can reduce the medical expenses of the elderly by providing home care subsidies through breakpoint regression [11]. Choi et al. found in the elderly cohort database that long-term care insurance reduced the number and length of hospitalization of the insured, and significantly reduced their medical costs [12]. Kim and Lee calculated the length of hospitalization before and after the introduction of the long-term care insurance system [13]. It is found that the long-term care insurance system is closely related to the decline in the length of hospitalization.

In terms of spillover effects, foreign scholars have found that long-term care insurance can reduce the burden of family care and increase the household labor participation rate. Tamiya et al. found that after the introduction of long-term care insurance system in Japan, the average daily care time of family caregivers decreased by 0.81 hours [10]. The Yumiko and H also believe that the long-term care insurance system can alleviate the care pressure of family caregivers [14]. Geyer and Korfhage constructed a structural model considering both labor supply and long-term care insurance treatment, and found that formal care will have a positive impact on the labor supply of caregivers, while cash benefits will reduce the labor supply of caregivers [15].

3.2. Domestic research

At present, the domestic research on the effect evaluation of long-term care insurance policy mainly focuses on five aspects: medical service utilization, health effect, subjective satisfaction, spillover effect and the sustainability of the system.

3.2.1. Utilization of medical services

At present, there is a controversy about the impact of long-term care insurance on the utilization of medical services in academia. Yu Xinliang et al. found that after the trial implementation of the long-term care insurance system in Qingdao, the per capita medical expenditure increased rapidly after a brief decline [16]. Ma Chao et al. found that Qingdao's long-term care insurance system can reduce the utilization of medical services under the condition of maintaining the health and welfare of middle-aged and elderly people through DID model [17]. Hou Yanjie et al. found that long-term care insurance can slightly increase the number of hospitalizations and hospitalization costs of the insured elderly [18]. Wang Zhen and Feng Jin empirically found that the compensation model would affect the effect of long-term care insurance on medical costs: home care subsidies would replace the use of medical resources and reduce medical expenditure, while institutional care subsidies would mainly change the allocation of medical resources and have less impact on medical costs [19]. Liu Chen et al. empirically found that the implementation of long-term care insurance released the pressure of outpatient visits from large hospitals to primary medical institutions, but did not alleviate the heavy pressure of hospitalization in large hospitals; it reduced the hospitalization expenses and out-of-pocket expenses of severely disabled persons, but did not reduce the outpatient expenses [20].

Although there is a debate about the quantitative results of the impact of long-term care insurance on the utilization of medical services, scholars agree that long-term care insurance has both positive and negative effects on the utilization of medical services. On the one hand, long-term care insurance squeezes out social hospitalization by providing home or institutional care services. At the same time, by improving the health level of the elderly being cared for, the number and cost of medical treatment can be reduced; on the other hand, long-term care insurance can generate income effects by providing cost compensation and liberating caregivers to enter the labor market. Overall, long-term care insurance has a comprehensive impact on medical utilization through different mechanisms, so the total effect is uncertain.

3.2.2. Health effects

Although there are different empirical results about the impact of long-term care insurance on the health level of the insured, there is a consensus about the direction of its impact: that is, long-term care insurance will at least not have a negative effect on the health level of the insured. On the one hand, long-term care insurance can improve the health risk awareness of the insured, promoting them to carry out health counseling, rehabilitation guidance counseling and health testing, which is helpful to identify potential health problems and disease risks, and take intervention measures to avoid health damage caused by disease deterioration. On the other hand, long-term care insurance provides care services, rehabilitation training, social support and other care services, which can maintain or improve the physical and mental health level of the nursed person. Therefore, the total effect of long-term care insurance is non-negative. Hu Tiantian and Liu Huan and Hou Yanjie et al. used the DID method to find the pilot of long-term care insurance policy [21]. There was no significant improvement in the self-rated health and depression of the urban insured.

Hou Yanjie et al. further analyze that the reasons may be the relatively low level of insurance benefits, the short implementation period, and the lack of psychological comfort and guidance services. Xie Yufei and Feng Jin used the matching method to find that long-term care insurance can improve the health of disabled people, and the mortality rates of both employee and resident medical insurance participants decreased significantly [22]. Liu Chen et al. found that the implementation of long-term care insurance policy improved the self-rated health of disabled people in pilot areas, but could not significantly improve the disability status of residents [20].

3.2.3. Subjective satisfaction

Since 2022, the research on the impact of long-term care insurance on subjective satisfaction has been gradually enriched. Although there are some differences in mechanism analysis in the existing literature, they all support that long-term care insurance has a positive effect on the improvement of subjective satisfaction.

Chen He et al. found that the satisfaction of long-term care insurance beneficiaries in Shangrao city is generally higher [23]. Providing home care services, improving the level of treatment and improving the quality of long-term care services can improve the satisfaction of beneficiaries. Li Li and Lu Miaomiao found that long-term care insurance would improve the life satisfaction of middle-aged and elderly people by increasing intergenerational financial support, and the mediating effect of intergenerational financial support accounted for about 6.33% of the total effect [24]. Zhang Wenjuan and Mei Zhen used other-rated life satisfaction as an effect indicator, considering the difference between self-rated life satisfaction and other-rated life satisfaction, and found that the effect of long-term care insurance on the improvement of the other-rated life satisfaction of beneficiaries in the service payment mode was much higher than that in the cash payment mode; the effect of formal care services on the improvement of other-rated life satisfaction was better than that of informal care services [25]. Yang Xin and Luo Xia used the PSM-DID model to find that the health satisfaction of middle-aged and elderly people increased by 8.2%, and through heterogeneity analysis, they found that it had a significant positive impact on the health satisfaction of middle-aged and elderly people whose children hardly care about them, while there was no significant effect on the health satisfaction of the middle-aged and elderly people who are in close contact with their children [26].

3.2.4. Spillover effect

Long-term care insurance not only has a direct impact on the insured's medical service utilization, health level and subjective satisfaction, but also has a spillover effect. Some scholars have focused on the impact of long-term care insurance on household labor force participation, household caregiving burden and household consumption.

Zhang Wenjuan and Fu Min found that the duration of care needs of female elderly is higher than that of male elderly; the inclusion of mild disabled people in the beneficiaries of long-term care insurance will lead to a significant increase in the cost of care [27]. Zhu Minglai and He Min found that long-term care insurance crowded out the informal care provided by children and grandchildren [28]. Shu Zhan and Han Yu found that the long-term care insurance system would squeeze out "upward" intergenerational economic support, while squeezing in the care time and spiritual comfort for the disabled elderly [29]. The research of Cai Weixian et al. also got a similar result: the long-term care insurance system significantly reduced the intergenerational transfer payment behavior of children to their parents in the form of in-kind or regular cash [30]. Yu Xinliang et al. found that long-term care insurance can increase the employment probability of rural women and promote their transfer to non-agricultural industries [31]. Cheng Qian et al. empirically found that long-term care insurance can promote household consumption through precautionary savings and changes in family intergenerational support patterns, especially in basic-type consumption such as food and daily living expenses, using the data from the four-period survey of CHARLS [32].

3.2.5. Sustainability of the long-term care insurance system

The improvement of the system should not only be reflected in the current or short-term positive effects, but more importantly, it can continue to produce positive effects in the long term with sustainability. Studies on the sustainability of the long-term care insurance system mainly focus on the balance of the fund. In the existing pilot cities, most of the financing methods of the system are based on optimizing the structure of the social medical insurance account and transferring the balance of the social medical insurance coordinating fund, supplemented by other financing methods such as financial subsidies, welfare lottery funds and social donations. Scholars have conducted abundant research on different funding channels.

Tian Yong and Yin Jun empirically measured that when relying on urban and rural residents' medical insurance financing, the proportion of medical insurance fund expenditures to the amount of long-term care insurance financing should not exceed 20%; when relying on urban workers' medical insurance, it will accelerate the time of the emergence of deficits [33]; Li Jia used an overall simulation model to measure the financial burden of the 17 pilot programs of long-term care insurance, and found that, with the exception of Shanghai's program, all of the other programs are sustainable, with the Qingdao program having the most prominent advantage; sensitivity analysis finds that the financial burden is most sensitive to changes in treatment payment standards [34]. Jing Tao et al. use a dynamic actuarial model and find that the extension of the long-term care insurance pilot program based on the medical insurance fund will accelerate the time of the fund's deficit and increase the amount of the deficit [35]. A sensitivity analysis finds that an increase in the per capita financing contribution rate or an increase in the value-added rate

of the fund can reduce the financial burden on the employee medical insurance fund. Chen He and Zhao Shanshan construct a model to assess the financial sustainability of long-term care insurance and find that Shangrao City will maintain a high balance rate when the financing and treatment levels remain unchanged or change in tandem, while the growth rates of the two need to satisfy specific balance of payment constraints in order to avoid financial deficits when the financing and treatment levels do not change in tandem [36]. Tang Wei et al. measured the contribution burden of the financing body by constructing a long-term actuarial balance model, and found that the independent financing mechanism of long-term care insurance should be realized as soon as possible, otherwise it will not be sustainable [37].

Current studies agree that a long-term care insurance system relying on medical insurance funds is not financially sustainable, and that there is an upper limit to the pressure on financial subsidies. Therefore, it is necessary to expand more financing channels and gradually get rid of the reliance on the medical insurance fund. At the same time, clarify the coverage of medical insurance and long-term care insurance, and strictly control the growth of costs. Take measures such as increasing the reimbursement rate for home nursing care to promote home nursing care services, so as to alleviate the pressure on the reimbursement of the medical insurance fund. Scientifically predict the changes in the demographic structure and the demand for long-term care, so as to plan in advance for the long-term care insurance system. And adjust the scope of the insurance, benefits and premium levels in a timely manner, so as to enhance the sustainability of the system.

4. Summary and policy recommendations

As a system construction to solve the problem of disabled elderly care, social long-term care insurance plays an important role in providing disabled elderly care services, providing reliable social support for disabled elderly, maintaining and improving their health level, and improving their life satisfaction. At the same time, long-term care insurance squeezes out family intergenerational support, reduces the care time and the pressure of family caregivers, and improves the labor market participation rate of family caregivers. In addition, the system may have a positive effect on reducing medical expenditure.

Although the trial implementation of the long-term care insurance system has achieved initial results, there are still many areas that need to be improved in the current pilot projects:the financing channels are relatively single, and the multi-financing mechanism still needs to be established; the coverage of some pilot cities is narrow, only covering the severely disabled elderly; the number of nursing institutions in some pilot cities is small, and there is a lack of professional nursing services; the standards of disability and dementia assessment scale are different, and the conditions of treatment payment are not clear.

Developmental problems need to be viewed with a developmental perspective and responded to with a developmental approach. At this stage, in response to the problems that exist in the pilot cities, efforts should be made in terms of the scope of participation, financing channels, thresholds for payment, and the perfection of a long care service system.

To solve the above problems, it is necessary to adhere to the overall orientation of universal coverage of the long-term care insurance system and accelerate the formation of a universal long-term care insurance system that covers the entire population and integrates urban and rural areas. Financing channels should be expanded to attract charitable fund-raising, welfare lottery funds and investment income. Social forces should be fully mobilized to reduce the burden of contributions on individuals, enterprises and the government as the main financing body, and to gradually get rid of the dependence on the social medical insurance fund, so as to achieve the smooth operation of the long-term care insurance fund. At the same time, the government should vigorously support the construction of nursing institutions, train professional nursing personnel and improve the quality of nursing services. In view of the differences in individual needs of the disabled elderly, the society should provide hierarchical, classified and refined long-term care services. What's more, certain subsidies should be provided for home care to reduce the economic pressure and burden, enhancing the autonomy and enthusiasm of relatives in home care. Finally, a system similar to Japan's central fiscal adjustment fund and Germany's supplementary reserve fund could be established to address the payment pressures faced by some regions [38].

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