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**DISSERTATION**

# MANAGEMENT OF HUMAN RESOURCES LIFE QUALITY DEVELOPMENT IN CHINA

Speciality 073 - Management

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The dissertation contains the results of own research. The use of ideas, results and texts of other authors have references to the relevant source

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**ABSTRACT**

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The need of transition to a model of sustainable development, caused by modern economic reality, is related to the direct improvement of the quality of life of all segments of the population (especially the vulnerable) and the development of human resources. This requires a long-term strategy of organizational, instrumental, and economic support for the implementation of the appropriate state policy with the simultaneous modernization of scientific approaches. That is, ensuring the functioning of the chain "increasing the quality of life" - "increasing needs" - "growing the economy" is vitally necessary in modern conditions.

The dissertation work is devoted to the study of managing the development of human resources by methods of long-term improvement of the quality of life. By studying the experience and using the lessons of developed countries such as the United States of America, Germany and Japan, a basis was built for choosing a model and developing a system for the introduction of long-term care insurance (geriatric insurance) in China as one of the methods of improving the quality of life, taking into account the characteristics of local social security and increasing the safety of life for the elderly.

In the theoretical part of the dissertation were systematized the theoretical foundations, were deepened concepts and was formed a methodological approach to ensure the management and evaluation of the effectiveness of the implementation of long-term care insurance as one of the methods of improving human resources life quality in China. Based on the study of the experience of commercial geriatric insurance in foreign developed countries, are proposed the content, subsidization system, financing mechanism of long-term care insurance in China and the willingness of Chinese citizens to participate in insurance.

Thus, it was found that with the development of the economy and the progress of medical technologies, the life expectancy of the population increases. At the same time, the share of elderly people in the total population is increasing due to a decrease in the birth rate: China's population is aging at an accelerated pace. Thus, in 2010, the population aged 60 and over was more than 10%, and China received the status of an "aging society". By the end of 2021, the number of people aged 60 and over reached 270 million, accounting for 19% of the total population, a 9% increase from 2010. According to the World Bank, the aging of Chinese society will accelerate in the next 20 years. By 2040, the number of elderly people aged 60 and over will reach about 420 million, accounting for more than 30% of the population. As China's elderly population continues to grow, so does the number of people requiring long-term care. At the same time, the traditional Chinese family model has changed, families are usually smaller, young people do not want to live with the elderly, and small families of 2-3 people have become the main type of family formations.

Thus, the Chinese government found itself in a kind of "scissors": as a result of a significant technological leap and undeniable successes of the medical system, the number of elderly people has increased significantly, which, on the other hand, leads to a redistribution of funds from investments to social security.

Due to the weakening of the function of family care for the elderly, the problem of caring for the elderly Chinese is transferred to the society, but the provision of social institutions for the elderly is not sufficient. Current elderly care services provided by Chinese health facilities and geriatric nursing homes are mainly devoted to physical and daily care of the elderly. But no attention is paid to such services as psychological assistance, social interaction and awareness of one's own dignity, which are important and sometimes vital for the elderly. In addition, elderly care facilities in China generally have many problems, such as low service level, few types of services, low cost efficiency, professional quality of staff providing elderly care services, high bureaucratic access procedure before receiving services, etc.

As the problem of aging continues to worsen in China, the dissertation research emphasizes the need to reform and improve the existing elderly care facilities on the

one hand, and establish a unique long-term care insurance system to ensure an adequate supply of care services on the other. This will be the key to improving the quality of life of the elderly in China. However, the costs related to medical and social care for the elderly will already become the largest item of public expenditure in China in the medium term. Therefore, the state monetary resource will inevitably be forced to redirect from investments to the social sphere. If appropriate measures are not taken, the social costs associated with the life of the elderly in China will significantly destabilize the country's economic growth.

This peculiar paradox must be articulated as clearly as possible before the population and find its solution through new social agreements regarding the rules of pension and health insurance. Society must clearly understand: the rules of the game in the social sphere must be changed due to a number of objective and subjective reasons, otherwise the system will come to a dead end. But for now, we cannot fail to note that the broad discussion of social problems at all levels, from expert to everyday, usually does not end with more or less real recommendations from any side of this multifaceted problem, including care for the elderly.

Long-term care insurance as a method of improving people's living standards in the United States, Japan, and Germany has achieved some success, with China as a case study. The history of the introduction of long-term care insurance in the United States, Germany, and Japan was found to have many common features, such as a high proportion of elderly people in the general population and a low birth rate, a weakened function of family unity. The successes and problems of each country developing long-term care service systems can become useful sources for the establishment and development of quality-of-life improvement systems in China, which have great theoretical and practical significance. However, China has its own national conditions and characteristics, so it is not possible to just copy the successful experience of the three countries, but to develop a management model for the development of long-term care insurance in accordance with the actual conditions of China, which will ensure an increase in the economic potential of the population under conditions of sustainable development.

In the author's survey, more than 65% of respondents expressed a desire to participate in long-term care insurance in Henan Province, China. Among the forms of care, respondents chose the home form of care (68%) compared to special geriatric facilities (32%), and the cash form of payment (57%) for professional payment of services prevailed.

In addition, the study revealed that the population's willingness to introduce long-term care depends on the location of the household ("hukou"), the age of the respondent (r=0.833), the presence of people with physical or mental disabilities in the family (r=0.846) , income (r=0.711), number of children (r=0.698) and other factors. For example, people with urban "hukou" are more willing to support long-term care insurance (r=0.676) than people from rural areas.

Also, in the course of the study, it was found through regression analysis that concern about the quality of life of the elderly population and confidence that the government can create an ideal long-term care insurance system to some extent increases the demand for long-term care insurance (r=0.792).

After analyzing four typical Chinese cities - Shanghai, Qingdao, Nantong, Changchun, which are planned to be made typical when introducing the long-term care insurance model, certain differences and contradictions in the implementation of the proposed methods of improving the life of the population were revealed. Thus, due to the difference in the application of the principles of sustainable development in the everyday understanding of a person, there is a lack of perception of the triad of the socio-ecological-economic complex, due to which the respondents put economic priorities first, relegating the ecological component to the last place. This was especially felt under the influence of the COVID-19 pandemic, when a large number of elderly people were left without proper care.

To date, only Hainan Province has introduced a system of private life and health insurance. This is caused by the location of the province (sea resort), so due to the high number of tourists in the region, sustainable development is a priority. It was found that the demographic trends of the development of the urban and rural population of the province differ from the general trends in the country.

With the introduction of the private life and health insurance system, a significant direct correlation was established between the dynamics of population density growth, the growth of the total birth rate, the growth of the demographic burden and indicators of social satisfaction with the quality of life. It is expected that the implementation of the long-term care insurance system in each pilot region will provide a solution to a number of socio-economic issues: the economic "burden" from the elderly will decrease; the social function in the management of the processes of development of the province's economy will be activated; the efficiency of distribution of medical and pension resources will increase.

During the development of the pilot stage of long-term care insurance, many problems were also identified, such as incomplete coverage of rural "hukou" residents, inconsistent and incomplete criteria for assessing disability and forming criteria for the need for care, excessive dependence of health insurance funds on the decision of local authorities to collect funds, a significant gap between the offer of professional assistance services and the actual demand.

In order to minimize the negative consequences of demographic changes, the dissertation work, based on analytical studies, expert opinions and research on the scientific basis, proved the need to rethink the goals and tools of policy in the field of improving the quality of life and developing human resources. Taking into account foreign experience and the recommendations of international organizations, one of the options for a comprehensive solution was the adoption of the National Action Plan on Aging in the form of a targeted state program. This document, even in a declarative form, would be a confirmation of the understanding of the complexity of this issue and attention to the situation of the elderly, which would allow setting the task in a qualitatively new format, including with the involvement of public assistance and donor funds.

Thus, long-term care insurance for the elderly (retiree medical and social needs insurance) is aimed at meeting needs by ensuring access to medical and medical care and the need for outside care. In this study, it was proposed to consider geriatric insurance as a symbiosis of health insurance with social care and even sometimes with

social integration. In China's domestic realities, when the number of elderly people will only increase over time, the development of long-term care insurance will become more and more relevant. Geriatric insurance will allow prudent individuals to take care of their own old age and the old age of their relatives or loved ones in advance with generous monthly contributions that will guarantee care in case of need.

The system of long-term geriatric insurance proposed in the study is based on the principle of broad benefit, which is provided by the strategy of person-oriented development of human resources; introduction of diversified and differentiated financing, which forms a tripartite risk distribution mechanism between individuals, the state and the market; replacement of a one-time cash payment with a comprehensive service that extends to the entire lifetime of the insured person; reliance on commercial insurance companies that carry out professional management and operation of the market.

Summarizing the above, it can be noted that with such problems of long-term care insurance implementation as: lack of legal framework; chaotic funding; inconsistency in the standards and criteria for assessing the need for care; the lack of proper competence of professional personnel for long-term care, etc., can be combated by the following methods:

- to promote simultaneous full coverage of urban and rural residents by the system of commercial geriatric insurance;

- to improve the legislative level of long-term care insurance;

- expand funding channels (for example, allow distant relatives to pay for long-term care);

- master scientific and technical means and create uniform standards for assessing the needs of human resources;

- optimize aids and create professional teams of nurses.

At the same time, the essential content must satisfy both the interests of society as a whole and the individual subject of insurance protection.

Of course, the list of problems raised in the dissertation is far from exhaustive. The author is aware that some of theses at the stage of breaking the issue of geriatric

insurance are (or may seem) quite controversial. However, the main goal of the study was to actualize public interest in this issue. Therefore, the practical significance of this research lies in the involvement of specialized experts from all types of insurance, in particular medical, social service providers in the development of a mechanism for implementing the best examples of world experience in geriatric insurance as a method of improving the standard of living of the Chinese population.

Keywords: management, human resources, competences, innovation, sustainable development, life quality, social responsibility, person-oriented strategy, Henan Province, covid-19

List of publication:

a. *Publications that reflect the main scientific results of the dissertation*:

*1.* **Yin, H**., Huo, Zh., Klietsova, N., Li, Z., & Zhang, Y. (2021). Innovations in Human Resource Management: Willingness and Ability of Long-Term Care Insurance. *Marketing and Management of Innovations*, 1, 261- 277. http://doi.org/10.21272/mmi.2021.2-22 （SCOPUS）*(author collected and analyzed analitycal materials)*

*2.* Mykhailov A., Mykhailova L., Kyrychenko T., **Yin H**., Huo Zh. (2020). Innovative approaches in the management of human capital development in the context of rural population's life quality improvement. *International Journal for Quality Research*, 14(4):1291-1302 DOI: 10.24874/IJQR14.04-20 (SCOPUS) *(author analyzed references for building research framework and hypothesis)*

*3.* **Yin, H**., Huo, Zh., & Yan, X. (2019). Theoretical review of long-term care insurance. *Modern engineering and innovative technologies*, 8, 11–18. *(author collected and analyzed analitycal materials)*

*4.* Huo Zh., **Yin H**., Mykhailov A. (2019). Institutional changes of social sector: experiences of the United States and Japan for the development of China`s elderly education system, *Вісник Сумського державного університету, Секція*

*«Економіка»,* DOI: 10.21272/1817-9215.2019.1-13 *(author collected and analyzed analitycal materials)*

b. *Publications that certify the approbation of the dissertation materials*:

*5.* 5. Huo, Z.P., **Yin, H.Y**. (2019) Research on the development of human resources in China in the context of population aging. Інноваційні процеси економічного та соціально-культурного розвитку: вітчизняний та зарубіжний досвід (Тези доповідей XII Міжнародної науково-практичної конференції молодих учених та аспірантів), Тернопіль, с.222-225. *(author collected and analyzed analitycal materials)*

*6.* Mykhailov A., **Yin H.**, Huo Zh. (2019). Japan`s long-term care insurance and its enkightenment to China, Матеріали III Міжнародної науково-практичної конференції *«Менеджмент»* ПДАА, с.419-420 *(author analyzed references and wrote literature review)*

7. Huo Zh., **Yin** H., Yan X. (2020). Effective team management strategy based on telecommuting. *Сучасний менеджмент: тенденції, проблеми та перспективи розвитку:* V Міжнародна науково-практична конференція молодих вчених і студентів: тези доповідей, Дніпро, 23 квітня 2020 р. [Електронний ресурс]. – Дніпро: Університет імені Альфреда Нобеля, с.82-83. *(author analyzed references and wrote literature review)*

c. *Publications which additionally reflect the scientific results of the dissertation.*

8. Huo, Zh., **Yin, H.**, Mykhailov, A., Yan, X., Markina, I., & Aranchii, V. (2019). Analysis on the current situation and countermeasures of the development of the elderly human resources in China. Collective monograph *«Management of the 21st century: globalization challenges»ю* Prague, Czech Republic. P.212-222 *(author collected and analyzed analitycal materials)*

## АНОТАЦІЯ

Інь Хайянь. *Управління підвищенням якості життя людських ресурсів в Китаї.* Дисертація на здобуття наукового ступеня доктор філософії зі спеціальності 073 менеджмент. Сумський національний аграрний університет, Суми, 2022.

Необхідність переходу до моделі сталого розвитку, що викликана сучасною економічною реальністю, пов'язана з безпосереднім підвищенням якості життя усіх верств населення (особливо незахищених) та розвитком людських ресурсів. Для цього потрібна довгострокова стратегія організаційного, інструментального, економічного забезпечення реалізації відповідної державної політики з одночасною модернізацією наукових підходів. Тобто забезпечення функціонування ланцюга «зростання якості життя» – «зростання потреб» – «зростання економіки» є в сучасних умовах життєво необхідною.

Дисертаційна робота присвячена дослідженню управління розвитком людських ресурсів методами довгострокового підвищення якості життя. Вивчаючи досвід та користуючись уроками розвинених країн, таких як Сполучені Штати Америки, Німеччина та Японія, було побудовано базу для вибору моделі та розробки системи впровадження страхування довгострокового догляду (геріатричного страхування) в Китаї як одного з методів підвищення якості життя, враховуючи особливості місцевого соціального забезпечення та збільшуючи безпеку життя людей похилого віку.

У теоретичній частині дисертаційної роботи систематизовано теоретичні основи, поглиблено поняття та сформовано методологічний підхід забезпечення управління та оцінки ефективності впровадження довгострокового страхування догляду як одного з методів поліпшення якості життя людських ресурсів в Китаї. На основі вивчення досвіду комерційного геріатричного страхування в зарубіжних розвинених країнах запропоновано зміст, систему субсидування, механізм фінансування страхування довгострокового догляду в Китаї та готовність громадян КНР брати участь у страхуванні.

Так, було виявлено, що з розвитком економіки та прогресом медичних технологій тривалість життя населення збільшується. Водночас частка людей похилого віку в загальній чисельності населення зростає через зниження рівня народжуваності: населення Китаю старіє прискореними темпами. Так, у 2010 році населення у віці 60 років і старше становило понад 10 %, а Китай отримав статус країни «старіючого суспільства». На кінець 2021 року кількість людей у віці 60 років і старше досягла 270 мільйонів, що становить 19% від загальної чисельності населення, що на 9% більше, ніж у 2010 році. За даними Світового банку, у найближчі 20 років старіння китайського суспільства прискориться. До 2040 року кількість людей похилого віку у віці 60 років і старше сягне близько 420 мільйонів, що становитиме понад 30% населення. Оскільки кількість людей похилого віку в Китаї продовжує зростати, кількість людей, які потребують тривалого догляду, зростає. У той же час традиційна китайська модель сім'ї змінилася, сім'ї, як правило, менші, молодь не хоче жити з людьми похилого віку, а невеликі сім'ї з 2-3 осіб стали основним видом сімейних утворень.

Таким чином, уряд Китаю опинився у своєрідних «ножицях»: внаслідок значного технологічного стрибка та беззаперечних успіхів медичної системи значно зросла чисельність людей похилого віку, що з іншого боку призводить до перерозподілу коштів з інвестицій на соціальне забезпечення.

Через ослаблення функції сімейного догляду за людьми похилого віку проблема догляду за літніми китайцями перекладається на суспільство, але забезпечення соціальних установ для літніх людей не є недостатнім. Поточні послуги догляду за людьми похилого віку, які надають китайські заклади охорони здоров’я та геріатричні пансіонати, в основному присвячені фізичному та повсякденному догляду за літніми людьми. Але зовсім не приділяється увага таким послугам як психологічна допомога, соціальна взаємодія та усвідомлення власної гідності, що для людей похилого віку є важливим, а інколи й життєво необхідним. Крім того, заклади догляду за людьми похилого віку в Китаї загалом мають багато проблем, таких як низький рівень обслуговування, невелика кількість видів послуг, низька ефективність використання коштів, професійна

якість персоналу, який надає послуги з догляду за людьми похилого віку, зависока бюрократична процедура доступу до отримання послуг тощо.

Оскільки проблема старіння продовжує загострюватися в Китаї, у дисертаційному дослідженні наголошується на необхідності реформування та вдосконалення існуючих закладів догляду за людьми похилого віку, з одного боку, та створення унікальної системи страхування довгострокового догляду, щоб забезпечити адекватну пропозицію послуги догляду – з іншого. Це стане запорукою підвищення якості життя людей похилого віку в Китаї. Проте витрати, пов'язані з медичним та соціальним обслуговуванням осіб похилого віку, вже у середньостроковій перспективі перетворяться на найбільшу статтю громадських витрат в Китаї. Отже, державний грошовий ресурс неминуче буде змушений переспрямовуватись з інвестицій у соціальну сферу. Якщо не будуть прийняті відповідні заходи, то соціальні витрати, пов'язані з життєдіяльністю людей похилого віку в Китаї суттєво дестабілізують економічне зростання країни.

Цей своєрідний парадокс має бути максимально чітко артикульований перед населенням і знайти своє рішення через нові суспільні домовленості щодо правил пенсійного та медичного страхування. Суспільство повинно чітко усвідомити: правила гри в соціальній сфері внаслідок низки об'єктивних і суб'єктивних причин мають бути змінені, інакше система зайде у глухий кут. Але наразі не можемо не зазначити, що широке обговорення соціальних проблем на всіх рівнях, від експертного до побутового, зазвичай не завершується більш-менш реальними рекомендаціями з будь-якої сторони цієї поліаспектної проблеми, у тому числі – догляду за людьми похилого віку.

Страхування довгострокового догляду як метод підвищення рівня життя людей в Сполучених Штатах, Японії та Німеччині досягло певних успіхів, що є прикладом для вивчення Китаєм. Було виявлено, що передісторія запровадження страхування довгострокового догляду у Сполучених Штатах, Німеччині та Японії має багато спільних рис, таких як висока частка людей похилого віку в загальній популяції та низький відсоток народжуваності, ослаблена функція

сімейної єдності. Успіхи та проблеми кожної країни, що розвиває системи послуг довгострокового догляду, можуть стати корисними джерелами для створення та розвитку систем поліпшення якості життя в Китаї, які мають велике теоретичне та практичне значення. Проте Китай має свої національні умови та особливості, тому не можливо лише скопіювати успішний досвід трьох країн, а слід розробити модель управління розвитком страхування довгострокового догляду відповідно до фактичних умов Китаю, що в умовах сталого розвитку забезпечить підвищення економічного потенціалу населення.

При проведенні автором опитування більше 65% респондентів висловили бажання брати участь у страхуванні довгострокового догляду в провінції Хенань, Китай. Серед форм догляду респонденти обирали домашню форму догляду (68%) в порівнянні зі спеціальними геріатричними закладами (32%), а також переважала готівкова форма розрахунку (57%) за професійну оплату послуг.

Окрім того, у ході дослідження було виявлено, що готовність населення до запровадження довгострокового догляду залежить від розташування домогосподарства («хукоу»), віку респондента (r=0,833), наявності в сім'ї людей з фізичними чи психічними вадами (r=0,846), доходу (r=0,711), кількості дітей (r=0,698) та інших факторів. Наприклад, люди з міським «хукоу» більш охоче підтримують страхування довгострокового догляду (r=0,676), ніж люди з сільських територій.

Також в ході дослідження було виявлено за допомогою регресійного аналізу, що занепокоєння станом якості життя населення похилого віку та впевненість у тому, що уряд може створити ідеальну систему страхування довгострокового догляду, певною мірою підвищує попит на страхування довгострокового догляду (r=0,792).

Проаналізувавши чотири типові міста Китаю - Шанхай, Циндао, Наньтун, Чанчунь, які планується зробити типовими при запровадженні моделі страхування довготермінового догляду, були виявлені певні відмінності та протиріччя в імплементації запропонованих методів покращення життя населення. Так, через різницю застосування принципів сталого розвитку в

побутовому розумінні людини виникає несприйняття тріади соціо-еколого-економічного комплексу, через що респонденти на перше місце висувають економічні пріоритети, відтісняючи екологічну складову на останнє місце. Особливо це стало відчутно під впливом пандемії COVID-19, коли велика кількість людей похилого віку залишилась без належного догляду.

На сьогодні лише в провінції Хайнянь запроваджено систему приватного страхування життя і здоров'я. Це викликано місцерозташуванням провінції (морський курорт), тому через високу кількість туристів в регіоні сталий розвиток є пріоритетним. Було виявлено, що демографічні тенденції розвитку міського і сільського населення провінції відрізняються від загальних по країні.

З впровадженням системи приватного страхування життя і здоров'я встановлено значний прямий кореляційний зв'язок між динамікою зростанням щільності населення, зростанням сумарного коефіцієнту народжуваності, зростанням демографічного навантаження і показниками соціального задоволення якістю життям. Очікується, що впровадження системи страхування довгострокового догляду в кожному пілотному регіоні забезпечить вирішення низки соціально-економічних питань: зменшиється економічне «навантаження» від людей похилого віку; буде активізована соціальна функція в управління процесами розвитку економіки провінції; підвищиться ефективність розподілу медичних і пенсійних ресурсів.

Під час розробки пілотного етапу страхування довгострокового догляду було також виявило багато проблем, таких як неповне охоплення жителів сільських «хукоу», непослідовні та неповні критерії оцінки інвалідності та формування критеріїв необхідності догляду, надмірна залежність фондів медичного страхування для збору коштів від рішення місцевих органів управління, значним розривом між пропозицією послуг професійної допомоги та фактичним попитом.

Задля мінімізації негативних наслідків демографічних змін, у дисертаційній роботі на основі аналітичних досліджень, експертних думок та дослідження наукового підгрунтя було доведено необхідність переосмислення

цілей та інструментів політики в сфері підвищення якості життя та розвитку людських ресурсів. З урахуванням зарубіжного досвіду та рекомендацій міжнародних організацій, одним із варіантів комплексного рішення було запропоновано прийняття Національного плану дій з питань старіння у формі цільової державної програми. Цей документ, навіть в декларативній формі, став би підтвердженням розуміння складності цього питання і уваги до становища людей похилого віку, що дозволило б поставити завдання в якісно новому форматі, в тому числі із залученням громадського сприяння та донорських коштів.

Таким чином, довгострокове страхування догляду літніх людей (страхування медико-соціальних потреб пенсіонерів) спрямоване на задоволення потреб шляхом забезпечення доступу до медичної та лікарської допомоги та потреби у сторонньому догляді. У даному дослідженні було запропоновано геріатричне страхування вважати симбіозом медичного страхування з соціальним обслуговуванням і навіть подеколи із соціальною інтеграцією. У вітчизняних реаліях Китаю, коли кількість людей похилого віку з часом лише зростатиме, розвиток страхування довгострокового догляду набуватиме дедалі більшої актуальності. Геріатричне страхування дозволить обачливим особам заздалегідь піклуватись про власну старість та старість родичів чи близьких за рахунок посильних щомісячних внесків, які забезпечать гарантію догляду в разі необхідності.

Запропонована в дослідженні система довготермінового геріатричного страхування заснована на принципі широкої вигоди, що забезпечується стратегією персоно-орієнтованого розвитку людських ресурсів; впровадження диверсифікованого та диференційованого фінансування, яке формує тристоронній механізм розподілу ризиків між фізичними особами, державою та ринком; заміна разової готівкової оплати комплексною послугою, яка поширюється на всю тривалість життя застрахованої особи; опора на комерційні страхові компанії, які здійснюють професійне управління та функціонування ринку.

Підсумовуючи зазначене вище, можна зазначити, що з такими проблемами впровадження страхування довгострокового догляду як: відсутність нормативно-правової бази; хаотичність фінансування; неузгодженість в стандартах та критеріях оцінки потреби догляду; відсутність належних компетенцій професійного персоналу для довгострокового догляду тощо можна боротись наступними методами:

- сприяти одночасному повному охопленню міських і сільських жителів системою комерційного геріатричного страхування;
- вдосконалити законодавчий рівень страхування довгострокового догляду;
- розширити канали фінансування (наприклад, дозволити далеким родичам оплачувати довгостроковий догляд);
- освоювати науково-технічні засоби та створювати єдині стандарти оцінки потреб людських ресурсів;
- оптимізувати допоміжні засоби та створити професійні бригади медсестер.

При цьому сутнісне наповнення має задовольняти як інтереси суспільства в цілому, так й окремого суб‘єкта страхового захисту.

Зрозуміло, перелік проблем, порушених у дисертаційній роботі, є далеко не вичерпаним. Автор усвідомлює, що частина тез на етапі порушення проблематики геріатричного страхування є (або можуть здаватись) доволі контраверсійними. Утім основною метою дослідження було актуалізувати суспільний інтерес до цієї проблематики. Тому практичне значення даного дослідження полягає в залученні профільних експертів з усіх видів страхування, зокрема медичного, надавачів соціальних послуг до розробки механізму імплементації найкращих зразків світового досвіду геріатричного страхування як методу покращення рівня життя населення Китаю.

Ключові слова: менеджмент, людські ресурси, компетенції, інновації, сталий розвиток, якість життя, соціальна відповідальність, особистісно-орієнтована стратегія, провінція Хенань, covid-19

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## INTRODUCTION

**Relevance of the topic**. Facing many challenges brought by population aging, how to realize “healthy aging” becomes an important proposition faced by our government and the whole society. The so-called "healthy aging" is to rely on the joint efforts of the whole society, reasonable and effective use of social resources, improve the quality of life of the elderly population, help the elderly enjoy a more healthy and happy life, so as to achieve a healthy aging society. It can be seen that the key to promoting "healthy aging" is to improve the quality of life of the elderly.

Nowadays, quality of life is not only a medical concept, but a comprehensive concept covering many factors, such as physical and mental health, material and spiritual pursuit, family and society. It can not only describe and evaluate the living conditions of human individuals, but also reflect the level of social and economic development and civilization of a country or region to a certain extent. With the rapid economic development in China and the change of people's health idea, it is also an inevitable trend to improve the requirement of health-related quality of life.

Therefore, in the trend of population aging is aggravating, the higher the healthy aging calls, actively carry out the long-term care insurance in our country, explore the main factors affecting the quality of life in the elderly, to find the key, for the control of ageing with targeted pension services, the mental and physical health level, the elderly healthy aging development goals, It is of great significance and function to promote the construction of socialist harmonious society. This chapter, the main background of the quality of life in big China human resources development background and significance of the quality of life for a long time, through reviewing the literature of life quality, using the method of literature, questionnaire and comparison of three methods to write requirements and methods to improve the quality

of life in the elderly, in this context puts forward the necessity of the long-term care insurance.

**The literature review** was based on the research of Ukrainian, Chinese scientists and representatives of developed countries. The works of Chinese and foreign scientists such as Torbica A., Calciolari S., Fattore G., Michalowsky B., Thyrian J R., Eichler T.,Yuan Ling, Zhang Liangwen, Fang Ya, Xia Long, Xia Yarui, Chang Feng, Lu Yun, Pei Jie, Wu Haibo, Shao Yingjie, Zhou Tong, Wang Wentao,Shang Hao, Wang Muran, Xu Guihua, Jiang Gaoxia, Li Lingyun, Wang Jiankang, Zhang, Limei, Ren Yifei, Cheng Taijiao, Zhang Ruiyun et al. were studied. But all of them were devoted to the issue of research management of improving the quality of life of human resources. Along with this, the scientific output should be supplemented with research on geriatric insurance as one of the methods of improving the social and economic situation of human resources in conditions of sustainable development; development of a conceptual program to ensure the comprehensive involvement of the population in long-term care insurance programs, taking into account the needs of human resources in the conditions of the aging of the Chinese nation. So, what was obtained determined the choice of the topic of the dissertation research.

**Connection of work with scientific programs, plans, topics.** The dissertation was carried out in accordance with the directions of research work of the Department of Management of the Sumy National Agrarian University: "Development of management in the context of international integration processes" 2019-2023 (state registration number 0119U001336), within by the author was carried out a comparative characterization of the state of population involvement in programs of socio-economic development of the leading countries of the world and China.

**The purpose of the work** is development of theoretical and practical principles for ensuring the management of the development of the quality of life of human resources in China based on the implementation of the best practices of the developed countries of the world.

The implementation of the research goal led to the setting and solving of tasks:

- to find out research background and significance of conducting problem of the life quality development of human resources;

- to analyze the foreign experience of the life quality development of human resources;

- to generalize and justify research content, methodical approaches and ideas of assessment life quality development of human resources;

- to analyze the current state and dynamics of life quality development of human resources in China and foreign countries;

- to carry out domestic and foreign comparison of long-term care insurance under the premise of quality of life;

- **to determine problems of implementation the long-term care insurance in China;**

- to improve development overview of life quality development in China;

- to develop suggestions ways of solving problems in human research development in China.

**The object of the study** the system of socio-economic and organizational relations regarding the human resources life quality development in China.

**The subject of the study** theoretical, methodological and practical bases, regularities, principles, grounds, trends and contradictions of the formation and ensuring the development of the quality of life of human resources as a factor of economic development.

**Applicant's personal contribution.** The dissertation is an independently performed scientific work. All the results of the study, presented in the paper and presented for defense, are received by the author personally.

**Research methods.** The methodological foundation of the dissertation work was economic and statistical methods and scientific developments of world and Chinese scientists, which created a basis for researching issues of managing the improvement of the quality of life of human resources. To achieve the set goal and solve the set tasks, a wide methodological toolkit was used in the work, including: the monographic method and the method of theoretical generalization - to collect the

information base of the dissertation research; system analysis - to systematize the global foundations of managing the improvement of the quality of life of human resources, especially the elderly, and to identify the specifics of the implementation of global achievements to the Chinese economy; regression analysis - to determine the impact of socio-economic processes on the development of the standard of living of human resources in China; comparative method - to identify common sides and make an analogy in the methods of managing the development of the quality of life of human resources in the USA, Germany and China; the method of mathematical modeling and forecasting - to build a mathematical model to ensure the improvement of the standard of living of the elderly through the introduction of the long-term care insurance system in China under the conditions of sustainable development; the method of interviewing and field research - to collect primary information about the research tasks.

**The information base of the study** was legal acts from official open sources of China (the State Statistics Service of China, National Development and Reform Commission (NDRC), Ministry of Public Security (MPS), Ministry of Human Resources and Social Security (MOHRSS), National Health Commission, Ministry of Emergency Management), own field research, other types of theoretical, methodical, justice and scientific works from the Internet.

**The scientific novelty of the obtained results** consists in the deepening of existing theoretical provisions and the development of scientific-practical and methodical recommendations for long-term life quality improvement in China. The scientific results are reliable and in their scientific essence can be presented as follows:

*First received:*

- was proposed a conceptual model of improving the life quality of all population segments (especially the vulnerable) by implementing a long-term strategy of organizational, instrumental, economic support for the appropriate the state policy with the simultaneous modernization of scientific approaches to the functioning of the chain "increasing the life quality" - "increasing needs" - "growing the economy ".

*Improved:*

- theoretical and methodological approaches to the application of the long-term geriatric insurance program, which are based on the principle of broad benefit and are provided by the strategy of person-oriented development of human resources;

- factors affecting the implementation of the long-term care insurance system in each pilot region through the solution of a number of socio-economic issues: reducing the economic "load" from the elderly; activation of the social function in the management of the processes of development of the province's economy; increasing the efficiency of distribution of medical and pension resources.

- were systematized theoretical foundations, were deepened concepts and was formed a methodological approach to ensure the management and evaluation of the effectiveness of the implementation of long-term care insurance as one of the methods of improving the life quality of human resources in China.

*Further development took place:*

- Principles, methods of applying long-term care insurance (geriatric insurance) in China as one of the methods of improving the life quality, taking into account the peculiarities of local social security and increasing the life safety of the elderly;

- are proposed the content, subsidy system, financing mechanism of long-term care insurance in China and the willingness of Chinese citizens to participate in insurance based on the study of the experience of commercial geriatric insurance in foreign developed countries: the introduction of diversified and differentiated financing, which forms a three-way distribution of risk mechanism between individuals, the state and the market; replacement of a one-time cash payment with a comprehensive service that extends to the entire lifetime of the insured person; reliance on commercial insurance companies that carry out professional management and operation of the market.

**The scientific and practical significance of the dissertation.** The main goal of the study was to actualize public interest in this issue. Therefore, the practical significance of this research lies in the involvement of specialized experts from all types of insurance, in particular medical, social service providers in the development of

a mechanism for implementing the best examples of world experience in geriatric insurance as a method of improving the standard of living of the Chinese population.

**Personal contribution of the acquirer.** Dissertation research is an independent scientific work of the author. Scientific results, conclusions and proposals submitted for defense were received by the author personally.

**Approbation of the results of the dissertation.** The main provisions and results of the dissertation research were made public by the author at conferences, seminars, meetings, among which the most important were at International scientific conference "Innovative processes of economic and socio-culture development: domestic and foreign experience" (Ternopil, Ukraine, 2019), International scientific conference *«Management»* (Poltava, Ukraine, 2019), International scientific conference "Modern management: tendencies, problems and perspectives of development" (Dnipro, Ukraine, 2019).

**Publication of obtained results.** The main scientific provisions and results of research on the topic of the dissertation have been published in 8 scientific papers, including: 3 articles in specialized scientific publications of Ukraine, all are included in international scientometric databases; 2 articles were published in scientific periodicals of Organization of economic cooperation and development countries, which are included in the NMBD Scopus; 3 theses in materials of scientific conferences. The total volume of publications is 2.23 publications sheets, of which 1.25 sheet belongs to the author personally**.**

**Scope and structure of the dissertation.** The work consists of an introduction, three sections, conclusions and suggestions, laid out on 170 pages of the main text, includes 34 tables, 15 figures. The list of used literary sources contains 184 items on 13 pages.

# CHAPTER 1. CONCEPT DEFINITION AND THEORETICAL BASIS OF THE LIFE QUALITY DEVELOPMENT OF HUMAN RESOURCES

## Research background and research significance of conducting problem of the life quality development of human resources

Population aging has become an important challenge for countries in the world. Compared with the aging population in developed countries, China's aging population is characterized by a large base, rapid growth, aging and empty-nest, aging before getting rich, and large differences between urban and rural areas. The severe aging situation is bound to produce a series of social and economic problems (Hu Xiao et al., 2022). For example, the financial expenditure pressure of the government pension security increases, the burden of children's pension increases under the 4-2-1 family structure, the reduction of labor force restricts economic development, and the imperfect social pension security and medical and health service system has a huge contradiction with the increase of the elderly's pension demand. Therefore, it is the focus of many scholars to pay attention to the quality of life of the elderly in China and explore the main influencing factors of the quality of life of the elderly (Gao Zhenfeng, 2020).

In the face of many challenges brought by population aging, how to achieve "healthy aging" has become an important topic facing the Chinese government and the whole society. The so-called "healthy aging" is to rely on the joint efforts of the whole society, reasonable and effective use of social resources, improve the quality of life of the elderly, to help the elderly enjoy a more healthy and happy life, so as to achieve a healthy aging society (Cui Shichen, 2022). Therefore, the key to promoting "healthy aging" is to improve the quality of life of the elderly. Nowadays, quality of life is no longer just a medical concept, but a comprehensive concept covering physical and mental health, material and spiritual pursuit, family and society, and many other

factors (An Pingping, Chen Ning, Xiong Bo, 2017). It can not only describe and evaluate the living conditions of individuals, but also reflect the level of social and economic development and civilization of a country or region to a certain extent. With the rapid development of China's economy and the change of people's health concept, it is an inevitable trend to improve the requirements of health-related life quality.

Therefore, in the trend of population aging is aggravating, the higher the healthy aging calls, actively carry out the elderly life quality research in our country, explore the main factors affecting the quality of life in the elderly, to find the key, for the control of ageing with targeted pension services, the mental and physical health level, the elderly healthy aging development goals, Promoting the construction of socialist harmonious society has important significance and function.

With the acceleration of the aging process in China, the problems related to the long-term care of the disabled elderly have been paid more attention by the state. At present, China’s aging population aged 60 and above nearly 250 million people, according to the budget, the disability population is over 40 million. The three released the fourth China sampling survey results of urban and rural elderly living conditions.

Relatively long-term care problem is not very outstanding, however consider the elderly population in China will be swelling, the elderly life care and health care demand will continue to increase (Cui Shichen, 2022). So it should be accurate to predict the future aging condition, based on of timely formulate relevant countermeasures, save for a rainy day, the degree of dissolving the aging crisis in the future.

Along with the process of urbanization and the acceleration of the speed of population flow, the family structure of our country has also undergone changes. The number of small, nuclear families is increasing faster pace, more and more young couples who do not live with the elderly have become a trend. At the same time, the status of women in China has improved, and the proportion of women in employment has increased, which is undoubtedly impact on the traditional long-term care model of disabled elderly, which is mainly based on family and female care (Chen Yang, 2019).

The study on how to establish and improve China's long-term care service system is mainly based on the following reasons:

The United Nations defines an aging country as: "When the number of elderly people aged 60 and above in a country accounts for more than 7% of the total population, it means that the country has entered an aging society." On May 11, 2021, the results of the seventh national census showed that the population aged 60 and above in China was 264.02 million, accounting for more than 18%. The degree of population aging was further deepened, and the number of elderly people aged 65 and above was about 190.64 billion, accounting for about 13.5% of the total population (figure 1.1).

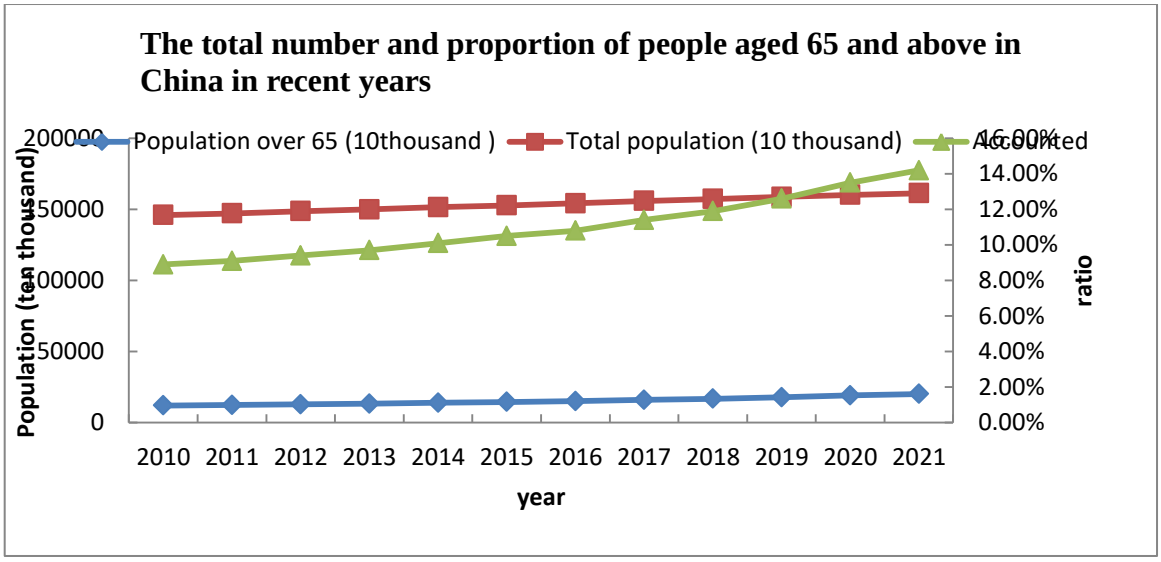


Figure - 1.1 The total number and proportion of people aged 65 and above in China in recent years

*Source: Collated according to data from National Bureau of Statistics*

According to the latest data, China's aging situation is increasingly. From the perspective of the development trend of the elderly population, China ushered in the first baby boom after the founding of the People's Republic of China due to the encouragement of birth, but in 1959-1961 due to the impact of natural disasters, the new population decreased, then China ushered in the second baby boom, lasting until 1973. With all the first baby boomers entering old age and most of the second baby boomers retiring, the number of people aged 65 and above will grow rapidly. At the same time, China's pension situation is not optimistic.

China’s old-age support ratio rose from 16.8% in 2018 to 19.02% in 2021, higher than the new record. The higher the old-age support ratio coefficient is, the more young people need to bear the burden of old-age care. According to the ratio of 2021, every senior citizen will need at least five members of the working population to support them, which is not only a pressure on young, but also poses a challenge to the country’s pension system.

China’s traditional farming civilization pays attention to the role of the family, and achieves self-sufficiency through the assistance of family members; the concept of “Virtues of filial piety is the first” makes “raising children anti-aging” becomes a matter of course (Chen Yang, 2019).

However with economic and social development, the traditional agricultural civilization gradually collapsed, the stable family environment was also impacted as never before, especially after the reform and opening up, the driving force of the economy makes people go out of their homes, the productivity surging in the society makes the traditional family productivity hard to meet (Dai Weidong, 2011). When people’s material and cultural needs are not effectively met in the family, inflated phrase begins to weaken. For a family, to pursue a higher standard of living, young children’s career development given the whole society, and the children who work in another city will inevitably lead to the reduction of family size.

However, in the face of the current real needs of the elderly over 65 years old in China, the number of older adult in the year 2020 was 190.64 million, the supply of pension institutions is insufficient. At present, the old-age care service provided by China’s old-age care institutions is mainly devoted to the care of the elderly and their daily life, the provision of services such as psychological care, social interaction and self-value realization of the elderly is quite common.

In addition, China’s old-age care institutions generally present many problems such as low service level, low service types, low efficiency of service funds, inadequate service supervision and management, and uneven professional quality of staff providing old-age services (Dai Puzhi, Meng Na, Huo Chuanjun, 2016). Therefore, in order to meet the needs of the elderly care services in our country, on the

one hand, we urge the reform and improvement of the existing old-age care service institutions, on the other hand, we call for the birth of a long-term care insurance system to ensure adequate supply of care services (Deng Jing, Deng Wenyan, 2017).

In July 2016, the People's Social Welfare Department of China promulgated the "Guiding Opinions on Piloting the Long-Term Nursing Insurance System", which requires the People's Social Welfare Department (Bureau) of Hebei, Jilin, Heilongjiang and other cities to carry out long-term care insurance system, start Pilot work (Economic Daily, China Youth Network, 2017).

Compared with the pilot work of individual provinces and cities such as Qingdao, Nantong and Changchun in China, the pilot-scale is more comprehensive and extensive. The guideline stipulates the guiding ideology and principles, objectives and tasks, basic policies, management services, supporting facilities and detailed requirements for the organization and implementation of the pilot of China's long-term care insurance system, making the pilot work of China's long-term care insurance more operable and feasible (Guan Bo, Zhu Xiaoyu, 2019). From the pilot work, it is not difficult to observe, the Chinese government has aware of the importance and urgency of establishing a long-term care insurance system, like the deepening of the "supply-side structure reform" in our country, how to effectively meet the demand of China's growing elderly care services also calls for the improvement of the long-term care service system in our country and supply of long-term care services.

By the end of 2019, 98.15 million people had enrolled in the first batch of pilot cities, Jilin and Shandong, two key provinces, among whom 1.1 million had received benefits. Although the pilot work is developing smoothly, the current coverage is far from enough to achieve the goal of "guaranteeing basic" long-term care insurance. Therefore, in the proposal to expand the pilot program of long-term care insurance in 2020, the National Health Insurance Bureau mentioned that provinces have not been included in the pilot program could add a new city as a pilot city, which indicates that the long-term care insurance will be extended to the whole country (General Office of the State Council, 2022).

The state also strives to form the policy framework of long-term care insurance system during the 14th Five-Year Plan period. At present, China has not established a unified long-term care security system, the premise of establishing a unified system is that the pilot work has achieved positive results, and there is an experienced model that can be promoted in the unified operation of the whole country. Standards should also be established in the identification of disability, to build a multi-level long-term care security system (General Office of the State Council, 2020).

As China's aging problem continues to increase, the elderly population base will inevitably put forward new requirements for China's old-age service system. In the face of the current growing demand for long-term care services, how to do long-term care service supply is urgent (Gui Hailan, 2020).

As China does not formally establish a long-term care insurance system in line with China's national conditions, therefore, it is particularly important for China to learn about the experience of nursing services that have been established a long-term care insurance system, through the analysis of the framework of the USA's, Japan's and Germany's long-term, we find that each country has successes and failures in the development of a long-term care service system. A good experience can provide reference for the establishment and development of China's long-term care service system, bad experience has great enlightenment for us (Gao Xiaojie, 2022). Therefore, learning foreign experiences has very important theoretical and practical significance.

With the development of the economy, China's current supply-side reform has entered a deepening stage. At the 2017 Annual Meeting of the China Development High-Level Forum, the Central Financial and Economic Leading Group Office clearly stated that it is a task for the supply-side structural reform this year to make precise efforts to promote "capacit reduction, de-stocking, deleveraging, cost reduction, improving underdeveloped areas." Among them, improving underdeveloped areas" includes the compensation for "soft short-board", such as policy system (Hailong, Yin Haiyan, 2018]).

Along with the wave of supply-side reforms, China's social security undertakings are also undergo new explorations and attempts. In terms of medical

security, the long-term care insurance system is being widely operated and developed by various countries as an pillar to protect the healthy life of the elderly (He Miao, 2018). Since China's long-term care insurance system is still in the exploratory stage, it is necessary to absorb and learn from the successful experience of the foreign long-term care insurance systems.

This phd thesis attempts to start research from three typical countries: the United States, Germany and Japan, because the long-term care insurance systems in these three countries have been relatively successful, from the perspective of the long-term care service system, we systematically and comprehensively analyze the long-term care service system of each country in terms of the main body and target of the long-term care service system, the content of supply services, the supply of funds, and the supply of service talents, provide experience for the development and improvement of China's long-term care service system.

Under the combined action of the long-term implementation of family planning policy which leads to the decrease of birth rate, the change of traditional family fertility concept, which leads to the continuous increase of dink families, and the social development leads to the continuous reduction of family size, the current population aging problem is serious in China.

The aging population will give rise to series problems, such as the difficulty in raising the elderly, the shortage of nursing resources for the elderly, and the insufficient medical supply for the elderly. Under the complex background of China's aging population, it is of great practical significance for the research and study of long-term care service systems. By studying of the long-term care service system in the United States, Japan and Germany, the problems and shortcomings of the current long-term care service system in China can be timely compared. Draw lessons from Japan's long-term care service system in the process of development success experience, effectively improve the effect of the supply of long-term care service system in our country, promote the establishment of the long-term care insurance system in our country, thus against our country all sorts of problems and risks due to aging fast, effectively guarantee the living standard of the national old age.

## 1.2. Concept definition, theoretical basis and literature review of the life quality development of human resources

Quality of life because of different research fields, directions and objects, the specific connotation of quality of life is also different. Foreign scholars Levi (1976) and others define it as a comprehensive evaluation of individual physical, psychological and social adaptation.

In 1996, WHO (World Health Organization) defined it as the experience of individuals in different cultures and value systems about their life goals, expectations, standards and life states related to things they care about, including individual physiological, psychological, social functions and material states. The quality of life of the elderly is a specific concept for the elderly. Wu Zhenyun (2002) and others defined the evaluation of the quality of life of the elderly as the comprehensive and systematic evaluation of their physiology, psychology, family and life perfection by the elderly aged 60 and over.

The United States was one of the early countries to establish long-term care insurance system, the American Health Insurance Institute gave a clear definition of long-term care: In a longer period of time, for the continuous suffering from chronic diseases, such as Alzheimer's disease and other cognitive impairment or disability, that is, the care provided by the person with functional impairment. It includes medical services, social services, home services, delivery services or other supportive services." According to the world health organization, long-term care refers to care activities carried out by non-professional caregivers (family members, friends or neighbors, etc.) and professional caregivers, to ensure the highest level of independent living and personal dignity of the quality of life of those with incomplete care.

Both definitions emphasize that the purpose of long-term care is to repair people with chronic diseases or loss of daily living ability, not to cure the disease or to

preserve life. Unlike the treatment of chronic diseases, long-term care aims to provide supportive services for people who are disabled or lack of self-care ability, such as disability, dementia or semi-disability, semi-deterioration, etc., to maintain and enhance the physiology of patients as long as possible and ensure the quality of their lives.

At present, the more authoritative definition is that an individual suffers physical or psychological damage due to accident, illness and functional decline. When the degree of damage reaches the point that he cannot take care of himself, he needs help from others to complete daily life and social activities, and the time he needs help is continuous. Long-term care can be divided into formal and informal care according to whether paid or not. According to the nature of nursing divided into professional nursing and daily life care.

Long-term care usually refers to long-term care for the elderly, the cycle is usually long, generally up to six months, several years or even more than ten years, and the cost of care is high. The American Health Insurance Institute believes that long-term care insurance is designed for consumers and provides protection against the potentially large amount of care expenses incurred in the event of long-term care. Long-term care insurance is also defined by the American Life Insurance Management Association and Cologne General Reinsurance. Throughout the perspective of institutions and scholars at home and abroad, long-term care insurance is a kind of compensation for the cost of caring for the elderly who are partially or completely unable to take care of themselves due to old age and chronic diseases.

This paper studies the long-term care insurance system, which mainly protects the “disabled elderly”. Due to different degrees of disability, the disabled elderly need to be taken care of the cycle is uncertain, the time is long or short, but according to the latest research results of the Chinese academy of social sciences shows: The average care time of the disabled elderly is 44 months. The mortality rate of the disabled elderly is very high if the care time exceeds 44 months. The average life span of the disabled elderly is 79 years. About 25% of the disabled elderly died within 6 months of disability, and 50% of the disabled elderly died within 12 months of disability, another

25% of disabled seniors die after a longer period of disability. Due to the varying time of death of disabled elderly people, disabled elderly people who have been identified as disabled for more than 3 months are considered to be able to receive long-term care. The term “disabled old people” is still a newly introduced term in China, and there is no official unified concept.

Various scholars have their own unique interpretation of this term. From a broad perspective, Yu Qun (2012) explained: the distinction between ‘disabled elderly’ and ‘healthy elderly’ is mainly made by the international health organization after the physical health status of the tested object is tested by ADL daily living activity scale, and the conclusion is drawn whether the object belongs to “disabled elderly”.

In addition, Wang Hui (2012) believes that “disabled elderly” is caused by their own disabilities, chronic diseases in old age, and physical or mental problems affecting their normal life. From a narrow perspective, Liu Jinying (2014) believes that “disabled old people” are those who need the help and care of others to carry out normal life activities. The reason for their life obstacles is that they are getting old and their physical health declines, leading to various diseases.

Domestic long-term care insurance system in the trial operation of authoritative survey, with the method of BI was to survey site is lost to the old people’s family to evaluate the long-term care application form, evaluation content including clothing, food, nails trimmed, bath, move a wheelchair, bed up and down, up and down the stairs, the toilet, defecation, travel and other ten assessment project. In accordance with these 10 evaluation indicators, separate evaluation standards for each evaluation index are developed in turn, and each evaluation index is divided into the following four grades: Totally self-sufficient, slightly needy, largely needy and wholly needy. Each index gives a score of 15, 10, 5 and 0 for four different options.

The social security department and the medical department will feedback the scores of the elderly after submitting the application form. Score is according to the personal physical condition of disabled elderly who apply for long-term care: a full score of 100 is the elderly who are completely healthy without any disability. The elderly with a score of 60 or above are the group with “basic life barrier-free”. The

"partially disabled elderly" scored between 60 and 40 points. The score for "disabled elderly" is 40-20. A score of 20 or below is considered "severely disabled elderly". Persons with scores greater than or equal to 60 points are not allowed to file further care insurance claims.

To sum up, from the domestic and foreign research on such problems of authoritative survey content, the author adopts the current common daily life at home and abroad to move ability scale definition for the word "disability of old man", based on the elderly "wear or take off the clothes, eating, bathing, toilet, fluctuation bed, travel" six evaluation standard comprehensive score comparison, among them, if there are at least 1 item does not meet the test requirements as prescribed in the standard and the elderly over the age of 60 were identified as "disable."

Pension service is a series of activities to meet the needs of the elderly and mental health. These activities involve various aspects required by the elderly such as clothing, food, accommodation, transportation, medical care, psychological comfort and spiritual needs (Zhang Hao et al, 2022). Long-term care service is a process of daily life care, medical care, rehabilitation and psychological comfort for the disabled elderly and those who can't take care of themselves. In a broad sense, pension service includes long-term care service, which is a subdivision of pension service, first of all, the services provided by long-term care services and old-age services are the same. In summary, they include three aspects of daily life care, medical rehabilitation and psychological comfort, the aged care service focuses on providing daily care for the elderly, the long-term care service focuses on "protection" and focuses on providing medical rehabilitation for the disabled elderly and helping the disabled elderly to recover (Zeng Shurui, Guo Jingcheng 2022).

Secondly, the long-term care service and the old-age service are provided in the same main body, the family, government, community, enterprises, non-profit organizations and volunteers together constitute a social support system for the aged care service and long-term care service (Zhu Minglai, 2015).

Finally, the main difference between the two is that the objects are different, that is, the service objects are different. The old-age service is for all elderly people who are

60 years old. The long-term care service is provided to the insured who can't take care of themselves. There is no age limit, however, due to the elderly and chronic diseases, the elderly has a high probability of disability, so in general, the long-term care insurance service mainly refers to the disabled elderly (Zhou Wei, 2012). From this perspective, the aged care service is more basic, and the long-term care service is selective, because all the elderly has pension needs and need old-age services, but not all the elderly need care services, good health and life, old people who are able to take care of themselves do not need care services.

The beneficiaries of long-term care services must be assessed by the qualification system of the nursing screening system. Only those who cannot take care of themselves can enjoy long-term care services. Not all insured persons can obtain long-term care services (Zhang Wei, 2012).

Long - term care insurance is an important part of social security system. The study of the development of nursing insurance system in various countries is inseparable from the study of its related theories, which is conducive to understand the reasons for the emergence and development of nursing insurance system in various countries, and also helpful to guide the development and adjustment of nursing insurance (Zhao Jingwen, 2020) . Therefore, the theoretical basis of this paper is to review the relevant theories affecting the establishment and development of nursing insurance system.

In 1920, Arthur Cecil Pigou argued in welfare economics that economic welfare was influenced by national income and its distribution among members of society. Therefore, in order to increase economic welfare, we should not only increase the total national income, but also eliminate the inequality of national income distribution by increasing necessary monetary subsidies to low-income people and collecting accumulated income tax from high-income people.

Advocate fairness, universality and welfare, on the basis of fairness, is extended with universality and welfare, social justice as the starting point of social welfare maximization problem, through the mandatory implementation of the social security law, guarantee citizens' basic rights, can promote social justice, to a certain extent, can

make up for market failure and to ensure its smooth implementation (Zhao Bin, Chen Manli 2017). Many countries are influenced by the welfare economy, when establishing the nursing insurance, the government raises funds through financial allocation and tries to expand its coverage.

Neoliberalism believes that the free market economy should be adhered to. It is believed that state intervention and social welfare systems are contrary to the principle of a free market economy, the strengthening of the government's macro management and social security effects affects economic interests and individual freedom, resulting in inefficiency (Zhang Xiaotian, 1995). Welfare and social security should be "marketized" as well as enterprises, the social security benefits of personal income are determined by their ability to pay, and the gap in such treatment creates more inequality. However, neoliberalism believes that this can stimulate workers' enthusiasm, improve efficiency, and promote economic development (Zhang Saijun, 2001).

Under the influence of neoliberal theory, the social security system is no longer hosted by the government alone, but also market-led, it has these features: individuals can choose freely, showing the coexistence of administrative means and market means, sharing of individuals, families, society, and government, etc. Long term care insurance also presents a multi-level insurance system (Zhang Kan, 2010). For example, the United States promotes the commercial nursing insurance system model, and many countries also supplement the commercial nursing insurance system as its main system.

In 1981, World Health Organization Director-General Halfdan Mahler (1973-1983) proposed "Health for All", which is the foundation of the World Health Organization's primary health care strategy to promote health, achieve human dignity and improve the quality of life. The health of everyone means that health belongs to everyone in every country, "Health for all" depends on continuous improvement in health care and public health. The Constitution of the World Health Organization stipulates that "the highest level of health that can be achieved is one of the basic rights of everyone"(WHO, 2016).

“The highest standards of health that can be achieved” require a set of social standards that are conducive to the health of all, including access to health services, safe working conditions, adequate housing and nutritious food. Achieving the right to health is closely linked to the realization of other human rights in food, housing, work, education, non-discrimination, access to information and participation (Yuan Yuan, 2019). The right to health includes access to timely, acceptable, affordable and quality health care, and every disabled person or participant can enjoy health care and more professional care, and encourage individuals to achieve a higher quality of life. Therefore, nursing insurance is to improve the quality of life of the disabled, make it affordable to meet the standard of care services, and protect their basic rights.

Maslow’s hierarchy of needs is a motivational theory in psychology comprising a five-tier model of human needs, often depicted as hierarchical levels within a pyramid. Needs lower down in the hierarchy must be satisfied before individuals can attend to needs higher up. From the bottom of the hierarchy upwards, the needs are: physiological, safety, love and belonging, esteem and self-actualization (Maslow, 1943).

This five-stage model can be divided into deficiency needs and growth needs. The first four levels are often referred to as deficiency needs (D-needs), and the top level is known as growth or being needs (B-needs). Deficiency needs arise due to deprivation and are said to motivate people when they are unmet. Also, the motivation to fulfill such needs will become stronger the longer the duration they are denied. For example, the longer a person goes without food, the more hungry they will become (Yu Baorong, Gao Jing, Yu Longfeng 2012).

Maslow (1943) initially stated that individuals must satisfy lower level deficit needs before progressing on to meet higher level growth needs. However, he later clarified that satisfaction of a needs is not an “all-or-none” phenomenon, admitting that his earlier statements may have given “the false impression that a need must be satisfied 100 percent before the next need emerges”. When a deficit need has been 'more or less' satisfied it will go away, and our activities become habitually directed towards meeting the next set of needs that we have yet to satisfy. These then become

our salient needs. However, growth needs continue to be felt and may even become stronger once they have been engaged.

The elderly has a higher happiness index because they meet their various levels of needs. Therefore, once the disabled elderly meets the higher level of demand, they will have a better mood, which is not only a good recovery for their health. It will also help them live a more dignified life (Yao Hong, 2020). Whether it is the long-term care of the disabled elderly or the professional caregivers to provide long-term care services for the disabled elderly, the human needs hierarchy should be used as the theoretical basis for the long-term care needs of the disabled elderly, so as to reasonably evaluate different situations. The demand situation of disabled elderly cases, according to the actual situation of disabled elderly with different needs, the staff who provide long-term care services for disabled elderly should provide targeted long-term care services. Scholar Patricia Haas believes that Maslow's hierarchy of human needs should be linked to the disease-health continuum, as shown in Figure 1.2.

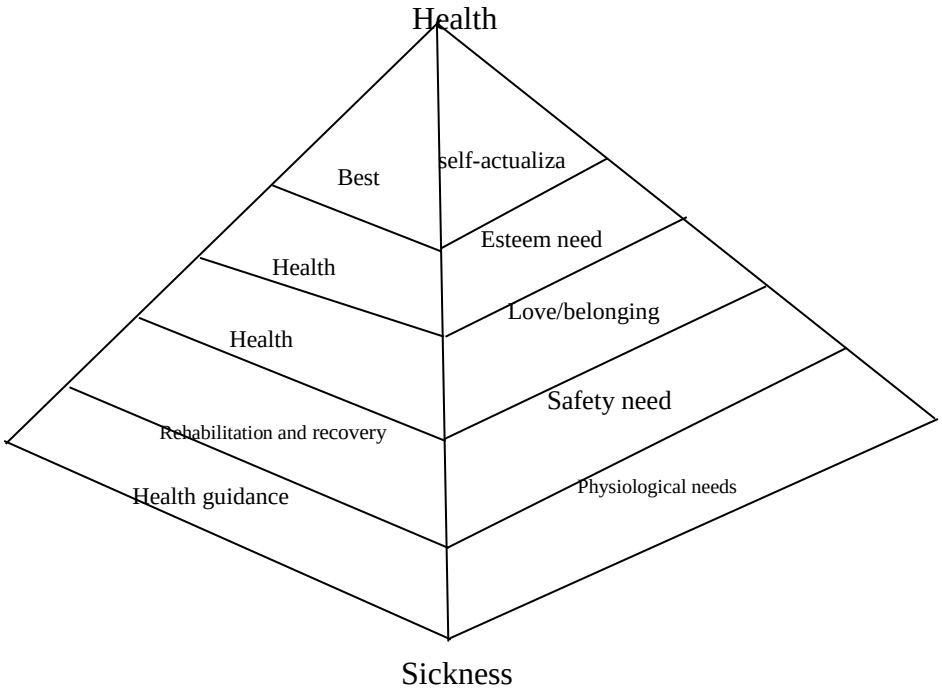


Figure 1.2 - Relationship between disease-health continuum model and Maslow’s hierarchy of human needs

*Source: The author arranges and summarizes according to the Maslow (1943)*

In Figure 1.2, it can be seen that the disabled elderly can meet their physiological needs to a certain extent after receiving the corresponding treatment; if the disabled elderly can recover or heal after treatment, their daily life can take care of themselves. Will meet their safety needs; after rehabilitation or recovery, if they can provide them with professional guidance on health, they can meet their social and sense of belonging needs; after health guidance, they gradually enjoy a healthy lifestyle. This meets their respected needs; providing case-specific services to disabled seniors in different situations to help them achieve their self-fulfilling needs. In the process of providing long-term care services for disabled elderly people, it is necessary to fully consider the level of demand for their physical condition and provide them with services to meet the corresponding needs.

According to the theory of public choice, most citizens and social public organizations choose the operation mode of a public utility for their own interests and their value orientation (Xia Ziying,Luo Weiping 2018). In the process of building long-term care insurance system in our country, the government should also take the public choice theory as the theoretical basis, before making long-term care insurance system in our country, should first with different ages, different background of public opinion polls, combing our country for the future to set up public willingness and suggestions of long-term care insurance system in China.

Then, in the process of formulating relevant policies and policies of China's long-term care insurance system, the government should try to adopt the way of citizens' wishes and preferences to construct the system, so as to make the long-term care insurance system in China conform to the individual interests of citizens and the collective interests and value orientation of employers as far as possible (Xia Long et al 2022).

The content reflected by the theory of public choice is that the government represents the interests of citizens as much as possible in the formulation of policies and systems, and the policies and systems issued by the government are also the presentation of the personal interests and value orientation of the majority of citizens.

Not only in the process of constructing China's long-term care insurance system, but in fact, in the process of formulating all policies and systems, the Chinese government should follow the public choice theory, put themselves in the citizens' shoes, and formulate and promulgation policies and systems that are more in line with public opinion.

Health equity means that any member of society should have the opportunity to obtain a higher level of health fairly, that is to say, the health status of people of different gender, age, economic income, country and race should be consistent or similar, but it is not a superficial expression of undifferentiated health status (Xia Yarui, Chang Feng, Lu Yun, Pei Jie 2018). Health inequity refers to the difference in health status caused by the inequality of people's social environment, health environment, medical opportunities, etc. He roots cause of the emergence of health inequities is that people have different resources due to different socio-economic status, which further determines the individual's level of education, working and living environment, and the quality and level of health services.

Health inequities among groups are common in countries and regions all over the world, and have nothing to do with the development of the country and region. In view of health inequities, blindly promoting economic growth is not only an effective solution, but also may aggravate the degree of health inequities. Because wealth is often in the hands of a few people. Therefore, in order to reverse the current situation of health inequality, the state, government and society should take some positive and effective measures to intervene, and give some support and help to different groups of people (Wang Xiaochun, 2016).

In the context of the increasing aging process in China, the increasing disability, dementia and aging population, it is of great significance to study the selection of long-term care and insurance system. Although there are differences in research methods and side points, there are three types of observation points selected by the relevant system, namely, social insurance as the main body and business insurance as the supplement, business insurance model and transitional long-term nursing strategy.

Based on the review of domestic and foreign research results, this paper classifies the research results of relevant scholars as follows:

- Ma Jilin, Zhao Xuejun and Li Yuli (2013) investigated 814 elderly people aged 60 years and above in Songjiang District of Shanghai, and found that the quality of life of the elderly in this area was generally good, especially in the three dimensions of mobility, self-care ability and daily activity ability. Wang Muran, Xu Guihua, Jiang Gaoxia et al. (2013) investigated the quality of life of the elderly in Nanjing by using the short form of WHO Quality of Life Assessment. The overall quality of life of the elderly in this area was poor, and the scores of physiological state, psychological state, social relationship and environment were lower than those of the norm group. Huang rong, Yi Lina Yu Chang mei (2013) to wenzhou 483 disability elderly as the research object, research the fail the old man in life satisfaction and its influencing factors, through the single factor analysis and stepwise linear regression found that marital status, economic conditions, disease and treatment conditions of disability, the old man's life satisfaction significantly influence.

- Li Dongtong, Fang Renfei, Xie Zheng (2014) investigated the quality of life of the elderly in Beijing, and used multiple linear regression and logistic regression models to analyze the relationship between social determinants and the quality of life of the elderly. The study found that the average quality of life health index of the elderly was 0.878 ±0.160, indicating that the overall quality of life was in a good state. Multiple linear regression analysis found that there were statistical differences in the five dimensions of mobility, self-care and mobility among the elderly with different education levels, economic levels and marital status among the social determinants.

- Zhou Wei, Cui Ying, Yang Li et al. (2012) analyzed the quality of life and influencing factors of the elderly in rural areas of central and western China, and found that the health-related quality of life of the elderly in this area was at a medium level, with the highest satisfaction of self-care ability and the lowest satisfaction of pain or discomfort among the five dimensions.

- Chen Zhengying ChuTing, Xue Guie (2010) using the WHOQOL BREF - scale to four provinces of Hunan, Hubei, Chongqing, Guizhou minority areas rural elderly

investigation, the study found that the ethnic minority areas the elderly life quality overall is poorer, main influencing factors are age, frequency of self-care ability, economic income, children home, family harmony, and cultural degree.

- Yao Jun, Long Liliang and Wang Kai (2011) evaluated the quality of life of people aged 60 years and above in rural areas of Hunan Province through SF-36 scale and found that the life and health status of the elderly in this area was poor, with a score of 60.25 ±16.99 in the dimension of physical health and 59.32 ±10.88 in the dimension of mental health. Elderly people who are older, female, suffering from chronic diseases, widowed and with low income level have lower scores and poorer health.

- Li Xinhui, Gong Cuntao, Zheng Kunliang et al. (2014) investigated the life status and influencing factors of 498 elderly Uygur people in rural areas of Xinjiang, and found that the overall quality of life status of the elderly in this area was at a medium level on the whole, and there were statistical differences in the overall quality of life scores of the elderly in the three townships. Factors affecting the quality of life of the elderly include general demographic sociology (gender, age, marital status, personal economic income, medical expenses, living style and social support score), health status and health behaviors, among which chronic diseases are the primary influencing factors.

Some scholars have made theoretical analysis of long-term care for the elderly in developed countries from the dimensions of concept, connotation and mechanism. Chun-shan zhou, Li Yixuan (2015) thinks, long-term care system in developed countries is based on maslow's needs hierarchy, elderly health and welfare pluralism as the theoretical basis to build up, its main characteristic is to advocate "in situ" aged care concept, and to the system and continuous care services as the goal of resource integration of a comprehensive system of gas.

According to Liu Tao's (2016) research, the long-term care insurance system in Germany can no longer be explained by the single role of the welfare state, and its welfare supply pattern is developing towards mixed welfare pluralism. Also taking Germany as the research object, Liu Fang (2018) summarized the operation concept of the social long-term care insurance system in Germany from four aspects:

- First, from the perspective of governance, the relationship between the state and the local mainly reflects the governance concept of centralization and decentralization;

- Second, pay attention to the assessment of nursing needs and follow the principle of universality of coverage;

- Third, in order to control the unlimited increase of cost, the budget principle and cost control principle are established in the process of system payment;

- Fourth, in terms of financing subjects, the German long-term care insurance system has an obvious tendency of welfare pluralism, and the implementation of multi-subject co-financing system model.

Taking the UK as the research object, Zhao Qing and Li Zhen (2020) summarized the specific measures of the long-term care system in the UK: prevention and management of medical care and care needs, understanding of needs, service design and provision, integration of social care and health services, and central government's supervision and regulation of care services based on the new system.

Lu Yu and Yang Cuying (2016) pointed out that the way of medical insurance fund allocation is only effective in the initial stage of system establishment, and in the long term, a four-party financing mode consisting of individuals, enterprises, government and administrative agencies should be established. Wang Min, Li Yan et al. (2017)

Advocates that the source of financing should not be too single, to constantly broaden the financing channels, issuing nursing insurance lottery, accepting donations, fund investment operation and so on can become important supplements. Zhao Bin, Chen Manli (2017) According to the different income levels, pay corresponding fees, urban and rural residents can be jointly paid by the government and individual residents. Yinghua Zhang, Yan Yang (2019) constructed a new financing model - "Zhengzhou Model", which completely gets rid of the way of relying on medical insurance fund, and at the same time, government finance and individual contribution are within the affordable range, so it is advocated to establish an independent financing model combining the two. Wang Xinjun and Li Xueyan (2020) advocated the

combination of multiple financing and special fund system. In the early stage, it can be transferred through medical insurance fund, but the establishment of nursing insurance special fund should be accelerated to ensure the sustainability of funds.

Dai Weidong (2021) pointed out that employer contributions and financial input are indispensable in the financing of long-term care insurance, and the financing method completely relying on medical insurance fund is not advisable in the future development of nursing insurance. Diversified financing channels composed of individuals, organizations, government finance and social donations can be constructed.

In the form of fundraising, Li Yu (2013) thinks that the establishment of long-term care insurance should adopt the way of social insurance, which will not increase the individual's contribution. If the tax system is chosen and the government is responsible for raising all the funds independently, it will cause the problem of "adverse selection", which is not conducive to sharing the development results.

Sun Jie and Jiang Yue (2017) believed that the rapid development of population aging in the future would impact the sustainability of nursing insurance funds, so the partial accumulation system might be more effective. Zhu Guolong (2020) believed that compared with the pay-as-you-go system, the complete accrual system lacks mutual benefit. As a new type of insurance, it is appropriate to establish the financing mode of the pay-as-you-go system at present to ensure the rapid implementation of the system. Cui Shichen and Lin Mingang (2020) compared the financing structure of Japan and South Korea and found that both the government and individuals were the main financing bodies of insurance, but the burden level of Japanese government was higher than that of South Korea. Therefore, they proposed that China should establish long-term care system instead of long-term care insurance.

Fund sustainability is an important condition to ensure the smooth operation of long-term care insurance. Wang Baoling and Sun Jian (2018) analyzed the impact of changes in fertility level, wage growth rate, nursing cost and financing mode on contribution level and financial subsidy. Sun Jie and Jiang Yuezhu (2018) analyzed the similarities and differences and future development trends of financing mechanism

construction at home and abroad through the framework of financing mechanism of long-term care insurance.

Jing Tao et al. (2018) constructed an empirical model to analyze the factors affecting the income and expenditure of long-term care fund. In view of the reality that China's current long-term care fund depends on medical insurance fund, they conducted a simulation analysis on the balance of medical insurance fund and found that long-term care insurance relying on medical insurance fund is not sustainable. Li Xinping and Zhu Minglai (2019) calculated the contribution rate of the disabled elderly in Tianjin and estimated that it would reach 8.03% to 8.09% in 2030. They advocated to broaden the financing channels and establish a dynamic financing mechanism.

Zhou Lei and Wang Jingxi (2019) sorted out and compared the similarities and differences of fund raising and treatment payment schemes in the first 15 pilot areas of long-term care insurance, and put forward suggestions from three aspects: coverage, fund sources and treatment and payment of long-term care insurance.

Liu Wen and Wang Ruoying (2020) quantitatively analyzed the financing efficiency and coordination of the current pilot areas, mainly measuring whether the financing level is coordinated with the economy and population structure, and found that most areas are not coordinated. Zhang Yinghua (2020) measured the financial burden of the system and individuals under different beneficiary coverage and treatment levels, and compared the sustainability of the system under the three schemes by predicting the number of beneficiaries, the scale of fund expenditure and the number of contributors.

Chen Chengcheng (2020) compared the current situation of the financing mechanism of the pilot city, and proposed that our country should adopt the "mass participation, minority benefit" financing model, more conducive to the sustainable development of the system. Li Yuee and Ming Tingxing (2020) found from the financing mechanism of 15 pilot cities that pilot areas over-relied on the transfer of medical security funds. In fact, individuals and units in most areas did not pay the fees, and the financing was only a form of diversification.

Li Jia (2020) calculated the financial affordability of 17 pilot programs over a 50-year period from 2000 to 2050. In his study, Liu Huan (2021) estimated the future rate level of the integrated social long-term care insurance in Zhejiang Province based on the experience of pilot areas and the ILO financing model, and proposed that different rates could be adopted for different age groups, so as to alleviate the problem of mismatch between payment burden and benefits.

Through literature review, it is found that foreign research on long-term care insurance system can be roughly divided into three stages: at the end of the 20th century, mainly the introduction of foreign systems; At the beginning of this century, it mainly studies foreign experience and our country's system orientation; Since the implementation of Qingdao in 2012 and the official pilot in 2016, domestic research on long-term care insurance has reached a tide. However, compared with other social insurance, long-term care insurance appeared later, so the research results are less. At the same time, compared with foreign research, micro research is less.

The analysis method is mainly qualitative. As the aging population situation day by day serious, about whether to build care insurance in our country, most of domestic scholars agree that long-term care insurance in our country, introduce the necessity of the system model and basic form a consensus, thought our country's long nursing risks should be a kind of social insurance, all parties need to payment together, but there are differences, for funding research to ginseng protect object, Some scholars advocate full coverage, while others believe that urban workers should be covered first and then gradually expand to urban and rural residents. As for the financing channel, most scholars oppose it

At present, we rely on the medical security fund to establish an independent and truly diversified financing system, but some scholars believe that at the beginning of the implementation of the system, we can temporarily rely on the allocation of medical security fund. For the study of financing rate, most of the calculation is aimed at the situation of the pilot areas, there are fewer studies on the calculation of the economic level, income status and aging degree of the pilot areas, and there are even fewer studies on the analysis of the financing main responsibility affordability. Therefore,

this paper analyzes the experience of long-term care insurance at home and abroad, combined with the reality of China, to construct a suitable strategy for the development of long-term care insurance in China, in order to promote the establishment of long-term care insurance system in China.

### 1.3. Research content, methods and ideas of assesment life quality development of human resources

Based on the long-term care insurance theory at home and abroad, the thesis summarizes and compares the foreign experience of long-term care insurance and the domestic pilot experience by using typical case analysis and comparative research methods. Suggestions for implementing the long-term care insurance system. Taking the representative United States, Germany and Japan as samples, the paper analyzes the background conditions, system development path and the content, characteristics and specific implementation plans and effects of the long-term care insurance system in the United States, Germany and Japan.

The paper is divided into the following major modules: The first chapter mainly discusses the background of the topic and the significance of the topic, the research summary at home and abroad, the research ideas and methods, and defines the concepts related to long-term care insurance, laying the foundation for the research. The second chapter analyzes typical foreign cases, including the United States that implements the commercial long-term care insurance model and Germany and Japan that implement the social long-term care insurance model. The third chapter is a summary of the experience of 15 long-term care insurance pilot cities in China, mainly including the financing mode, payment method and service mode of the long-term nursing system in the pilot area, and analyzing the long-term care insurance system in the United States, Germany and Japan. Based on the long-term care insurance system in line with China's national conditions.

This paper mainly uses three research methods: literature research method, Questionnaire survey method , case analysis method and comparative analysis method.

Firstly, through the collection, integration and reading of long-term care insurance literature and official data at home and abroad, we can understand the advantages and disadvantages of different modes of long-term care insurance system implemented in different countries and regions, and provide long-term care insurance for the elderly in the context of population aging.

Under the framework of the identification of long-term care risk disability, the literature downloaded from the websites of academic journals at home and abroad and the information obtained from the official websites of various governments are comprehensively sorted out and understood, so as to clarify the research problems, expand the depth and promote the research results.

The purpose of this paper is to collect and sort out domestic and foreign literature on long-term care insurance grade determination, demand assessment, benefits and grade relationship, so as to understand the current research direction and clarify long-term care, long-term care insurance, disability elderly, disability grade and other related concepts. From the literature of scholars from various countries, the progress of the long care insurance reform in the United States, Germany, Japan and China can be compared and analyzed.

The thesis is based on the main line of “Selection - Literature Collection - Related Theoretical Preparation - Typical Case Analysis - Comparative Analysis - Case Summary - Countermeasures”, see the figure 1.3 below for details.

Second, Questionnaire survey method: In this study, the method of questionnaire survey was used to design a suitable questionnaire survey by combining the available literature and information and selecting a suitable scale for the survey population and the actual situation of the region. The questionnaire includes the basic information and interest, the occupation and income status of the respondents, whether they need long-term care insurance, and the amount of long-term care insurance premiums they can afford.

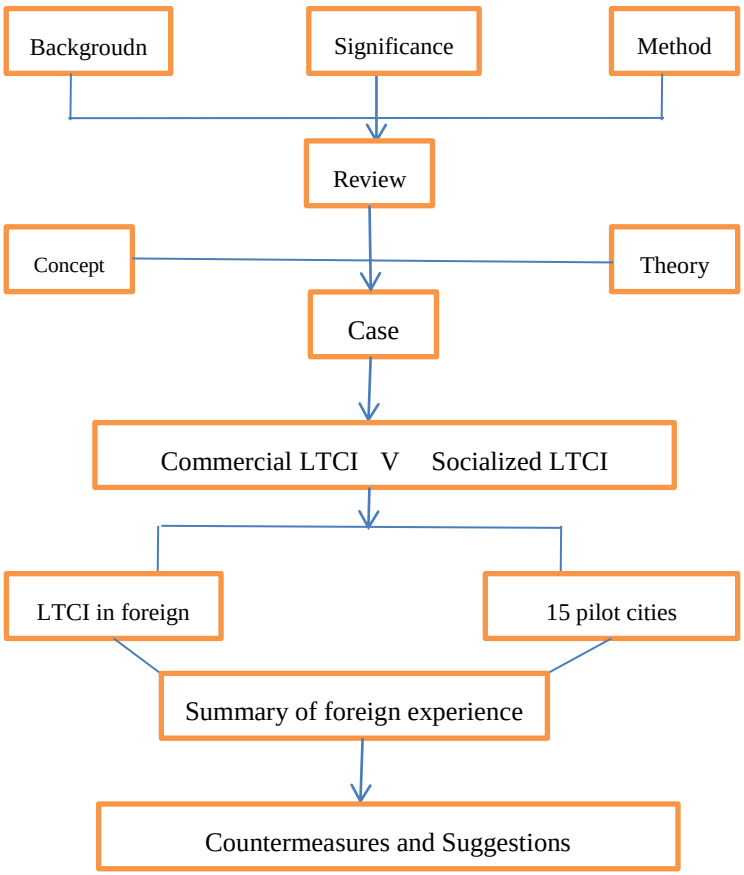


Figure1.3 - Research methods of life quality development of human resources in current PhD thesis

*Source: author`s design*

Third, the comparative analysis method finds the similarities and differences between different countries and regions by comparing the contents of the long-term care insurance system in different countries or different regions of the same country, the fund raising mode, the level of treatment and the management means. Combine the economic, political and cultural backgrounds of individual countries or regions to analyze why these differences occur and how to solve problems according to local conditions.

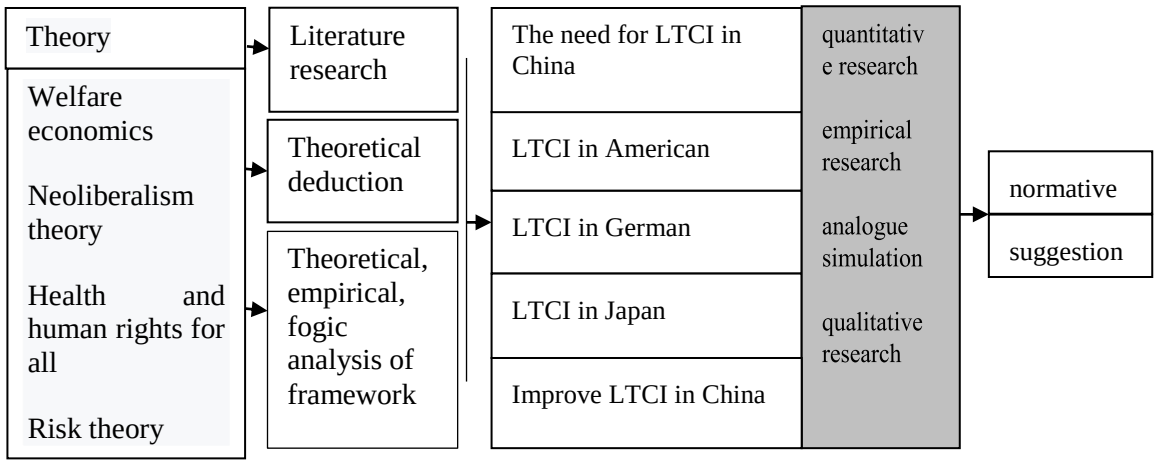


Figure 1.4 - Research ideas of life quality development of human resources in current PhD thesis

*Source: author`s design*

Regression analysis is a statistical method to determine whether and to what extent there is significance between dependent variables and independent variables. Since demand willingness is a dichotomous variable (divided into willing and unwilling), this paper will use binary Logistic model for regression analysis.

The formula of the model:

$$Logit(p)=\beta_0+\beta_1x_1+\beta_2x_2+\beta_3x_3+\cdots\beta_ix_i \quad (1.1)$$

Among them, the probability of P for residents in Henan province to purchase long-term care insurance, $\beta_0$ is constant, $\beta_i$ said the I variable, $x_i$ partial regression coefficient.

Selection and assignment of variables are shown in the table 1.1.

The designed information-analytical system for modeling and forecasting stationary and non-stationary financial and economic processes based on autoregressive models and their modifications using the methods of autoregression, autoregression with a moving average, autoregression with conditional heteroscedasticity made it possible to test the hypothesis regarding the feasibility of introducing long-term insurance as an improvement factor quality of life.

Table 1.1 - Selection and assignment of variables

| Dimension | Variable | Assignment |
|---|---|---|
| 1 | 2 | 3 |
| Individual characteristics | Age | 1=18-30<br>2=31-40<br>3=41-50<br>4=51-60<br>5=61 and above |
| | Gender | 0=Male<br>1=Female |
| | Level of education | 1=Primary schools and below<br>2=Middle school<br>3=High school (including technical secondary school and vocational High School)<br>4=Junior college<br>5=Bachelor degree or above |
| | Marital status | 1= unmarried<br>2= married<br>3= divorced<br>4= widowed |
| | Registered residence | 0= rural<br>1= urban |
| Family situation | Residential type | 1= living alone or with spouse<br>2= living with with parents/children<br>3= living with three or more generations 4= nursing home<br>5= others |
| | disability or dementia in the family | 0 = no<br>1 = yes |
| | Number of children | 1=0 people<br>2=1 people<br>3=2 people<br>4=3 people<br>5=4 and above |
| State of the economy | Income | 1= less than 2000 yuan<br>2=2000-4000 yuan<br>3=4000-6000 yuan<br>4=6000-8000 yuan<br>5=8000 yuan and above |
| | Income forecast | 1= very bad<br>2= relatively bad<br>3= average<br>4= good<br>5= very good |
| Health | Physical condition | 1= very bad<br>2= relatively bad<br>3= average<br>4= good<br>5= very good |
| | Do you worry about your health | 1= very worried<br>2= relatively worried<br>3= average<br>4= not too worried<br>5= not worried at all |

Continuening of Table 1.1

| 1 | 2 | 3 |
|---|---|---|
| Cognitive status | Do you agree with the concept of "raising children for old age" | 0=No 1=Yes |
| | How much you know about long-term care insurance | 1= very unfamiliar<br>2= not very familiar<br>3= general<br>4= relatively familiar<br>5= very understood |
| | You believe the government can create a comprehensive long-term care insurance system | 1= totally distrustful<br>2= not very trusting<br>3= average<br>4= relatively trusting<br>5= very trusting |
| Insurance consciousness | Do you have any commercial insurance | 0=No 1=Yes |
| | Are you willing to sign up for long-term care insurance | 0=Yes 1=No |

Source: based on the questionnaire

The parameters of the mathematical models were estimated using the least squares method and the recursive least squares method. The coefficient of determination, sum of squared errors, and Durbin-Watson statistics were used to analyze the adequacy of the constructed models. Average absolute error and average absolute error in percentage were used for the quality of the obtained forecasts.

Correlation of errors is determined using the Durbin-Watson (DW) statistic. Statistics are calculated according to the formula:

$$DW = 2 - 2p; \quad (1.2)$$

$$p = E[e(k)e(k-1)]/\sigma^2_e, \quad (1.3)$$

by p – correlation coefficient between adjacent error values;

$\sigma^2_e$ – variance of sequence errors $\{e(k)\}$.

The significance of the Durbin-Watson statistic is achieved under the condition of complete absence of correlation. This is an ideal value.

$$DW = 0, \text{ by } p = 0; \quad (1.4)$$

$$DW = 4, \text{ by } p = -1, \quad (1.5)$$

The autocorrelation coefficient for the first differences of the error increments is sometimes considered the limiting values of DW:

$$DW = \frac{[\sum_{k=2}^{N} e(k) - e(k-1)]^2}{\sum_{k=1}^{N} e^2(k)} = \frac{\sum_{k=2}^{N} e^2(k)}{\sum_{k=1}^{N} e^2(k)} + \frac{\sum_{k=2}^{N} e^2(k-1)}{\sum_{k=1}^{N} e^2(k)} - 2\frac{\sum_{k=2}^{N} e(k)e(k-1)}{\sum_{k=1}^{N} e^2(k)} = 2p - p,$$

(1.6)

$$\text{by } \frac{\sum_{k=2}^{N} e^2(k)}{\sum_{k=1}^{N} e^2(k)} \approx 1, \quad \frac{\sum_{k=2}^{N} e^2(k-1)}{\sum_{k=1}^{N} e^2(k)} \approx 1, \quad \frac{\sum_{k=2}^{N} e(k)e(k-1)}{\sum_{k=1}^{N} e^2(k)} \approx \text{p.} \qquad (1.7)$$

Student's statistic or t-statistic is used to test the significance of model parameters. Statistics are calculated according to the formula:

$$t = \frac{\hat{a} - a^0}{SE_{\hat{a}}}, \qquad (1.8)$$

by $\hat{a}$ – estimation of the coefficient;

$a^0$ – null hypothesis before estimation;

$SE_{\hat{a}}$ – standard error of the coefficient estimate.

The null hypothesis about the significance of the estimate is put forward arbitrarily: the coefficient is significant or insignificant:

$$H_0: a^0 \neq 0; \qquad (1.9)$$

$$H_0: a^0 = 0. \qquad (1.10)$$

As a rule, a null hypothesis is put forward, which contradicts the desired result. In this case, the significance of the coefficients is the desired result. Therefore, the null hypothesis that the coefficient is insignificant is put forward, because it slightly simplifies the calculations and correctly determines the significance of the estimates.

The following information is required to be able to establish the significance of estimates of f - the number of degrees of freedom:

$$F=N-n \qquad (1.11)$$

by n – the number of model coefficients;

N – the length of the data sample.

The number of coefficients of the model is estimated based on the initial series of data, and the selected level of significance:

$\alpha = 1\%, \alpha = 5\%, \alpha = 10\%.$

For each value, there are tables for critical values of t-statistics, where $t_{kr}$ is located. Next, the value of t calculated by formula (_____) is compared with $t_{kr}$. Under the condition that:

$$-t_{kr} < t < t_{kr} \quad or \quad |t| < |t_{kr}|,$$

then the null hypothesis of non-significance is accepted, otherwise the null hypothesis is rejected and the coefficient is considered significant.

We formulate the significance test of the coefficient estimates of the constructed model as follows:

- a null hypothesis is formed about the value of the coefficient;
- statistical values are calculated for all regression coefficients;
- according to the values of N, f, α, we search from the table for t-statistics tkr;
- the null hypothesis is tested according to expression (1.10, 1.11).

The coefficient of determination is used as a measure of the dependence of the variation of the dependent variable on the variation of the independent variables. Shows how the obtained observations confirm the model. $R^2$ is calculated according to the formula:

$$R^2 = \frac{var(\hat{y})}{var(y)} = 1 - \frac{SSE}{SST}, \qquad (1.12)$$

by $var(\hat{y})$ – the variance of the dependent variable that is estimated by the model;

$var(y)$ – variance of measurements of the dependent variable;

$SSE = \sum_{k=1}^{N}[y(k) - \hat{y}(k)]^2$ – sum of squares of model residuals;

$SST = \sum_{k=1}^{N}[y(k) - \bar{y}]^2$ – total sum of squares.

$R^2 = 1$ – the best value of the coefficient of determination when the variances of $var(\hat{y})$ and $var(y)$ coincide.

Therefore, the coefficient of determination demonstrates the level of informativeness of the model to the informativeness of the data sample, by which it was evaluated.

The sum of squared errors in the selected model should be minimal compared to all models:

$$\sum_{k=1}^{N} e^2(k) = \sum_{k=1}^{N} [y(k) - \hat{y}(k)]^{2} \overset{min}{\hat{\theta}} \rightarrow \quad (1.13)$$

So by that methods the paper describes the results of the prediction model of the improvement of the quality of life due to the introduction of long-term insurance with the help of the created software product and package for statistical data processing Eviews. Graphical materials for visual analysis are given and a comparative analysis of the results made with the help of various tools is carried out. The system is implemented on the basis of the Net Framework 4.5 platform using the C# programming language in the Visual Studio 2017 environment.

**Conclusion to Chapter 1**

Facing many challenges brought by population aging, how to realize “healthy aging” becomes an important proposition faced by our government and the whole society. The so-called "healthy aging" is to rely on the joint efforts of the whole society, reasonable and effective use of social resources, improve the quality of life of the elderly population, help the elderly enjoy a more healthy and happy life, so as to achieve a healthy aging society. It can be seen that the key to promoting "healthy aging" is to improve the quality of life of the elderly.

Nowadays, quality of life is not only a medical concept, but a comprehensive concept covering many factors, such as physical and mental health, material and spiritual pursuit, family and society. It can not only describe and evaluate the living conditions of human individuals, but also reflect the level of social and economic development and civilization of a country or region to a certain extent. With the rapid economic development in China and the change of people's health idea, it is also an inevitable trend to improve the requirement of health-related quality of life.

Therefore, in the trend of population aging is aggravating, the higher the healthy aging calls, actively carry out the long-term care insurance in our country, explore the main factors affecting the quality of life in the elderly, to find the key, for the control of ageing with targeted pension services, the mental and physical health

level, the elderly healthy aging development goals, It is of great significance and function to promote the construction of socialist harmonious society.

This chapter, the main background of the quality of life in big China human resources development background and significance of the quality of life for a long time, through reviewing the literature of life quality, using the method of literature, questionnaire and comparison of three methods to write requirements and methods to improve the quality of life in the elderly, in this context puts forward the necessity of the long-term care insurance.

After reviewing the relevant literature and materials, there are the following innovations and shortcomings in writing this paper.

First, the research object selected in this paper is quite special. The United States has commercial long-term care insurance, and unlike social long-term care insurance systems in other countries, there is no direct transfer of value by comparison. Germany although very early to realize long-term care insurance, but the difference between Germany and national conditions of China is now the state of the union, Germany's social insurance base, deep and sparsely populated, implement the national compulsory long nursing risks more easily, and China's big population base, level of economic development around the far, health care cannot implement the national plan as a whole, therefore, it is impossible to realize the national pooling of long-term care insurance in a short time.

In Japan, no matter from the historical development, geographical location and cultural background, and China have a lot in common, as the developed countries in east Asia, Japan, they experience setbacks and success experience, is well worth for reference in China, in draw lessons from the successful experience of Japan at the same time also can draw lessons from the successful experience of the United States and Germany's long-term care insurance.

Second, the approach used in this paper is not very general. Most of the domestic literature on the classification of long-term care insurance focuses on one country or only on long-term care insurance in one pilot city in China. However, this paper uses three countries for comparison and focuses on measures in Chinese pilot

cities, which requires solid literature reading and deep English literature reading skills, and a lot of time and effort.

Implementation of long-term care insurance countries at present, in addition to China, the United States, Germany, Japan, and Korea, the Netherlands and other countries have established a relatively mature long care insurance system, this paper selected the only virtue, the three countries are compared, and learning and is relatively limited, aiming at the problem of insufficient research scope, through the literature and research to improve in the future.

# CHAPTER 2. ANALYSIS OF THE CURRENT SITUATION IN DEVELOPMENT OF THE LIFE QUALITY OF HUMAN RESOURSES

## 2.1. The analysis of life quality development of human resources in China and foreign countries

From a static perspective, this study provides a detailed overview of the main elements of the long-term care insurance systems of the U.S., Germany, and Japan, including: coverage, classification of care services, financing, and payment of benefits, which show the long-term care insurance policies of the three countries in multiple aspects.

In the process of analyzing and comparing the policy environment of long-term care insurance systems in the United States, Germany and Japan, this study uses a dynamic perspective to consider the three sub-perspectives of social, economic, and political. The United States is a commercial style, and its financing mechanism adopts a market-driven system.

In Germany, long-term care insurance is a compulsory style, following the principle of health insurance participation, and all citizens are required by law to participate in it, except for those who work and can choose to purchase basic care insurance or commercial care insurance.

The Japanese long-term care insurance system was first established, and the background of its establishment is most similar to that of China. There are many commonalities in the policy environment between China and Japan, but there are also many differences due to many factors such as national systems and political party backgrounds, which are highly comparable and useful to learn from. Since China has not yet established a unified long-term care insurance system, this paper takes 15 pilot cities (pilot cities in 2016) as a comparator in comparing the content related to the determination of the disability level of long-term care insurance, combines their

long-term care insurance guidelines and pilot programs, extracts the commonalities and dissimilarities among the United States, Germany and Japan, and draws on successful experiences from the three countries.

So, in the United States, advances in medical technology, improved nutrition and living conditions have increased life expectancy, and the elderly population has been growing both in absolute and relative terms. People 65 and older now make up about 12.5 percent of the USA population, and by 2050 they will make up 20.7 percent, of these, more than 18 million will be aged 85 and over, nearly six times as many as in 1995.

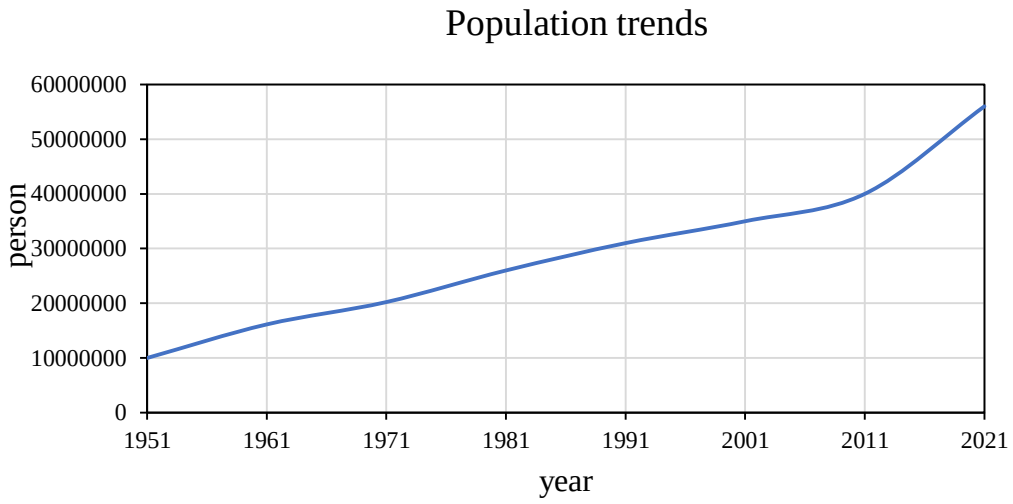


Figure 2.1 - The population of the elderly (65 and older) in the United States over the years

*Source: https://www.kylc.com/stats/global/yearly_per_country/g_population_65above/usa.html*

From the graph above, it can be clearly seen that the elderly population in the United States is increasing year by year with an increasing trend. In terms of life expectancy, according to the USA Census Bureau, life expectancy for those born in 1900 was 47 years, for those born in 1950 was 68 years, and for those born in 2000 was 77 years. Life expectancy for men and women is 81 and 84 years, compared with 76 and 77 years at the beginning of the 20th century, life expectancy respectively for men and women increased by about 40 percent and 60 percent.

In terms of medical needs, about 40% of the old adult will have to stay in hospital or other care for a period, and about 4.5% of the old adult will spend the rest of

their lives in hospital, by the aging population development trend chart (as shown in the figure below) can be estimated in 2030 will reach 3 millions must live in the hospital or care home , about twice as much as in 1995, with the aging of the population has become increasingly severe, America will face more challenges such as aging, disability, with the increase of population of elderly and sick, more and more old adult need and rely on long-term care services, the country is facing a serious aging trend and a growing demand for care services.

The figure below is the United Nations' statistics on the elderly population (over 65 years old) in American from 1950 to 2021 and the forecast of the future elderly population. From the picture, it is obvious that the number of elderly population is increasing year by year and shows an accelerated growth trend.

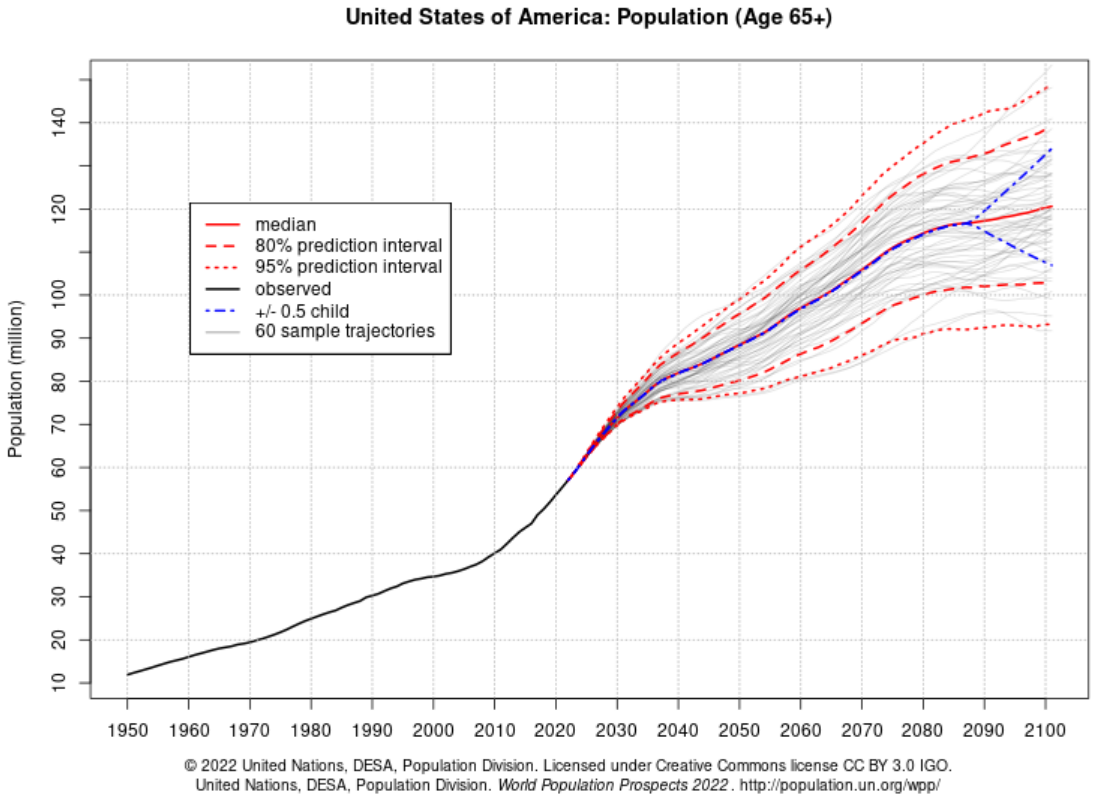


Figure 2.2 - Trends in older Americans by United Nations

*Source: https://population.un.org/wpp/Graphs/Probabilistic/POP/65plus/276*

The figure below is the United Nations' statistics on the elderly population (over 65 years old) in China from 1950 to 2021 and the forecast of the future elderly population. From the picture, it is obvious that the number of elderly population is

increasing year by year and shows an accelerated growth trend. With the large increase of the elderly population, families are unable to bear the burden of elderly care, so the state needs to intervene and implement long-term care. In order to reduce the burden of care for low-income families, long-term care insurance must be launched.

The long-term care insurance in America mainly includes Medicare and Medicaid. Medicare is an American health insurance program introduced in 1965, mainly for people over the age of 65, but also for people with disabilities under the age of 65. Medicare provides comprehensive medical protection for the insured, mainly divided into TWO parts: A and B, as shown in the following table.

Table 2.1 - Basic contents of long-term care insurance in the United States

| American Long term care Insurance | Main content |
|---|---|
| Part A (Hospitalization Insurance) | If the insured person is hospitalized for more than three days and is diagnosed as needing care, he/she may receive care from a professional nursing institution and may be reimbursed for care expenses not exceeding 100 days |
| Part B (Supplementary Medical Insurance) | Reimburse the insured person for the expenses incurred in receiving care from the Apex home care facility within 14 days of discharge from hospital |

*Source: author`s research based on https://population.un.org*

Through research and comparison, it is not difficult to find that supplementary medical insurance can provide the insured with more extended nursing services. However, both part A and Part B are nursing services for sick people, rather than services for the elderly. Therefore, medicare has disadvantages in the population that can't be covered. To overcome the shortcomings of Medicare, the government and the federal states launched the Medicaid medical assistance program. Medicaid, also found in 1965 by the USA, is a medical assistance service provided by state governments, mainly for families living below the poverty line, or those who have exhausted their wealth due to medical expenses.

About 30 percent of long-term care service users for the elderly in the United States are eligible for medical assistance. Medicaid is more comprehensive than

Medicare in terms of coverage, it includes long-term reimbursement for nursing home and home health care, which provides insurance if the insured person needs long-term care because of an accident or chronic illness. However, this cost reimbursement is not paid directly to the individual, but subsidizes the long-term care provider, thus resulting in a policy bias towards institutional care and slower development of home care, the following is a detailed study of the content of long-term care insurance in the United States.

Long-term care insurance in the United States has an unlimited age, up to 99. However, the proportion of elderly insured persons over 65 years of age (including 65 years of age) is approximately 60%. If the insured person needs a variety of personal care services in other places, the relevant costs will be reimbursed by the long-term care insurance. Of course, there is a requirement for care services to last at least one year. Surface without insurance to protect the limitation of the crowd, but because of the high cost of commercial insurance safeguard actually only for people with high-income levels, and physical condition has been ruled out with a wrong person too much. Generally policy-holder has adverse selection, this appears need the care to buy long-term care insurance. It can be seen that the coverage of commercial long-term care insurance in the United States still has certain limitations.

Long-term care insurance services are classified according to content and environment. According to the nursing content, it can be divided into a professional long-term care (such as prevention, rehabilitation, etc.) and daily long-term care. From the point of nursing environment, it can be divided into institutional care, community care and home care.

In recent years, home care in the United States has developed rapidly due to the benefits provided by long-term care insurance to the insured for home care. Home care provides spiritual comfort to the elderly, alleviates the mental and economic burden of their children, contributes to the optimal allocation of resources, and improves the utilization rate of nursing institutions.

Long-term care insurance in the United States is commercial insurance. People buy commercial long-term care insurance according to their individual needs.

Long-term care insurance covers both group and personal coverage. The insurance policy that takes effect can't be canceled unilaterally by the insurance company as a result of insurants' physical condition drop. Group insurance is mostly health insurance products purchased by employers to cover the long-term care costs of active or retired employees. Long-term care insurance has a high requirement for individual coverage, and the insurance company needs to make multiple risk choices, such as age limit, health and disease history investigation.

However, the insurance company usually does not conduct a medical examination for the individual, but decides whether to cover them in combination with the medical examination form of the hospital. In the United States, long-term care insurance has no high requirement on the age of the policyholder. People aged 18 to 99 can buy it. But insurance companies can make different insurance cost according to policy-holder different age, usually, younger insurance cost is lower, if the age is older the insurance cost is higher. The flexible long-term care insurance in The United States provides a reasonable way for all classes of workers.

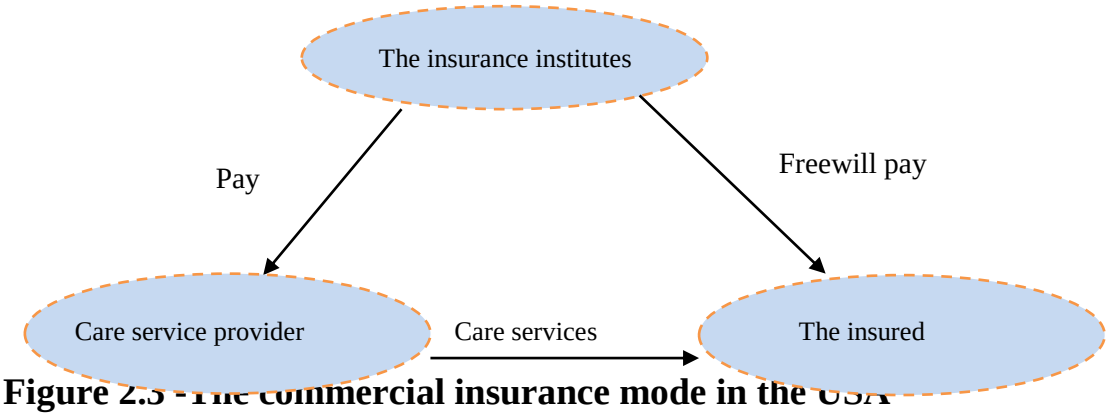


**Figure 2.3 - The commercial insurance mode in the USA**

*Source: the author arranges according to the data*

Through the study, it is found that the commercial nursing insurance model in the United States has developed well, and the vast majority of states have passed laws and regulations similar to model regulations, which promote the gradual development of long-term care insurance toward standardization. In addition, many insurance companies in the United States are actively offering reinsurance to insurers that sell long-term care insurance, expanding their underwriting capacity. Many consumer

organizations are also active in assisting insurance companies in developing guidelines and underwriting options for long-term care insurance that meet the needs of all segments of society.

Let's see the second example of long-care development research – high developed europein country Germany. At the beginning of the establishment of long-term care insurance in 1995, the premium was paid at 1% of the employee's income. Since July 1, 1996, the premium has increased to 1.7%. In July 2008, the government raised the payment rate by another 0.25%. At the beginning of the establishment of the system, in order to reduce the opposition of employers to the implementation of the policy, the government cancel the public paid vacation through legislation, which greatly reduced the labor cost of employers.

Although the coverage of German long term care insurance is comprehensive, whether the insured can enjoy nursing treatment depends on whether the insured has actual nursing needs. According to the law, long-term care insurance can be enjoyed when the insured needs help in daily life (ADL) and instrumental daily life (IADL) for a long period of time (at least 6 months) due to physical, mental or psychological diseases or disabilities. The medical review committee in Germany will evaluate and measure the care needs of the insured from the aspects of personal hygiene, nutrition, action and housework. The assessment will be conducted by the doctors and nurses appointed by the medical review committee, according to the data of the Ministry of health, 0.7% of the insured under the age of 60 have nursing needs, 4.4% of the insured under the age of 60-80 have nursing needs, and as many as 28.6 percent of those over 80 have nursing needs for long-term care.

Germany's long-term care insurance services are mainly provided in three ways: family care (family members or non professional private care), family help care (professional care) and institutional care. Since the establishment of the long-term care insurance system in 1995, the number of people enjoying benefits has increased steadily. In 1995, about 1.1 million people received care services, and by 2008, about 2.1 million people received care services. As the cost of institutional care is higher, the insured are more inclined to receive home-based care and services. From the table

below, we can clearly see the types and contents of long-term care insurance in Germany, by studying the contents of long-term care insurance in Germany, we can find that the long-term care insurance in Germany faces challenges and difficulties.

Table 2.3 - Types and contents of long-term care insurance in Germany

| LTC items | Content |
|---|---|
| Kind in treatment | Physical treatment is mainly provided by professional service providers for the needs of personal hygiene, nutrition intake, action and housework. Service providers must obtain corresponding long-term care qualifications and sign service contracts. The amount of care provided depends on the actual needs of the individual, but the price is subject to the corresponding level of care and the pre-defined service catalog. Among the participants who enjoy tertiary care, if additional services are required due to a more serious illness or disability, the maximum amount should not exceed 1912 €, and only 3% of the tertiary care staff enjoy this treatment. |
| Cash allowance | The cash allowance is also distributed according to the different nursing levels of the beneficiaries. Only when the care service is provided by the third party rather than the beneficiaries themselves, can the cash subsidy be used. There will be irregular visits by personnel with corresponding qualifications to ensure the reasonable and legal use of the subsidy. At least one visit will be made to the primary and secondary care participants for six months, and three visits will be made to the tertiary care participants Participants in the care will visit at least once every three months. The beneficiary may decide to use the cash subsidy for services purchased or for the payment of informal care or for other purposes. |
| Day or night care | Compared with institutional care, day and night care is more focused on home-based care. When home care and home help care can not meet the needs of beneficiaries, for example, when there are special needs at night, they can apply for day or night care, which can be realized in the form of physical or cash subsidies. |
| Institutional care | When family care or similar forms of care can not meet the needs of the insured, individuals have the right to enjoy institutional care, and the treatment shall not exceed 75% of the total cost of the institution. Only 5% of the beneficiaries of tertiary care can enjoy the highest amount of treatment. In institutional care, the long term care insurance fund may reimburse up to 10 percent but not more than 256 € per month for disabled people with care needs. |

*Source: Based on the data compiled by the author*

The third our example is Asian high developed country – Japan. In Japan, care is called referral nursing, which means the dual concept of integrated physical care and domestic service. Japan as early as 1970 began to enter the aging society, 30 years earlier than China, one of the four is over 65 years old. Family decreases and the improvement of female employment rates make traditional pattern has been taken care of by relatives of disability. Due to the free hospitalization of the elderly over the age of 60 by the Japanese medical insurance, a large number of long-term hospitalization of the elderly leads to a sharp increase in medical expenses, resulting in social hospitalization and the waste of medical resources. In response to the above situation, the Japanese parliament passed the "referral insurance law" in 1999, and the following year on April 1, the official implementation. The long-term care insurance act was amended in 2005. At this point, Japan's referral insurance was included in the scope of social insurance, becoming the second country after Germany to implement social long-term care insurance.

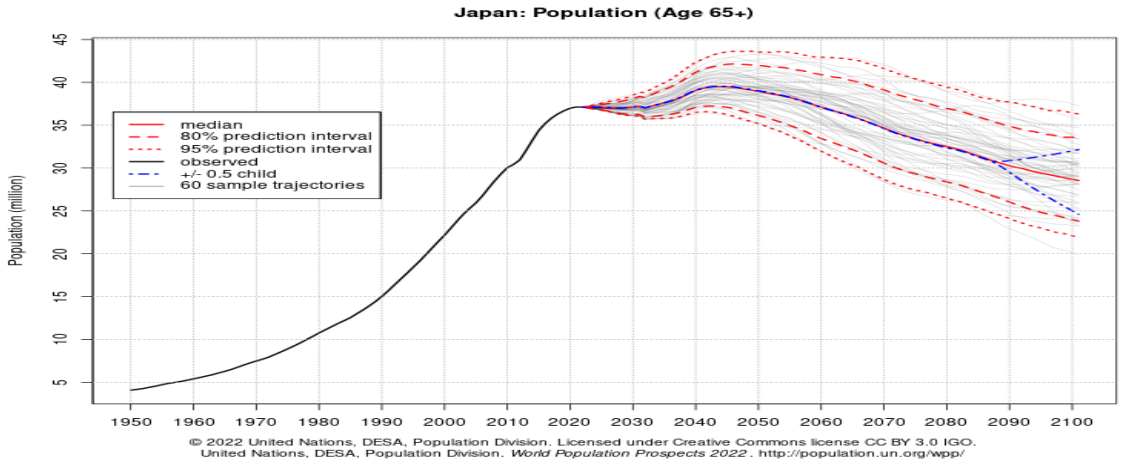


Figure 2.4. - Trends in older Japan by United Nations

*Source: https://population.un.org/wpp/Graphs/Probabilistic/POP/65plus/276*

These charts show estimates and probabilistic projections of the specified population age range for countries or areas with a population of 90,000 or more in 2019, along with geographical aggregates and World Bank income groups as defined in Definition of Regions. The population projections are based on the probabilistic projections of total fertility and life expectancy at birth. These probabilistic projections

of total fertility and life expectancy at birth were carried out with a Bayesian Hierarchical Model. The figures display the probabilistic median, and the 80 and 95 per cent prediction intervals of the probabilistic population projections, as well as the (deterministic) high and low variant (+/- 0.5 child).

Japan's long-term care insurance belongs to the category of the social security system, but it also follows the general principles of insurance. That is, according to the nature of the insurance, the relevant care risk is set as an insured accident, and the content of the insurance benefits is determined in advance, then the insurance premium is collected from the insured, and the corresponding benefits are agreed when the insured accident occurs.

Item 4 of Japan's "Nursing Insurance Law" stipulates that "citizens shall fairly bear the expenses required for long-term care insurance under the concept of joint association", which shows that the long-term care system is universal and compulsory, and conforms to the essential characteristics of social insurance. The plan covers medical insurance insured persons aged 40-64 who live in municipalities and all senior citizens over 65 years old. The insured over 65 years old is called the first insured, and the medical insurance participants aged between 40-64 are called the second insured. The parties to the long-term care insurance contract are the government, the first insured, and the second insured.

In general, debts based on insurance contracts are limited to monetary debts. When designing the long-term care insurance system in Japan, the old and the new were introduced, and non-monetary debts such as nursing care services were included as insurance benefits. In theory, nursing services can be provided by the insurer himself or by a third party entrusted by the insurer. Japan has adopted the latter method, paying remuneration to nurse care service operators with insurance funds, who will perform the obligation to pay nursing benefits to the insured on their behalf.

In order to clarify the rights and obligations between the nursing service operator and the insured, the nursing service contract came into being. On the one hand, the nursing service industry is market-oriented, and investors who meet the permitted or designated conditions can operate long-term nursing service institutions; on the

other hand, the insured can independently choose qualified nursing care under the premise of obtaining the eligibility for payment. Service operators sign contracts and accept services with them. Accordingly, the field of social security has realized a fundamental change from the "processing system" to the "contract system". With the introduction of market principles, nursing services have been commercialized, and the autonomy of the insured's will has been further expanded. This not only embodies the "user-based" system concept, but also facilitates the participation of more market entities, providing long-term care insurance. The rapid development of the system has laid the foundation.

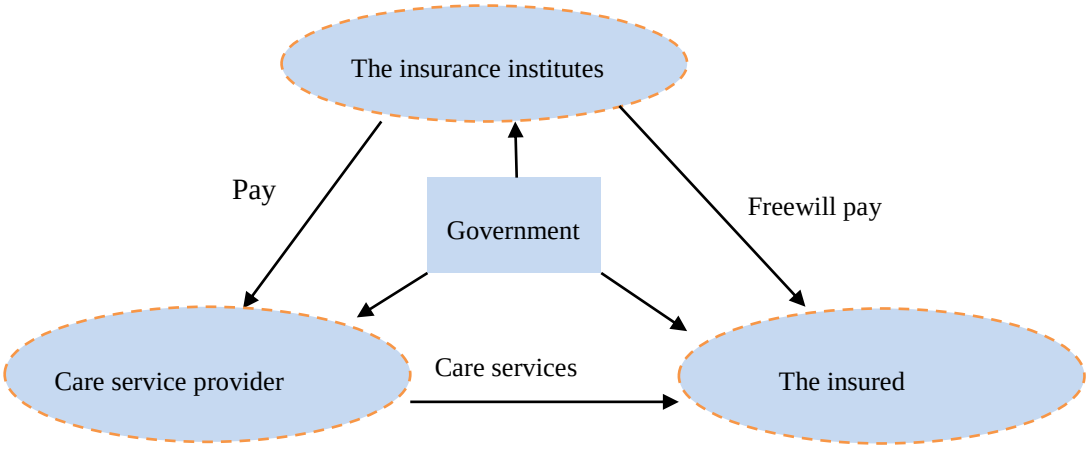


Figure 2.5 - Social insurance model in Japan

*Source: The author arranges according to the data*

Long-term care insurance in Japan is a compulsory social insurance, which the insured must participate in regardless of whether they have long-term care needs. Japanese long-term care insurance adopts the pay-as-you-go system, and the premium comes from the insurance premium collected from the insured and the public tax. On the whole, the insurance premium paid by the first insurance object accounts for 17% of the long-term care insurance cost. The insurance premium paid by the second insured subject shall account for 33% of the long-term care insurance cost; The central government pays 25%; Prefectures and counties pay 12.5%; City, town and village burden 12. 5%. The insured enjoy long-term care insurance services, and 90%

of nursing costs are borne by the long-term care insurance and 10% by the insured themselves

Through the detailed analysis of the characteristics and experience of nursing insurance system construction in Japan, this paper provides effective suggestions for solving the care problems of the elderly in China. We should first address two problems: first, the relevant laws and regulations are not perfect enough, and the relevant laws of long-term care insurance system are urgently needed; Second, people from all walks of life have insufficient knowledge and understanding of long-term care services, so people need to fully understand the necessity of long-term care services.

In the early stage of establishing the intermediate care insurance system, Japan did not expand the financing channels of the intermediate care insurance due to the lack of construction experience, and the heavy economic burden dragged down the economic development of the country. After this lesson fully summarized the Japanese government decided to let the whole society to participate in for the old interface protection service the burden to ease the country's fiscal pressure, reduce the social contradiction and promote the development of domestic economy, indirectly promote the domestic currency, makes the interface of the service industry rapidly developed and smooth operation, While providing nursing services for the public, the government, market and enterprises cooperate and support each other to form a three-body combination of nursing service system. In this system, each component plays its own advantages, so that the social problems of elderly nursing care can be effectively solved.

After the analysis of the experience and lessons of Japan's mediating care insurance system, the current situation of the elderly is difficult to analyze. Perfecting the long-term care insurance system which conforms to the actual situation of our country as soon as possible is the only and fundamental way to solve the need of mediating care for the elderly. After learning from the experience of long-term care insurance, China may be able to establish a world-famous long-term care insurance system with Chinese characteristics in a shorter period of time.

Chinese people have a high participation in long-term care insurance. On the basis of learning from the long-term care insurance experience of developed countries, the Chinese government began to explore a long-term care insurance system suitable for China's national conditions, intending to establish the “sixth Social security insurance”. In June 2016, the pilot guidance of long-term care insurance system was delivered, which is a key step to establish our long-term care insurance system; This time, 15 cities were selected as the first batch of pilot cities, and each pilot city has issued specific implementation plans. Since the implementation of the policy, fruitful results have been achieved, laying a solid foundation for the establishment of a unified long-term care insurance system nationwide.

During the research the long-term care insurance in China were dedicated the first pilot cities selected in the four typical cities:

- *Shanghai* is “planted independence, safeguard the basic, developing new commercial insurance”;
- *Qingdao* is emphasis on “medical combination, nursing to protect”;
- *Nantong* is establish “independent social security coverage, financing channel multiplication”;
- Changchun is pay attention to “old-age care, disease treatment, palliative care”.

From protect mechanism, financing mechanism, evaluation mechanism, service mechanism and treatment of payment mechanism five aspects were analyzed respectively, from the selection of typical urban problems found in the long-term care insurance system, the experience and lessons for the construction of a nationwide unified our long-term care insurance system optimization policy suggestions.

In Shanghai, Qingdao, Nantong and Changchun, the insured people of long-term care insurance are employees' basic medical insurance and residents' basic medical insurance. Among them, Shanghai stipulates that the insured person who participates in resident basic medical insurance must reach 60 years of age and above to be able to be included in the scope of security. The coverage of Nantong is limited to the urban area. Qingdao has also included people participating in the new rural

cooperative medical care into the insurance population, covering a wide range of people.

From level perspective, the four cities are adopted by the municipal human resources and social security bureau is responsible for the long-term care insurance policy and unified management, orgnaization of agency of area to be responsible for affairs, generally by the municipal orgnaization of social insurance agency (mostly health center) to be responsible for long-term care insurance agency work. In addition, you also need to the local health and family planning commission, the Ministry of Civil Affairs, bureau of finance, trade unions, disabled persons' federation, the Red Cross and other departments to help do a good job related to actively support the smooth implementation of a long-term care insurance system, social security, health and civil affairs three functional departments work together, jointly do long-term care insurance of the people's livelihood project.

Table 2.4 - Insured population and pooling level in researched cities

| City | Shanghai | Qingdao | Nantong | Changchun |
|---|---|---|---|---|
| Insured population | Employees with basic medical insurance and urban and rural residents with basic medical insurance at the age of 60 or above | Employees' basic medical insurance, residents' basic medical insurance and new rural cooperative medical insurance | Participants in the basic medical insurance system for employees and residents in urban areas | Basic medical insurance for employees, basic medical care for residents Insurance participants |
| Pooling level | Municipal overall planning, district - level management | Municipal overall planning | Municipal overall planning | Municipal overall planning |

*Source: author`s research*

In terms of long-term care insurance fund raising, the four cities all take the basic principles of “revenue and expenditure, balance and slight balance” as the basic principles, incorporate long-term care insurance funds into special financial accounts, implement independent accounting, special funds for use, and make timely policy

adjustments according to regional economic development and the actual operation of the fund.

Table 2.5 - Principles and methods of financing in the researched cities

| City | Shanghai | Qingdao | Nantong | Changchun |
|---|---|---|---|---|
| Principles of financing | Include social security fund special account, unified management, special funds for special purpose; The agency shall make separate accounting according to the first type of personnel and the second type of personnel. In case of insufficient payment of the part of the separate account, the financial department shall give subsidies after approval | Worker nurse insurance fund and resident nurse insurance fund cent; Do not undertake to raise, implement two lines of income and expenditure, incorporate financial special account; Management, special funds for special purpose | The nursing insurance fund shall be independently calculated and used for special purposes; The financing standard shall be determined by 0.3% of the per capita disposable income of urban residents in the previous year (tentatively 100 yuan per person per year). | Funds are divided into employee medical care insurance funds and resident doctors Health care insurance funds two parts |
| Methods of financing | 1. Category I personnel: 1% of the overall payment base of the employer's employees' medical insurance 2. Category II personnel: the proportion of residents with medical insurance is slightly lower than that of category I personnel Intermediate payment | 1.Employee nursing insurance fund: employee medical insurance pooling fund 0.5% monthly transfer; Employee medical insurance personal account funds 0.2% Withheld monthly; According to the standard of 30 yuan per person per year, financial subsidy To subsidies; Employee medical treatment insurance | 1.Insurance pooling: 30 yuan per person per year 2.Individual contribution: 30 yuan per person per year: 3.Government financial subsidy: 40 yuan per person per year | 1. Start-up capital: 10% of the annual balance of the urban basic medical insurance pooling fund shall be transferred in a lump sum 2.Employees participating in medical insurance: 0.2% will be transferred from the personal account and 0.3% from the pooling fund for those participating |

| | | | | |
|---|---|---|---|---|
| | | fund balance per calendar year by proportion<br>One-time transfer;<br>2. Residents' nursing insurance funds: 10% of the total amount of residents' medical insurance funds will be transferred | | in the unified accounting and medical insurance;<br>3. Residents participating in medical insurance: 30 yuan per person per year from the residents' medical insurance pooling fund |

*Source: author`s research*

The four cities enjoy long-term care insurance benefits of personnel qualifications are basically for long-term bedridden, health，severely disabled people who are unable to take care of themselves, but the specific assessment criteria for these cities also vary.

Table 2.6 - Qualification and accreditation procedures

| City | Shanghai | Qingdao | Nantong | Changchun |
|---|---|---|---|---|
| Qualification procedures | Those aged 60 or above who have reached the level of disability from Grade 2 to Grade 6 can enjoy the corresponding treatment | Persons who are unable to take care of themselves due to old age, disease, disability or other reasons and have been completely disabled for more than six months; People with severe mental illness who are unable to take care of themselves | The insured persons who are disabled due to old age, disease, disability and other reasons, and have been treated for at least 6 months, meet the criteria of the Activities of Daily Living Rating Scale for severe disability, and cannot take care of themselves | Persons who are heavily dependent on their self-care ability in designated old-age care or nursing medical care institutions (with a score ≤40 according to the Activities of Daily Living Rating Scale) |
| Accreditation procedures | The insured applies , the rating of the designated rating agency | The insured applies, and the assessment institution determines the assessment grade according to the Rating Scale of the Ability of Daily Living | The insured applies, agency classifies the disabled into severe and moderate categories according to the Barthel Index rating Scale | The insured applies, and the assessment institution determines the assessment grade according to the Rating Scale of the |

| | | | | |
|---|---|---|---|---|
| | | | | Ability of Daily Living |

*Source: author`s research*

The coverage and content of long-term care insurance in the four cities are different from each other.

Table 2.7 - Coverage and content of long-term care insurance

| City | Shanghai | Qingdao | Nantong | Changchun |
|---|---|---|---|---|
| Coverage of long-term care insurance | Applicants can use it in a wide range of home, designated care service institutions and hospitals that meet the regulations | Applicants can use it in a wide range of home, designated care service institutions and hospitals that meet the regulations | Applicants can use it in a wide range of home, designated care service institutions and hospitals that meet the regulations | The coverage is limited to disabled persons who receive medical care or long-term care in designated old-age care or nursing institutions, and the main compensation is their daily care and medical care costs |
| Content of long-term care insurance | 1. Community home care<br>2. nursing home photo<br>3.Inpatient medical care | 1. basic living care<br>2.medical and nursing services | Diet care, cleaning care, excretion care, psychological comfort, rehabilitation care | Enrollees for routine care and medical care |

*Source: author`s research*

The four cities are different in terms of settlement principles, settlement standards and reimbursement ratio, as shown in the following table 2.8.

Through the four cities of Shanghai, Qingdao, nantong, changchun long-term care insurance analysis and comparison of characteristics and specific policy measures, can be found that the four cities has many similarities in the implementation of the long-term care insurance, such as long-term care insurance mainly in three ways, home care, body care and inpatient care. All four cities set care costs or reimbursement rates according to the mode and level of care. Institutional care and inpatient care in the four cities are mainly reimbursed, while home care is mainly discounted.

Table 2.8 - Settlement method and reimbursement ratio

| City | Shanghai | Qingdao | Nantong | Changchun |
|---|---|---|---|---|
| Settlement principle | Implement bed day lump sum management | Quota lump sum, no supplement for overspending | Implement bed day lump sum management | Quota lump sum, no supplement for overspending |
| Settlement standard | Nurse practitioner 80 yuan/hour<br>Medical care worker 65 yuan/hour<br>Elderly care worker 40 yuan/hour | 1. Designated nursing institutions or home care: 60 yuan /bed/ day<br>2. Secondary hospital medical care: 170 yuan / bed/ day<br>3. Tertiary hospital medical care: 200 yuan/ bed/ day | 1. Nursing in medical institutions: 60 yuan/bed/day<br>2.Old-age care institution: 50 yuan/bed/day<br>3.Home care: the monthly limit is 1200 yuan<br>4.Home care subsidy: 15 yuan/person/day | 1. Medical care: 112 yuan/day<br>2.Pension: institutions:107 yuan/day |
| Reimbursement ratio | 1. Community home care: 90%<br>2. Nursing home care: 85% | 1.Insured employees: 90%<br>2.Adult residents, children and college students: 80%<br>3.Second-tier paying adult residents: 70% | 1.Medical institutions: 60%<br>2. Old-age care institutions: 50%<br>3, home care: 200 yuan/month | Designated pension institutions: Employees medical insurance personnel: 90%<br>Residents medical insurance personnel: 80% |

*Source: author`s research*

## 2.2. Domestic and foreign comparison of long-term care insurance under the premise of quality of life

The long-term care insurance systems in the United States, Germany and Japan are different, which are established based of entirely different implementors. Among them, the United States adopts voluntary insurance and the operating subjects are commercial insurance companies. However, Japan and Germany adopt compulsory insurance, and the government as the management subject belongs to the social insurance category. The long-term care insurance models of the three countries have their characteristics, advantages and disadvantages. Then as follow analyze the advantages and disadvantages of long-term care insurance in America, Germany, Japan and China.

Table 2.9 - Advantages and disadvantages of long-term care insurance in the United States

| **United States** | |
|---|---|
| Advantages | It has greater flexibility and freedom<br>Because long-term care insurance in the United States is a kind of commercial insurance, the policyholder can buy freely according to their conditions, and the supply and demand relationship is regulated by the market. The insurer can offer different types of subdivided insurance according to the different care needs of the insured, which has good diversified advantages.<br>It can effectively allocate resources<br>With its commercial profit, the insurer can make full use of its resources to improve the level of business management, and actively cooperate with medical institutions, adjust the details of cooperation at any time, and control business risks by itself.<br>Competitiveness<br>Insured are free to choose long-term care insurance, and there is a wide choice of long-term care insurance in the United States, this has led to competition among long-term care insurance institutions. |
| Disadvantages | There is a moral hazard.<br>Long-term care insurance in the United States is commercial, it has all the characteristics of commercial insurance, among which the most important one is the asymmetry of information, which makes the medical cost of the medical side more difficult to control and thus causes the nursing cost to be out of control.<br>There is lack of fairness.<br>American citizens can purchase long-term care insurance according to their own needs, which leads to the significant difference in the coverage of long-term care for people of different income levels, reflecting the unfairness of medical services. Some poorer Americans do not have any health insurance because they can't afford it. |

*Source: the author collates according to the data*

Through research, it is found that long-term care in the United States has advantages and disadvantages just like anything else. Long-term care insurance in the United States is commercial insurance, so it is relatively flexible. But because of its commercial nature, it lacks fairness.

Table 2.10 - Advantages and disadvantages of German long-term care insurance

| **Germany** | |
|---|---|
| Advantages | Mandatory<br>The German government has decided to bring long-term care insurance into the social security system with social insurance as the main content and make it compulsory to buy.<br>Wide coverage<br>The whole people can participate in this welfare, which reflects the superiority of the universal welfare sharing;<br>The German model is undoubtedly a welfare system, with 90% of the population covered by insurance and almost everyone covered, which is undoubtedly the most significant advantage of the German long-term care insurance system.<br>Diversification of sources of long-term care insurance<br>Germany's long-term care insurance mainly by individuals, employers or individuals, the two ways to pay endowment insurance gold, as well as its unique "time deposit" method, multi-channel financing way to make long-term care insurance diversified sources of funding, reducing the local government's financial burden, and conducive to ensure the stability of the insurance funds.<br>Fairness<br>German participants in the long-term care insurance premium rate and enjoy insurance payment has adopted the principle of equality, on the question of the premium rate associated with personal income, "a lot more to pay" embodies the fraternal social security concept for poverty alleviation, financing and payment has not any individual differences in background, "on-demand pay" reflects the people-oriented thoughts.<br>Germany's long-term care insurance has strict review and screening, complex processes and overlapping functions, which reduces the efficiency of nursing security supply. But the most worrying aspect of the German model is the sustainability of Germany's long-term-care insurance system. |
| Disadvantages | Waste of resources<br>The German government encourages private capital to invest in long-term care services, but excessive competition leads to low utilization rate of these private institutions and a large number of idle institutions, resulting in a serious waste of resources.<br>Poor sustainability |

| | |
|---|---|
| | German long-term care insurance has strict review and screening, complicated process and overlapping functions, which reduce the efficiency of nursing supply guarantee. But the most worrying aspect of the German model is the sustainability of Germany's long-term care insurance system. |

*Source: the author collates according to the data*

Long-term care insurance in Germany is mainly paid by employers and employees and adheres to the principle of "nursing insurance follows medical insurance". Regardless of whether the insured people participate in legal or private medical insurance, they must join long-term care insurance, so it has wide coverage. However, because of its wide coverage, it causes a waste of resources.

Table 2.11 - Advantages and disadvantages of Long-term care insurance in Japan

| **Japan** | |
|---|---|
| Advantages | Covers a wide area.<br>Because Japan above 40 years old belongs to insure the scope, belongs to compulsory national to participate in protect, thus can solve the whole society's old age nursing problem to a great extent.<br>Everyone can enjoy long-term care insurance, with a greater degree of fairness.<br>Because it is shared by the whole people, it reflects the equality of all people, resources are convenient for unified national allocation, welfare and high efficiency. |
| Disadvantages | Lack of flexibility.<br>Because it is compulsory participation, the implementation of uniform standards, so the flexibility is less, it is challenging to meet the high level of demand for high-end nursing services.<br>Long-term care costs are high and the system's deficit is widening.<br>Due to compulsory participation, everyone can enjoy the benefits of long-term care insurance, which undoubtedly brings tremendous financial pressure to the medical system. On the other hand, Japanese people generally live longer, and there are many elderly people who need nursing or treatment for a long time, and the medical costs are high. |

*Source: the author collates according to the data*

Japan adopts the financing model of government subsidies, insurance contributions and user sharing. In terms of service providers, Japan lays special emphasis on local governments to assume social responsibility for the elderly. The

insurers of nursing insurance in Japan are cities, towns, villages and special districts. They not only have “administrative power”, but also have “financial power”. They are responsible for deciding the payment, implementing the payment, determining the insurance rate, collecting and managing the insurance premium, etc.

Table 2.12 - Advantages and disadvantages of Long-term care insurance in China

| **China** | |
|---|---|
| Advantages | The government participates in legislation to ensure the interests of policyholders<br>Long-term care insurance coverage in China is high and the goal is full coverage |
| Disadvantages | Old point of view, raising children for old age<br>Long-term care costs are less subsidized by the government, and there is no unified evaluation system and standards<br>Long - term care products are single, and the insurance conditions are harsh |

*Source: the author collates according to the data*

China’s long-term care insurance development time is not long, but through learning and summing up the experience and lessons of other countries, gradually formed the long-term care insurance system in line with China's national conditions.

Table 2.13 - Comparative analysis of long-term care insurance in America, Germany, Japan and China

| Countries | Coverage | Benefits | Flexibility |
|---|---|---|---|
| United States | Covering about 85% of the population | Pay in cash and in kind. Different insurance contracts have different payment standards and great differences. | More flexible |
| Germany | Most extensive, accounting for 90% of the population | Pay in cash and in kind. Social security system is fairer | Less flexible |
| Japan | Relatively narrow, just 40% of the population | Pay in kind. The proportion is jointly by the government, enterprises and individuals in strict accordance with the regulations | Less flexible |
| China | Relatively narrow | The payment form of long-term care | Less flexible |

| | | | |
|---|---|---|---|
| | | insurance in our country is mainly nursing service, which is reimbursed directly in proportion by medical insurance or institutional nursing service, and only in the form of direct cash payment under special circumstances | |

*Source: the author collates according to the data*

*Differences in coverage*

Among the long-term care insurance systems in Germany, Japan and the United States, the German model is the most extensive, accounting for 90 percent of the population. In Japan, insurance coverage is relatively narrow for people over 40. In the United States, commercial-care insurance programs start early and are flexible, covering about 85 percent of the population.

The coverage of long-term care insurance in China is relatively low. From the pilot cities across the country, long-term care insurance first covers urban workers and residents, and some cities with strong economic strength also extend the coverage to urban and rural residents. However, the current long-term care insurance in all pilot cities basically follows the principle of "long-term care insurance follows medical insurance", excluding urban and rural people who have not paid medical insurance from the coverage.

*Differences in benefits*

Germany and the United States pay in cash and in kind, while Japan generally only pays in kind, providing related care services.

Germany’s social security system is fairer because the premium rate is divided according to different income levels and the payment is also linked to the premium paid by the insured. In Japan, the proportion of insurance premium is borne jointly by the government, enterprises and individuals in strict accordance with the regulations, and it is fairer to provide services on demand in terms of payment. The United States is mainly based on commercial insurance, which pays the insured fees according to the

insurance contract. Different insurance contracts have different payment standards and great differences.

China's long-term care service system mainly divided into residential care, nursing care and pension institutions of medical institutions - three categories, and different pilot cities because of their local social aging degree f at different levels of regional economic development will have slightly difference. Although all pay attention to each region of the service system and to emphasize that occupy the home nursing and medical institutions, medical care and pension services, and other common nursing care, but in fact, regional long-term care services are still pay more attention to body health care and the development of the hospital medical treatment special, ignoring the basic role of home and community care.

The happening of this kind of condition is the development of long-term care insurance system in our country is not mature, the corresponding care nursing service is not yet perfect, caused by making people more focus on selection and rely on medical institutions and pension agency care services, it may aggravate the social problem of hospital, which leads to the shortage of resources of medical treatment insurance and long-term care insurance the waste of resources.

*Flexibility differences*

Germany’s long term care insurance system is less flexible due to mandatory participation in national laws, relatively complete system with longer development time and high commercial nursing insurance premium, which only serves as a supplement to the whole long-term care insurance system. Japan has less coverage than Germany and so is less flexible. The United States, on the other hand, is dominated by commercial long-term care insurance. Insurance contracts can be customized according to different requirements of different groups, so they are the most flexible.

China's long-term care insurance, part of the social insurance compulsory purchase, give full play to the advantages of the system, for the development of socialist economy, social productivity, improve people's livelihood, and ultimately achieve common prosperity and service. China's population aging and social development is not adapted, owing developed cities and rural low income groups of the

basic pension demand has not been fully satisfied. Eighty percent of China's population are farmers.

According to the data, in 2020, the total number of households in China was 455,619 thousand ones with 719,7 mln men and 684,67 mln women, with an average of 3,08 people per household. The sex ratio (100 women, male to female) was 105,12 (table 2.14).

Table 2.14 - Average number of households and gender ratio in 2020

| Item | Total number of households, ths ones | includes | | Frequency, % | |
|---|---|---|---|---|---|
| | | Men, mln | Women, mln | per household | sex ratio |
| Number | 455,619 | 719,7 | 684, 67 | 3.08 | 105.12 |

*Source: Collected be author according to data from National Bureau of Statistics*

Among them, there were 2431,02 ths households at the municipal level and 2125,09 ths at the county level, with a total population of 724,975 mln and 679,942 mln people respectively (table 2.14).

Table 2.15 - Statistics on the number of households, population, average household size and sex ratio of cities and counties in China in 2020

| Indicators | The national | Cities | Counties |
|---|---|---|---|
| Total number of households, mln | 455,619 | 243,102 | 212,509 |
| Total population (persons), mln | - | 724,975 | 679,425 |
| men | 719,731 | 366,713 | 353,015 |
| women | 684,672 | 358,261 | 326,409 |
| Average size per household (person/household) | 3,08 | 2,98 | 3,2 |
| Sex Ratio (Female =100) | 105,12 | 102,36 | 108,15 |

*Source: National Bureau of Statistics*

Through the analysis of the survey data, it is not difficult to find that the family size in China is gradually changing from large families to small families, among which the small family with 2-3 people has become the mainstream of the family size in China, and families with 2 and 3 people account for 21,9% and 31,7% of the total

investigated families respectively. Four-person and five-person families followed, accounting for 21,0% and 11,5%, respectively. Families with one person ranked fifth, accounting for 6,4%, families with six people ranked sixth, accounting for 5,3%, and families with seven or more people ranked 2.2%.

The survey results show that small families of 2 to 3 people have become the mainstream of families, the proportion of families of 4 to 6 people is lower than small families, and the situation of single living also accounts for a certain proportion. Nuclear families (families with husband, wife and children as the core) account for 64,3%, linearly families account for 26,2%, single-person families account for 6,5%, united families account for 1,4% and other families account for 1,6%.

Through the analysis of the survey data, it is not difficult to find that China's family size is gradually changing from large family to small family. The small family of 2-3 people has become the mainstream of China's family size. At the same time, the change of family structure also leads to the gradual weakening of family support function. The prominent "empty nesters" problem not only makes the elderly unable to get adequate support, but also causes various secondary problems such as mental illness, cheated, etc.

According to the survey data in the 2020 China family development report, "empty nesters" in China account for about 50% of the total elderly population, among the elderly living alone account for about 20% of the total number of "empty nesters", and the elderly living only with their spouses account for about 80% of the total number of "empty nesters". With the reduction of family size and the weakening of family support ability, how to solve the problem of "empty nesters" challenge to cope with the aging population.

The average number of people in city and county was 2.98 and 3.2, respectively, and the sex ratio (100 females, male to female ratio) was 102.36 and 108.15.

| The census date | 1953 | 1964 | 1982 | 1990 | 2000 | 2010 | 2020 |
|---|---|---|---|---|---|---|---|

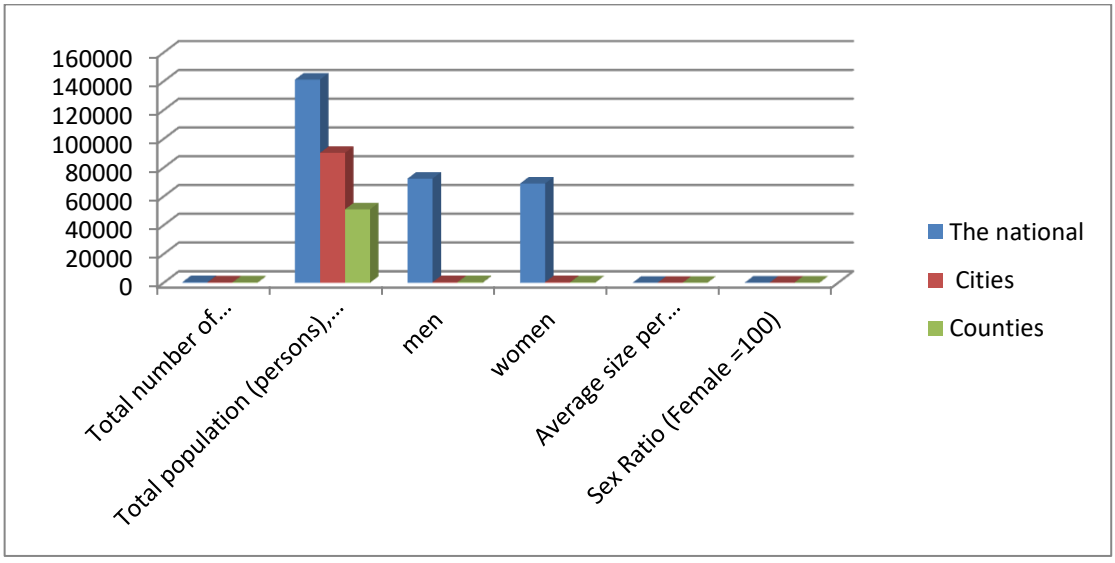


Figure 2.6 - Statistics on the number of households, population, average household size and sex ratio of cities and counties in China in 2020

Source: National Bureau of Statistics

Table 2.16 - Comparison of changes in age composition of population based on previous censuses

| Population (ten thousand) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total | 59435 | 69458 | 100818 | 113368 | 126583 | 133972 | 141178 |
| 0-14 year | 21563 | 28626 | 33865 | 31392 | 28975 | 22246 | 25338 |
| 15-59 year | 33379 | 36347 | 59261 | 72238 | 84557 | 93962 | 89438 |
| above 60year | 4493 | 4848 | 7692 | 9738 | 13051 | 17769 | 26402 |
| Percentage of Population (%) | | | | | | | |
| 0-14 year | 36.28 | 41.21 | 33.59 | 27.69 | 22.89 | 16.6 | 17.95 |
| 15-59 year | 56.16 | 52.33 | 58.78 | 63.72 | 66.8 | 70.14 | 63.35 |
| above 60 year | 7.56 | 6.98 | 7.63 | 8.59 | 10.31 | 13.26 | 18.7 |
| above 65year | 4.4 | 3.6 | 4.9 | 5.6 | 7 | 8.9 | 13.5 |
| Average annual growth rate (%) | | | | | | | |
| Total | | 1.42 | 2.09 | 1.48 | 1.07 | 0.57 | 0.53 |
| 0-14 year | | 2.46 | 1 | -0.95 | -0.8 | -2.64 | 1.31 |
| 15-59 year | | 0.77 | 2.72 | 2.48 | 1.57 | 1.05 | -0.49 |
| above 60 year | | 0.69 | 2.56 | 2.95 | 2.93 | 3.08 | 4.04 |
| Dependency ratio (%) | | | | | | | |
| Total dependency ratio | 78.06 | 92.1 | 70.13 | 56.94 | 49.7 | 42.59 | 57.85 |
| Child dependency ratio | 64.6 | 78.76 | 57.15 | 43.46 | 34.27 | 23.68 | 28.33 |
| Old-age dependency ratio(above 60 year) | 13.46 | 13.34 | 12.98 | 13.48 | 15.43 | 18.91 | 29.52 |

*Source: National Bureau of Statistics annual Census Bulletin*

It can be clearly seen from the above table that there are more and more elderly people over 60 years old in China, and the old-age dependency ratio increases year by year, but the proportion of children aged 0-14 years old decreases year by year, which is related to the decrease of fertility rate in China.

With the increase of the elderly population, more and more nursing institutions and nursing staff are needed. Although the number of nursing institutions and related service institutions in China is also increasing year by year, it still cannot meet the needs of the elderly population. The following table shows the changes of geriatric care facilities and beds in China in the past three years.

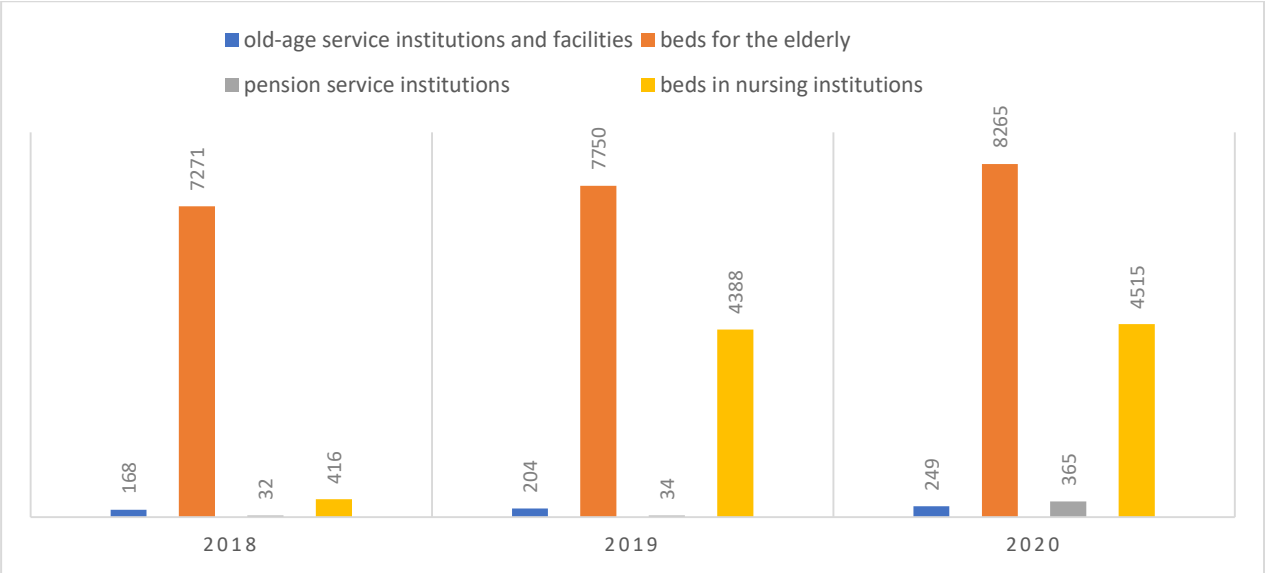


Figure 2.6 - China's elderly care service institutions and facilities for the past three years, ths units

*Source: based on the data compiled by the author*

These charts show estimates and probabilistic projections of the specified population age range for countries or areas with a population of 90,000 or more in 2019, along with geographical aggregates and World Bank income groups as defined in Definition of Regions.

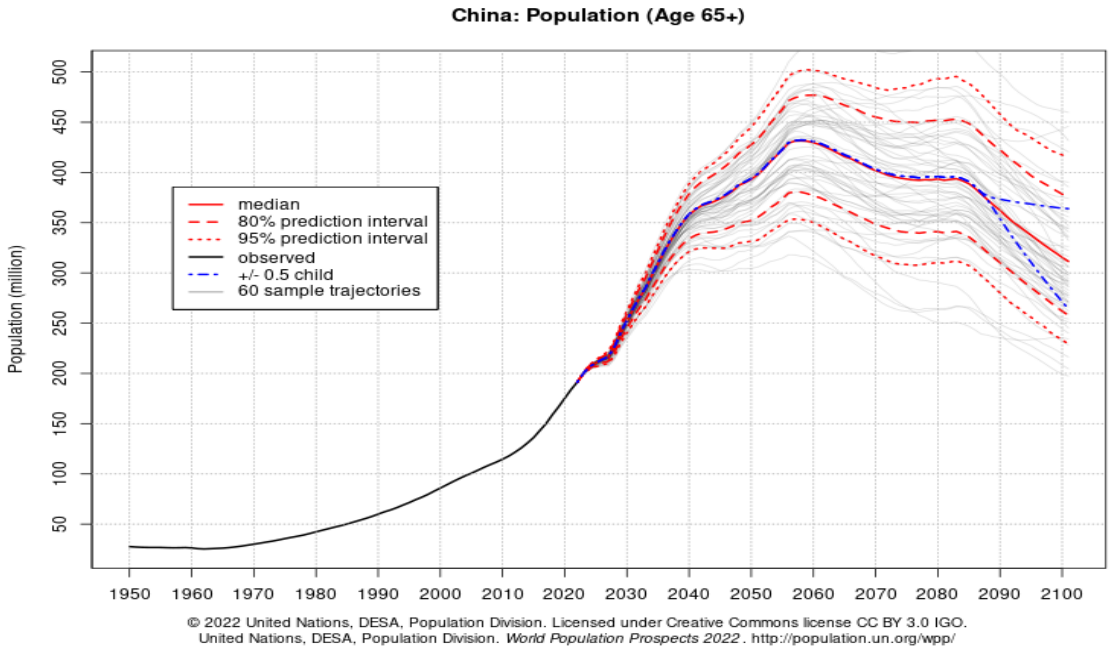


Figure 2.7 - Trends in the number of people aged 65 and above in China

*Source: United Nations, 2022*

The population projections are based on the probabilistic projections of total fertility and life expectancy at birth. These probabilistic projections of total fertility and life expectancy at birth were carried out with a Bayesian Hierarchical Model. The figures display the probabilistic median, and the 80 and 95 per cent prediction intervals of the probabilistic population projections, as well as the (deterministic) high and low variant (+/- 0.5 child).

Due to the underdeveloped economic situation in the vast rural areas, the level of social insurance and commercial insurance is not high. In addition, China's limited economic development means that setting up free adult centers alone cannot solve the problem of long-term care for so many people. Social relief nursing, is to prevent disease caused by poverty and life can not take care of the basic nursing, it often can solve the most direct or the most basic problems of the elderly. It can be said to be the last line of defense of long-term care security system, which not only reflects social equity, but also plays an important role in coordinating social relations and promoting social civilization and progress.

## 2.3. Analysis on the economic approach of quality life development of human resources - a case study of Henan Province, China

Through the research, it is found that the research on long-term care insurance, the introduction of foreign systems and the macro construction of domestic systems are rich. However, the domestic system construction only stays at the macroscopic level, the concrete countermeasure and the implementation standard research is insufficient. In terms of the demand for long-term care insurance, domestic scholars mainly use questionnaire survey to conduct quantitative and qualitative research.

Questionnaire questions are mainly set on individual characteristics and economic conditions, while there are few researches on physical condition and subjective cognition. China's old-age care insurance demand market has great potential

and has attracted increasing attention from domestic scholars. The author believes that the analysis of old-age care insurance demand in China should not be limited to a certain place or several surveys, representative is not strong.

Moreover, domestic scholars are still unscientific in calculating the demand cost of old-age care insurance, which is mainly estimated through the charging standards of several nursing homes. Therefore, we can learn from the experience of the elderly care insurance system in developed countries. In most developed countries long - term care insurance has been more mature insurance.

Most studies on long-term care insurance by foreign scholars adopt quantitative analysis to study the relationship between long-term care insurance and other related factors from different perspectives, so as to put forward relevant countermeasures. It enriches the methods of quantitative analysis of long term care insurance and provides some references for the research of long term care insurance in China.

The title of the questionnaire is the survey of demand willingness and ability to participate in long-term care insurance, which mainly includes the following aspects:

- the first is the personal characteristics of the respondents,
- the second is their family status, economic status and health status,
- third, the cognitive status and insurance awareness of the respondents.

The survey was valid from January 20, 2020 and end on March 31, 2020. Questionnaires were distributed in the field and on the Internet. A total of 218 questionnaires were distributed.

Table 2.17 - City frequency analysis

| City | Frequency | The percentage（%） |
|---|---|---|
| Zhengzhou | 46 | 21.1 |
| Kaifeng | 28 | 12.8 |
| Xinxiang | 33 | 15.1 |
| Shangqiu | 28 | 12.8 |
| Xinyang | 20 | 9.2 |
| Humadian | 18 | 8.3 |
| Xuchang | 25 | 11.5 |
| Nanyang | 20 | 9.2 |
| Total | 218 | 100 |

*Source: Author's compilation based on survey*

A total of 218 questionnaires were collected, of which one was incomplete and one was obviously wrong. Therefore, 216 valid questionnaires were collected, with an effective rate of 99.1%.

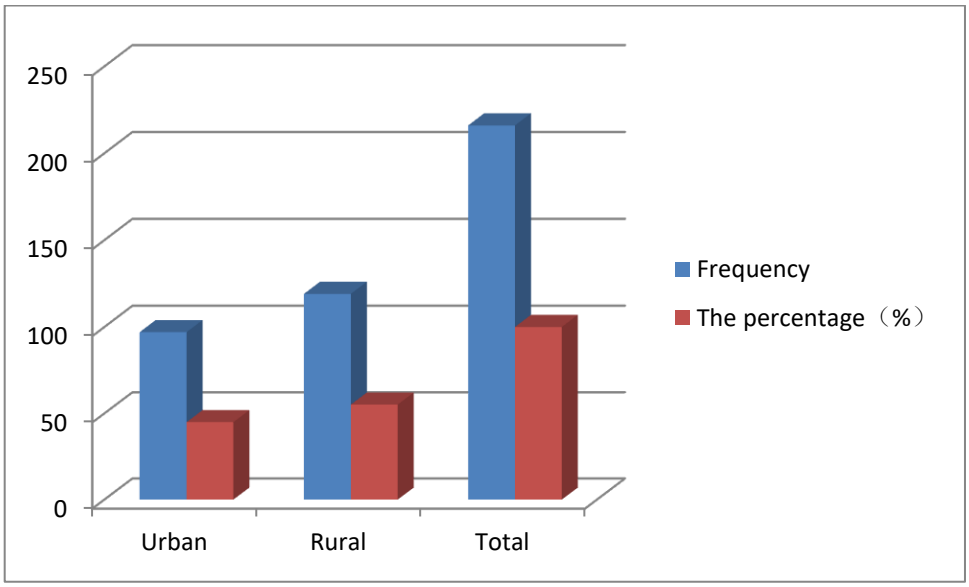


Figure - 2.7 Sample characteristics of registered permanent residence

*Source: Based on the questionnaire*

Among 216 valid questionnaires, 97 respondents came from urban accounting for 44.9% of the total number of respondents; 119 respondents came from rural, accounting for 55.1% of the total number of respondents.Gender distribution

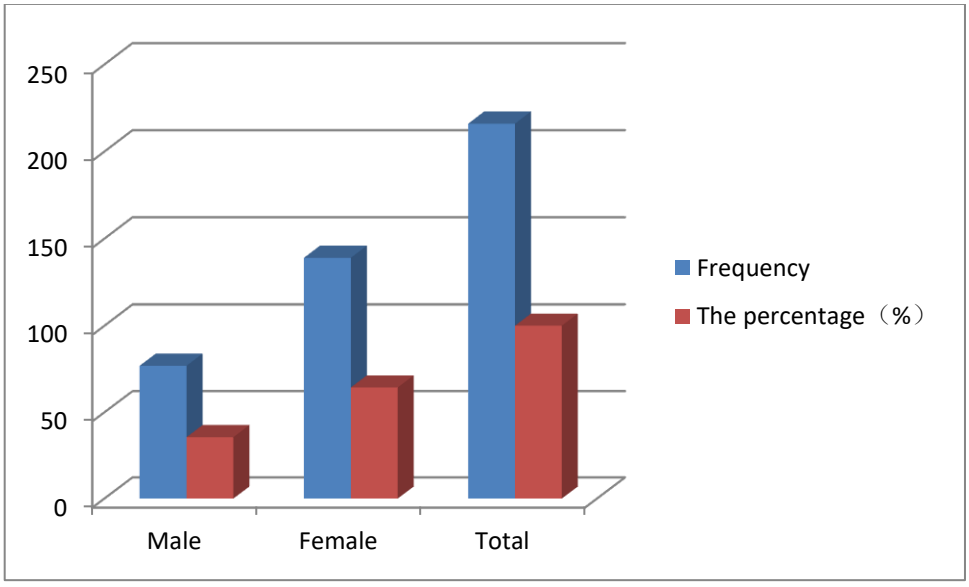


Figure - 2.8 Gender sample characteristics

*Source: Based on the questionnaire*

Through the frequency analysis of gender, it is found that among 216 respondents, there are 77 male respondents, accounting for 35.6% of the total number; there are 139 female respondents, accounting for 64.4% of the total number.

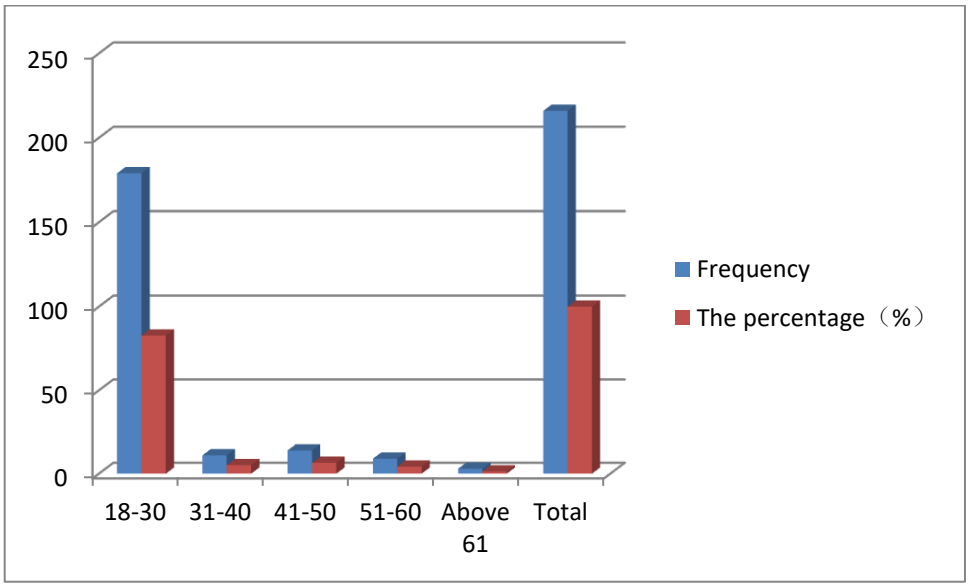


Figure - 2.9 Age sample characteristics

*Source: Based on the questionnaire*

Through the frequency analysis of age, it can be found that the frequency of respondents aged 18-30 is the highest, accounting for 82.9%. Although other age groups also appear, the frequency is relatively low.

Table 2.18 - Willingness to participate in long-term care insurance

| Are you willing to participate in long-term care insurance | Frequency | The percentage（%） |
|---|---|---|
| No | 74 | 34.3 |
| Yes | 142 | 65.7 |
| Total | 216 | 100.0 |

*Source: Based on the questionnaire*

Thus, 65.7 percent of respondents are willing to participate in long-term care insurance, while 34.3 percent are not willing to participate in long-term care insurance. In general, the demand willingness of long-term care insurance is relatively large.

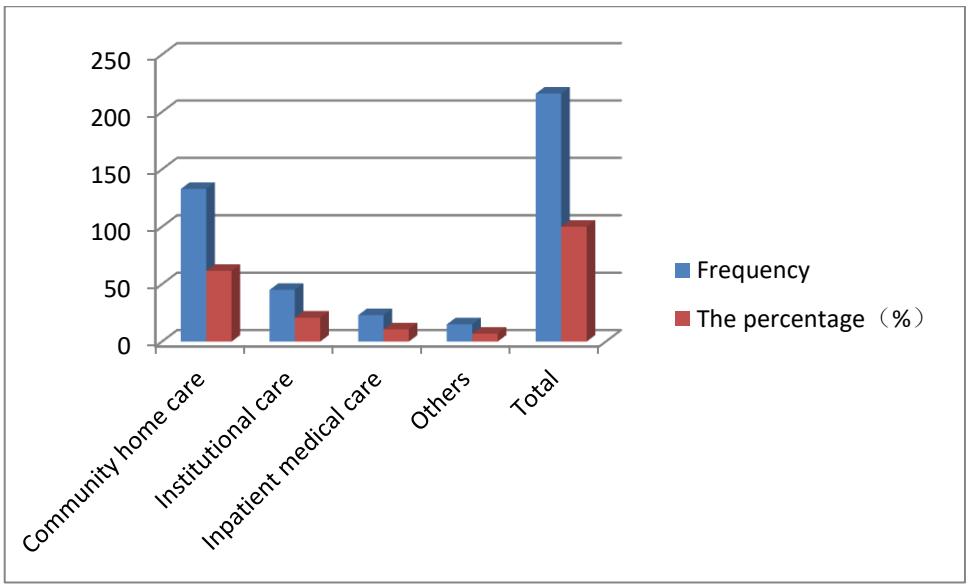


Figure - 2.10 The form of long term care service you would most like to choose

*Source: Based on the questionnaire*

As can be seen from the above table, 133 out of 216 questionnaires, 61.6% of the population chose the community long-term care, only 23, 10.6% of the population chose inpatient care. Through the analysis we are not difficult to find that the vast majority of people choose community home care.

Table 2.20 - The type of long-term care insurance benefits

| The type | Frequency | The percentage（%） |
|---|---|---|
| Kind | 21 | 9.7 |
| Cash | 103 | 47.7 |
| Service | 85 | 39.4 |
| Others | 7 | 3.3 |
| Total | 216 | 100.0 |

*Source: Based on the questionnairee*

As can be seen from Table 2.16, 47.7% of respondents tend to choose the way of cash payment. 39.4% of the respondents tend to choose professional service payment; There are fewer choices of payment in kind and other ways.

The theoretical basis of the analysis of factors affecting demand willingness is the optimal insurance theory, and the selected variables also refer to the six variables affecting the insurance demand mentioned in the optimal insurance theory to some

extent. In the process of analysis, cross contingency table and regression analysis are mainly used.

Table 2.21 - Cross table between account location and willingness to participate in long term care insurance

| Variable | Statistical indicators | Are you willing to sign up for long-term care insurance | |
|---|---|---|---|
| | | No | Yes |
| Registered permanent residence | Urban | 30.9% | 69.1% |
| | Rural | 37.0% | 63.0% |

*Source: Based on the questionnaire*

As can be seen from the table 2.17, 69,1 % of urban household registration respondents are willing to participate in the long-term care insurance system, while 63 percent of rural household registration respondents are willing to participate in the long-term care insurance system. This suggests that people with urban residence have a slightly greater need for long-term care insurance than those with rural residence.

Table 2.22 - Cross-table between age and willingness to take long-term care insurance

| variable | Statistical indicators | Are you willing to sign up for long-term care insurance | |
|---|---|---|---|
| | | No | Yes |
| Age | 18-30 | 35.2% | 64.8% |
| | 31-40 | 27.3% | 72.7% |
| | 41-50 | 28.6% | 71.4% |
| | 51-60 | 11.1% | 88.9% |
| | 61 and above | 100.0% | .0% |

*Source: Based on the questionnaire*

As can be seen from the table 2.18, 64.8% of people aged 18 to 30 are willing to take out long-term care insurance. Among the “30-40” age group, 72.7% of respondents were willing to take out long-term care insurance; 71.4% of “41-50” age groups are willing to sign up for long-term care insurance; 88.9% of people in the 51-60 age group are willing to take out long-term care insurance; And 40 percent of those “61 and above” are willing to sign up for long-term care insurance. From the statistical results, we can find that the age with strong desire to participate is mainly

concentrated in the “31-60 years old”. People aged between 18 and 30 are younger and healthier, and they may not think about the long term.

However, the younger generation has a stronger sense of insurance development, so the demand intention of the age between 18 and 30 is not as strong as that of the age between 31 and 60, but it is also quite strong. However, the demand willingness of “61 and above” is particularly low, which may be related to the conservative thinking of this group of people and the short term of enjoyment, and also partly due to the small number of data and deviation of data.

Table 2.23 - Cross table of disability or dementia in the family and willingness to participate in long-term care insurance

| variable | Statistical indicators | Are you willing to sign up for long-term care insurance | |
|---|---|---|---|
| | | No | Yes |
| Disable or silly older | No | 35.1% | 64.9% |
| | Yes | 27.3% | 72.7% |

*Source: Based on the questionnaire*

As can be seen from the table 2.19, 64.9% of the elderly without disability or dementia are willing to participate in the long-term care insurance system. The percentage of disabled or mentally disabled seniors in the family who are willing to participate in long-term care insurance is 72.7%. From this, we can see that the willingness to participate in long-term care insurance is relatively high on the whole, and families with disabled or mentally disabled elderly people have a greater demand for long-term care insurance system than families with no disabled or mentally disabled elderly people.

As can be seen from table 2.24, the proportion of those willing to participate in the long-term care insurance system with an income of “less than 2,000 yuan” is 65.4%; the proportion of those willing to participate in the long-term care insurance system with an income of “2000-4000 yuan” is 69.0%; and the proportion of those willing to participate in the long-term care insurance system with an income of “4000-6000 yuan” is 74.1%.

Table 2.24 - Cross table between income and willingness to participate in long term care insurance

| variable | Statistical indicators | Are you willing to sign up for long-term care insurance | |
|---|---|---|---|
| | | No | Yes |
| Income | Less than 2000yuan | 34.6% | 65.4% |
| | 2000-4000yuan | 31.0% | 69.0% |
| | 4000-6000yuan | 25.9% | 74.1% |
| | 6000-8000yuan | 33.3% | 66.7% |
| | Above 8000yuan | 63.6% | 36.4% |

*Source: Based on the questionnaire*

The proportion of those with income of "6000-8000" willing to participate in the long-term care insurance system was 66.7 percent, and the proportion of those with income of "over 8000 yuan" willing to participate in the long-term care insurance system was 36.4 percent.

It can be seen that income in the "0-6000 yuan" on the long-term care insurance system is increasing demand. The demand for long-term care insurance system with an income of more than 6,000 yuan shows a decreasing trend, which may be due to the fact that this part of higher income groups will consider commercial insurance more, or because there is less data and the results are biased.

Table 2.25 - Model fitting information

| Model | r | $R^2$ | Adjust the R square | the error of the standard estimate (SE) | Change statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Chang $R^2$ | Chang F | $f_1$ | $f_2$ | Chang Sig. F | |
| 1 | 0.456 | 0.208 | 0.144 | 0.439 | 0.208 | 3.244 | 16 | 98 | 0.000 | 2.152 |

*Source: Based on the questionnaire*

It can be seen from the table that R = 0.456 (> 0.4), and the model has a good fitting degree. Durbin-watson test value is 2.152 (Durbin-Watson value is around 2), indicating that the model has no autocorrelation and is well constructed.

Table 2.26 - Regression model for voluntary participation in long-term care insurance

| Model | | Nonstandardized coefficient | | Standard coefficient | t | Sig. | Collinear statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Standard error | A trial version | | | Allowance | VIF |
| | (Constant) | 1.515 | 0.367 | | 4.134 | 0.000 | | |
| | Registered residence | 0.003 | 0.066 | 0.003 | 0.041 | 0.968 | 0.821 | 1.217 |
| | Gender | -0.059 | 0.069 | -0.059 | -0.849 | 0.397 | 0.820 | 1.219 |
| | Age | -0.104 | 0.064 | -0.194 | -1.632 | 0.104 | 0.28 | 3.538 |
| | Education background | -0.075 | 0.049 | -.147 | -1.536 | 0.126 | 0.438 | 2.285 |
| | Marital status | -0.081 | 0.140 | -0.077 | -0.579 | 0.563 | 0.228 | 4.380 |
| | Number of children | 0.062 | 0.072 | 0.117 | 0.861 | 0.390 | 0.217 | 4.617 |
| | Residence status | -0.115 | 0.047 | -0.165 | -2.451 | 0.015 | 0.879 | 1.138 |
| | Physical condition | -0.017 | 0.046 | -0.027 | -0.383 | 0.702 | 0.799 | 1.251 |
| | Whether have disable or silly older | -0.043 | 0.105 | -0.027 | -0.406 | 0.685 | 0.881 | 1.135 |
| | Do you worry about your health | 0.107 | 0.033 | 0.228 | 3.246 | 0.001 | 0.815 | 1.227 |
| | Do you agree with the concept of "raising children for old age" | 0.004 | 0.065 | 0.004 | 0.060 | 0.952 | 0.877 | 1.140 |
| | Do you have any commercial insurance | -0.007 | 0.069 | -0.007 | -0.097 | 0.923 | 0.850 | 1.177 |
| | Do you know long term care insurance and related policies before? | -0.082 | 0.038 | -0.159 | -2.180 | 0.030 | 0.754 | 1.327 |
| | You believe the government can create a comprehensive long-term care insurance system | -.0159 | 0.044 | -0.251 | -3.585 | 0.000 | 0.814 | 1.228 |
| | Income | 0.037 | 0.032 | 0.090 | 1.182 | 0.238 | 0.697 | 1.436 |
| | Income forecast | -0.006 | 0.040 | -0.011 | -0.154 | 0.877 | 0.757 | 1.321 |

*Source: Based on the questionnaire*

As shown in table 2.26, the collinear diagnostic VIF value of regression analysis was 4.617 at the maximum and 1.135 at the minimum, both of them were less than 10.

Therefore, there is no collinearity problem in this model, so regression analysis can be carried out.

Each factor of the individual characteristics model and the Q24 “do you want to participate in the long-term care insurance system” regression are not significant, indicating that the individual characteristics factor is not an influential factor in the demand for long-term care insurance. Therefore, we accept the original hypothesis that there is no significant relationship between individual characteristics model factors and long-term care insurance demand intention. The regression of Q9 (Q is number of question in questionnariez, Appendix A) “your current residence type” factor in the family status model and Q24 “are you willing to participate in the long-term care insurance system”is significant, indicating that the Q9 “your current residence type” factor in the family status model is an influential factor in the old-age care insurance demand. Therefore, we reject the original hypothesis and think that the Q9 “your current living type” factor in the family status model has a significant relationship with the long-term care insurance demand intention, and the significance level is 0.05.

Each factor of the economic status model and the Q24 “are you willing to participate in the long-term care insurance system” regression are not significant, indicating that the economic status model factor is not the factor affecting the elderly care insurance demand. Therefore, we accept the original hypothesis that the factors of economic status model have no significant relationship with long-term care insurance demand intention.

In the health status model, there was a significant regression between Q17, “how concerned you are about being incapacitated or lost in old age” and Q24, “are you willing to participate in the long-term care insurance system”, indicating that Q17, “How worried you are about being incapacitated or lost in old age” is a factor influencing the demand for long-term care insurance. Therefore, we reject the original hypothesis, and think that Q17 “you worry about disability or dementia in your old age”

factor has a significant relationship with long-term care insurance demand intention, and the significance level is 0.01.

Cognitive models of Q21 “before this, do you know long-term care insurance", Q22 “your trust in the government's ability to establish a sound long-term care insurance system”and Q24 “are you willing to participate in the long-term care insurance system” return significantly, explain Q22 “for the government to set up perfect long-term care insurance system of trust” is the factors affecting demand for long-term care insurance.

Therefore, the original hypothesis is rejected, and Q21 “have you known about long-term care insurance and related policies before” and Q22 “How much trust do you have in the government's ability to establish a sound long-term care insurance system” are significantly correlated with the demand willingness of long-term care insurance, with the significance level of 0.05 and 0.01, respectively.

The factors of the insurance awareness model and the regression of Q24 “are you willing to participate in the long-term care insurance system” are not significant, indicating that the insurance awareness factor is not an influential factor for the old-age care insurance demand. Therefore, the original hypothesis is denied, and the insurance consciousness model factors are not significantly related to the willingness of demand for long-term care insurance.

Table 2.27 - Frequency analysis of annual payment

| Annual payment | Frequency | The percentage（%） |
|---|---|---|
| Up to 10 yuan | 37 | 17.1 |
| 10-30 yuan | 30 | 13.9 |
| 30-50 yuan | 41 | 19.0 |
| 50-70 yuan | 22 | 10.2 |
| 70-90 yuan | 7 | 3.2 |
| 90-110 yuan | 45 | 20.8 |
| 110 yuan and above | 34 | 15.7 |
| Total | 216 | 100.0 |

*Source: Based on the questionnaire*

It can be seen from the above table that the frequency of annual payment “90-110 yuan” is the highest, followed by “30-50 yuan”, accounting for 19%, and the

frequency of annual payment “Up to 10 yuan “ and “110 yuan and above” is also higher. We can learn from the different attitudes of different long-term insurance payers. This suggests that we need a certain degree of flexibility in the design of long-term care insurance system, and the annual payment can be divided into different levels.

Table 2.28 - Frequency analysis of payment years

| Payment period | Frequency | The percentage（%） |
|---|---|---|
| Within 5 years | 101 | 46.8 |
| 6-10 years | 77 | 35.6 |
| 11-15years | 22 | 10.2 |
| 16-20years | 8 | 3.7 |
| More than 20 years | 8 | 3.7 |
| Total | 216 | 100.0 |

*Source: Based on the questionnaire*

As can be seen from the table 2.25, most people tend to have a shorter payment period, which is related to the current society. After all, it is a rapidly developing society now, and people are under great pressure from various mortgage and car loans. When other conditions do not change much, people tend to have shorter contributory years.

Cross contingency table and chi square test were used to analyze the influencing factors of long-term care insurance ability.

Table 2.29 - Cross table of number of children and annual contribution

| Variable | Variable statistical index | Annual payment | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Up to10 yuan | 11-30 yuan | 31-50 yuan | 51-70 yuan | 71-90 yuan | 91-110 yuan | Above 110 yuan |
| Number of children | 0 | 16.0% | 13.0% | 19.5% | 13.0% | 3.0% | 18.9% | 16.6% |
| | 1 | 16.7% | 16.7% | 16.7% | 0.0% | 0.0% | 27.8% | 22.2% |
| | 2 | 25.0% | 10.0% | 15.0% | 0.0% | 10.0% | 35.0% | 5.0% |
| | 3 | 0.0% | 40.0% | 20.0% | 0.0% | 0.0% | 20.0% | 20.0% |
| | 4 and above | 50.0% | 25.0% | 25.0% | 0.0% | 0.0% | 0.0% | 0.0% |

*Source: Based on the questionnaire*

It can be seen from the above table that the annual payment amount of “30-50 yuan” is the most when the number of children is 0; “90-110 yuan” is the most when

the number of children is 1; “90-110 yuan” is the most when the number of children is 1; “10-30 yuan” is the most when the number of children is 3; “10-30 yuan” is the most when the number of children is 3 The amount of “less than 10 yuan” is the most. We can find that with the increase of the number of children, the amount of annual payment decreases to a certain extent.

Table 2.30 - Cross table of age and payment period

| Variable | Variable statistical index | Payment period | | | | |
|---|---|---|---|---|---|---|
| | | Less than 5 years | 6-10 years | 11-15 years | 16-20 years | Above 21 years |
| Age | 18-30 years old | 46.4% | 35.8% | 10.1% | 3.9% | 3.9% |
| | 31-40 years old | 54.5% | 27.3% | 9.1% | 0.0% | 9.1% |
| | 41-50 years old | 50.0% | 28.6% | 21.4% | 0.0% | 0.0% |
| | 51-60 years old | 33.3% | 55.6% | 0.0% | 11.1% | 0.0% |
| | Above 61 years old | 66.7% | 33.3% | 0.0% | 0.0% | 0.0% |

*Source: Based on the questionnaire*

As can be seen from the above table 2.30, people of all ages are more inclined to pay for a shorter period of time. The proportion of people of different ages who choose to pay within five years is 46.4%, 54.5%, 50%, 33.3%, 66.7%.

Table 2.31 - Chi-square analysis of monthly income * annual payment

| | Rang | df | Progressive Sig. (bilateral) |
|---|---|---|---|
| Pearson Chi-square | 37.950a | 28 | 0.099 |
| likelihood ratio(LR) | 44.757 | 28 | 0.023 |
| N in effective cases | 216 | | |

*Source: Based on the questionnaire*

As can be seen from the table 2.31 above, the p-value of chi square is 0.099. Because P-value is greater than a, we should accept the original assumption that monthly income and annual fee are independent and unrelated .

Table 2.32 - Chi-square test of number of children * annual payment

| | Rang | df | Progressive Sig. (bilateral) |
|---|---|---|---|
| Pearson Chi-square | 53.516a | 28 | 0.003 |
| likelihood ratio(LR) | 40.039 | 28 | 0.066 |
| N in effective cases | 216 | | |

*Source: Based on the questionnaire*

It can be seen from the above table 2.32 that the p-value of chi square is 0.003. If the significance level a is 0.05 and the P-value is less than a, we should reject the original hypothesis that there is a correlation between the number of children and the annual payment.

Table 2.33 - Chi-square test of age * payment years

| | Rang | df | Progressive Sig. (bilateral) |
|---|---|---|---|
| Pearson Chi-square | 9.412a | 16 | 0.895 |
| likelihood ratio(LR) | 11.378 | 16 | 0.786 |
| N in effective cases | 216 | | |

*Source: Based on the questionnaire*

As can be seen from the above table2.33, the probability P-value of chi-square is 0.895. If the significance level A is set at 0.05, then the P-value is greater than A. Therefore, the original hypothesis should be accepted, and it is believed that the age and the years of payment are independent and unrelated.

**Conclusions to chapter 2**

The long-term care insurance of the United States, Japan and Germany has made some achievements, which is an example for China to learn. However, China has its national conditions and particularity, so we cannot copy the successful experience of the three countries. We must establish long-term care insurance in line with China's actual conditions.

In the last part, more than 65% of the respondents were willing to participate in long-term care insurance through a survey on the willingness to participate in

long-term care insurance in Henan Province, China. In general, respondents want to choose the service forms of community home care and nursing home care, and tend to choose cash payment and professional service payment.

Through the analysis of cross contingency table, this paper finds that the demand willingness of long-term care insurance is affected by the location of hukou, age, whether the elderly in the family are disabled or mentally ill, income and other factors. For example, people with urban hukou are more willing to demand long-term care insurance than those with rural hukou. Up to a point, the older you are, the greater the need for long-term care insurance; The need for long-term care insurance is greater for disabled or mentally ill family members; Up to a certain point, the higher people's income, the greater the need for long-term care insurance, but beyond that point, the higher people's income, the less the need for long-term care insurance.

This paper also found through regression analysis that the concern about their health status and the trust that the government can establish a perfect long-term care insurance system will increase the demand for long-term care insurance to a certain extent. It is also found through the survey that people are more inclined to a shorter period of life and have a big difference in the amount of payment. Therefore, different levels and flexible amounts of payment can be designed. The ability to participate in insurance is also affected by factors such as income and number of children.

By analyzing our country Shanghai, Qingdao, nantong, changchun four typical pilot cities of long-term care insurance concrete system model, respectively from ginseng protect mechanism, financing mechanism, evaluation mechanism, service mechanism and treatment of payment mechanism and so on has carried on the detailed comparison and analysis, and summarizes the current problems of China's long-term care insurance, The following sections will discuss in detail and put forward corresponding suggestions.

From the perspective of drawing lessons from international experience, the international long-term care insurance system is compared and analyzed, and the following conclusions are drawn:

1) During the establishment and promotion of long-term care insurance system, there are many common points, such as the support of legislation, the establishment of liability institution, the establishment of failure rating and assessment standard, and so on, which have an important reference significance for the establishment of long-term care insurance system in China.

2) There are differences in the operation process of long-term care insurance. Based on the comparison of its coverage objects, responsible institutions, fund raising, treatment and payment, long-term care insurance is divided into three modes: social insurance mode, commercial insurance mode, and mixed mode.

3) There are differences between the three modes: Individuals, employees, employers and the government in funding, there are differences in each responsibility, benefit object, government responsibility, there is a difference, and the need of all pattern of long-term care insurance eligibility, each model there is no uniform standard, in terms of treatment to pay, some model is given priority to with cash payment, some pay in kind is given priority to, the treatment mode of allowance level is higher, The treatment level of the commercial insurance mode is determined by the insurance payment, while the treatment level of the social insurance mode changes with the economic development level of the country, and the treatment level of the mixed mode is higher.

4) To establish our long-term care insurance system, must be based on national conditions, advised to choose a mode of social insurance, medical insurance ginseng protect object can be incorporated into the security object, personal, unit, the government tripartite to raise funds, according to the disability grade standard, compensate for eligible disabled or provide and care services. At the same time, attention should be paid to the development of nursing services, especially to the training of nursing personnel, the development of home nursing and community nursing services.

By analyzing our country Shanghai, Qingdao, nantong, changchun four typical pilot cities of long-term care insurance concrete system model, respectively from ginseng protect mechanism, financing mechanism, evaluation mechanism, service

mechanism and treatment of payment mechanism and so on has carried on the detailed comparison and analysis, and summarizes the current problems of China's long-term care insurance. The following sections will discuss in detail and put forward corresponding suggestions.

# CHAPTER 3. INNOVATIVE APPROACHES IN THE MANAGEMENT OF LIFE QUALITY IMPROVEMENT OF HUMAN RESOURCES DEVELOPMENT

## 3.1. Development overview of life quality development in China

With the continuous development of the social economy and the progress of medical technology, the life expectancy of the population is increasing. At the same time, the proportion of the elderly in the total population is rising due to a decline infertility. China's population is aging at an accelerating rate. According to China's National Bureau of Statistics, in 2000 China's 65 years of age and the older population has accounted for 7.0% of the proportion of the total population, the senile age structure has been formed, China has stepped into an aging society, in 2021, Chinese elderly population proportion reached 13.5%, increasing geriatric population, the number of older adults will continue to rise. In a long period of time, China's aging degree will continue to aggravate, and it is not easy to reverse. The aging population is a symbol of national development, but it also brings significant challenges to the country (figure 3.1).

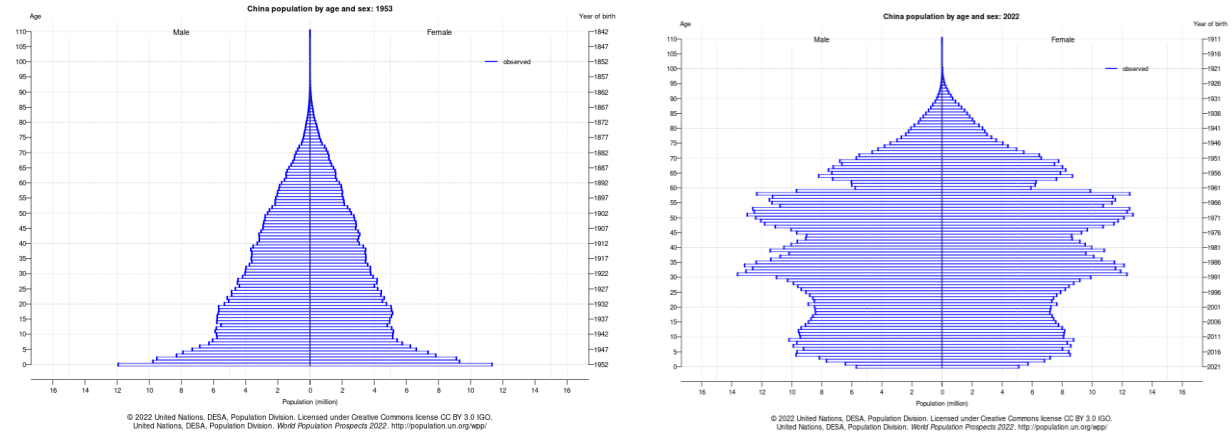


Figure 3.1 - Age structure of the Chinese population in 1953 and 2022

*Source: author`s research based on UN, 2022*

Figure 3.1 shows that in 1953, China's population age structure showed a "positive pyramid" shape, the proportion of young people is larger, the proportion of the elderly is less, to meet the needs of social development. In 2022, after 70 years, China's population age structure evolved into a "spindle pyramid". The current age structure of China's population is mainly characterized by a significant increase in the proportion of the elderly population, a slightly higher proportion of the young and middle-aged population, and a significant reduction of the young population, showing an elderly population age structure.

The population age structure is the epitome of the medium and long-term population development of a country or region, reflecting the proportion of the population of all age groups in the total population at a certain time point or period and in a certain region, and its changes are regarded as the barometer of the population development of a country or region. According to the United Nations criteria for dividing the age structure of the population, the age structure of the population can be divided into young, adult and elderly types. The change of the age structure of the population is determined by the population of different age groups and their relationships, and is mainly affected by the birth and death rates of the population. Figures 3.1 and 3.2 show that from 1953 to 2022, the age structure of China's population changed significantly.

Table 3.1 - Birth rate, mortality rate and net growth rate

| Year | Total population (10,000 persons) | The birth rate, % | Mortality rate, % | Natural population growth rate, % |
|---|---|---|---|---|
| 2015 | 138326 | 11.99 | 7.07 | 4.93 |
| 2016 | 139232 | 13.57 | 7.04 | 6.53 |
| 2017 | 140011 | 12.64 | 7.06 | 5.58 |
| 2018 | 140541 | 10.86 | 7.08 | 3.78 |
| 2019 | 141008 | 10.41 | 7.09 | 3.32 |
| 2020 | 141212 | 8.52 | 7.07 | 1.45 |
| 2021 | 141260 | 7.52 | 7.18 | 0.34 |

*Source: author`s research based on Statistical Yearbook of National Bureau of Statistics website*

According to the official data of China's statistical yearbook, the total population was 1412.6 million by the end of 21 years, which shows that the population base of China is huge (as shown in Table 3.1). During the six-year period from 2015 to 2021, the country's total population increased by 29.34 million, with a growth rate of 2.12 percent and an average annual growth rate of 0.35 percent. Although the growth rate is not high, the total population increase in the past six years is basically rising due to the population base, but it only increased by 480,000 people from 2020 to 2021. In general, the birth rate of China's population is declining year by year, and the net growth rate of population has also been declining.

Table 3.2 - United Nations classification of the age structure of the population type standard and the age structure of the population in the previous national census data

| | | Children's coefficient（%） | Aging coefficient（%） | Young and old than（%） | Type |
|---|---|---|---|---|---|
| The international standard | Young | >40 | <4 | <15 | - |
| | adult | 30-40 | 4-7 | 15-30 | - |
| | older | <30 | >7 | >30 | - |
| The Chinese data | 1953 | 36.28 | 4.40 | 12.2 | adult |
| | 1964 | 41.21 | 3.60 | 8.8 | young |
| | 1982 | 33.59 | 4.90 | 14.6 | adult |
| | 1990 | 27.69 | 5.60 | 20.1 | adult |
| | 2000 | 22.89 | 7.00 | 30.4 | older |
| | 2010 | 16.60 | 8.90 | 53.4 | older |
| | 2020 | 17.95 | 13.50 | 75.24 | older |

*source: Author`s research*

Table 3.2 and Figure 3.2 show the number, proportion and annual growth rate of the elderly population in the previous census since 1953. First of all, in terms of the number of elderly people, since 1953, the number of elderly people aged 60 and above has been increasing continuously, reaching 264 million in 2020, which has increased by six times in the past 70 years. The population aged 65 and over has also maintained a rapid growth trend, except for a slight decline between 1953 and 1964. Secondly, in terms of the proportion of the elderly population, it can also be found that the same growth trend is maintained with the number of elderly population. In 2000, the population aged 60 and above accounted for 10.3%, and the population aged 65 and above accounted for 7. 0%, China began to enter the aging society. Since then, China's population aging continued to accelerate, only in 20 years, the population aged 60 years and above and 65 years and above accounted for 18.7% and 13.5% respectively, almost doubling compared with 2000.

In Figure 3.2, the number and proportion curves of the population aged 60 years and above and the population aged 65 years and above maintain a trend of rapid growth with a continuously rising slope, indicating that the rapid aging of the population is significantly higher than expected.

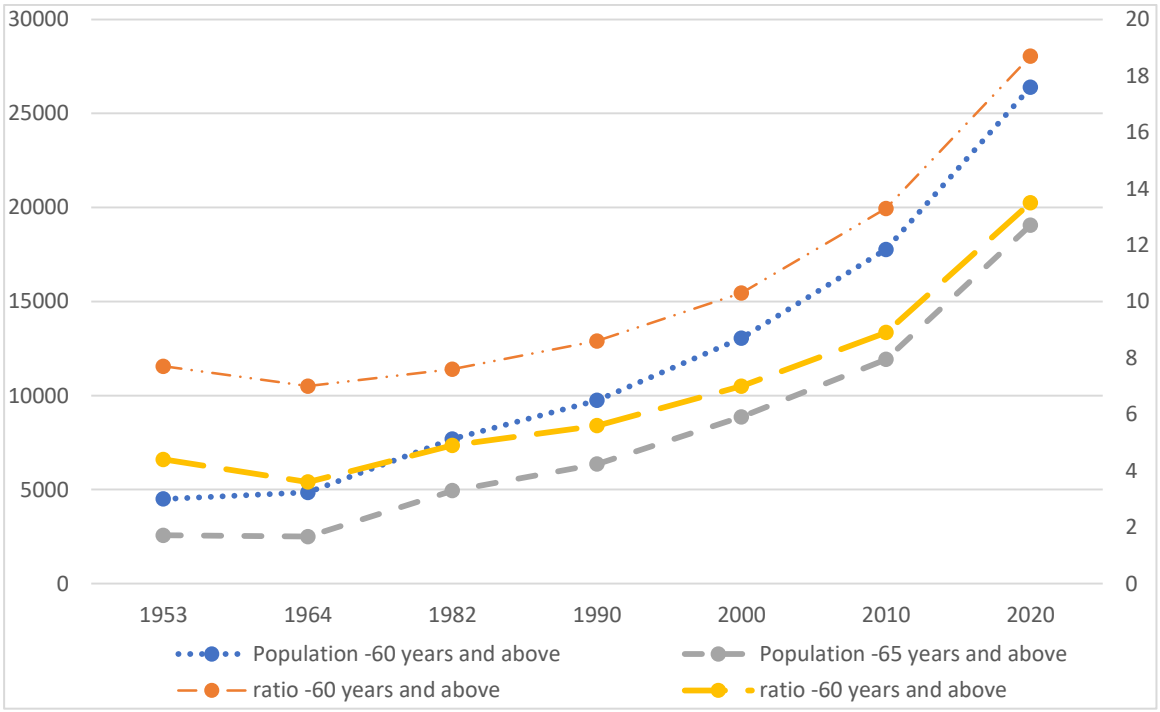


Figure 3.2. - The number and proportion of the elderly

*Source: the author`s research based on Chinese population data collated*

Similarly, from the annual growth rate of the elderly population, we can also find the accelerating development trend of population aging. It can be seen from Table 3.2 and Figure 3.2 that from 1982 to 2010, the annual growth rate of the elderly population aged 60 years and above maintained an upward trend, but the annual growth rate was relatively small, only 0.39% at the highest. Surprisingly, during the ten years from 2010 to 2020, the average annual growth rate of the population aged 60 and over was close to 1%, much faster than the previous decade (0.15%).

The population aged 65 and over also showed the same acceleration as the population aged 60 and over, or even more so. From 1982 to 2010, the annual growth rate of the population aged 65 and over remained at more than 3%, and even decreased slightly as the years progressed. In 2020, the annual growth rate of the population aged 65 and above jumped to 4.80%, which was 1.79% higher than that in 2010. This also

reflects that the aging population has entered the track of accelerating development from one side. In general, population aging has become one of the distinctive characteristics of the new form of aging society

According to the World Population Prospects 2022 released by the United Nations, the proportion of the elderly population in China will continue to increase from 2022 to 2050. The population aged 60 and above will increase from 18.6 percent in 2022 to 38.8 percent in 2050, while the population aged 65 and above will increase from 13.7 percent in 2022 to 30.1 percent in 2050.

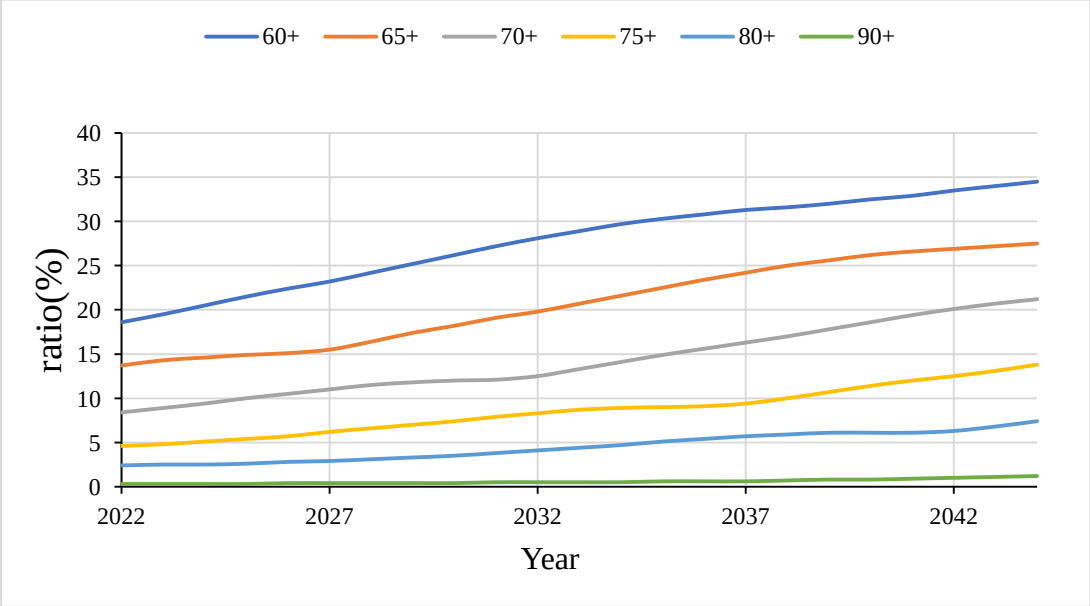


Figure 3.3 - Proportion of Elderly population in China by Age Group (%), in 2022-2050

*Source: author`s research by World Population Prospects, 2022*

Aging is one of the most concerned aspects in the changing age structure of the elderly population. Corresponding to the continuous rise of the total population aged 60 years and above in the first half of the 21st century, the number of elderly people aged 80 years and above also shows an increasing trend on the whole, reaching nearly 30 million in 2020, 61 million in 2035, and more than 110 million in 2050.

Table 3.3 - Scale Projection of the Different Disability Status of the Older Population by Age Group in Urban and Rural Areas (10 thousand)

| Age group and health status | city | | | | rural | | | |
|---|---|---|---|---|---|---|---|---|
| | 2020 year | 2030 year | 2040 year | 2050 year | 2020 year | 2030 year | 2040 year | 2050 year |
| 65～74 | | | | | | | | |
| health | 3622,39 | 4834,11 | 6902,52 | 9068,85 | 3374,50 | 3902,12 | 4378,54 | 3728,92 |
| A mild disability | 2376,55 | 3260,05 | 4095,42 | 6559,33 | 1928,79 | 2666,20 | 2934,30 | 1713,58 |
| Moderate disability | 751,50 | 1426,16 | 2762,38 | 3174,59 | 367,77 | 628,81 | 936,55 | 408,41 |
| Severe disability | 284,89 | 503,55 | 1177,20 | 1287,47 | 187,64 | 515,23 | 614,44 | 198,67 |
| 75～84 | | | | | | | | |
| health | 1434,36 | 2881,16 | 3765,45 | 5617,31 | 1954,53 | 2259,74 | 3109,10 | 3421,07 |
| A mild disability | 723,09 | 1359,83 | 2006,47 | 3390,77 | 793,18 | 921,57 | 1444,34 | 1392,91 |
| Moderate disability | 151,22 | 248,48 | 330,14 | 504,96 | 263,64 | 335,04 | 451,71 | 475,82 |
| Severe disability | 67,88 | 161,86 | 233,32 | 335,18 | 161,59 | 192,14 | 315,87 | 287,80 |
| 85～94 | | | | | | | | |
| health | 243,20 | 277,28 | 650,34 | 926,30 | 312,34 | 498,60 | 628,80 | 675,33 |
| A mild disability | 247,91 | 369,90 | 774,03 | 846,68 | 323,56 | 434,38 | 579,09 | 747,35 |
| Moderate disability | 191,85 | 266,83 | 441,16 | 573,27 | 183,00 | 275,06 | 349,99 | 431,44 |
| Severe disability | 62,56 | 98,25 | 152,85 | 198,77 | 67,84 | 75,63 | 121,52 | 144,63 |
| 95+ | | | | | | | | |
| health | 6,45 | 10,71 | 14,90 | 28,14 | 7,53 | 13,74 | 17,52 | 24,12 |
| A mild disability | 12,85 | 28,84 | 35,85 | 69,20 | 14,65 | 28,64 | 40,34 | 56,59 |
| Moderate disability | 21,98 | 46,15 | 51,02 | 120,12 | 23,30 | 41,93 | 57,99 | 75,69 |
| Severe disability | 10,89 | 22,60 | 30,83 | 57,49 | 9,44 | 16,95 | 26,82 | 29,81 |

*Source: data collated by the author*

This makes China's future will always have a period of the world's largest - year - old age population scale, a period also makes China's future population aging and the aging of dual wave evolution phase are intertwined, and when the elderly aged 60 and above the population in the 21st century for zero growth and negative growth, older elderly population will continue to go up. For a long period of time in the 21st century,

the number of elderly people will be over 100 million, so we must make full preparations for this.

With the rapid development of population aging and aging in China, the scale of disabled elderly population in China is also increasing. According to the results of the Fourth Sampling Survey on the Living Conditions of the Elderly in Urban and Rural China, from 2010 to 2015, the number of disabled elderly in China increased by about 7 million, and the increase of disabled elderly in rural areas accounted for about 53.3% of them.

In 2015, the number of disabled or partially disabled elderly in China reached 40.63 million, of which 64.5% were disabled elderly in rural areas. The proportion of elderly population aged 60 and above and 65 and above in rural areas is 7.99 and 6.61 percentage points higher than that in urban areas, respectively, according to the 2020 National Old-age Development Bulletin. In rural areas, the aging degree of population is high, the function of family pension is gradually weakened, and the problem of caring for the disabled elderly may be more serious.

Zhang Yuan and Wang Wei (2022) used the Longitudinal tracking data of the Chinese Longitudinal Healthy Longevity Survey (CLHLS) in 2011 and 2014 from the perspective of urban-rural differences. The transition intensity was introduced to construct the transition probability matrix of health status, to predict the scale of disability of the elderly in urban and rural areas by age groups from 2020 to 2050, and to explore the care time needs of the disabled elderly in urban and rural areas. Generally speaking, the scale of the elderly unable to take care of themselves is increasing. In 2050, the total number of moderately and severely disabled elderly people in urban and rural areas rose to 83.0412 million, an increase of about 196% over 2020.

From the perspective of healthy population and mild disability population, the scale difference of the urban and rural elderly with mild disability in the middle and low age groups was greater than that of the urban and rural healthy elderly. In the 65-74 age group, the ratio of healthy elderly people in urban and rural areas increased from

1.07 in 2020 to 2.43 in 2050, and the ratio of mildly disabled elderly people in urban and rural areas increased from 1.23 in 2020 to 3.83 in 2050.

In the 75-84 age group, the ratio of healthy elderly people in urban and rural areas gradually expanded from 0.74 in 2020 to 1.64 in 2050, and the ratio of mildly disabled elderly people in urban and rural areas gradually expanded from 0.91 in 2020 to 2.43 in 2050. In the age group of 85-94 years old, the scale of healthy and mildly disabled elderly in urban areas showed an overall trend from lower than that in rural areas to more than that in rural areas. In the age group of 95 years and above, there was little urban-rural difference in the size of the healthy and mildly disabled elderly population.

In terms of the population with moderate and severe disability, the difference in the scale of the elderly with moderate and severe disability in urban and rural areas was more significant than that in the elderly with mild disability in urban and rural areas. In the 65-74 age group, the ratio of the number of moderately disabled elderly in urban and rural areas expanded from 2.04 in 2020 to 7.77 in 2050, mainly because the rate of moderately disabled elderly in urban areas was higher than that in rural areas in 2020 and 2050. The rates of moderate disability in urban elderly were 4.4 and 9.1 percentage points higher than those in rural areas, respectively.

In this age group, there is no significant difference in the number of severely disabled elderly people between urban and rural areas. In the 75-84 age group, from 2020 to 2040, the number of the elderly with moderate and severe disability in rural areas was always higher than that in urban areas. In 2020, the ratio of the elderly with moderate and severe disability in rural areas and urban areas peaked at 1.74 and 2.38, respectively.

This is mainly due to the fact that the moderate and severe disability rates of the rural elderly in this age group were 2.0 and 2.2 percentage points higher than those in urban areas, respectively. In the age group of 85-94 years old and 95 years old and above, the urban-rural difference in the size of elderly population with moderate and severe disability is generally small, but the growth of elderly population with moderate and severe disability in urban areas is still faster than that in rural areas. In 2020 and

2050, the rate of severe disability in urban elderly aged 95 and above was 3.7 and 4.9 percentage points higher than that in rural areas, respectively.

Urban and rural state points age composition disability care time demand forecast and variance analysis of each group to stay in disability status between urban and rural areas the average duration of predicted results (Zhang Yuan, Wang Wei, 2022), showed that the overall look, first of all, with the increase of age and the deterioration of health status, duration of disability in the elderly is reduced gradually. The possible reason is that as the elderly grow older, their autoimmune function and physiological function gradually decline, and their risk of chronic diseases will gradually increase. Second, with the passage of time, the duration of disability status of the elderly showed an overall increasing trend, and the proportion of life expectancy of self-care decreased rapidly at first and then slowed down.

Possible reason is that the popularization of medical service and the level of ascension may lead to excessive medical phenomenon, extended the poor health of the elderly to the health and survival time in spite of, but not necessarily significantly improve their quality of life Song Jing Jun, Yang Ling (2020) further discuss from different disability grade, age group, duration of disability in the elderly is the urban and rural differences to analyze their care time needs.

From the perspective of health and mild disability status duration, firstly, with the increase of age, the health status duration of the urban and rural elderly decreased continuously, especially in the age group of 85-94 years old and 95 years old and above. Second, except for the 75-84 age group, in 2020 and 2050, the health status of the elderly in rural areas was 1.10 and 1.21 times longer than that in urban areas, respectively, indicating that the elderly in rural areas had health advantages. Third, in the 75-84 age group, the duration of mild disability in urban elderly was 1.20 times that in rural areas on average during the forecast period.

In general, the proportion of self-care life expectancy of 65-74 years old and 75-84 years old in urban and rural areas is more than 80%, indicating that the quality of life of the urban and rural elderly in these two age groups is relatively high.

Table 3.4 - Projection of the Duration of Different Disability Status of the Older People in Urban and Rural Areas (Years)

| Age group and health status | city | | | | rural | | | |
|---|---|---|---|---|---|---|---|---|
| | 2020 year | 2030 year | 2040 year | 2050 year | 2020 year | 2030 year | 2040 year | 2050 year |
| 65～74 | | | | | | | | |
| health | 11,30 | 11,33 | 12,71 | 13,59 | 13,78 | 11,62 | 14,34 | 15,24 |
| A mild disability | 6,08 | 7,56 | 8,58 | 8,04 | 7,54 | 6,46 | 7,25 | 9,52 |
| Moderate disability | 2,12 | 2,92 | 3,27 | 3,23 | 1,40 | 2,31 | 2,26 | 2,85 |
| Severe disability | 0,71 | 1,12 | 1,19 | 1,42 | 0,76 | 1,59 | 1,67 | 1,74 |
| 75～84 | | | | | | | | |
| health | 8,11 | 6,42 | 7,79 | 9,38 | 5,89 | 7,00 | 7,89 | 7,06 |
| A mild disability | 4,22 | 4,04 | 3,90 | 4,49 | 3,11 | 3,21 | 3,35 | 4,33 |
| Moderate disability | 1,06 | 1,01 | 1,20 | 1,18 | 1,28 | 1,24 | 1,25 | 1,66 |
| Severe disability | 0,56 | 0,51 | 0,55 | 0,63 | 0,61 | 0,64 | 0,85 | 0,88 |
| 85～94 | | | | | | | | |
| health | 2,30 | 2,00 | 2,01 | 2,11 | 1,98 | 2,07 | 2,34 | 2,61 |
| A mild disability | 2,53 | 2,60 | 2,45 | 2,26 | 2,34 | 2,52 | 2,59 | 2,13 |
| Moderate disability | 1,66 | 1,67 | 1,79 | 1,84 | 1,19 | 1,47 | 1,53 | 1,38 |
| Severe disability | 0,58 | 0,64 | 0,88 | 0,85 | 0,43 | 0,44 | 0,49 | 0,51 |
| 95+ | | | | | | | | |
| health | 0,29 | 0,26 | 0,28 | 0,27 | 0,35 | 0,38 | 0,40 | 0,34 |
| A mild disability | 0,69 | 0,75 | 0,65 | 0,68 | 0,71 | 0,76 | 0,69 | 0,85 |
| Moderate disability | 1,19 | 1,03 | 1,05 | 1,02 | 1,18 | 1,05 | 1,22 | 0,98 |
| Severe disability | 0,63 | 0,56 | 0,68 | 0,66 | 0,46 | 0,51 | 0,50 | 0,42 |

*Source: data collated by the author*

However, with the increase of age, the proportion of self-care life expectancy of urban and rural elderly decreases rapidly. In terms of the differences between urban and rural areas, the proportion of self-care life expectancy of the elderly in rural areas is significantly higher than that in urban areas, indicating that the elderly in rural areas have the advantage of self-care in health. This is mainly due to the fact that the elderly

in rural areas can only rely on themselves to complete various daily activities, coupled with the hard early life and labor, and the high mortality rate when they are young. It makes the elderly in rural areas more capable of daily activities (Zeng Yi et al., 2021).From the perspective of the duration of moderate disability, with the increase of age, the duration of moderate disability in urban and rural elderly showed a wave trend of "decrease-increase-decrease".

In general, the duration of moderate disability in the elderly aged 65-74 years and 85-94 years in urban and rural areas was the longest, and the average duration of moderate disability in the elderly aged 65-74 years and 85-94 years in urban areas was 2.89 years and 1.74 years, respectively. In rural areas, the average was 2.21 years and 1.40 years. From the perspective of urban-rural difference, the duration of moderate disability of the elderly aged 65-74 years in urban areas was 1.34 times that in rural areas on average, and the difference between them was the largest.

The average duration of moderate disability in rural elderly aged 85-94 and 75-84 years was 1.26 and 1.22 times of that in urban areas, respectively. In the age group of 95 years and above, the difference between urban and rural areas is small. In general, the elderly aged 65-74 years with moderate disability in urban areas need more care time. The reason for this phenomenon may lie in the high incidence of chronic diseases among the urban elderly.

Due to the high degree of urban industrialization, poor environmental quality, and the better living conditions of the urban elderly, their unhealthy lifestyle, eating habits and other risk factors also accelerate the occurrence of chronic diseases. According to the data of China Health Statistical Yearbook (2011), the prevalence of chronic diseases in the elderly aged 65 years and above in urban areas is about 33 percentage points higher than that in rural areas, and chronic diseases are an important factor causing disability. Moreover, medical resources in urban areas are significantly higher than those in rural areas, which prolonging the survival time of the elderly with diseases and unhealthy conditions. As a result, the duration of moderate disability is longer and the demand for care time is higher in the urban elderly in the lower age group.

From the perspective of the duration of severe disability, the duration of severe disability in urban and rural elderly showed a slow decreasing trend with the increase of age. The duration of severe disability in the elderly aged 65-74 years in urban and rural areas was the longest. The mean duration of severe disability in urban and rural elderly in this age group was 1.11 years and 1.44 years, respectively. In terms of the differences between urban and rural areas, in the 65-74 and 75-84 age groups, the duration of severe disability in the rural elderly was 1.28 and 1.32 times of that in the urban areas, respectively. In the age group of 85-94 years old and 95 years old and above, the duration of severe disability in urban elderly was 1.57 times and 1.35 times of that in rural areas, respectively. Overall, the elderly with severe disability aged 65-74 years in rural areas have a greater demand for care time.

Domestic academic circles on the choice of whether to build long-term care insurance system despite the larger differences, but most of scholars agree that can build a long-term care insurance system to alleviate the domestic disability elderly quantity, poor ability to cope with the care of the problem, and according to China’s practical experience, the establishment of the long-term care insurance system in China has great feasibility. From the perspective of the current political and academic circles’ attention to the long-term care insurance system, it bears the expectation of the public, and its establishment will alleviate the social risks brought by the increase in the number of disabled elderly to a certain extent. However, the establishment of long-term care insurance system must be based on the reference of foreign experience, and must be based on China’s local situation to formulate a “Chinese plan” conducive to the national economy and people’s livelihood, so as to avoid risks to the maximum extent and solve social problems.

Along with population aging and the aging speed is accelerated, highlighted China’s elderly health problems, long-term due to illness, disability, aging care problem has become the extremely important problems in China's current endowment service system, also has caused the academic and political value, China’s policy is to change. On the one hand, the government has increased investment in this area; On the

other hand, the government has accelerated the process of piloting the long-term care guarantee system in various provinces.

Long-term care security system is a policy support for the disabled elderly who need long-term care. Scholars have carried out research on long-term care security system from two aspects: first, long-term care insurance system, including its advantages, disadvantages and feasibility. The researchers mainly studied whether the long-term care insurance system should be established, whether the long-term passport insurance system has the conditions of localization in China, and the mode selection of the long-term care insurance system. Most researchers believe that the implementation of commercial insurance is not in line with the level of China's economic development, and it is difficult to cover the elderly groups in need of help to the maximum extent. China should adopt the multi-bearing social insurance model, but this may increase the pressure of enterprises and families.

However, according to the implementation status of the long-term care insurance system for the disabled elderly in China's pilot areas, as long as the financing subject and payment rate are clear, the disadvantages brought by it can be solved to the greatest extent and a local plan conducive to regional development can be formed. The second is the long-term care subsidy and assistance system, which has always played an important role in China. Compared with the richness of long-term care insurance research, long-term care subsidy and assistance system research is relatively poor.

Researchers for the implementation of the long-term care and allowances and rescue system to support for the view, widely held in don't think it can to national finance on the basis of high pressure relieve the pressure on the most needs to help the old man group, but it only as a kind of long-term care insurance system for auxiliary policies, if only long-term care benefits and assistance system, can only play the role of a relief, not conducive to the sustainable development of society. The above research results have an important reference for China, which is in the early stage of implementing long-term care security system, and are of great significance for the development of related fields.

## 3.2. Problem of implementation the long-term care insurance in China

We can be seen from the above data and ICONS, China's aging population is becoming more and more disability population also on the rise, need to care more and more the number of months, rely on the family already cannot satisfy the need, so we need to place for countries to provide long term care, but because of the high cost, part of the family could not afford to, so you need to buy long-term care insurance. China has not implemented long-term care insurance for a long time, and there are many problems, which will be discussed in detail in the following chapters.3.2. Problems and corresponding strategies of long-term care insurance in China under the background of quality of life.

As has been analyzed above, the long-term care insurance market in the United States is only supplied by insurance companies, and the government only plays a supervisory role. If our country adopts American model completely, it not only requires our commercial health insurance market to be developed, people's insurance consciousness to be strong, but also requires the per capita income to be high. However, the current situation of our commercial health insurance market is immature, and the development of the commercial medical insurance market is insufficient, and there is a lot of room for growth.

In the United States, the health insurance market covered 84 percent of the population in 2005, while in 2006, the health insurance market covered only 6 percent of the population. From the perspective of insurance depth, the health insurance premium income in China only accounted for 0.18% of GDP in 2006, which is a huge gap between China and developed countries. On the other hand, the per capita income of our country is low. If only the commercial long-term care insurance is developed, many people will not be able to pay the premium of long-term care insurance, and then cannot realize the comprehensive protection.

The national conditions of Japan and China have similarities, but there are very big differences. First, Japan and China are both aging countries, but Japan's aging is

more serious than our country. Second, Japan has established a relatively perfect social security system, which is still imperfect in China. Third, Japan belongs to a developed country with a high per capita income, while China belongs to a developing country with a bigger income gap in all social classes. If our country fully adopts the model of Japan's long-term care system and half of the costs are borne by the state and half by individuals, it will increase a great burden to the national and local finance on one hand; On the other hand, for low-income people, who already have limited income, the mandatory deduction of part of their income as long-term care insurance may have an impact on their daily life. However, for high income people, they can enjoy nursing services with only a small amount of money, which may lead to abuse of nursing services.

- **Low coverage and low willingness to participate in insurance**

In 2019, 1,024.83 million urban and rural residents participated in basic medical insurance, accounting for 75.69 percent of the total. The number of urban employees covered by medical insurance reached 329.25 million, accounting for 24.32%. From this we can see that it is far from enough for pilot stage to cover only the ginseng of insurance of town worker primary medical treatment to protect a person. Some pilot areas, such as Qingdao, in the long-term care insurance interim measures of the latest revision has expanded to residents will join groups of social basic medical insurance (the basic medical insurance for urban residents in China in 2016 with the new farmers in rural areas into urban and rural residents insurance of primary medical treatment), thus greatly improve the long-term care insurance coverage, the number of insured people has greatly increased, thereby the number of beneficiaries of insurance also can increase greatly subsequently, show the function and status as the sixth insurance of society truly thereby.

However, according to statistics, besides the two major groups covered by long-term care insurance for urban workers and basic medical insurance for urban and rural residents, there are still about 15% of the population not covered, about 213.51 million people. From the point of view of fair social security policy, according to the social basic medical insurance to ginseng protect range and financing way, it is unfair,

it will not attend insurance of primary medical treatment of people -- most of marginalized people, for they are entitled to the rights of the equal level of medical security and medical care is adverse. In addition, in the pilot stage of long-term care insurance, the coverage of all the pilots is linked with basic medical insurance, which is not conducive to the independent existence of long-term care insurance, and there will be an unfair situation of "all gain and all lose" relative to the beneficiaries of insurance.

- **Lack of support from laws and regulations**

Long-term care insurance belongs to a kind of health insurance, the national policy restricts its development. The delayed fiscal cut for supplemental medicare is just 4%. In addition, the effective implementation of long-term care insurance needs sound legal support. Besides insurance law and social security law, nursing laws are also necessary. The United States, Germany, Japan and other countries mentioned in chapter 2 have perfect laws and regulations to support. For example, The Nursing Insurance System in Japan and the Model Regulations on Long-term Care Insurance in the United States all contribute to the standardized development of long-term care and play a positive role in long-term care.

Long-term care insurance has just started in China, and social parties do not have a completely correct understanding of long-term care insurance. China passed the "Health Insurance Management Measures" in 2006, but there is no basis for the real implementation of long-term care insurance. At present, there is no unified standard for the limitation of nursing institutions, the differentiation of nursing levels and the evaluation of daily living ability in China. If the compensation scope and amount of long-term care insurance can not be relied on, it will certainly restrict the operation of the whole long-term care insurance.

- **The financing model is chaotic**

Through the analysis of the long-term care insurance financing capture mode, the current long-term care insurance financing sources in China, most of the pilot uses a variety of funding sources is collective burden long risk fund mode, to practice the "guidance" request, help each other in all aid, Shared accountability in accordance with the requirements of the pilot policy. Whether from system to meet people's demand for

long-term care insurance perspective, in-depth analysis can be found that financing pattern is varied, as many as four or five kinds of funding sources, including from the part of the social insurance of insurance of primary medical treatment, although it charge (transfer) directly by the medical insurance fund operation is simple, but will directly affect the medical insurance payment, in the areas where the medical insurance fund is gradually shrinking and the expenditure is increasing year by year, this financing mode is not sustainable and has the unique characteristics of the pilot stage.

In the pilot cities of Nantong, Chengde, Qiqihar, Anqing, Shangrao, Jingmen and Chongqing, if the source of long-term insurance financing from the medical insurance account fund is relatively stable, then the amount of personal payment is difficult to implement the system. How to collect? To take the unit, community collection and payment of incalculable cost of manpower and material resources; When the individual contribution constitutes a part of the financing fund, if other aspects of the payment have been in place, such as medical insurance account allocation, long-term care insurance payment paid by the unit, social contributions and government subsidies have all been accounted, but the individual contribution has not been collected, whether the long-term care insurance of the personnel is effective? After it becomes effective, the long-term care insurance fund should be paid according to the proportion of insufficient payment. If the payment is late, whether there will be late payment fee and so on, these are issues that need to be considered at the level of system implementation.

From the aspects of financing ways and standards, to raise standards in pilot cities differ in thousands ways, because of regional differences and annual differences regional expends base, so I can’t just from capture to expend scale on different Numbers to the analysis of financing, also because of regional economic development is different to quota financing way also not only from the norm of how much to give, in the case of non-fixed financial subsidies and social and individual contributions, the total amount of funding cannot be compared definitively.

But judging from the way of financing, adopts the proportion model to the total amount of the financing way for long-term care insurance fund to grasp the more

accurate, is based on the basic medical insurance fund in proportion to increase or decrease, is both the credit and health care, the benefits of this approach are as worker health especially the residents' health to expand coverage, absorbed more and more people to join the insurance, the long-term care insurance fund will also gradually increase. Also a fundraising workload is small, simple operation, save time and energy.

However, the disadvantage of doing so is also obvious, that is, relying only on the financing mode of basic medical insurance will seriously affect the normal payment of medical insurance fund, which will inevitably lead to the increase of the proportion and possibility of medical insurance fund going beyond its income. In raising standards, believe that the regional financing standards are not casually, must be after a thorough investigation and study on the experiences of other provinces and cities pilot precedent them synthetically consideration under the gold standard, raise standards set too high, will directly impact on government finances, will also become the burden of medical insurance fund balance and payment. If the financing standard is too low, then in the social reality of aging and the proportion of disabled and mentally disabled people rising year by year, it will make the long-term care insurance fund beyond its income, so that the pilot system can not be maintained.

**- There are different evaluation standards for disability grades**

The correct assessment of disability level is one of the most important links in the whole process of long-term care insurance, and it is also an important link for the elderly with disability and mental disability to enjoy the benefits of nursing insurance. Therefore, unified standards should be formulated reasonably and strictly checked. According to the guideline, one of the main tasks of the pilot work is to explore the system and management methods of standards such as grade evaluation.

In the pilot stage, each pilot has indeed carried out different degrees of exploration in the grading stage of nursing insurance. However, the following problems can be found in the evaluation process of disability standard by analyzing the existing system according to the demand of long-term care insurance:

(1) The evaluation standards of different regions are not uniform.

Although the geographical location, economic development situation and medical insurance level vary from region to region, the long-term care insurance system, as one of the defined social insurance, should be promoted and implemented nationwide in line with the principle of fairness.

(2) Evaluation is subjective

Disability rating is the entry link of long-term care insurance payment, an important link of long-term care insurance, and one of the key factors affecting the balance of income and expenditure of long-term care insurance fund. First is to assess individual's perception of judgment standard and how to grasp the degree of master, such as "eating" for the assessed the grade a, independent from completely unable to eat enough to be independent eating gives 0 ~ 5 points respectively, then when the assessed can help eating part of liquid diets is to give 2 or 3 points.

The subjective evaluation will play a dominant role and there will be a large difference in the scores of different evaluators for the same person. At the same time, the perception of the real and stable situation of the evaluated person, such as the situation that the evaluated person deliberately can't eat for some reason on the day of the evaluation will also have an impact on the score of the evaluation. How to establish the evaluation standard and grasp the evaluation means is an important link to ensure the fairness of long-term care insurance.

**- Lack of professional long-term care personnel**

At present, the active elderly care services are mainly the laid-off people in their 40s and 50s and some nursing workers. They have not undergone long-term care training and assessment, and do not have relevant experience, and most of them have low educational background.

Long-term care insurance has higher requirements for medical and nursing knowledge of the staff, which to a certain extent improves the difficulty of insurance company business processing. The lack of professional nursing staff not only hinders the health recovery of the elderly, but also limits the level of nursing services. The aging of the population has an urgent need for long-term care service personnel.

At present, the whole nursing industry of our country is in the dilemma of insufficient professional talents and great talent mobility. With the international standard to calculate the number of nursing personnel in our country, now in need of long-term care population is 40 million, so need at least 10 million of professional nursing staff, but from the nursing staff in China at present only less than 1 million, and the proportion of professional nursing staff, less than one over ten far below international standards. China's entire nursing industry has not yet formed an industrial scale, both urban and rural areas in a short period of time are difficult to meet international standards.

Table 3.5 - Number of persons engaged in medical services in China

| Indicators | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| Number of health technicians per 10,000 population (person) | 61 | 65 | 68 | 73 | 76 | 81 |
| Number of urban health technicians per 10,000 population (person) | 104 | 109 | 109 | 111 | 115 | 118 |
| Number of rural health technicians per 10,000 population (person) | 41 | 43 | 46 | 50 | 52 | 55 |
| Number of Licensed (Assistant) physicians per 10,000 people (person) | 23 | 24 | 26 | 28 | 29 | 31 |
| Number of Urban Practicing (assistant) physicians per 10,000 people(person) | 38 | 40 | 40 | 41 | 43 | 44 |
| Number of rural practicing (assistant) physicians per 10,000 people(person) | 16 | 17 | 18 | 20 | 21 | 23 |
| Number of Registered nurses per 10,000 (person) | 25 | 27 | 29 | 32 | 33 | 35 |
| Number of registered nurses in Cities per 10,000 people(person) | 48 | 50 | 51 | 52 | 54 | 57 |
| Number of registered nurses in rural per 10,000 people(person) | 15 | 16 | 18 | 20 | 23 | 23 |

*Source: China Bureau of Statistics*

According to the full research, can be promote the simultaneous full coverage of urban and rural residents. The determination of the insured financing object is not only the key content of long-term care insurance design, but also the primary link of long-term care insurance financing mechanism. Only by determining the insured object can we define the main body of financing and ensure the source of fund raising.

No. 80 pointed out that “in the pilot phase, the long-term care insurance system mainly covers the basic medical insurance of workers in principle, and the pilot areas can reasonably determine the coverage of insurance according to their own conditions and gradually expand”.

Long-term care insurance financing targets are faced with the choice of covering the whole population or covering specific groups. In Japan, people over 40 years old are eligible. The problems caused by only covering specific groups are as follows: first, the groups that do not meet the requirements are excluded from the long-term care insurance, and once they encounter the risk of disability, they have to bear huge financial and psychological pressure due to the lack of institutional protection; Second, age, region and other qualifications limit the number of insured financing groups, resulting in the weakening of long-term care insurance financing ability, affecting the sustainability of funds.

The report of the 19th National Congress of China has clearly defined the guiding ideology of “full coverage” of social security. As an important part of the social security system, the object of long-term nursing insurance financing should cover all members of society. This is not only the due meaning of social fairness, but also the inherent requirements of the “law of large numbers” for long-term care insurance financing. To achieve full coverage of public long-term care insurance in China, we should pay special attention to the following issues: first, how to achieve full coverage of the system, and second, how to realize the participation of low-income groups. There are two ways to achieve full coverage of long-term care insurance: one is gradual full coverage, that is, urban workers are first covered, and then urban and rural residents are gradually expanded.

China's endowment insurance and medical insurance basically use the progressive full coverage idea of urban first and rural second. The other is integrated full coverage, that is, directly and synchronously achieve full coverage of urban and rural residents. The biggest advantage of the progressive full coverage path is the relatively small propulsive resistance. However, the overall coverage strategy is better, because with the enhancement of people’s awareness of rights, social security rights

and benefits have aroused high attention of public opinion, and simultaneous coverage of urban workers and urban and rural residents can avoid social conflicts.

In addition, the gradual full coverage strategy often induces the disease of urban and rural system separation. At present, China’s social security has basically completed the task from nothing to have, is in the integration process from having to excellent. Therefore, long-term care insurance should strengthen the top-level design, take the lead to achieve synchronous coverage of all social members, so as to enlarge the long-term care insurance fund pool.

Coverage of low-income groups is a major challenge for public long-term care insurance. As the threshold of social insurance payment is often excluded from low-income groups, it is necessary to design a series of payment links. In order to ensure the rights and interests of low-income people to participate in insurance, we can learn from the experience of Germany, Japan and The United States, such as unemployed groups can temporarily pay insurance premiums from unemployment insurance funds, and reduce the insurance premium rate of college students and the elderly. In addition to the above system design, we can refer to China's basic endowment insurance for urban and rural residents to pay part or all of the minimum insurance premiums for severely disabled people or low-income groups.

### 3.3. Suggestions ways of solving problems in human research development in China

Through the study of long-term care insurance in typical countries and according to China's specific national conditions, it is proposed that China needs to implement long-term care insurance. The research ideas and framework of the whole article are as follows (figure 3.5).

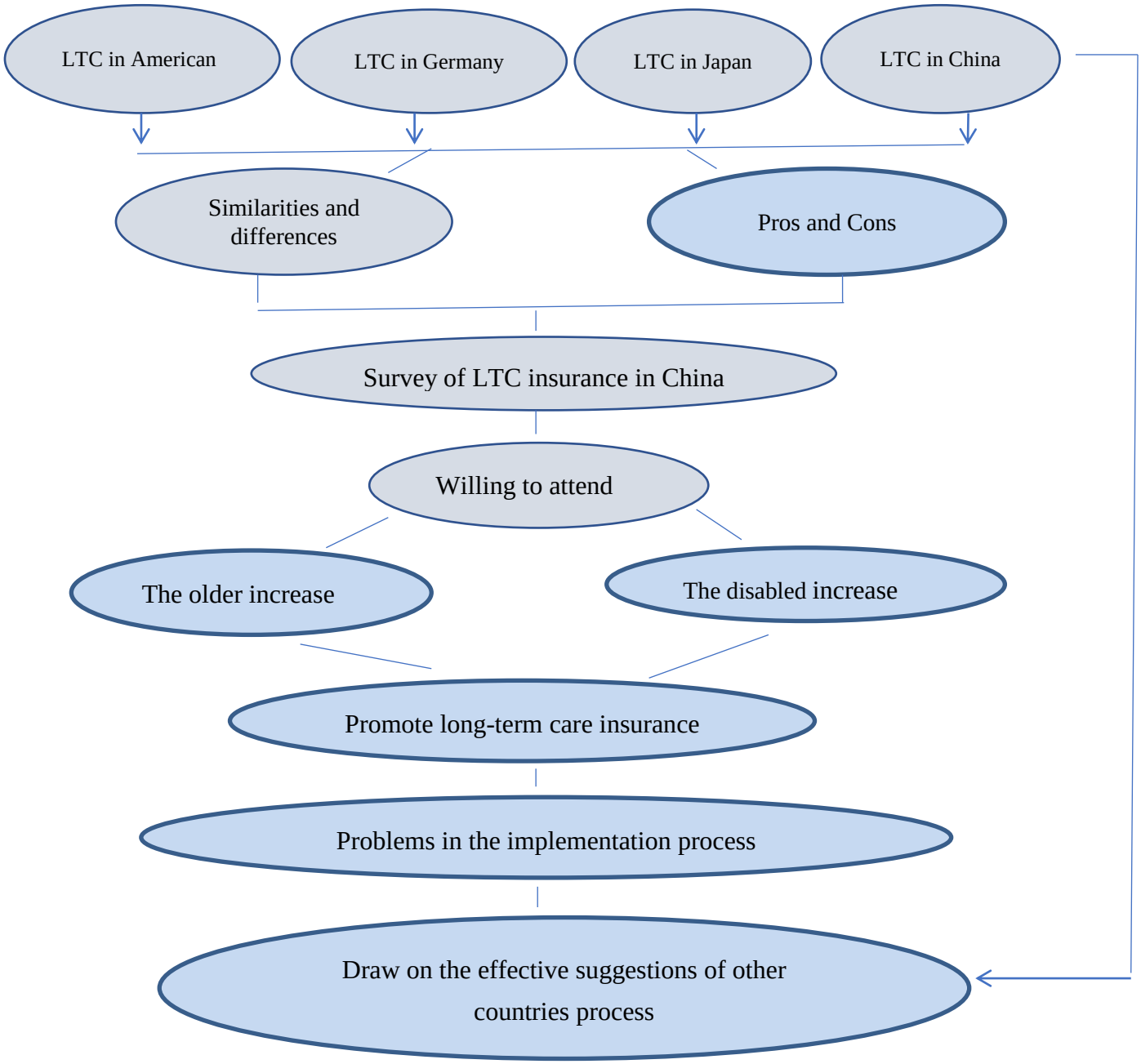


Figure 3.5 - The author`s research concept of human research development

*Source: author`s view*

China has also implemented long-term care insurance, but there are a series of problems in the early implementation, such as: people who want to participate in insurance and lack support from laws and regulations; the financing model is chaotic; there are different evaluation standards for disability grades; lack of professional long-term care personnel.

The determination of the insured financing object is not only the key content of long-term care insurance design, but also the primary link of long-term care insurance

financing mechanism. Only by determining the insured object can we define the main body of financing and ensure the source of fund raising. No. 80 pointed out that “in the pilot phase, the long-term care insurance system mainly covers the basic medical insurance of workers in principle, and the pilot areas can reasonably determine the coverage of insurance according to their own conditions and gradually expand”. Long-term care insurance financing targets are faced with the choice of covering the whole population or covering specific groups.

In Japan, people over 40 years old are eligible. The problems caused by only covering specific groups are as follows:

- first, the groups that do not meet the requirements are excluded from the long-term care insurance, and once they encounter the risk of disability, they have to bear huge financial and psychological pressure due to the lack of institutional protection;

- second, age, region and other qualifications limit the number of insured financing groups, resulting in the weakening of long-term care insurance financing ability, affecting the sustainability of funds.

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To achieve full coverage of public long-term care insurance in China, we should pay special attention to the following issues: first, how to achieve full coverage of the system, and second, how to realize the participation of low-income groups. There are two ways to achieve full coverage of long-term care insurance: one is gradual full coverage, that is, urban workers are first covered, and then urban and rural residents are gradually expanded. China's endowment insurance and medical insurance basically use the progressive full coverage idea of urban first and rural second. The

other is integrated full coverage, that is, directly and synchronously achieve full coverage of urban and rural residents.

The biggest advantage of the progressive full coverage path is the relatively small propulsive resistance. However, the overall coverage strategy is better, because with the enhancement of people's awareness of rights, social security rights and benefits have aroused high attention of public opinion, and simultaneous coverage of urban workers and urban and rural residents can avoid social conflicts. In addition, the gradual full coverage strategy often induces the disease of urban and rural system separation.

At present, China's social security has basically completed the task from nothing to have, is in the integration process from having to excellent. Therefore, long-term care insurance should strengthen the top-level design, take the lead to achieve synchronous coverage of all social members, so as to enlarge the long-term care insurance fund pool. Coverage of low-income groups is a major challenge for public long-term care insurance.

As the threshold of social insurance payment is often excluded from low-income groups, it is necessary to design a series of payment links. In order to ensure the rights and interests of low-income people to participate in insurance, we can learn from the experience of Germany, Japan and South Korea, such as unemployed groups can temporarily pay insurance premiums from unemployment insurance funds, and reduce the insurance premium rate of college students and the elderly. In addition to the above system design, we can refer to China's basic endowment insurance for urban and rural residents to pay part or all of the minimum insurance premiums for severely disabled people or low-income groups.

**- Improve the legislative level of long-term care insurance**

Legislation in advance is an important law for the development of foreign social security systems. From the perspective of practice, laws and regulations are important guarantees for the stable operation of social security system. Compared with endowment insurance and medical insurance, the long-term care insurance system is a new type of insurance. When the Social Insurance Law was promulgated in 2010, the

long-term care insurance system had not been piloted, and the Social Insurance Law did not cover the specific contents of long-term care insurance.

At present, from no. 80 document to the first batch of pilot city documents, the issuing level is relatively low. No. 80 was issued by the General Office of the Ministry of Human Resources and Social Security, only at the department-level. Some of the first pilot cities were municipal Human Resources and Social Security Bureau. In addition, from a management point of view, long-term care insurance is mainly composed of people club department to organize the implementation, in fact the long-term care insurance details and policy implementation, on health, finance, aging, the Red Cross, nursing homes, and other departments, division of labor and collaboration between multiple departments directly affect the efficiency of long-term care insurance system.

Therefore, the current no. 80 document and the first batch of pilot city human resources and social security departments issued unilateral documents will not be conducive to the cooperation between departments. Therefore, on the one hand, we should revise the “Social Insurance Law” as soon as possible, and include the long-term care insurance into the “social insurance Law”, so as to have laws to rely on fundamentally. On the other hand, the level of issuing documents should be upgraded to jointly formulate long-term care insurance documents with health, finance and civil affairs departments, so as to enhance the mobilization effectiveness of long-term care insurance and enhance the synergy between departments.

**- Expand capital source channels**

Diversified fund raising channels are the key to the sustainable development of long-term care insurance system. Although the first batch of pilots are trying to build social mutual aid fund raising methods, but from the practical point of view, the transfer of workers’ basic endowment insurance pooling fund and adjustment of medical insurance unified account structure are still the main channels of capital sources in each pilot area. In addition to Shanghai, the financing responsibility of employers is absent in the financing system of long-term care insurance, while the individual contribution responsibility is either directly exempted or directly transferred

from personal accounts in some pilot areas, and the individual participation rate in long-term care insurance is very low.

In addition, the long-term care insurance policy has strong positive externalities, and the government should be one of the important financing subjects. From the perspective of local policies and regulations, the government's financial subsidy responsibility is either absent or the financing ratio is relatively low. For example, Shangrao government's financial subsidy is 30 yuan per person per year, Nantong and Suzhou government's financial subsidy is 40 yuan per person per year and 50 yuan per person per year respectively.

It is clear that the current funding system cannot cope with future demand for long-term care services. In order to ensure the smooth operation of long-term care insurance system, first of all, it is necessary to clarify the responsibility of government financial subsidy, and the standard of government financial subsidy should be adjusted along with the economic and social development.

With the nationwide implementation of the long-term care insurance system, the central finance can establish a reasonable transfer payment mechanism according to the size of the disabled population and financial strength in each region to ensure the implementation of the long-term care insurance system in regions with weak financial resources. Secondly, clear individual and unit of choose and employ persons financing responsibility. Individuals and employing units (rural collective) are important financing subjects of long-term care insurance. On the one hand, it is necessary to clarify the financing proportion of individuals and units and enhance the responsibility of paying subjects. On the other hand, it is necessary to establish incentive mechanisms for individuals and employing units to pay. Finally, further broaden the source of funds, actively encourage individuals, social organizations, enterprises and other donations to long-term care insurance, to build diversified and stable financing channels.

**- Absorb scientific and technological means and create unified standards**

Disability rating standards are related to the selection of applicants, insurance payment rates and fund balance, which can be said to affect the whole. Since no. 80 document did not specify the disability assessment standards and management

methods, the disability grade standards in the first pilot areas basically went their own way in the process of exploration, and there was no unified standard to follow. Although most regions in accordance with the “rating scale of daily life activities ability” (Barthel index rating scale – Appendix A) as a disability rating standards, but disability evaluation division standard refined lead to actual interoperability is not strong enough, such as the Anqing city file points out “disability caused by old age, illness, disability, etc, after not less than 6 months of treatment, Meet the Barthel Index rating Scale for severe disability, unable to take care of themselves and in need of long-term care”

The scale score is not given in the regulation, so the concrete operation is poor. However, there are great differences in disability assessment standards stipulated by policies in some pilot areas, such as Qiqihar and Jingmen, which are set below 40 points (excluding), and Qingdao, which is set below 60 points (excluding). Since disability rating standards play a fundamental role in long-term care insurance, Germany, Japan, the Netherlands and other countries have established unified national disability rating standards and management norms to ensure the objective, scientific and fair identification of disability rating. Therefore, the Ministry of Human Resources and Social Security should, in conjunction with relevant departments, formulate a unified disability rating standard as soon as possible, referring to foreign disability rating standards and combining China’s reality.

**- Optimize supporting facilities and establish professional nursing teams**

High-quality hardware and software facilities - nursing institutions and personnel are the basis of high-quality services, only in the premise of providing high-quality nursing services, China’s implementation of long-term care system is meaningful and effective. Although family care is the main nursing mode at present, relying on community nursing and nursing institutions is the future nursing mode. Therefore, adequate, complete and systematic nursing facilities and nursing staff areone of the keys to establish a mature long-term care insurance system.

First of all, we should increase the investment and construction of nursing institutions for the aged, and plan the responsibility and number of nursing service institutions.

1. Home nursing should rely on community resources, increase the construction of nursing service facilities in community medical centers, and put home nursing service in community nursing in the first place.

2. Institutional nursing is allowed to add and develop other businesses such as nursing, nursing institutions can add nursing homes, traditional Chinese medicine hospitals, rehabilitation hospitals and other nursing departments, so as to achieve the "combination of maintenance", so that the elderly care institutions can undertake the main long-term care tasks.

3. Hospital nursing should realize the integration of "treatment and rehabilitation" nursing system, effectively separate nursing and disease treatment, which can not only relieve the tension of medical resources, but also give full play to the advantages of nursing system.

In addition, urban and rural nursing institutions should be integrated. Urban residents rely more on community nursing services, while rural residents should rely more on the nursing services of rural health stations, so that the elderly can have more access to nearby nursing and nursing, so as to fully meet the nursing needs and aspirations of the elderly.

Secondly, to strengthen the construction of professional nursing team, improve the professional quality of nursing staff and access threshold.

1. In the colleges and universities to increase the elderly nursing, nursing professional and other related majors, increase the number of nursing students, the elderly nursing study into a complete set of discipline construction system, while paying attention to the training of students nursing theoretical knowledge and practical practice experience, so as to create professional nursing staff team.

2. The establishment of social vocational training courses, will be willing to engage in the nursing industry in the community of vocational training, training and learning for a specified length of time, through the professional certification

qualification examination, can hold the certificate. This can control the quality and quality of nursing staff, always maintain the vitality and professionalism of the nursing team.

3. To strengthen the moral concept and ideological change of nursing staff. Due care industry facing the special groups, work hard and hard, most of old-age care industry there is a certain bias, so don't want to engage in the industry, and will appear in the process of nursing ethics and ethical issues, so we should strengthen the propaganda and education of nursing, make people's perception of nursing have again, so as to encourage people to actively participate in the nursing career.

Compared with endowment insurance, long-term care insurance should not only provide cash payment, but also provide corresponding nursing services. Professional and convenient nursing services are inseparable from high-quality nursing personnel. Long-term care services are relatively dependent on human resources because of scattered living places and random time of need for care services. Since the needs of disabled persons are embodied in living care, medical care, spiritual comfort and other aspects, both professional and non-professional nursing staff are needed to meet the needs of nursing staff. Taking medical care as an example, the medical care service industry has relatively high requirements on the skills and knowledge of nurses. Nursing staff often need to be equipped with diagnosis of patients, provide rehabilitation services, drug management, psychological intervention, nursing service planning and other aspects of professional literacy.

Relatively speaking, meeting the life needs of the disabled, such as dressing, eating, bathing, toilet, etc., is not high for the professional skills of the nursing staff, but it requires the nursing staff to have the corresponding professional ethics quality.

However, influenced by traditional culture, the social recognition of nursing practitioners is not high, the salary level is generally low, and the career development space is limited, resulting in a relatively high turnover rate of nursing staff, nursing service talent reserve is insufficient. In view of this, on the one hand, the government should attach great importance to nursing talents and improve their social status. Education departments and training institutions should cooperate to train professional

nursing management personnel and professional nursing staff, and at the same time, strengthen the training of existing nursing staff to improve their professional quality. We will continue to raise the salary of nursing staff, set up career plans for nursing staff, and retain and attract more nursing talents.

**Conclusion to chapter 3**

The continuous aging of the population will inevitably lead to the surge of long-term care needs of the elderly. If there is no special system to deal with the long-term care needs of the elderly, it will inevitably occupy medical and pension resources, which will seriously constrain the sustainable development of the social security system. At present, how to make the elderly happy in their old age is a compulsory subject for every country. The establishment of long-term care insurance system cannot be accomplished overnight, but must go through continuous reform and improvement, which will be a long and tortuous process.

The stone of another mountain can attack jade. The research on long-term care insurance system in foreign countries started early, and the mechanism and system in all aspects are relatively perfect, which can provide reference for the establishment of long-term care insurance system in China.

However, we should not be divorced from reality and copy the system model of other countries. We should build a practice model of long-term care security system with Chinese characteristics based on China's national conditions. Practice is the only criterion to test truth. We should gradually realize the full coverage of long-term care insurance in the whole country from point to point, from east to west, on the basis of doing a good job in the pilot areas.

Since the release of the Guidelines, pilot areas have conducted beneficial exploration on long-term care insurance based on realistic conditions. There are currently two types of long-term care insurance in China: the social insurance model adopted in most pilot areas and the commercial insurance model. At present, the structure of the social insurance-type long-term care system has been initially

completed. The long-term care insurance system in each pilot area runs relatively smoothly. The initial results of the pilot are obvious, mainly reflected in the following three aspects:

- First, the economic burden of disabled persons and their families is reduced;
- Second, comprehensive social functions have been brought into full play;
- Third, the allocation efficiency of medical and pension resources has been improved. However, from the content of the policy documents issued by various regions, there are many differences in the coverage of long-term care insurance programs in various pilot areas, insured objects, disability assessment, fund raising, treatment payment, handling services and other aspects. Pilot phase, the type of social insurance for long-term care insurance also exposed many problems, such as most of the pilot areas coverage wasn't involved in urban and rural residents, disability evaluation standard is not unified and not comprehensive, excessive dependence on fund-raising fund of medical treatment insurance, safeguard scope and the level of treatment co., LTD., professional nursing service between supply and actual demand, etc.

It is hoped that the contents and methods of the study can be continuously improved and suggestions can be made for the top-level design of China's long-term care insurance system.

## CONCLUSIONS

The dissertation substantiates theoretical, methodological and scientific-practical provisions on the development of life quality of human resources in China. The main conclusions obtained in the process of the study are as follows.

1. The dissertation work is devoted to the study of managing the development of human resources by methods of long-term improvement of the quality of life. By studying the experience and using the lessons of developed countries such as the United States of America, Germany and Japan, a basis was built for choosing a model and developing a system for the introduction of long-term care insurance (geriatric insurance) in China as one of the methods of improving the quality of life, taking into account the characteristics of local social security and increasing the safety of life for the elderly.

2. The need to transition to a model of sustainable development, caused by modern economic reality, is related to the direct improvement of the life quality of all segments of the population (especially the vulnerable) and the development of human resources. This requires a long-term strategy of organizational, instrumental, and economic support for the implementation of the appropriate state policy with the simultaneous modernization of scientific approaches. That is, ensuring the functioning of the chain "increasing the quality of life" - "increasing needs" - "growing the economy" is vitally necessary in modern conditions.

3. In the course of the study, were systematized the theoretical foundations, deepened concepts, and was formed a methodological approach to ensure the management and evaluation of the effectiveness of the implementation of long-term care insurance as one of the methods of improving the quality of life of human resources in China. Based on the study of the experience of commercial geriatric insurance in foreign developed countries are proposed the content, subsidization system, financing mechanism of long-term care insurance in China and the willingness of Chinese citizens to participate in insurance.

4. It was found that with the development of the economy and the progress of medical technologies, the life expectancy of the population increases. At the same time, the share of elderly people in the total population is increasing due to a decrease in the birth rate: China's population is aging at an accelerated pace. Thus, in 2010, the population aged 60 and over was more than 10%, and China received the status of an "aging society". By the end of 2021, the number of people aged 60 and over reached

270 million, accounting for 19% of the total population, a 9% increase from 2010. According to the World Bank, the aging of Chinese society will accelerate in the next 20 years. By 2040, the number of elderly people aged 60 and over will reach about 420 million, accounting for more than 30% of the population. As China's elderly population continues to grow, so does the number of people requiring long-term care. At the same time, the traditional Chinese family model has changed, families are usually smaller, young people do not want to live with the elderly, and small families of 2-3 people have become the main type of family formations. Thus, the Chinese government found itself in a kind of "scissors": as a result of a significant technological leap and undeniable successes of the medical system, the number of elderly people has increased significantly, which, on the other hand, leads to a redistribution of funds from investments to social security.

5. As the problem of aging continues to worsen in China, the dissertation research emphasizes the need to reform and improve the existing elderly care facilities on the one hand, and establish a unique long-term care insurance system to ensure an adequate supply of care services on the other. This will be the key to improving the quality of life of the elderly in China. However, the costs related to medical and social care for the elderly will already become the largest item of public expenditure in China in the medium term. Therefore, the state monetary resource will inevitably be forced to redirect from investments to the social sphere. If appropriate measures are not taken, the social costs associated with the life of the elderly in China will significantly destabilize the country's economic growth.

6. Long-term care insurance as a method of improving people's living standards in the United States, Japan, and Germany has achieved some success, with China as a case study. The history of the introduction of long-term care insurance in the United States, Germany, and Japan was found to have many common features, such as a high proportion of elderly people in the general population and a low birth rate, a weakened function of family unity. The successes and problems of each country developing long-term care service systems can become useful sources for the establishment and development of quality-of-life improvement systems in China,

which have great theoretical and practical significance. However, China has its own national conditions and characteristics, so it is not possible to just copy the successful experience of the three countries, but to develop a management model for the development of long-term care insurance in accordance with the actual conditions of China, which will ensure an increase in the economic potential of the population under conditions of sustainable development.

7. In the author's survey, more than 65% of respondents expressed a desire to participate in long-term care insurance in Henan Province, China. Among the forms of care, respondents chose the home form of care (68%) compared to special geriatric facilities (32%), and the cash form of payment (57%) for professional payment of services prevailed.

In addition, the study revealed that the population's willingness to introduce long-term care depends on the location of the household ("hukou"), the age of the respondent (r=0.833), the presence of people with physical or mental disabilities in the family (r=0.846) , income (r=0.711), number of children (r=0.698) and other factors. For example, people with urban "hukou" are more willing to support long-term care insurance (r=0.676) than people from rural areas.

Also, in the course of the study, it was found through regression analysis that concern about the quality of life of the elderly population and confidence that the government can create an ideal long-term care insurance system to some extent increases the demand for long-term care insurance (r=0.792).

8. After analyzing four typical Chinese cities - Shanghai, Qingdao, Nantong, Changchun, which are planned to be made typical when introducing the long-term care insurance model, certain differences and contradictions in the implementation of the proposed methods of improving the life of the population were revealed. Thus, due to the difference in the application of the principles of sustainable development in the everyday understanding of a person, there is a lack of perception of the triad of the socio-ecological-economic complex, due to which the respondents put economic priorities first, relegating the ecological component to the last place. This was

especially felt under the influence of the COVID-19 pandemic, when a large number of elderly people were left without proper care.

9. The system of long-term geriatric insurance proposed in the study is based on the principle of broad benefit, which is provided by the strategy of person-oriented development of human resources; introduction of diversified and differentiated financing, which forms a tripartite risk distribution mechanism between individuals, the state and the market; replacement of a one-time cash payment with a comprehensive service that extends to the entire lifetime of the insured person; reliance on commercial insurance companies that carry out professional management and operation of the market.

10. It can be noted that with such problems of long-term care insurance implementation as: lack of legal framework; chaotic financing; inconsistency in the standards and criteria for assessing the need for care; the lack of proper competence of professional personnel for long-term care, etc., can be combated by the following methods:

- to promote simultaneous full coverage of urban and rural residents by the system of commercial geriatric insurance;
- to improve the legislative level of long-term care insurance;
- expand funding channels (for example, allow distant relatives to pay for long-term care);
- master scientific and technical means and create uniform standards for assessing the needs of human resources;
- optimize aids and create professional teams of nurses.

At the same time, the essential content must satisfy both the interests of society as a whole and the individual subject of insurance protection.

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## APPENDIX A

ADL Commonly Used Rating Scales

Activities of daily living (ADL) are divided into basic activity of living (BADL) and instrumental activity of daily living (IADL).

Commonly used scales for BADL assessment are Barthel Index, Katz Index, PULSES, and the revised Kenny Self-Care Rating, etc. Commonly used scales for IADL are the functional activities questionary (FAQ), rapid disability rating scale (RDRS)

1. Barthel Index

| ADL Items | Self-care | Less dependent | Greater dependence | Fully dependent |
|---|---|---|---|---|
| Eating | 10 | 5 | 0 | 0 |
| Bathing | 5 | 0 | 0 | 0 |
| Retouching | 5 | 0 | 0 | 0 |
| Dressing | 10 | 5 | 0 | 0 |
| Control of bowel movements | 10 | 5 | 0 | 0 |
| Control of urination | 10 | 5 | 0 | 0 |
| Go to the toilet | 10 | 5 | 0 | 0 |
| Bed and chair mobility | 15 | 10 | 5 | 0 |
| Walking | 15 | 10 | 5 | 0 |
| Going up and down the stairs | 10 | 5 | 0 | 0 |

2. Analysis of results

The Barthel Index can be used not only to assess functional status before and after treatment, but also to predict treatment outcome, length of stay, and prognosis.

The Barthel Index consists of 10 items and is divided into four functional levels of 0, 5, 10 and 15 points based on whether or not they need help and their degree of help,

with a total score of 100. The higher the score, the greater the independence and the less dependence.

A score of 100 indicates that the ability of daily living activities is good and does not need to rely on others.

A score bigger than 60 indicates a mild dysfunction, but basic self-care in daily life.

A score of 60-41 indicates moderate functional impairment, requiring some help in daily life.

A score of 40-21 indicates severe functional impairment and a need to rely on others in daily life.

A score less than 20 indicates total disability and complete dependence on others for daily living.

PS: Patients with a score bigger 40 has the greatest benefit from treatment.

## APPENDIX B

Long-term care insurance demand willingness and enrollment ability questionnaire

Dear Friend:

Hello! I am a faculty member at the School of Economics and Management, Henan Institute of Science and Technology, and I am conducting this survey by random sampling within rural areas of Henan Province to study the demand willingness and ability to participate in rural long-term care insurance. This survey does not require your name and will take about 5 minutes of your time. Please fill out the survey according to your own situation, your answers are for academic research only, no leakage of your privacy, please feel free to fill out!

Instructions

(1) Please tick the appropriate option after each question, or fill in the appropriate content at "_____".

(2) Please do not consult with others when filling in the questions.

(3) There are many questions, so please be patient.

1. What is your gender?

A Male B Female

2. What is your age?

A 18-30 years old B 31-40 years old C 41-50 years old D 51-60 years old E 61 years old and above

3.What is your education level?

A Primary school and below B Junior high school C High school (including junior high school and vocational high school)

D College or bachelor's degree E Bachelor's degree or above

4. How many people are there in your family?

A 1-2 people B 3-4 people C 5-6 people D 7-8 people

E 9 people and above

5. What is your current marital status?

A Unmarried B Married C Divorced D Widowed

6. What is the number of your children?

A 0 B 1 C 2 D 3 E 4 and above

7. How do you currently live?

A Living alone or with spouse

B Two generations living together (with parents/children)

C Three generations and more living together

D Old-age institution

E Other _____

8. What is the nature of your work?

A Public or institution servant B Enterprise employee

C Individual businessman D Student

E Jobless F Other _____

9. How is your physical condition?

A very poor B poor C average D good E very good

10. Do you have any elderly people with disabilities or dementia in your family? (If yes, please answer in order; if no, please go to question 15)

A Yes B No (If no, please skip to question 15)

11. How many elderly people with disabilities or dementia are there in your family?

A 1 B 2 C 3 D More than 3

12. What is the degree of disability or dementia of the elderly in your family?

A Mild B Moderate C Severe

13. How many years of disability or dementia do you have in your family?

A 1-3 years B 3-5 years C 5-10 years D 10 years or more

14. What is the average number of days per month that children/spouses care for the elderly with disability or dementia?

A 5 days or less B 6-15 days C 16-25 days D 26 days or more

Are you worried about your old age disability (physical disability) or dementia (dementia)?

A very worried B quite worried C average

D not too worried E not worried at all

16. Do you accept care outside your family (such as community, nursing home, skilled nursing facility, etc.)?

A Completely acceptable B Basically acceptable

C Fairly acceptable D Not very acceptable

E Not at all acceptable

17. Do you agree with the concept of "raising children for old age"?

A Yes B No

18. Have you participated in the new rural cooperative medical insurance or the new rural social pension insurance?

A Both B Only participated in the rural cooperative medical insurance

C Only participated in the rural social pension D Neither of them

19. Have you ever purchased commercial insurance (such as personal accident insurance, critical illness insurance)?

A Yes B No

20. Have you ever known about long-term care insurance and related policies before?

A Very well informed B Better informed

C Generally informed D Not well informed

E Very little informed

21. Do you trust the government to establish a good long-term care insurance system?

A Very trustful B Fairly trustful C Average

D Not very trustful E Not at all trustful

22. Do you trust the regulatory authority to ensure that the long-term care insurance system works well?

A Very trusting B Fairly trusting C Average

D Not very trusting E Not at all trusting

23. Would you be willing to participate in the long-term care insurance system if it is implemented in our city? (If no, please answer in order; if yes, please go to question 25)

A Willingly B Not willingly

24. Why are you reluctant to purchase long-term care insurance? (Multiple choice possible)

A I don't know enough, so I won't consider it for now

B I am still young and won't need it in the future

C I will have children to take care of me in the future, so I don't need someone else to take care of me

D The cost is too high

E Cannot accept insurance

F The current social insurance system can meet my care needs in my old age

G My other commercial insurance can meet my needs

H The product is not mature enough, so I will buy it later

I Other _____

25. If the long-term care insurance system is implemented, what form of long-term care service would you most like to choose?

A Community home care B Nursing facility care

C Inpatient medical care D Other

26. If there is a long-term care insurance system, in what way do you prefer long-term care insurance to be provided?

A Cash payment B In-kind payment

C Professional service payment D Other

27. What is your monthly income?

A Less than 2000 yuan B 2000-4000 yuan C 4000-6000 yuan

D 6000-8000 yuan E 8000 yuan and above

28. What are your income expectations?

A Very good B Fairly good C Fairly poor

D Fairly poor E Very poor

29 What is the acceptable length of contribution for long-term care insurance?

A 10 years or less B 10-15 years C 15-20 years D 20 years or more

30. How much did you spend on health care in the past year?

A Less than 300 yuan B 300-500 yuan C500-800 yuan

D 800-1500 yuan E 1500-3000 yuan F 3000 yuan and above

31. What are the monthly medical expenses of the elderly in your family during their disability or dementia?

A 100 yuan and below B 100-500yuan C 500-1000yuan

D 1000-1500 yuan E 1500 yuan and above

32. What is your acceptable annual personal contribution to long-term care insurance?

A 10 yuan and below B 11-30 yuan C 31-40 yuan

D 41-50 yuan E 51-70 yuan

F 71-90yuan G 91yuan and above