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DISSERTATION

MANAGEMENT OF HUMAN RESOURCES DEVELOPMENT IN THE CONTEXT OF AGING POPULATION IN CHINA

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ABSTRACT

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Nowadays, the aging of population has become a major social problem facing the world, as well as a strategic issue concerning the economy, social development and population policies of various countries.

Although China's population aging appeared relatively late, due to the family planning policy in the 1970s. In 2000, the number of people over 60 years old in China reached 10.46% of the total population, and we officially entered an aging society. By the end of 2021, the population over 60 years old in China has reached 18.9% of the total population, and the elderly over 65 years old has reached 14.2% of the total population. China has entered a deep aging society according to the classification criteria set by the United Nations.

Aging population will bring a series of far-reaching effects on economic and social development. From the macro point of view, aging population will lead to the reduction of labor resources, labor participation rate, savings rate, consumption demand, social support burden, as well as the increase of financial pension, medical security expenditure and other problems. From the micro point of view - population aging involves the income of the elderly after retirement, family pension mode, pension, savings, consumption, medical treatment, health care, nursing and other issues. On the one hand, we should correctly recognize that population aging is an inevitable result of demographic transition and a symbol of social progress. On the other hand, we should also be clear that China, as a developing country, has entered the threshold of an aging society when the national income level is still low, which brings us a severe challenge to deal with the impact of aging and solve the aging problem.

To solve the problem of aging population structure, many solutions have been put forward in the academic and political circles, such as extending the retirement

age, encouraging the birth of children, and introducing foreign young labor force. Europe's experience suggests that immigration policy can alleviate the aging situation to a certain extent, but only to treat the symptoms, and there will be a series of other problems such as aboriginal unemployment increase, ethnic contradictions, crime rate rise. However, it is difficult to change the policy in a short time when the fertility intention is reduced to a certain extent, and it still takes some time for the newborn to grow into the labor force. Therefore, the World Health Organization has put forward the proposal of active aging, in which the elderly should no longer be a burden to society but should actively participate and become an important part of social development.

Sustainable development theory tells that in order to maintain the stability of the economy and the sustainable progress of the society, it is necessary to ensure that the sum of all resources does not decrease in the development process. When natural resources are exhausted, on the one hand, we should actively seek alternative resources, on the other hand, reduce the consumption of natural resources through new technologies. However, when the aging population leads to the shortage of human resources, it is necessary to improve the quality of human resources, and then improve the utilization rate of human resources. Although the elderly are no longer in the front line of production, their knowledge, skills and experience can still be exploited and utilized as valuable resources.

The development of elderly human resources is of great significance for China to successfully cope with the impact of population aging and maintain the sustainable development of economy and society. This paper studies the development of human resources for the elderly in the context of population aging, focuses on the analysis of the reasons for the development of human resources for the elderly from multiple perspectives, and finally puts forward countermeasures and suggestions to solve the existing problems in the development of human resources for the elderly.

The work is devoted to the problem of deepening the theoretical foundations, improving methodological provisions and developing practical recommendations

for the formation and improvement of the effectiveness of the human resources management strategy in the context of the aging of the nation in the conditions of globalization transformations in China.

The scientific novelty of the obtained results lies in the conceptual substantiation of the problem of forming a strategy for managing the development of human resources in the context of the aging of the nation in China in the conditions of globalization transformations, improving the theoretical and methodological apparatus for assessing the influence of socio-demographic factors on the dynamics of economic development.

Thus, approaches to the interpretation of the category of human resource development in the context of population aging in China were analyzed and summarized. Its author's definition is proposed as the specific ability of society to support and, using implicit and explicit compensators if necessary, to restore and improve its own structure in the context of social strata according to a number of significant parameters, in particular with regard to the level of economic activity, as well as educational, professional and competence training of the population, on the basis of which the proportions of the production of human intellectual and physical capital are optimized, the intensification and continuity of production is ensured, and the level of public welfare increases.

It was found that the increase in the number of the elderly population in China in 1990-2020 by more than 10 million people is due not only to a complex of natural factors, but also to an imperfect and insufficiently systematic and consistent state economic policy. To control rapid population growth, China introduced family planning policies in the 1970s, which also led to a rapid decline in China's total fertility rate and accelerated China's entry into an aging society in the year 2000. Through analysis, it was found that Aging China has the following characteristics:

1. A large number of elderly population. By the end of 2021, the number of elderly people over the age of 65 in China exceeded 200 million, accounting for 14.2% of the total population;

2. Speed of aging. It took only 21 years for the proportion of elderly people over 65 to rise from 7% to 14% of China's total population.

3. Population aging is ahead of economic development, and China's current level of economic development is lower than that of developed countries;

4. The development of aging is unbalanced between regions;

5. Between the city and the village there are differences in the degree of aging of the population.

In the future, China's aging population will show an accelerating trend and will peak around 2055, when the elderly population over 65 will be about 450 million, accounting for about 35.6% of the total old population.

According to the China-wide Survey on the Living Conditions of the Urban and Rural Elderly, 30 percent of the elderly have good health, and the health of the urban elderly is better than that of the rural elderly (r=0.7666). This opens up more space for the development of the human resources of the elderly in China. The industry of the primary sector (all branches of agriculture) still remains the main field of work for the elderly, but due to the physical condition of human resources, the quality of such work is lost.

The proportion of elderly people aged 60-64 who are employed in tertiary sector industries (education, engineering technology, financial and international activities, tourism, transport) is relatively high (37%), and most of them work at least 8 hours a day . However, there are still some challenges in the development of human resources in the context of an aging nation in China:

1. The level of education of the elderly is low, and the offer of educational resources for the elderly is seriously insufficient (up to 8 places of demand are observed for 1 place of supply);

2. Lack of special national planning, lack of political support from employers, which significantly reduces employment opportunities;

3. Outdated conceptual policy regarding the support of the elderly, which is based on the age discrimination of employees and assigns the elderly a place "at the bottom of the social ladder).

It has been proven that the priorities of the socio-economic policy of the development of human resources in the context of the aging of the nation should be: increasing the duration and quality of life (r=0.813); formation of a strategic concept of human resources development in the context of the aging of the nation in China (r=0.763); ensuring equal rights and opportunities of the elderly in the formation of production potential (r=0.649);

It was stated that the intensification of the processes of economic growth requires improvement of the mechanism and analytical tools for assessing the impact of demographic factors on the dynamics of the country's development using econometric methods. Demographic forecasting and modeling, in particular the processes of population aging, is important, thanks to which it is possible to formulate effective strategies for socio-demographic development, ensure income guarantees for people of different age categories, improve the state of health and increase the well-being of all citizens. It was determined that the priority is to involve the elderly in full-fledged economic reproduction through the intensification of the accumulation of human (intellectual) capital and the rationalization of the structure of expenses for social support of the elderly and investments in socio-economic development.

The conclusions and results obtained during the research provided an opportunity to verify the hypotheses laid in its basis, and their complex generalization, in turn, provides options for making a number of proposals that have not only theoretical, but also practical value. The practical significance of the obtained results lies in the deepening and systematization of the theoretical achievements of economic science devoted to the topic of management of human resources development in the context of aging population in China. The theoretical propositions proposed in the work can be used for further theoretical and empirical research related to aging processes. The results can be applied in the management activities of ministries and departments, local self-government bodies, which take care of regulation of social relations in society, development and implementation of social policy. The conclusions and other materials of the study should be applied

in the development of the activities of gerontological centers, universities of the third age, etc.

Key words: management, human resources, competences, innovation, sustainable development, social responsibility, person-oriented strategy, institutional economics, personnel management, mechanism of support

List of publications:

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. **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

Хуо Чжіпінь. *Управління людськими ресурсами в контексті старіння нації в Китаї.* Дисертація на здобуття наукового ступеня доктора філософії за спеціальністю 073 Менеджмент. Сумський національний аграрний університет, Суми, 2022 рік.

Сьогодні старіння населення стало основною соціальною проблемою, що постала перед світом, а також стратегічним питанням економіки, соціального розвитку та демографічної політики різних країн.

Хоча Китай увійшов у фазу старіння нації відносно пізно (у 2000 році кількість людей старше 60 років у Китаї досягла 10,46% від загальної чисельності населення), порівняно з країнами Європи, і відбулося це через політику планування сім'ї в 1970-х роках. До кінця 2021 року населення Китаю старше 60 років досягло 18,9% від загальної чисельності населення, а люди старше 65 років – 14,2% від загальної чисельності населення. Відповідно до критеріїв класифікації, встановлених ООН, Китай належить до групи «суспільство глибокого старіння».

Старіння населення матиме низку далекосяжних наслідків для економічного та соціального розвитку. З макроекономічної точки зору, старіння населення призведе до скорочення трудових ресурсів, рівня зайнятості населення, рівня заощаджень, споживчого попиту, навантаження на соціальну підтримку, а також збільшення фінансових пенсій, витрат на медичне забезпечення та інших проблем. З мікро точки зору - старіння населення включає зменшення доходу та відповідно рівня життя людей похилого віку після виходу на пенсію. З одного боку, правильним слід визнати, що старіння населення є неминучим результатом демографічного переходу та символом соціального прогресу.

Для вирішення проблеми старіння населення в академічних і політичних колах висунуто багато рішень, таких як збільшення пенсійного віку, заохочення народжуваності, залучення іноземної молодої робочої сили.

Досвід Європи показує, що імміграційна політика може певною мірою полегшити ситуацію зі старінням, але лише для лікування симптомів проблеми. Однак важко змінити політику за короткий час, тому Всесвітня організація охорони здоров'я висунула пропозицію «активного» старіння, за якої люди похилого віку більше не повинні бути тягарем для суспільства, а повинні брати активну участь і стати важливою частиною соціального розвитку.

Теорія сталого розвитку свідчить, що для підтримки стабільності економіки та прогресу суспільства необхідно забезпечити умову, щоб сума всіх ресурсів не зменшувалася в процесі розвитку. Коли природні ресурси вичерпуються, з одного боку, слід активно шукати альтернативні ресурси, з іншого боку, зменшити споживання природних ресурсів за допомогою нових технологій. Однак, коли старіння населення призводить до дефіциту людських ресурсів, необхідно підвищити якість людських ресурсів, а потім покращити рівень використання людських ресурсів. Незважаючи на те, що люди похилого віку більше не знаходяться на передовій лінії виробництва, їхні знання, навички та досвід усе ще можна використовувати та використовувати як цінні ресурси.

Розвиток людських ресурсів має велике значення для Китаю, щоб успішно впоратися з наслідками старіння населення та підтримувати сталий розвиток економіки та суспільства.

Роботу присвячено проблематиці поглиблення теоретичних засад, удосконалення методичних положень та розробки практичних рекомендацій щодо формування і підвищення ефективності стратегії управління людськими ресурсами в контексті старіння нації в умовах глобалізаційних перетворень в Китаї.

Наукова новизна одержаних результатів полягає у концептуальному обґрунтуванні проблеми формування стратегії управління розвитком людських ресурсів в контексті старіння нації в Китаї в умовах глобалізаційних перетворень, удосконаленні теоретико-методичного апарату

оцінювання впливу соціально-демографічних чинників на динаміку економічного розвитку.

Так, було проаналізовано та узагальнено підходи до трактування категорії розвитку людських ресурсів в контексті старіння населення в Китаї. Запропоновано її авторське визначення у якості специфічної здатності суспільства підтримувати та, застосовуючи в разі необхідності імпліцитні та експліцитні компенсатори, відновлювати та поліпшувати власну структуру в контексті соціальних страт за низкою значимих параметрів, зокрема щодо рівня економічної активності, а також освітньо-професійної та компетентнісної підготовки населення літнього віку, на основі чого оптимізуються пропорції продукування людського інтелектуального і фізичного капіталу, забезпечується інтенсифікація та неперервність виробництва, підвищується рівень громадського добробуту.

Було з'ясовано, що зростання чисельності населення похилого віку в Китаї у 1990–2020 рр. на понад 10 млн осіб обумовлено не лише комплексом природних чинників, а й недосконалою і недостатньо системною й послідовною державною економічною політикою. Щоб контролювати швидке зростання населення, Китай запровадив політику планування сім'ї в 1970-х роках, що також призвело до швидкого зниження загального рівня народжуваності та прискорило входження Китаю до груп суспільства старіння у 2000 році. Завдяки аналізу було виявлено, що управління людськими ресурсами в контексті старіння населення Китаю має відбуватись під впливом наступніх чинників:

1. Велика кількість літнього населення. На кінець 2021 року кількість людей похилого віку старше 65 років у Китаї перевищила 200 мільйонів, що становить 14,2% від загальної чисельності населення;

2. Швидкість старіння. Знадобився лише 21 рік, щоб частка літніх людей старше 65 років зросла з 7% до 14% від загальної чисельності населення Китаю.

3. Старіння населення випереджає економічний розвиток, і нинішній

рівень економічного розвитку Китаю нижчий, ніж у розвинутих країнах;

4. Розвиток старіння є незбалансованим між регіонами;

5. Між містом і селом існують відмінності в ступені старіння населення. У майбутньому старіння населення Китаю демонструватиме тенденцію до прискорення розвитку та досягне піку приблизно у 2055 році, коли літнє населення старше 65 років становитиме близько 450 мільйонів, що становитиме близько 35,6% від загальної кількості старого населення.

За даними загальнокитайського опитування про умови життя людей похилого віку в містах і селах, 30 % людей похилого віку мають хороше здоров'я, а здоров'я людей похилого віку в містах краще, ніж літніх людей у селі (r=0,7666). Це відкриває більше простору для розвитку людських ресурсів літніх людей у Китаї. Промисловість первинного сектору (усі галузі сільського господарства) все ще залишається основною сферою роботи для людей похилого віку, але через фізичний стан людських ресурсів встрачається якість такої праці.

Частка людей похилого віку у віці 60-64 років, які зайняті у промисловості третинного сектору (освіта, інженерні технології, фінансова та міжнародна діяльність, туризм, транспорт), відносно висока (37%), і більшість із них працюють щонайменше 8 годин на день. Однак у розвитку людських ресурсів в контексті старіння нації в Китаї все ще існують деякі проблеми:

1. Рівень освіти людей похилого віку є низьким, а пропозиція освітніх ресурсів для людей похилого віку серйозно недостатня (на 1 місце пропозиції спостерігається до 8 місць попиту);

2. Відсутність спеціального національного планування, відсутність політичної підтримки з боку роботодавців, що суттєво скорочує можливості працевлаштування;

3. Застраріла концептуальна політика щодо підтримки осіб літнього віку, що базується на віковій дискримінації працівників та відводить особам похилого віку місце «внизу соціальної драбини).

Доведено, що пріоритетами соціально-економічної політики розвитку людських ресурсів в контексті старіння нації мають бути: збільшення тривалості та якості життя (r=0,813); формування стратегічної концепції розвитку людських ресурсів в контексті старіння нації в Китаї (r=0,763); забезпечення рівних прав та можливостей літніх людей при формуванні виробничого потенціалу (r=0,649);.

Було зазначено, що активізація процесів економічного зростання потребує удосконалення механізму і аналітичного інструментарію оцінювання впливу демографічних факторів на динаміку розвитку країни з використанням економетричних методів. Важливим є демографічне прогнозування і моделювання, зокрема процесів старіння населення, завдяки чому можливе формулювання дієвих стратегій соціально-демографічного розвитку, забезпечення гарантій отримання доходу особами різних вікових категорій, покращання стану здоров'я та підвищення добробуту всіх громадян. Визначено, що одержання пріоритетним є залучення осіб літнього віку до повноцінного економічного відтворення через інтенсифікацію накопичення людського (інтелектуального) капіталу і раціоналізацію структури витрат на соціальну підтримку літніх людей та інвестицій в соціально-еономічний розвиток.

Отримані в ході дослідження висновки та результати надали можливість верифікувати закладені в його основу гіпотези, а їх комплексне узагальнення, своєю чергою, надає варіанти для внесення ряду пропозицій, що мають не лише теоретичну, але й практичну цінність. Практичне значення одержаних результатів полягає у поглибленні та систематизації теоретичних здобутків економічної науки, присвячених темі управління людськими ресурсами в контексті старіння населення Китаю. Запропоновані в роботі теоретичні положення можуть бути використані для подальших теоретичних та емпіричних досліджень, пов'язаних з процесами старіння. Результати можуть бути застосовані в управлінській діяльності міністерств та відомств, органів місцевого самоврядування, які опікуються регулюванням соціальних

відносин в суспільстві, розробкою та впровадженням соціально-економічної політики. Висновки та інші матеріали дослідження доцільно застосувати в розвитку діяльності геронтологічних центрів, університетів третього віку тощо.

Ключові слова: менеджмент, людські ресурси, компетенції, інновації, сталий розвиток, соціальна відповідальність, персоно-орієнтована стратегія, управління персоналом, інституційна економіка, механізми підтримки

Перелік публікацій здобувача:

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. **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)*

CONTENT

CONCLUSIONS

REFERENCES

APPENDEXES

INTRODUCTION

Relevance of the topic. Population aging is the most prominent social phenomenon at the end of the 20th century, and it is also a major social problem that the world must face in the 21st century. If not solved properly, it will play an immeasurable hindrance to social development. The theory of sustainable development tells that in order to maintain the steady growth of economy and the continuous progress of society, we must ensure that the sum of all resources in the process of development is not reduced. When natural resources are depleted, on the one hand, should be actively seekd alternative resources, on the other hand, should be reduced the consumption of natural resources through new technologies.

When the aging population leads to an increasing shortage of human resources, one method is to improve the quality of human resources, the other is to improve the utilization rate of human resources. As an important part of human resources, the elderly have retired from the front line of production, but their knowledge, skills and experience can still be used as valuable resources for further development and utilization. Therefore, the World Health Organization puts forward the suggestion of active aging to solve the problems caused by population aging through the development of elderly human resources.

Based on the existing population transition theory, human resources theory, sustainable development theory, theory and practice, normative analysis and empirical analysis are combined to demonstrate. The theoretical part of the article introduces the theory of population aging and human resources. By analyzing the relationship between population aging and human resources development, this paper demonstrates the feasibility and necessity of developing the elderly human resources. In the real part, this paper introduces the general situation of China's

elderly human resources and its development, and reveals the existing problems.

The literature review was based on the research 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 human resources development in the context of aging population. Along with this, the scientific output should be supplemented with research on geriatric support for old people as one of the methods of improving the social and economic situation of human resources in conditions of sustainable development, 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 human resources development in the context of aging population 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

human resources development in the context of aging population;

- to analyze the foreign experience of human resources development in the context of aging population;

- to generalize and justify research content, methodical approaches and ideas of assessment human resources development in the context of aging population;

- to analyze the current state and dynamics of human resources development in the context of aging population in China and foreign countries;

- to carry out domestic and foreign comparison of human resources for the aged in China;

- to determine problems of elderly human resource development in China;

- to characterize institutional guarantee and state support of aging human resource in China;

- to develop suggestions ways of solving problems in human resource development in the context of aging population in China.

The object of the study the system of socio-economic and organizational relations regarding the management of human resources development in the context of aging population in China.

The subject of the study theoretical, methodological and practical bases, regularities, principles, grounds, trends and contradictions of the formation and ensuring the management of human resources development in the context of aging population in the globalization.

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 human resources development in the context of aging population. 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 human resources development in the context of aging population, 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 human resources development in the context of aging population in the USA, France 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 re-imployment 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 conceptual substantiation of the problem of forming a strategy for managing the development of human resources in the context of the aging of the nation in China in the conditions of globalization transformations. The scientific results are reliable and in their scientific essence can be presented as follows:

First received:

- a conceptual proposed substantiation of the problem of forming a strategy for managing the development of human resources in the context of the aging of the nation in China by way of the specific ability of society to support and, using implicit and explicit compensators if necessary, to restore and improve its own structure in the context of social strata according to a number of significant

parameters, in particular with regard to the level of economic activity, as well as were optimized educational, professional and competence training of the population, on the basis of which the proportions of the production of human intellectual and physical capital, the intensification and continuity of production is ensured, and the level of public welfare increases;

Improved:

- theoretical and methodological approaches to the interpretation of the category of development of aged human resources as a process of mobilizing, utilizing and developing aged human resources of all classes and types in the whole society by using various ways, such as education, training, dispatching and cultural construction;

- an indispensable factors of the management of human resource development in the context of aging population, such as "age", "gender", "economic status", "health status", “skills”, “pension” and the “education level” for 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 the processes of population aging, thanks to which it is possible to formulate effective strategies for socio-demographic development, ensure income guarantees for people of different age categories, improve the state of health and increase the well-being of all citizens.

Further development took place:

- Principles, methods of applying the priority is to involve the elderly in full-fledged economic reproduction through the intensification of the accumulation of human (intellectual) capital and the rationalization of the structure of expenses for social support of the elderly and investments in socio-economic development;

- are proposed the content and substantiation of the problem of forming a

strategy for managing the development of human resources in the context of the aging of the nation in China by globalization transformations by the specific characteristics of aging human resources like human capital and time limit;

- improving the theoretical and methodological apparatus for assessing the influence of socio-demographic factors on the dynamics of economic development.

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 ministerium, in particular medical, social service providers in the development of a mechanism for implementing the best examples of world experience in geriatric support as a method of improving the standard of management human research development in the context of aging population in China.

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 190 pages of the main text, includes 30 tables, 25 figures. The list of used literary sources contains 208 items on 20 pages.

CHAPTER 1. TEORETICAL AND METHODOLOGICAL APPROACHES OF HUMAN RESOURCE DEVELOPMENT IN THE CONTEXT OF AGING POPULATION

1.1. The generation, concept and cause of aging population

Since its appearance on the earth, human beings have been struggling with nature all the time for survival. Population aging is the most prominent social phenomenon at the end of the 20th century, but also a major social problem that the whole world must face in the 21st century. Population aging refers to the process in which the proportion of the elderly in the total population of a country or region increases. The international standard for a country or region to enter an aging society is that the population over 60 years old accounts for 10% of the total population, or the population over 65 years old accounts for 7% of the total population.

The oldest aging country in the world is France. Since the beginning of the 19th century, France has developed rapidly in industrialization and urbanization, and the birth rate has declined. After the first World War, The UK and Germany reached the age standard in 1925, followed by Italy, Australia, the United States, Belgium, Canada and other countries.

By the middle of the 20th century, most western capitalist countries had entered the threshold of an aging society, while developing countries at this time had not completed the demographic transition and were still unfamiliar with the concept of aging population. In addition, the research on population aging is only in the academic field and has not attracted the attention of the international community. Until 1956, the United Nations published "Population Aging and Its

Social and Economic Consequences", which summarized the research results of population aging, population aging began to enter people's vision.

At the 24th Session of the United Nations General Assembly held in 1969, the representative of Maltese who put forward "the problem of aging facing the world" hoped that the governments of all countries should pay attention to the social and economic problems brought by aging population and the special needs of the elderly. This proposal attracted the attention of the representatives of all countries at the meeting. Since then, successive Sessions of the General Assembly have put this issue on the agenda for discussion and adopted corresponding resolutions many times.

Although the aging of China is relatively late, it is worth noting that due to the comprehensive implementation of the family planning policy in the 1970s, the fertility rate subsequently dropped sharply, which results in the rapid development of the aging degree of China. In 1964, only 6.08 percent of China's population was over 60 years old. In 1982, the figure rose to 7.63 percent, an average annual increase of 0.09 percentage points. In 1990, the number of people over 60 years old accounted for 8.58 percent of China's total population, an average annual increase of 0.12 percentage points over eight years. In 2000, the number of people over 60 years old reached 10.46% of the total population, increasing by 0.19 percentage points every year in the past 10 years.

In 2022 year, China officially entered the ranks of countries with aged people. At the end of 2021, the number of people aged 60 or above in China reached 18.9 percent of the total population, increasing by 0.4 percentage points annually in the 21st century. China has entered a deep aging society according to the classification standard of population Aging and Its Social and Economic Consequences established by the United Nations in 1956.

The average life expectancy of Chinese residents increased from 77.93 years in 2020 to 78.2 years in 2021, according to the 2021 Statistical Bulletin on the development of health services released by China's National Health Commission. As is shown in Figure 1.11, the life expectancy of Chinese residents will further

increase in the future according to the United Nations forecast. According to the 2021 China Pension Prospects Survey Report, to truly enjoy a peaceful old age, everyone needs to have at least 1.822 million yuan in cash savings before retirement, which will rise to 2 million yuan when the post-80s and 90s retire, accounting for inflation and other factors.

At present, the average pension in China is about 3300 yuan/month, and the daily necessities of food, clothing, shelter and transportation are enough. But to increase tourism and other entertainment activities, it is insufficient to rely on pensions. In addition, the huge elderly population also makes China's old-age dependency ratio keep rising. According to the United Nations' forecast, China's old-age dependency ratio will reach 40% in 2040. By then, the young generation will bear the heavy financial burden brought by this, and thus constitute the force of social instability.

Therefore, the development of human resources for the elderly can not only enable the elderly to play a role, but more importantly, for the family, it can relieve the pressure of the younger generation to provide for the elderly. In this way, family harmony can be achieved, thus reducing the occurrence of public security hazards. From the social perspective, financial burden can be reduced, a harmonious social environment can be created, and the occurrence of public security hazards can be alleviated and reduced.

In addition, the sudden transition from heavy work to a leisurely life after retirement makes the elderly have a huge psychological gap. They will also have a sense of inferiority because they can not continue to make contributions to the society and have to let their children take care of them. The elderly in retirement mentality can not be timely mediation, coupled with their small circle of life, will produce a series of psychological problems, began to lose interest in life, further will cause physical diseases. By participating in social and economic activities, on the one hand, the income of the elderly can be improved and economic sources increased. On the other hand, it can expand the social scope, reduce the loneliness of the elderly, and improve the quality of life of the elderly.

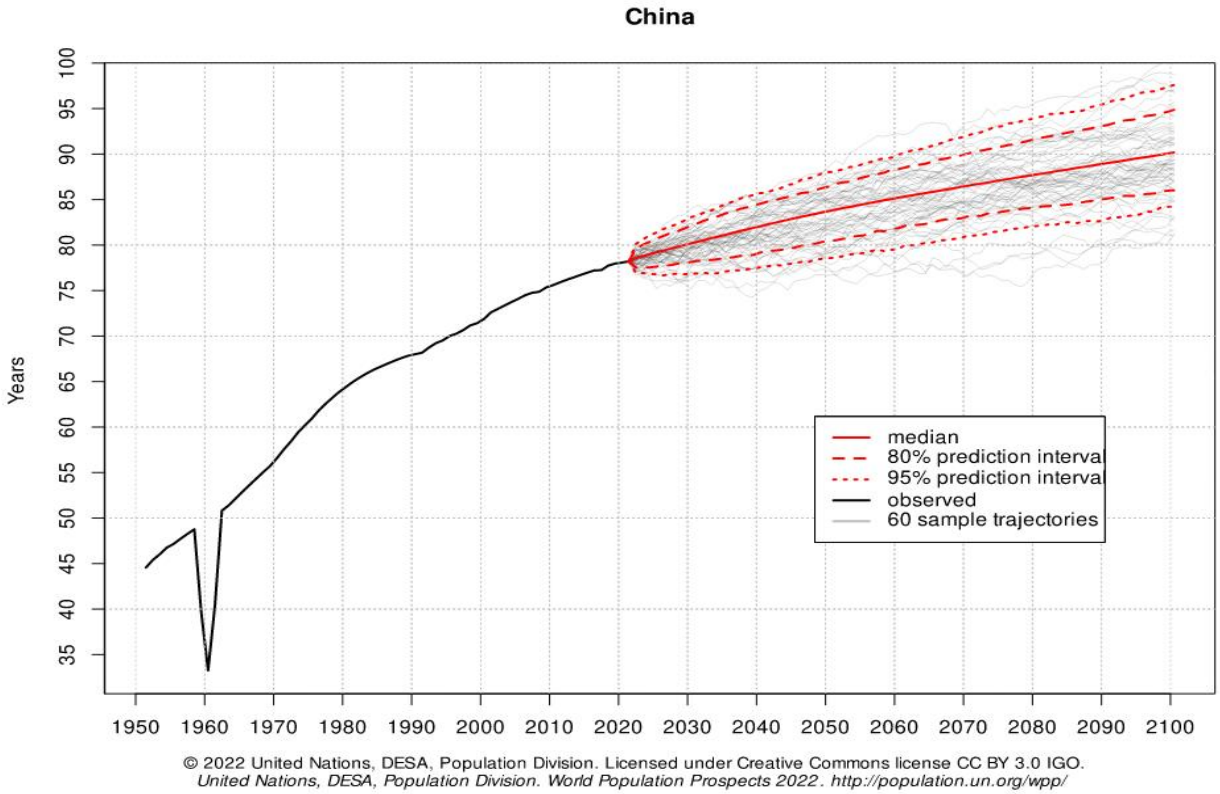


Figure 1.1-United Nations Life Expectancy forecast for China

Source: United Nations https://population.un.org/wpp/Graphs

Fourthly, the development of the elderly human resources, to some extent, can help young people adapt to the job as soon as possible, so as to improve the efficiency of human resources allocation in enterprises, industries and even the whole society. Now the problem of difficult employment of college students is becoming more and more prominent. Many college students' quality can not meet the needs of enterprise positions and are in a state of unemployment. Du Peng, a Chinese scholar, predicts that by 2040 more than 10% of China's elderly population will have a college degree or higher. As shown in Figure 1.12, it is predicted by the United Nations that the elderly population over 60 years old in China will exceed 400 million in 2040, and the elderly population with university degree or above will exceed 40 million. They have a wealth of experience and knowledge. The use of those experienced elderly people can guide the young people to work, enrich the quality of young people, and better serve the enterprise.

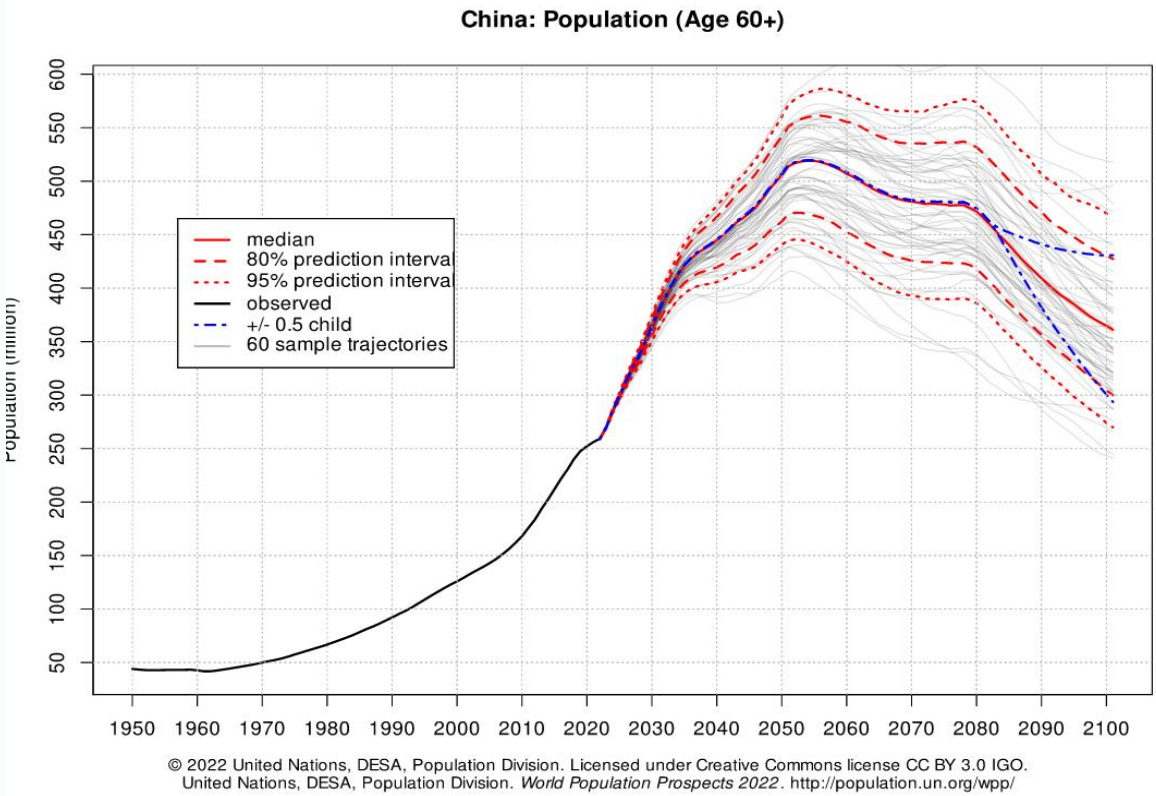


Figure 1.2-United Nations Projections of China's population over 60 years old

Source: https://population.un.org/wpp/Graphs

Fifth, develop old human resources help to safeguard the legal right to work of old people according to article 42 of the constitution of our country stipulates: "the rights and obligations of citizens of the People's Republic of China labor", that is as long as it is people with Chinese nationality, have to participate in the labor and employment, which is referred to labor law theory ability of labor rights. This ability to work is inherent and is a right granted to every citizen by law, and everyone is equal and free from discrimination based on ethnicity, race, gender, religious belief and education level. Therefore, the elderly have the right to work according to law, and this right cannot be deprived because of the age of the individual. In addition, Article 40 of the Law of the People's Republic of China on the Protection of the Rights and Interests of the Elderly stipulates that "the state and society shall value and cherish the knowledge, skills and experience of revolution and construction of the elderly, respect their fine moral character, and give play to the expertise and role of the elderly". "The state should create

conditions for the elderly to participate in the construction of socialist material and spiritual civilization.". In other words, the development of the elderly human resources itself is the responsibility of the government, the whole society should make a contribution to the development of the elderly human resources, to protect the legal rights of the elderly to work.

Sixth, the development of elderly human resources can also alleviate China's labor shortage. According to the Regulations of the People's Republic of China on Labor Insurance promulgated by the Government Affairs Council in 1951, male employees can retire when they reach the age of 60 with 25 years of service, and female employees can retire when they reach the age of 50 with 20 years of service. In 1955, the Provisional Measures for Handling the Retirement of State Organ Functionaries revised the retirement age of female cadres to 55. The current retirement system is implemented according to the retirement age stipulated in the Interim Measures of The State Council on the Retirement and Resignation of Workers in 1978, which means that the retirement age of enterprise employees shall be 60 years old for males, 50 years old for female workers and 55 years old for female cadres. Those who are engaged in underground, high temperature, high altitude, especially heavy manual labor or other work harmful to health shall have a retirement age of 55 for men and 45 for women.

It can be seen that today's legal retirement age is still the rule of the 1950s. Before liberation, the average life expectancy of the Chinese population was only 35 years old. According to the survey of 11 provinces and cities in 1957, the average life expectancy of the total population was 57.0 years old at that time. The average life expectancy of Chinese residents increased from 77.93 years in 2020 to 78.2 years in 2021, according to the 2021 Statistical Bulletin on the Development of China's Health Undertakings released by the National Health Commission. As can be seen in Figure 1.13, according to the United Nations, the life expectancy of Chinese residents will continue to increase, and the life expectancy of women is higher than that of men

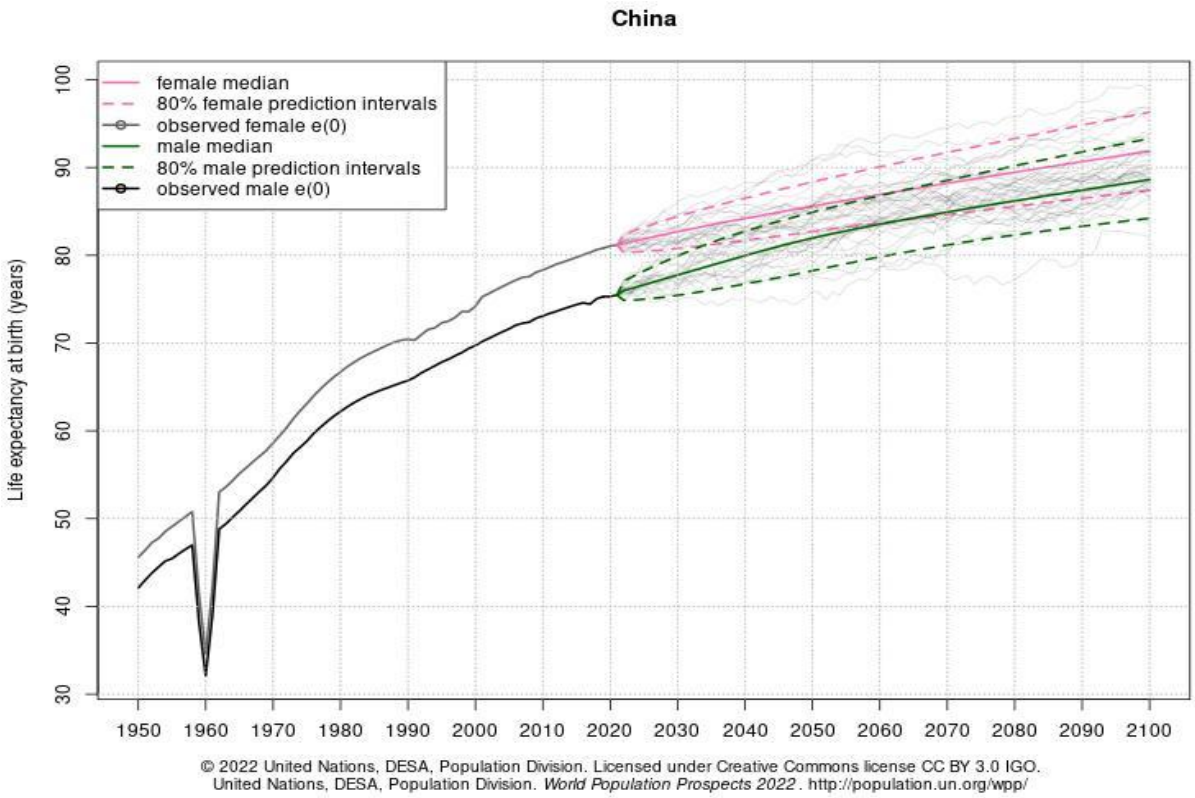


Figure 1.3-United Nations Life Expectancy Projections for China

Source: United Nations, 2022

Similar to the situation in China, although the population transition in other developing countries is nearly a century and a half later than that in developed countries, the rapid decline in fertility enables developing countries to complete the population transition process that took developed countries hundreds of years in a few decades. Therefore, the aging degree of population in developing countries is developing rapidly. At the same time, because the vast majority of the world's population is distributed in developing countries, so the aging population of developing countries affects the aging process of global population to a large extent.

It can be seen that the connection between aging and problems has basically become a thinking pattern. The academic community generally believes that population aging will bring about a series of economic and social problems. From the macro perspective, population aging will lead to the reduction of labor resources, labor participation rate, savings rate, consumption demand, social support burden, and financial pension, medical security spending increase. From

the micro point of view, population aging involves the income of the elderly after retirement, family pension mode, pension, savings, consumption, medical treatment, health care, nursing and other issues.

Although an aging population is a symbol of social progress, people have more negative views of the aging population and are pessimistic about the future of an aging society. Although some scholars put forward that we should face the phenomenon of population aging positively and optimistically, the problem will be solved with the development of society, and the future is not as pessimistic as we imagined, they still regard aging as a problem in the first place, but they have different views on the difficulty and prospect of the problem.

To solve the problem of aging population structure, many solutions have been put forward in the academic and political circles, such as extending the retirement age, encouraging the birth of children, and introducing foreign young labor force.

The experience of Europe has proved that although immigration policy can alleviate the aging situation to a certain extent, it will lead to a series of other problems such as increased unemployment of indigenous people, ethnic conflicts and crime rate. However, it is difficult to change the policy in a short time when the fertility intention is reduced to a certain extent, and it still takes some time for the newborn to grow into the labor force.

Therefore, the World Health Organization has put forward the suggestion of active aging to solve the problems caused by aging through the development of elderly human resources.

The term “ageing” originally means ageing with time. It is divided into individual and group ageing. Individual aging is the increase of individual calendar age, while group aging reflects the increase of the average age of the total population. Population ageing refers to a process in which the proportion of the elderly population increases correspondingly as a result of a decrease in the number of young people and an increase in the number of older people in the total population, or the average age of a population increases continuously.

Population aging is usually caused by three factors: the decrease of fertility rate, the increase of average life expectancy and migration. Demography usually refers to the population under the age of 15 as "young population", and the population over the age of 60 or 65 as "old population". When the proportion of the elderly population increases and the proportion of the young population decreases in a country or region, the country or region will have an aging population or the population age structure tends to be aging.

The aging of individuals is an irreversible process from the moment of conception to the end of death. However, a certain population group is different. If the proportion of children increases and the proportion of the elderly decreases, this group presents a younger population. In addition, population aging is a relative concept, which reflects the relative relationship between the elderly population and the young population.

Only the increase in the number of elderly population or the increase in the proportion of elderly population does not necessarily lead to population aging. Therefore, some scholars define population aging as the trend of age structure change that the elderly are defined according to the lower limit of a standard age, and the proportion of the total number of elderly population in the total population is counted or calculated accordingly, which is constantly increasing with the change of time. This definition is not accurate enough

Indicators of aging

1. Proportion of elderly population. The proportion of elderly population refers to the proportion of people over 65 years old in the total population, also known as the elderly coefficient. According to the classification standard proposed by the United Nations, when the proportion of the elderly population over 65 years old is less than 4% in a certain population, it is called young population. When the proportion of the population aged 65 or older is between 4% and 7%, it is considered mature. When the proportion of the population aged 65 or older exceeds 7 percent, the aged population is defined as the aged population.

2. Aging coefficient. Aging coefficient, also known as population aging coefficient or the ratio of the elderly to children, refers to the proportion of the elderly population in the population of children. Since the aging coefficient excludes the influence of adult population factors, it can accurately reflect the degree of population aging.

3. Dependency ratio of the aged. Demographically, the population is divided into three age groups, that is, 0-14 years old is the young population, 15-64 years old is the working age population, and over 65 years old is the elderly population. Children and the elderly are generally regarded as the dependent population group, that is, the working-age population supports this part of the population socially and economically.

Dependency ratio refers to the ratio of non-working age population and working age population, also known as dependency coefficient. The old-age dependency ratio is the ratio of the elderly over 65 to the working-age population, indicating the number of elderly people supported by every 100 working-age people.

The advantage of this index is that it is relatively simple to calculate. The disadvantage is that it is not accurate to measure the pressure of social pension by age, because the elderly population also includes those who continue to work and create value, and the working population also includes those who are pure consumers. Therefore, it is better to include the labor force participation rate when using the index, so that the measurement will be more accurate, but there are great difficulties in the application of this method in practice.

In addition, indicators to measure aging include average age, median age, aging rate and so on.

To study aging, it has to need to know what is old. In ancient times, "old" is described from the life characteristics of the elderly, so it can be seen that old is first a biological concept, which means aging. Modern biology will be expressed as aging: in the process of life, when the growth and development of organisms to reach reproductive maturity, or accelerate, with the extension of time, the function

of tissues gradually decline, the body to the normal environment gradually decline in the process. Different historical periods, different societies, different disciplines and even different people have their own ideas about when to grow old.

In order to be consistent with other countries in the world, China has set 65 as the starting age of old age. It should be pointed out that since the calendar age cannot take into account individual differences, there are often some drawbacks in the process of making policies for the elderly. The aging society, also known as the aging population structure, refers to the population structure model in which the elderly account for a certain proportion of the total population.

Demography believes that any kind of population change is the result of the mutual change of birth rate and death rate. Population aging, as the changing process of population age structure, is inevitably inseparable from the above two factors. A large number of studies on the process of population aging show that the decline in fertility is the decisive factor of population aging, while the decline in mortality and the increase in average life expectancy only have a certain effect in a specific period.

Chinese demographer Professor Hou Wenruo pointed out that when the birth rate of a population has dropped to a low level, the proportion of children has decreased greatly, and the elderly population has increased correspondingly, the death rate continues to decline, so that the average life expectancy is prolonged, the promoting effect of death rate on aging will appear. Japan has shifted from an aging process dominated by fertility to one dominated by mortality.

Another factor that cannot be ignored is the impact of population age structure on population aging. Due to the continuity of population age structure, fertility rate and mortality rate in any period of time have a large fluctuation, then the characteristics of population age structure in that period will continue to show in the later period. A baby boom predicts that in subsequent decades there will be a boom in schooling, a boom in employment, a boom in marriage and childbearing, a boom in retirement and a boom in death. So today's aging population can be traced back 60 years to the baby boom.

Population migration is also a factor affecting the degree of population aging. Although population migration does not increase the elderly population on the whole, it can change the regional aging pattern. Urbanization is the main driving force for the spatial redistribution of population, and the urban-rural mobility of population has a strong age selectivity.

The differences between young and middle-aged people in rural areas and the elderly in psychological orientation, cultural quality, living habits, labor skills and social adaptability, as well as the "preference" of various urban labor departments for young and middle-aged people. In the process of urbanization, the majority of people who move from rural areas to cities are young and middle-aged, and unmarried people have a stronger tendency to migrate, among which 16-40 years old are the main body of migration population.

The migration of young and middle-aged population, on the one hand, aggravates the aging degree of rural population, on the other hand, makes urban population tend to be young, so the aging degree of rural population is generally higher than that of urban population.

From 1982 to 2020, a total of 406.57 million people from rural areas moved to urban areas, including 109.6 million workers, accounting for 52.1 percent of the total population. During the same period, the proportion of elderly population in rural China rose from 7.8% to 10.9%, up 3.1 percentage points; During the same period, the urban elderly population increased from 7.4% to 9.7%, an increase of 2.3 percentage points.

Population migration makes the aging rate of rural population faster than that of urban population.In recent years, due to China's urbanization strategy, population migration has been further accelerated, which further deepened the aging of rural population. In 2020, the proportion of elderly population in rural China was 17.72%, 6.61 percentage points higher than that in urban areas. The data in Table 1.1 also illustrates this situation.

As can be seen from Table 1.1, the phenomenon of population aging in rural areas is higher than that in urban areas, not only in China, but also in America,

Asia and Europe, as well as in developed and developing countries. As the economic development level of urban areas is generally higher than that of rural areas, the difference between urban and rural areas in aging is widespread in all countries in the world.

Table 1.1 - Comparison of degree of population aging (population over 60 years old) between urban and rural areas in some countries in 2020

Country	urban	rural
America	15.9	17.5
Russia	16.9	18.3
China	9.7	17.9
Ukraine	11.11	17.72
India	6.7	7.7
Japan	26.2	30.7

Source: author`s research by United Nations Statistics Division Demographic Yearbook, 2021; National Bureau of Statistics of China, 2021

As explained above, the phenomenon of aging population is caused by fertility rate, mortality rate and other factors. Western demographers summed up a set of laws in the study of the changes in modern fertility and mortality, and explored the internal causes of the laws deeply.

Finally, they developed formed theories, which can better explain the causes of population aging. The theory of population transition is a kind of population theory which relates to social and economic development and studies the process of population development and the main stages of its evolution. It describes the historical process of population development from high birth rate, high death rate and low natural population growth rate to low birth rate, low death rate and low natural population growth rate.

The theory of population transition holds that when social and economic conditions change, birth rate and death rate tend to change from high to low, and in this process, the decline of death rate precedes birth

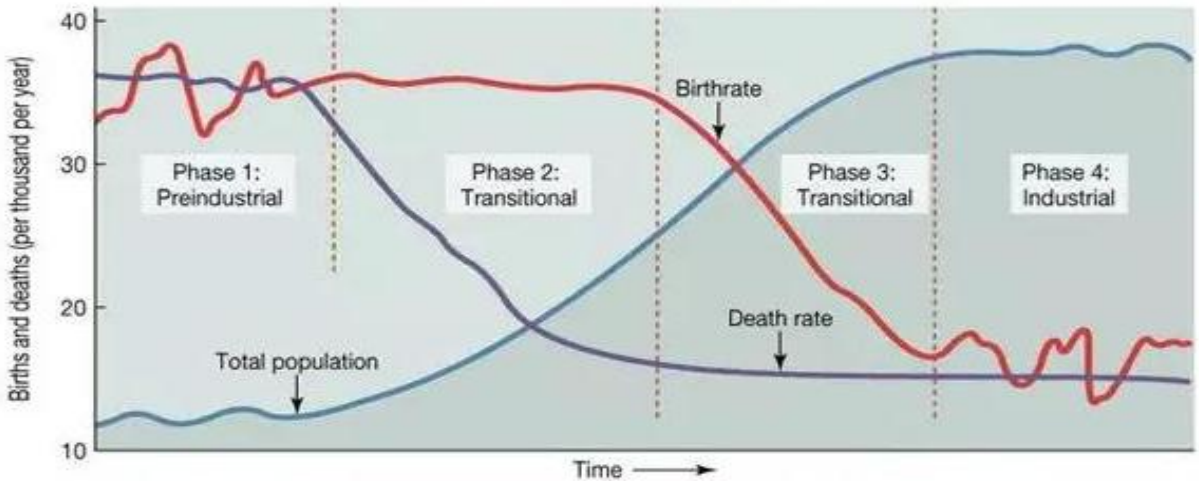


Figure 1.4 - Classical demographic transition theory

Source: author`s research

The classic theory of demographic transition is shown above, where the red line is birth rate, the dark blue line is death rate, and the middle line is total population change. The traditional demographic transition is divided into three stages in Figure 1.2:

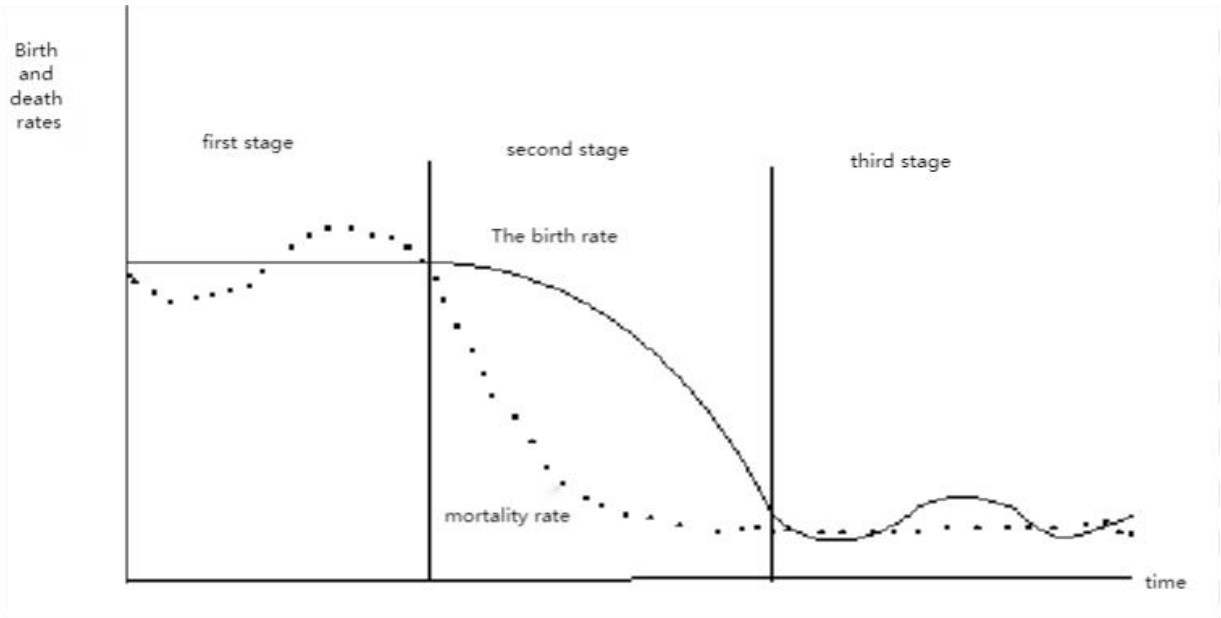


Figure 1.5 - A three-stage model of traditional demographic transition theory (1 - the pre-demographic transition stage, 2 - demographic transition, 3 -the post-demographic transition stage)

Source: author`s research

The theory of late population transition is divided into four stages, five stages,

etc., but the stage of population transition is subdivided, and now the diagram on display is four stages in Figure 1.2. The demographic transition explains that the first stage, the pre-demographic transition period corresponds to the early stage of human society, and human fertility is actually close to the limit of human fertility.

But because of human cognition of nature, for food and health controls the ability is low, so the mortality rate is also high, mortality and fertility is intertwined fluctuation curve, the population growth is very slow, but taking a long time, the birth rate is higher than that of mortality, otherwise they won't continue to this day. In terms of human development, this period lasted the longest, with the human population increasing to one billion in about a million years from the beginning of humanity to 1800 AD.

The second stage is the demographic transition period, in which the death rate drops first, the birth rate lags behind, and the total population increases rapidly. When the human society entered the agricultural society, the food supply changed from gathering and hunting to planting and breeding, and from random food supply to regular food supply, the nutritional status was guaranteed and the mortality rate was greatly reduced.

With the development of agriculture towards industrial civilization, material enrichment and the progress of knowledge, science and technology, especially in modern society, the development of medical and health services and science and technology, many diseases leading to human death have become controllable, and the mortality rate has further decreased and soon stabilized at a low level.

On the one hand, the time and space for childbearing in the life cycle has been compressed. On the other hand, the concept of childbearing has undergone tremendous changes, making it a general trend to have fewer children. So, after the death rate stabilized at a low level, the birth rate entered an era of decline. In the early stages of the demographic transition, death rates fall, birth rates remain high and the population grows substantially, and then in the later stages of the demographic transition, death rates remain low, birth rates begin to fall and human growth begins to slow.

1.2. Literature review of human resource development for the elderly

Human resources refers to the total number of people with working ability within a certain range of the population. It is a general term for people with intelligence and physical strength who can promote social and economic development.

The word "human resource" is known to people from the book "Management Practice" written by Peter Drucker, a famous contemporary management scientist, in 1954. He first introduced the concept of "human resource" when discussing managing employees and their work. In fact, the idea of human resources can be traced back to the ancient Greek period. Plato believed that as a citizen, he must learn various skills to meet the different needs of the society. At the same time, people in the process of cooperation due to the pursuit of self-interest can produce conflict, in order to maintain order in the country will need to be the elite, the aristocracy, and to obtain knowledge, conduct and learning have both governing, feeling emigre, you must accept the education and training, as well as to master the necessary cultural knowledge, and to have a strong physique, but also has character.

The thought of human resources got great development among classical economists in 17th - 18th century. William Pety, founder of classical British political economy, famously said, "Land is the mother of wealth, while labor is the father and active factor of wealth."

He regarded the improvement of labor productivity as one of the main factors contributing to the increase of national wealth, and put forward the view that the country should pay attention to universal education and the selection of technical personnel. Adam Smith, the father of economics, pointed out in The Wealth of Nations that "there are two ways to increase national wealth: one is to increase the number of productive workers, and the other is to increase the productivity of those who are employed."

"Human resource" is composed of two words "human power" and "resource". "Human resource" is interpreted as "human ability", which specifically refers to the

sum of human physical strength and mental strength, including human physical strength, intelligence and skills. "Resource" is the "source of capital", which is the source of creating the wealth of human society.

Human resource is to look at human resources from the perspective of resources and think that social production is the combination of human and material resources. Therefore, human ability, just like material resources, can create wealth for the society. It reveals the attribute of human resources. The research on human resources is divided into macro and micro levels. The macro level focuses on the study of social human resources in a certain range of time and space, development and allocation, which belongs to the category of economics. At the micro level, it focuses on the use and management of human resources in enterprises and other organizations, which belongs to management science. This paper will study the development and utilization of human resources of middle-aged and elderly people from a macroscopic perspective.

Population resources refers to a country or a region of the overall population, including not only the realistic and potential labor ability of the population, also included not having or have lost the labor ability of pure population of consumption, such as no labor ability of the child, lose labor ability of the disabled and the elderly, a person from birth to death throughout the life survival period, Can be regarded as an organic part of population resources, it reflects the population number or population scale of a region.

Population resource mainly reflects a concept of quantity, which is the natural basis of human resource. Human resource is a part of population resource, namely the part with physical strength, intelligence and skills. Labor resources refer to the population resources within the limits of a country and a region with the ability to work, and within the legal working age of the total population. The labor force resource is composed of the following several parts: namely, the working-age population at work, unemployed population, studying population, serving population, household labor population and so on.

The scope of labor resources is the same as the narrow sense of human resources, and the broad sense of human resources also includes non-working age population. Human resources and labor resources of another difference is that the labor force resources and population as concept emphasizes is the number of resources, and human resources is the unity of quantity and quality, pay more attention to emphasis on the quality of investment and development, refining processing with high quality of the workforce and contains the meaning of human capital in some way.

According to Ci Hai interpretation, human resources development refers to the recruitment, training, organization, management, forecasting of a series of work. Its main contents include: strengthen the enterprise's comprehensive labor and personnel management, rational and effective use of manpower, save labor time, improve labor productivity, improve the quality of workers and post skills, strengthen the continuing education of workers, improve pre-employment training and on-the-job training, correctly handle the compensation of workers, mobilize the enthusiasm of workers and so on.

The ultimate goal is to achieve appropriate personnel, make full use of people's talents. As one of the core concepts of western economics, human resource development has attracted the attention of many foreign scholars, who have made in-depth elaboration and discussion on the definition of human resource development.

To sum up, human resource development is basically defined as an education or learning program provided by an organization to employees to help them improve their skills and change their attitudes and behaviors. Through the process both individuals and organizations will be improved.

Aged human resources refers to the elderly population that has met the standards of the elderly population, but is still healthy from a health point of view, able to continue to contribute to the social and economic development process, and can continue to go to work.

The elderly human resources have the related characteristics of human resources, because it is a part of human resources after all, so as a unique group, it has its own characteristics. First, capital. It should be noted that the capital of old human resources is different from that of young human resources. The capital of young human resources is the potential ability of young people. Through training, development and other relevant means, this part of the potential ability can be turned into reality. However, the ability possessed by the elderly human resources is accumulated in their long-term working life, such as their experience, skills and various qualities formed through long-term life training. For young people, human resource development is mainly focused on "shaping", while for older people, it is focused on "utilization".

Second, the time limit. General human resources also have timeliness, which is a characteristic of human resources different from material resources. It should be noted that compared with general human resources, elderly human resources have stronger timeliness, so the development of elderly human resources should be timely, otherwise the elderly die due to physical discomfort, then his knowledge, skills, experience and so on will not exist, which is a huge loss for the society.

The development of aged human resources is a process of mobilizing, utilizing and developing aged human resources of all classes and types in the whole society by using various ways, such as education, training, dispatching and cultural construction. By making full use of the unique advantages of the elderly, we can achieve the goal of making the best use of their talents, making the best use of their talents, getting the best of them and making the best of them.

By author`s opinion, development of human resources is to promote and induce the formation, development and improvement of people's potential physical strength, brain power, knowledge and skills by means of investment, education and training, that is, to promote the realization of potential ability process.

Development of human resources can improve the quality of human resources. Especially in the current era of science and technology changing with each passing day, we can not have highly developed productivity without high-quality talent

because the improvement of human resources quality plays a fundamental role in supporting the whole social economy. If human resources are only developed but not utilized, the developed human resources will be wasted, so it is equally important to use the established human resources reasonably. This paper discusses the development of the elderly human resources, although the elderly human resources can also be "developed", but for the existing human resources obviously how to use them may have more practical significance.

The phenomenon of getting rich before the old is particularly significant in China. The reform of the old-age security system started late and the development is not perfect. Under the premise of good physical condition, the elderly can play their own advantages, do some tasks within their capacity, and make due contributions to the development of the society. Through the development of human resources for the elderly, encouraging the elderly to participate in social and family labor can not only change passivity into initiative, but also play a key role in effectively alleviating the above problems. It also provides the corresponding buffer time for the establishment of the sound old-age security mechanism and the improvement of the medical social security mechanism

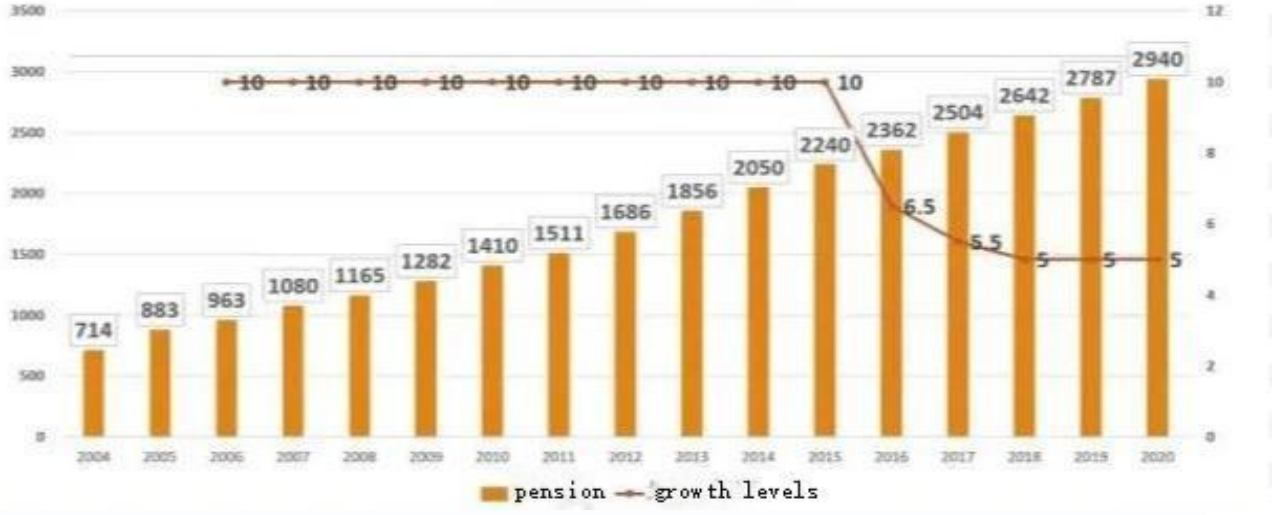


Figure 1.6 - Average pension level of enterprises in China

Source: China Social Security Report 2021

Second, the development of elderly labor resources can effectively compensate for China's human capital gap, alleviate the talent crisis. The quantity

and quality of human capital can not meet the needs of society which restrict the economy of our country. According to the 2021 China Human Capital Report, from 1985 to 2019, China's human capital stock increased by more than 11 times from 42.46 trillion RMB to 529.80 trillion RMB. During this period, the average annual growth rate of human capital stock reached 7.95%, which was lower than the average economic growth rate of China in the same period.

The problem of lack of senior human capital is more serious, and the number of it is decreasing. Most of the intellectuals at higher levels are over 45 years old, which reflects the shortage of human capital in China. Lack of human capital and human resources have impeded the process of rejuvenating the country through science and education. Therefore, development of the elderly labor resources can meet the needs of economic development and compensate for the human capital gap.

Third, the development of elderly labor resources can promote the physical and mental health of the elderly, improve the quality of life in their later years, and enhance social harmony and stability.

At the beginning of 2002, the World Aging Conference was held in Spain, the conference put forward the concept of positive aging in the face of the new situation, the conference also has two core ideas: 1. Human resources for the elderly should be regarded as the world's valuable human resources and precious wealth, and the elderly are a resource rather than a social burden. 2. Call on the elderly to take action and actively participate in social activities

Pahia (1999) conducted a large number of studies on the aging of population, made an in-depth analysis of the situation of the elderly, and studied the employment situation of the elderly. In Aging and the Elderly, Pahia proposed ways and methods to effectively cope with the aging of population through the development of human resources for the elderly and social security. It gives important enlightenment for later experts and scholars to study the problem of old-age employment and population aging. Catherine, on the other hand, from the perspective of social participation of the elderly, carried out a large number of

investigations and analyses on their physiological and psychological aspects, to understand the situation of social work for the elderly, and to provide reference for future generations to study this field and put forward policy suggestions for the elderly to participate in social work.

Schultz (2010) studied and discussed the United States as an example. In Economics of Aging, he studied how the United States, under the background of rapid social and economic development, should cope with and solve the challenges brought by population aging to the society and economy. Through the study OF the life and social problems faced by the elderly in the United States, the current situation and trend of the aging population in the United States, this book proposes that the government should introduce a reasonable retirement plan, and actively encourage the elderly to return to the labor market, continue to participate in social production, and make contributions to the society again.

Foreign research on the development of human resources for the elderly is not only reflected in some works, such as the well-known international academic works on the development of human resources for the elderly, such as "Research on the Aging Problem" (China Translation and Publishing Corporation, November 1983), James. Schulz, The Economics of Aging, Don. Labor Economics by White Laude and Mark Jackson, Malcolm. The Economics of Aging: The Prospect of Retirement by H. Morrison, and Social Gerontology: A Multidisciplinary Perspective by Homan and Kiyak, etc., are also mainly reflected in the laws and regulations of typical aging countries such as Japan, the United States, France and Germany.

Comin and Henry (1997), an American social scientist, developed the so-called withdrawal theory from their book Old Age. The main idea is: The old, because of their age, are no longer useful to society, and should therefore retire from their corresponding jobs, which should be held by the young, and that this is the result of natural change and a reflection of social ingenuity. Their theory was severely attacked as soon as it was put forward, but it was only in the midst of this heated debate that many more valuable theories emerged later.

Ross (2000) proposed the famous cultural theory, main point is that, the elderly is a unique cultural phenomenon, they are due to the development of the society led to the changes in population structure, can be in the community, create more opportunities for learning and communication for the elderly, so as to give the elderly a new group status and identity.

Cottle and Horn (1994), as American psychologists, held that human intelligence includes "liquefying intelligence" and "crystallizing intelligence". With the increase of age, "liquefying intelligence" does weaken. But it is not the same as' intelligence crystallization, it not only will not diminish, it will further enhance, the performance of this kind of new intelligence at the age of 55 and performance was no difference between the age of 20, if the elderly after retirement, still can continue to accept the knowledge training and education, so its' crystallization intelligence will follow and continue to strengthen, only by age and, the intelligence will be slightly reduced.

According to international standards, China began to enter the aging society in 2000. In the early 1990s, some scholars in China began to study the development of human resources for the elderly, but after 2000, more and more scholars began to pay attention to this issue and conducted a large number of studies.

The elderly own experience, knowledge and other advantages, so that the elderly human resources development has a certain degree of inevitability and feasibility.Through the realization of the value of the elderly, the elderly human resources development has a certain role in promoting the development of the family and society.Based on the research literature on elderly human resource development since 1998 collected from CNKI, by combing the subject, object and development mode of development, it is found that there are still many deficiencies in the research on elderly human resource development in China. In the future, we should focus on the future research of older human resource development from further broadening the research background of older human resource development, strengthening the empirical study in the rural areas and western regions, especially

in frontier ethnic minority areas, strengthening the international exchanges and cooperation about the research on elderly human resources development .

Li Dongsheng (2007) believes that the development of human resources for the elderly is the intellectual development of the elderly of all social strata and types to promote the continuous development of social productivity. Ding Panpan (2012) believes that elderly human resource development should take social organizations as the main body, take public welfare activities as the main form and serve the society as the purpose.

Various associations for the elderly, geriatric science and technology associations, charities and the Red Cross can be major channels for the elderly to participate in society again. According to Chen Yueyun (2011), the development of human resources for the elderly is to take the government as the leading force and improve the potential and ability of the elderly aged over 60 in various aspects through education, training and management, so as to achieve all-round development.

Wang Mengying (2018) proposed that community work is helpful to ease social conflicts and is a big family composed of many small families. Community work also plays an important role in the development of human resources for the elderly. Yan Fei (2022) demonstrated the feasibility of community participation in the development of human resources for the elderly and proposed a development path.

The common ground of the academic discussions on the subjects of human resource development for the elderly is that the subjects of human resource development for the elderly include the government and social organizations, in which the government plays a leading role. In fact, the subjects in the development of human resources for the elderly should include the government, social organizations and the elderly themselves. On the basis of fully understanding the actual situation, the government formulates relevant policies, laws and regulations to improve the system and mechanism of human resources development for the elderly.

Social organizations can give play to their own advantages to make up for the lack of government management;In order to improve the quality of life in old age, the elderly need to continuously improve their quality and ability, actively participate in the society, safeguard their rights and interests, and realize their self-value.

As for the object of human resource development for the aged, Chinese scholars mainly take the definition of age as the dividing standard. Wan Kede (1997) believes that the object of elderly human resource development is the whole population with labor competitiveness over the age of 60.

Wang Li etc.(2010) believed that the elderly human resources refer to the population aged over 60 and with certain labor ability required in social and economic development, which includes two elements: one is the population aged over 60, and the other is the population with labor ability required by the society.

Chen Siyi (2016) believes that the elderly at a younger age (60-69 years old) are a great potential stock for human resource development. To sum up, the objects of elderly human resource development are mainly elderly people aged 60 or above who have the ability to work and the willingness to participate in society.

Wang Li (2010) believe that human resource development for the elderly refers to the realization of certain management objectives and development strategies by training the elderly.

Jin Yi (2012) believes that in order to carry out the development and management of elderly human resources in a reasonable and orderly way, the government must establish an information network and development system for elderly human resources.

Liang Yu (2011) pointed out that in order to realize their own social value, the elderly should keep pace with The Times, actively learn emerging science and technology, promote knowledge update and keep pace with the development of The Times.

Yu Hanyan (2012) believes that governments and non-governmental organizations in various regions should try their best to provide conditions for the

education, training and knowledge update of the elderly, and give full play to the important role of education for the elderly in self-improvement and ability improvement. Liu Qing (2014) believe that the government should provide relevant policy support for the participation of the young elderly in community activities, on this basis, increase the investment in community construction, improve the elderly's understanding of community affairs, and promote the elderly's participation in community development and construction.

Gao Lin (2015) proposed that the construction of a lifelong education system, the improvement of skills and knowledge system and the innovation of teaching content should be guaranteed from the institutional perspective. Zhang Xin (2019) proposed to provide free lifelong vocational training for the elderly to improve their work competency.

Tu Yongqian (2021) proposed that proper training can make the elderly better adapt to job demands and reduce barriers to re-employment. Lin Hongxiang and Wang Xuebing (2022) suggested that for the elderly with relatively insufficient quality, they could be trained in skills so that they could have a good skill.

To sum up, the main ways of human resource development for the elderly include: under the guidance of policies, through education and training, education for the elderly and other ways, relying on universities and communities for the elderly, to improve the elderly's understanding of participation in social development. By means of re-employment of the elderly, guiding the elderly to participate in community affairs, and education for the elderly, the development of human resources for the elderly can be promoted to alleviate the labor shortage caused by the aging population and the burden of social care for the elderly.

By developing the human resources of the aged, the self-value of the aged can be realized and the sustainable development of China's social economy can be promoted. Previous literature on the value and significance of elderly human resource development research conclusions are mainly reflected in the following aspects.

Firstly, developing the human resources of the aged will increase social

benefits and promote sustainable development of the national economy. Xiong Bin (2004), on the basis of studying the characteristics of China's elderly human resources, pointed out that the development of elderly human resources can alleviate the current structural shortage of talents in China, so as to achieve better economic benefits.

Zhao Fei (2004) believes that the development of elderly human resources is conducive to reducing investment costs, expanding production and consumption, creating economic value and reducing the negative impact of aging population on economic development. Liu Qing et al. (2014) believe that the elderly have many advantages, such as knowledge, skills and experience, that young workers lack. The re-development and utilization of the human resources of the young elderly can improve social benefits.

Although China has a large population, it is relatively short of human resources. For experts in various fields who have just retired and are in good health, developing the value of their human resources can not only enable them to continue to exert their surplus energy, but also benefit the whole society. Gao Lin (2015) proposed that the development of elderly human resources not only creates benefits for enterprises, but also improves family income and contributes to society.

Zheng Weihuan (2019) proposed that the development of human resources for the young elderly can promote economic growth and social progress, and supplement the gap of human resources. Tu Yongqian (2021) believes that paying attention to the elderly population at the national level can reduce the impact of aging on China's economy, society and governance and maintain the sustainability of the pension system.

Secondly, developing the old human resources can reduce family burden, promote intergenerational harmony, and create a healthy, safe and harmonious social environment. Zhao Fei (2004) discussed the value and role of human resource development for the elderly from the perspectives of family and intergenerational relations, social morality, healthy development of ethical order and the spiritual needs of the elderly.

Liu Qing et al. (2014) believed that under the background of the implementation of the family planning policy in China, the transformation of family model has caused a huge burden on the elderly care of adults, and the elderly dependency ratio borne by the society has been continuously increasing, thus increasing the social burden.

The development of human resources for the elderly is conducive to giving full play to their specialties and to reducing the burden on families and society by creating more social wealth. From the perspective of intergenerational relations, economists all over the world have always believed that the balanced development between generations is an important aspect of achieving sustainable social development in view of the problems existing in the economic activities of contemporary people. The increase of social wealth and the reduction of the burden of social support are conducive to the realization of intergenerational wealth balance and the alleviation of intergenerational conflicts, so as to create a healthy, safe and harmonious social environment. Zheng Weihuan (2019) proposed that the development of human resources for the young elderly can help them establish positive social relations.

Thirdly, elderly human resource development can improve the well-being of the elderly. Zhang Yi et al. (2017) listed the benefits of elderly people's participation in society from their active participation in society and pursuit of high-quality material and spiritual life, and proved with relevant data that the development of elderly human resources can effectively improve the quality of life of elderly people.

Cao Xiaoliang (2019) proposed that the development of human resources for the elderly is an affirmation of their own value and can promote their physical and mental health. Tu Yongqian (2021) believes that paying attention to the elderly population issue is to improve the quality of life of the elderly in China. Liv Jing (2022) proposed that the development and utilization of elderly human resources plays an important role in promoting the physical and mental health of the elderly and realizing healthy aging.

In recent years, the research on the development of elderly human resources in China generally reflects the extensiveness and depth of the research content, the multidimensional perspective of the research, and the richness of the empirical research samples. However, at present, there are still some deficiencies in the research on this aspect on the whole in the academic circle. Although the research perspective is multi-dimensional, there is a lack of multi-perspective cross research.

In terms of countermeasures, it mainly focuses on the government level and pays little attention to the countermeasures at the social and individual levels. From the empirical research samples, although it has been expanded from the early developed areas in the east and the middle to the second and third-tier cities in the west, it is still generally concentrated in the developed areas in the east and the central coast, and relatively little attention has been paid to the inland areas in the west, the border areas where ethnic minorities live in compact communities and the rural areas. Therefore, the future of China's elderly human resources development research still has a very broad space to be developed.

1.3. Methodological approach and related concepts in the study of human resources development for the elderly

In the writing process of this paper, were used the research methods of combining theory with practice, normative analysis and empirical analysis. First of all, as a doctoral dissertation historical literature method is essential. Newton attributed his success to standing on the shoulders of giants, and our current research is based on countless previous studies, and it is this inheritance of knowledge that has shaped our civilization today. Whether it is the aging of population or the theory of human resources, our predecessors have left a wealth of literature for us to study. Only by following the footsteps of our ancestors can we go further.

The law is the inherent, essential, inevitable and stable relation of the thing

itself. The qualitative research method is the method to study its essence through the phenomenon of the thing, and it is the embodiment of the thinking process of the article. Based on human resources theory, sustainable development theory, hierarchy of needs theory and other classical theories, this paper expounds the feasibility and necessity of the development of elderly human resources, analyzes the internal law of the development of elderly human resources, and determines a solid logical basis for quantitative analysis.

This study uses the statistics published by the World Population Prospects, the World Bank, the United States, the United Kingdom, Japan, Singapore and other governments, as well as China's statistical yearbooks and special surveys on aging. In the quantitative analysis method, some charts are generated by Excel and Word software. SPSS software is used to analyze the correlation of factors affecting the employment of the elderly, so that the data can be presented more intuitively.

The development of aged human resources is one of the important ways to deal with the aging of population. However, many factors affect whether older people will be able to work again. However, it is impossible to take all factors into consideration in the specific research process, so only some representative factors are selected in the research process of this paper, as shown in the figure below (Figure 1.7):

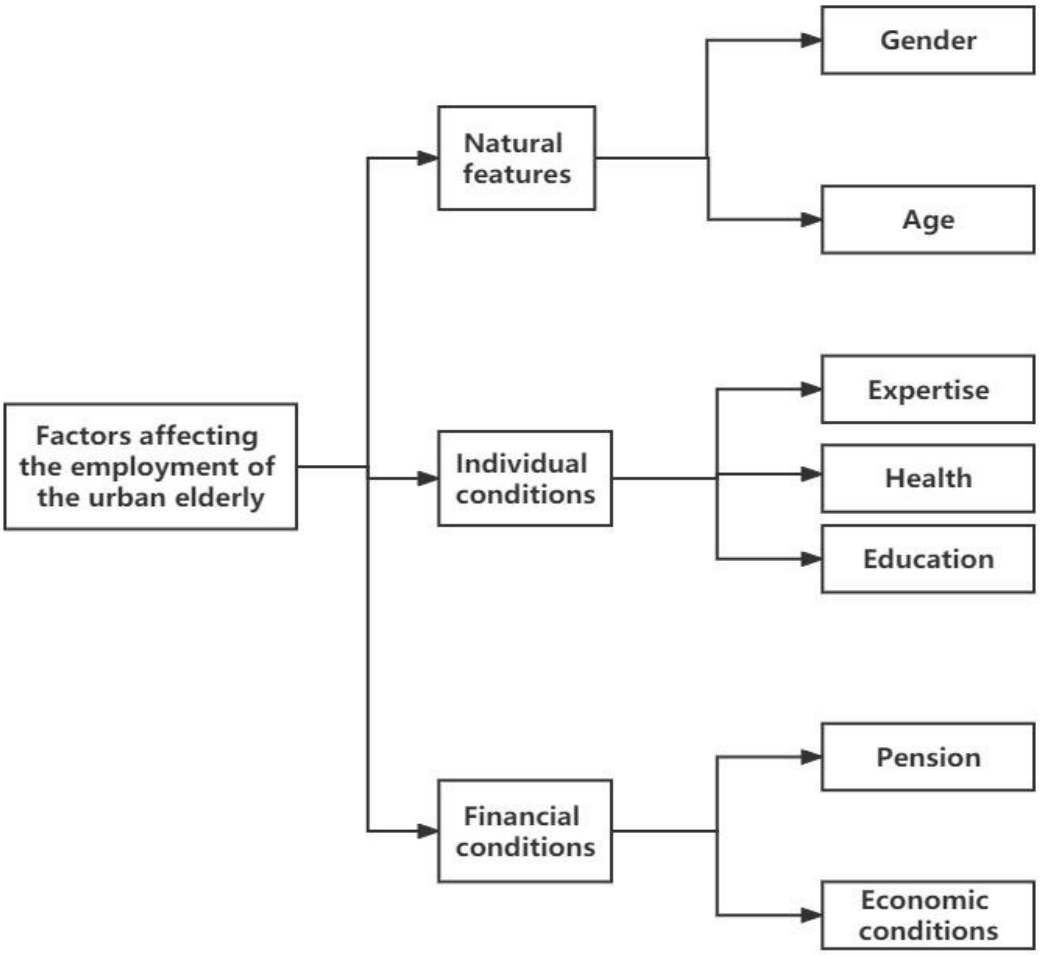


Figure 1.7 - Theoretical model of scientific research of management the human research development in the context of aging population

Source: author`s view

By referring to the researches of other scholars, was founded that other scholars have conducted researches on the re-employment of the elderly human resources in some local areas. On the basis of the researches of other scholars, this study collected samples of national data. Through the questionnaire survey of the urban elderly in China, the first-hand data affecting their re-employment willingness were obtained. Through the cross analysis and logistic regression analysis, the significant factors affecting the employment willingness of the urban elderly in China were finally obtained, so as to provide certain policy reference for China, which will face the major population aging problem in this century. At the same time, it is also an important measure to turn the aging pressure into a driving force and ensure the sustainable development of the aging society.

In this part, the author conducts an empirical analysis on the influencing factors of the elderly's willingness to develop human resources through a nationwide questionnaire survey, with the main purposes including the following aspects:

1. Understanding of the current situation. Through the way of questionnaire survey, it further depicts the reality of the low efficiency of the elderly human resources in China.

2. Analysis of characteristics. Through the comparative analysis of the data, we can find out the significant differences in the re-employment of the elderly aged 60 years and above in different ages.

3. The verification of the influencing factors of the elderly human resource development. In addition to explaining the influencing factors of the elderly human resources development in theory, this paper also lacks relevant empirical tests. On the basis of empirical research on the influencing factors of elderly human resources development, this paper uses SPSS statistical analysis software to verify the influencing factors and draw conclusions.

4. Guidance on policy. The data analysis results obtained in this section can provide good data support for the countermeasures and suggestions of elderly human resources development, and then provide corresponding countermeasures and suggestions for them more effectively.

This part takes the urban elderly aged 60 years and above as the research object. The reasons for doing so are as follows: First, we define the elderly as people aged 60 years and above; Second, according to data from a 2018 Population and Development Study conducted by Renmin University of China on rural seniors aged 60 and above, 84.42 percent of men and 70.89 percent of women are willing to continue working at the age of 60 and above, if their health conditions permit. In addition, the survey results show that a large proportion of rural elderly people have been working until they are as old as they think they can live.

Therefore, for most of the rural elderly, they have no so-called retirement, they are working until their physical conditions no longer allow. Therefore, the

research on the influencing factors of re-employment of the elderly in this paper aims at the re-employment willingness and influencing factors of the urban elderly. In addition, the employment willingness of the elderly in this paper refers to those who are engaged in remunerative work. It should be noted that some elderly people who are engaged in unpaid labor and indifferent to re-employment are not studied in this paper.

With the help of students from the School of Economics and Management of our university (In HeNan), were distributed questionnaires nationwide to conduct a sampling survey. In line with the scientific and effective data collection, the author selects the sampling range and sample, on the one hand, based on the author's identity and ability of the teacher, in order to facilitate the questionnaire survey and the authenticity of sample data collection.

On the other hand, sufficient attention was paid to the coverage and representativeness of the sampling to ensure the credibility of the survey results. A total of 1800 questionnaires were distributed and 1678 were recovered, with a recovery rate of 93.2%. Among them, 1592 were valid, with an effective rate of 94.9%. Table 3.2 shows the national distribution of the questionnaire samples. A total of 27 provinces, municipalities directly under the Central government and autonomous regions were involved in the sample, among which Henan province accounted for about 28% of the total sample, accounting for the largest proportion of all samples.

In addition, there were no samples in Shanghai, Hunan, Guangdong, Tibet and Qinghai, and the sample size in some regions was so small that it could not fully and accurately explain the situation in this region. Based on this, in this part, the author does not analyze the regional differences of the elderly human resources development willingness, but focuses on the analysis of the common influencing factors of the elderly human resources.

Table 1.2 - Sample distribution in China

region	sample	region	sample	region	sample

	number		number		number
Beijing	37	Anhui	67	Sichuan	43
Tianjin	87	Fujian	55	Guizhou	37
Hebei	85	Jiangxi	59	Inyunnan	30
Shanxi	60	Shandong	65	Tibet	0
Inner Mongolia	35	Henan	447	Shaanxi	16
Liaoning	16	Hubei	17	Gansu	20
Jilin	48	Hunan	0	Qinghai	0
Heilongjiang	20	Guangdong	0	Ningxia	10
Shanghai	48	Guangxi	81	Xinxiang	39
Jiangsu	86	Hainan	56	Total	1592
Zhejiang	10	Chongqing	18		

Source: author`s research

In terms of data processing, this paper firstly makes a preliminary analysis of the influencing factors of the reemployment intention of the national elderly by using cross-tabulation. On this basis, according to the correlation between variables, the statistical analysis software Logistic was used to carry out regression analysis to analyze and study the influence of various factors on the re-employment intention of the elderly when other variables were controlled.

In the application of multiple regression analysis, Logistic regression analysis is one of the most common application analysis tools for binary dependent variables with only two possible values. In this part, the dependent variable is "whether to be re-employed", denoted by Y, whose value can only be "employed" or "not employed". It can be seen that it is fully in line with the application conditions of the Logistic regression model, so this paper adopts the econometric model to analyze and fit it, and define and describe the factor variables affecting the re-employment intention of the urban elderly.

Table 1.3 - Definition and description of variables influencing the re-employment intention of the urban elderly

variable	Variable definitions	Variable definition Description	Sample size
Re-employment	1	employment	699
	0	unemployed	893
age	1	60-64	374

	2	65-69	415
	3	70-74	370
	4	75-79	252
	5	80+	181
gender	1	male	777
	2	female	815
health	1	Very good	412
	2	good	405
	3	general	426
	4	poor	223
	5	very poor	126
Financial state	1	Very good	297
	2	good	621
	3	general	453
	4	poor	178
	5	very poor	43
education	1	Under Junior school	566
	2	Junior school	455
	3	High school/technical secondary school	310
	4	college	125
	5	Bachelor degree or above	136
Skills	1	Skills	841
	0	No Skills	751
pension	1	Pension	738
	0	No pension	854
Total sample	1592		

Source: author`s research

The total sample size based on this model is N = 1592, and the model defines seven variables, such as age, gender, economic status and education level. The Logistic model is constructed according to the defined variables in the table:

$$\ln \frac{p}{l-p} = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + b_6 x_6 + b_7 x_7 \quad (1.1)$$

Independent variables x_1-x_7,which represent, in order, age, sex, health status, economic condition, education level, skills or not and pension or not.

The maximum likelihood estimation method is used to estimate the parameters in the model, and the maximum likelihood function is constructed accordingly:

$$L = \prod_{i=1}^{n} p_i^{y_1} (1 - p_i)^{(1-y_1)} (y_1 = 0,1) \tag{1.2}$$

It is difficult to directly maximize the likelihood function, but the logarithmic transformation form of the likelihood function is a monotone function, so the model parameters can be estimated by maximizing it:

$$\ln L = \ln\left[\prod_{i=1}^{n} P_i^{yi} (1 - P_i)^{(1-y_i)} \right] \tag{1.3}$$

The monotonicity of the logarithmic transformation of the function is:

$$= \sum_{i=1}^{n} [y_i \ln(p_i) + (1 - y_i) \ln(1 - p_i)] \tag{1.4}$$

$$= \sum_{i=1}^{n} \left[y_i \ln\left(\frac{P_i}{1 - P_i} \right) - \ln(1 - P_i) \right] \tag{1.5}$$

In the above equation, the probability of reemployment of the i-th sample is denoted by P_i, and the reemployment of the ith sample is denoted by y_i, where the reemployment of the sample is denoted by $y_i = 1$, and the non-reemployment of the sample is denoted by $y_i = 0$. The purpose of this is to find the values of the population parameters b_1-b_7 at the maximum and test the significance of the variables.

The regression analysis carried out in this model is from BinaryLogistic in SPSS analysis, and the Forward method based on likelihood ratio test (LR) is selected as the processing method. The Wald test, backward regression method and forced entry method were not selected, and the forward stepwise regression method was chosen because of the following two reasons: first, when the sample size was small and there was multicollinearity among various independent variables, the Wald test could not take into account the comprehensive effect of various factors, so the credibility of the conclusion was not very high; Second, every variable introduced by the forward method will be considered for the relationship between variables, so the reliability of the conclusions obtained is very high.

So far, we can obtain the Logstic regression model of the employment willingness of urban elderly people with the results output in SPSS software, and

the results can be expressed as follows:

$$\ln\frac{P}{1-P} = 0.855 - 0.196x_1 - 0.315x_3 - 1.061x_6 + 0.83x_7 \tag{1.6}$$

Here,x_1, x_3, x_6, x_7 represent age, health status, skills or not and pension or not, respectively.

Through Logistic regression, we can establish the model relationship built by the above equation. The following results can be found:

1. When other variables are controlled, the age level and employment intention change inversely. That is, the younger the age, the higher the employment intention, and vice versa. In view of such conclusion, no matter from the perspective of sociology or from the perspective of individuals, it can be given a good explanation: For the young old people who have just left their jobs, most of them are in relatively healthy physical condition. In addition, influenced by work inertia, many of them maintain high competence and enthusiasm for work, so they have the advantage of going to work again. In addition, the labor demand market can provide suitable job choices for them, so this part of the population is very strong willingness to re-employment. However, with the increase of age, middle-aged and elderly people over 70 years old are no longer able to continue working from the point of view of their physical condition and energy. From the perspective of this part of the elderly group, they are more inclined to enjoy their life after entering the middle and old age stage. It can be seen that the age factor has been well explained among the factors affecting the employment intention of the elderly.

2. In the model given in the above equation, x_3 represents the variable indicator of health status. Variables are defined and described for the influencing factors of the re-employment willingness of the urban elderly. Therefore, we know that for health status, the larger the value of the defined variable, the less optimistic the health status is, while the coefficient of the health status indicator in the model is negative. It can be seen that the value of the definition variable of health status changes inversely with the employment intention of the elderly: that is, the healthier the elderly are, the stronger their employment intention is; otherwise, the

lower their employment intention is. For this point, it is very common sense that good physical condition is the premise of continuing employment. It can be seen that the factor of health condition has also been well verified in the Logistic regression model.

3. The variable index x_6 represented in the model is whether you have skills or not. As explained above, we know that in terms of the quantification value endowed by indicators in Table 3.2, the value with skills is 1, and the value without skills is 0. It can be seen from the model that the coefficient in front of x_6 is positive. It can be seen that the value of the defined variable of possessing skills changes positively with employment intention, that is, the employment intention of the elderly with skills is stronger. This point can be explained well either from the perspective of individuals or from the perspective of sociology.

From the perspective of individuals, generally speaking, the elderly with skills not only have the enthusiasm to get employed again, but also have a strong desire to continue to play their strengths. Therefore, when facing jobs and employment opportunities, from the perspective of the elderly, their enthusiasm will be more significant. From the point of view of employers, they attach great importance to the work experience accumulated by the elderly labor force for many years, and it is also easier to match the job. From the perspective of sociology, the development and utilization of skilled elderly labor force has positive significance in alleviating the labor shortage and helping the young labor force adapt to their roles more quickly. It can be seen that the factor of having or not having skills has also been well verified in this model.

4. In the model given in the above equation, x_7 represents the variable index of whether pension is available or not. In terms of the quantification value of indicators in Table 3.4, pension is represented by 1, while no pension is represented by 0. As can be seen from the model, the coefficient of variable x_7 is negative, which shows that the value of the defined variable of pension and the employment intention of the elderly change in the opposite direction. That is, the elderly with pension have a low willingness to work, while the elderly without pension have a

high willingness to work. This is consistent with the results of the cross-tabulation analysis and is reasonable. Because the elderly group with pension will have income security after retirement, they are not very motivated to continue employment. On the contrary, the elderly group without pension will have less security after retirement, so their re-employment will be relatively strong. It can be seen that the factor of pension is well verified and explained in this model.

5. According to the results of Logistic model regression, gender is not significant among the factors affecting the re-employment of the elderly. This means that the analysis of the above cross-tabulation analysis that the re-employment intention of the male elderly is higher than that of the female elderly is not valid. The above cross-tabulation analysis is based on the consideration of China's traditional cultural thought of "men working outside the home while women working at home", and the gender discrimination against female workers in China's labor market, which leads us to the conclusion that the employment intention of male older workers is higher than that of women.

However, according to the conclusion of our empirical results, although the household income structure at the present stage is still dominated by men and there is still gender discrimination against female labor force in the labor market, the influence of these factors on the elderly group is not significant. This is because there is not much difference in physical strength and energy between older men and older women, and many studies have shown that older women are better than older men in terms of health. In addition, with the further development of China's service industry, there are more and more jobs suitable for women in the elderly labor market. Some industries, such as housekeeping and nursing, even have higher demand for women than men.

6. When other variables are controlled, economic status has no significant effect on the employment intention of the elderly. This point is consistent with the conclusion obtained from the crosstab. By sorting out the questionnaire data, the author found the reasons for this situation. That is, when other indicators are taken into account, it is concluded that economic status is positively correlated with

health status. In other words, the quantified mean of the health status indicator of the "relatively affluent" group in the study is (164 * 1+61*2+44 * 3+16 * 4+12 *5)/(164+44+16+12) = 1.8. Similarly, it can be calculated as "more than enough", "basically enough", "somewhat difficult" and "very difficult" respectively. In terms of the quantitative value given by indicators, the higher the value, the worse the economic situation.

Conclusions to Chapter 1

Although an aging population is a symbol of social progress, people have more negative views of the aging population and are pessimistic about the future of an aging society. Although some scholars put forward that we should face the phenomenon of population aging positively and optimistically, the problem will be solved with the development of society, and the future is not as pessimistic as we imagined, they still regard aging as a problem in the first place, but they have different views on the difficulty and prospect of the problem.

To solve the problem of aging population structure, many solutions have been put forward in the academic and political circles, such as extending the retirement age, encouraging the birth of children, and introducing foreign young labor force.

The experience of Europe has proved that although immigration policy can alleviate the aging situation to a certain extent, it will lead to a series of other problems such as increased unemployment of indigenous people, ethnic conflicts and crime rate. However, it is difficult to change the policy in a short time when the fertility intention is reduced to a certain extent, and it still takes some time for the newborn to grow into the labor force.

According to author`s definition, human resources refers to the total number of people with working ability within a certain range of the population. It is a general term for people with intelligence and physical strength who can promote social and economic development. The elderly human resources have the

related characteristics of human resources, because it is a part of human resources after all, so as a unique group, it has its own characteristics. First, capital. It should be noted that the capital of old human resources is different from that of young human resources. The capital of young human resources is the potential ability of young people. Through training, development and other relevant means, this part of the potential ability can be turned into reality. However, the ability possessed by the elderly human resources is accumulated in their long-term working life, such as their experience, skills and various qualities formed through long-term life training. For young people, human resource development is mainly focused on "shaping", while for older people, it is focused on "utilization".

Second, the time limit. General human resources also have timeliness, which is a characteristic of human resources different from material resources. It should be noted that compared with general human resources, elderly human resources have stronger timeliness, so the development of elderly human resources should be timely, otherwise the elderly die due to physical discomfort, then his knowledge, skills, experience and so on will not exist, which is a huge loss for the society.

The development of aged human resources is a process of mobilizing, utilizing and developing aged human resources of all classes and types in the whole society by using various ways, such as education, training, dispatching and cultural construction. By making full use of the unique advantages of the elderly, we can achieve the goal of making the best use of their talents, making the best use of their talents, getting the best of them and making the best of them.

By author`s opinion, development of human resources is to promote and induce the formation, development and improvement of people's potential physical strength, brain power, knowledge and skills by means of investment, education and training, that is, to promote the realization of potential ability process.

Development of human resources can improve the quality of human resources. Especially in the current era of science and technology changing with each passing day, we can not have highly developed productivity without high-

quality talent because the improvement of human resources quality plays a fundamental role in supporting the whole social economy. If human resources are only developed but not utilized, the developed human resources will be wasted, so it is equally important to use the established human resources reasonably. This paper discusses the development of the elderly human resources, although the elderly human resources can also be "developed", but for the existing human resources obviously how to use them may have more practical significance.

China has been aging since 2000. Chinese scholars began to study aging in the 1990s, and proposed to solve the problems caused by aging through the development of elderly human resources. By the end of 2021, China had 200 million people over the age of 65, and had entered a moderately aging society. The aging population will bring some serious problems to China. The development of human resources for the elderly in China can not only reduce the burden on the elderly, the financial pressure on the state and the shortage of labor force, but also promote the physical and mental health of the elderly, improve the quality of life in their later years, enhance social harmony and stability, help young people adapt to jobs as soon as possible, and protect the legal rights of the elderly to work. This research is based on reading a large number of domestic and foreign literatures, and adopts qualitative and quantitative methods to conduct research.

CHAPTER 2. THE ANALYSIS OF THE CURRENT SITUATION OF HUMAN RESOURCE DEVELOPMENT IN CHINA IN THE CONTEXT OF AGING POPULATION

2.1. Current situation, characteristics and trend of aging population in China

The process of population aging in China is also led by the decline of fertility rate. Different from other countries, the decline of fertility rate in China is not entirely spontaneous behavior, but influenced by the fertility policy. The reality is represented by the sudden decline of fertility rate. Due to the pass-through effect of demographic structure, a rapidly declining fertility rate will inevitably lead to a rapid ageing process in the future.

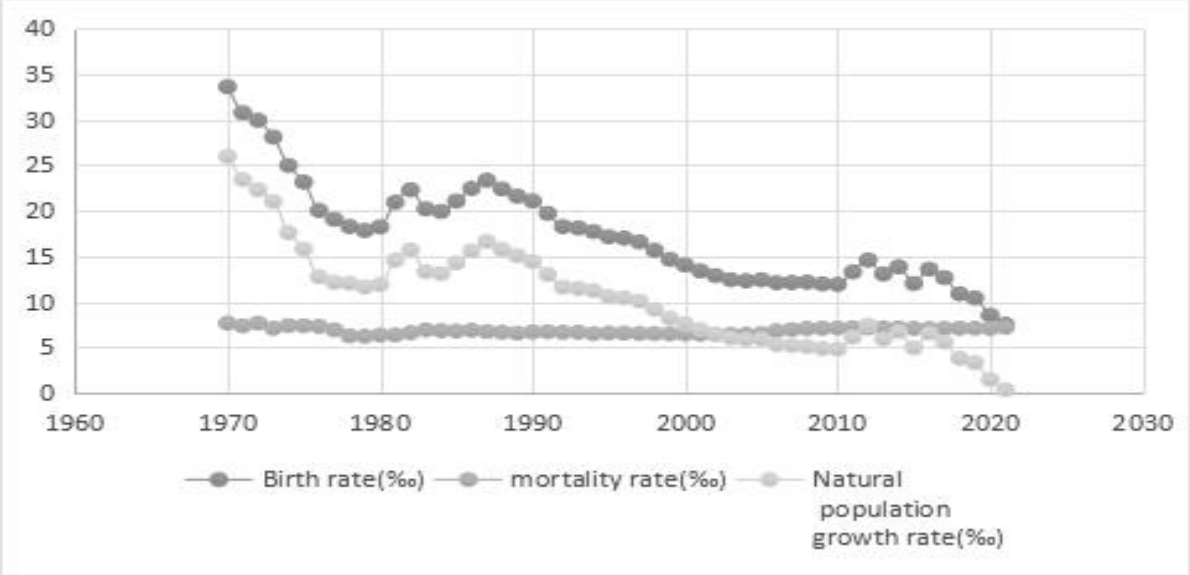


Figure 2.1-Population changes in China, 1970- 2021

Source: China National Bureau of Statistics

Figure 2.1 shows the population change of China. From the founding of the People's Republic of China the natural growth rate of population was low during the difficult period, and China's population maintained an increase of more than 20% for most of the period. In 1964, China's total population reached 700 million. In 1969, China's population exceeded 800 million.

With the implementation of the family planning policy in 1971, China's birth rate began to decline. As shown in Figure 2.1, the birth rate dropped from 27.93 per thousand in 1973 to 17.82 per thousand in 1979, while the natural growth rate dropped to 11.87 per thousand in 1980.

Due to the population age structure, when the population born in the baby boom period in the 1960s and 1970s entered the age of marriage and bearing, the birth rate and natural growth rate of the whole country increased. From 1985 to

1990, the birth rate was over 20%, and the annual average natural growth rate also exceeded 15%. Since the beginning of the 21st century, China's birth rate has further declined.

As of 2021, China's birth rate was 7.25 per thousand and the natural population growth rate was 0.34 per thousand, much lower than the international average. According to the national population development strategy research group "national population development strategy research report" sub-subject report "fertility policy evaluation research": only from 1970 to 2000, due to the effect of family planning In China more than 300 million people were not born.

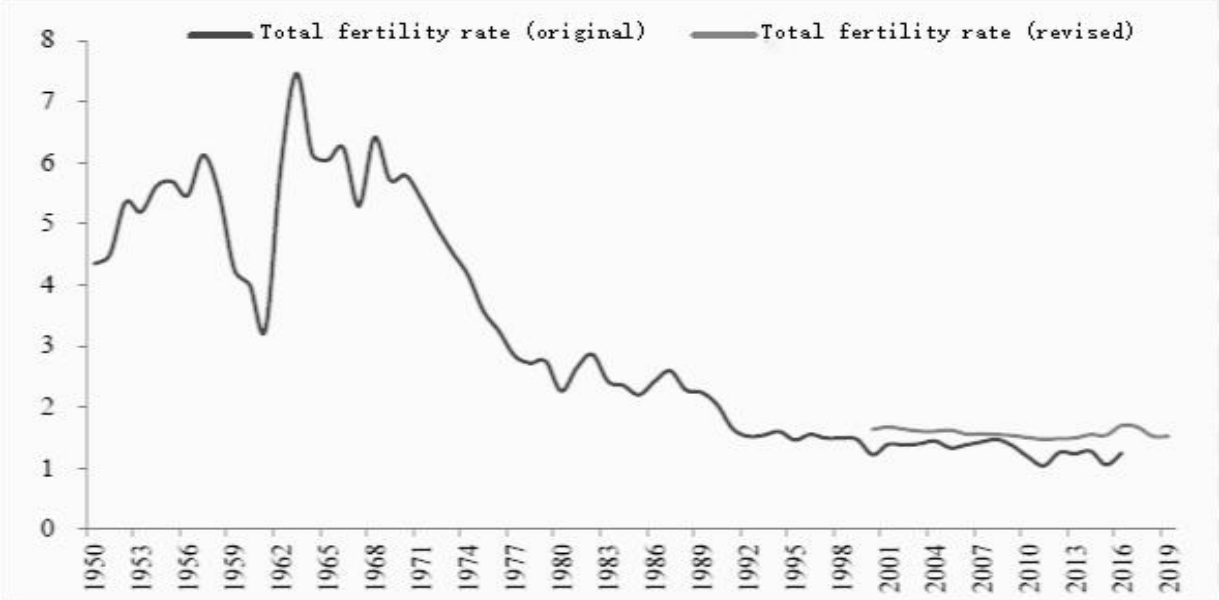


Figure 2.2-Change trend of Total fertility rate in China, 1950 - 2019

Source: China National Bureau of Statistics, China Fertility Report 2020

As can be seen from Figure 2.2, China's total fertility rate dropped from 5.81 in 1970 before the family planning period to 2.75 in 1979, and was below the replacement level in the 1990s. Data from the fifth National population census in 2000 showed that China's total fertility rate had dropped to 1.22. Roughly half the replacement level. China's fertility rate in 2020 shows just 1.3 children per woman, below the 2.1 needed to maintain steady population growth. China's fertility rate is lower than 1.38 in Japan, the world's third-largest economy.

According to a survey by the National Health Commission in 2021, the fertility intention of women of childbearing age continues to decline, with the

average number of children they intend to have being 1.64, down from 1.76 in 2017 and 1.73 in 2019. The "post-90s" and "post-00s", as the main body of childbearing, are only 1.54 and 1.48. Factors such as heavy financial burden, unattended children and women's worries about career development have become major obstacles to childbearing.As shown in Figure 2.3, according to the United Nations' prediction, China's fertility rate will remain at a low level in the future.

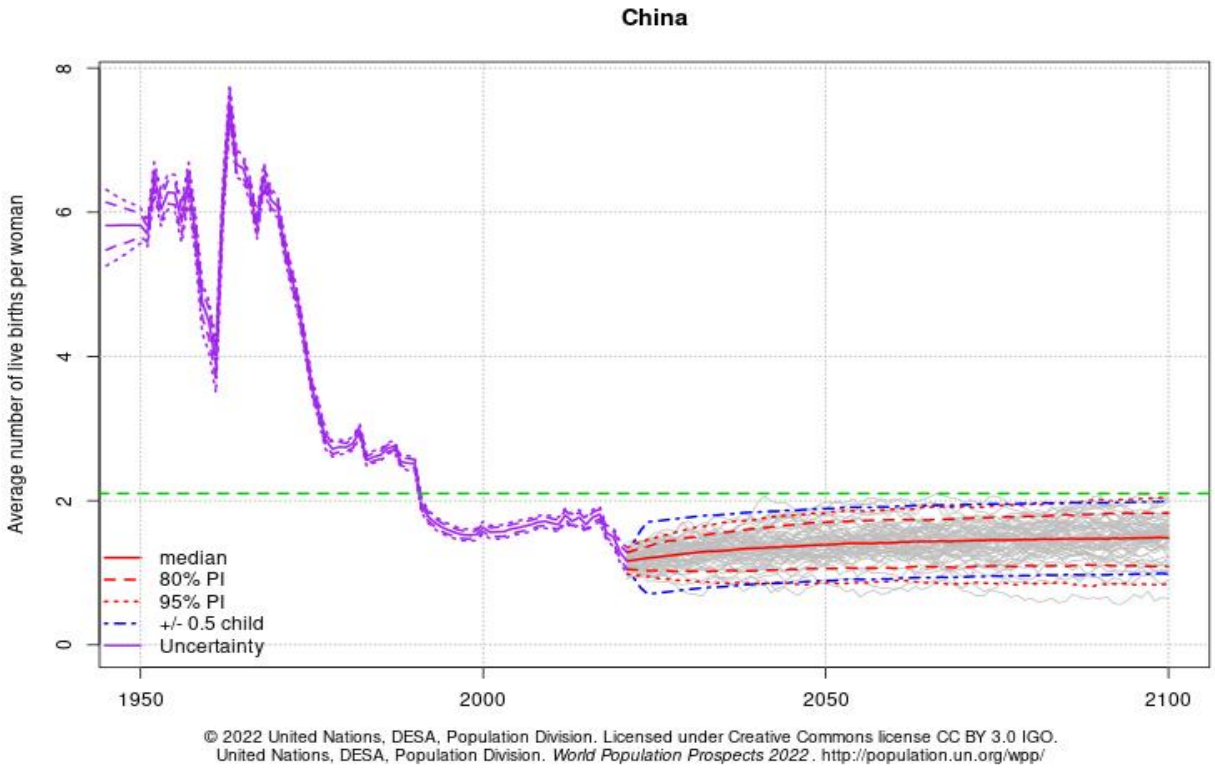


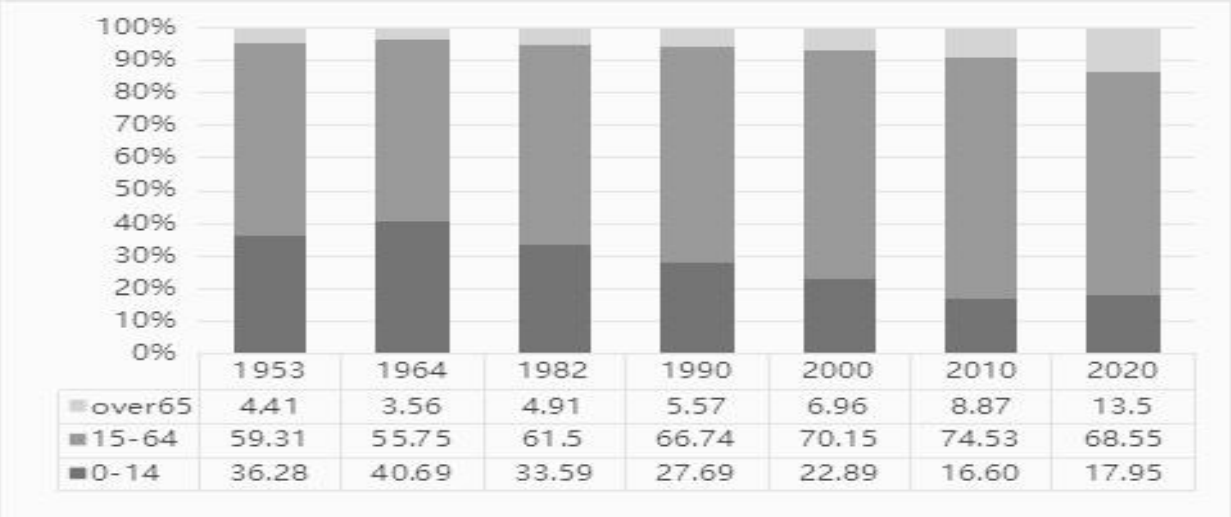
Figure 2.3 -Total fertility is predicted using the probability of total fertility estimated by fertility

Source: United Nations, 2022

Although population control policies have curtailed population growth in a relatively short period of time, the declining birth rate has also triggered an aging of China's population. When the second census was conducted in 1964, the proportion of children aged 0-14 was 40.7, the proportion of people aged over 65 was only 3.6, and the median age was 20.2 years, indicating that the population age structure was young.

By the time of the third census in 1982, the proportion of children aged 0-14 had dropped to 33.6 percent, and the elderly accounted for 4.9 percent of the total population, with a median age of 22.9 years. By the time of the fifth census in 2000, the number of people over 60 years old had exceeded 10% of the total population, and the number of people over 65 years old had reached 7% of the total population. China has officially entered the threshold of an aging society.

As a result of the implementation of the universal two-child policy in 2016, the population aged 0-14 accounted for 17.95% of the total population in the seventh national census in 2020, up 1.35 percentage points compared with the sixth census, while the population aged 65 and above accounted for 13.5% of the total population, up 4.63 percentage points， as shown in figure 2.4.



	1953	1964	1982	1990	2000	2010	2020
over65	4.41	3.56	4.91	5.57	6.96	8.87	13.5
15-64	59.31	55.75	61.5	66.74	70.15	74.53	68.55
0-14	36.28	40.69	33.59	27.69	22.89	16.60	17.95

Figure 2.4- Demographic changes in China in 1953-2020, %

Source: China Statistical Yearbook 2021

The median age of the population was 38.8 years in 2020 and is expected to be close to 50 years old by 2050, as shown in Figure 2.7. According to the statistical Bulletin of China's National Economic and Social Development in 2021, the elderly over 65 years old reached 20.56 million at the end of 2021, accounting for 14.2% of the total population, indicating that China has entered a moderately aging society.

Table 2.1 shows the median age of different regions in the world, Figure 2.5 shows the population age structure and median of Asian countries.

Table 2.2 - Median age by region in the world in 2020

Region	Median age	Region	Median age
world	31	Asia	32
Europe	43	Latin America	31
North America	39	Africa	20
Oceania	33	China	38

Source:World Population Prospects. The 2021 Revision, United Nations.

As can be seen from Table 2.1 and Figure 2.5, China's aging situation not only exceeds the average level of Asia, but also exceeds that of Oceanian countries and approaches the level of developed countries and regions.

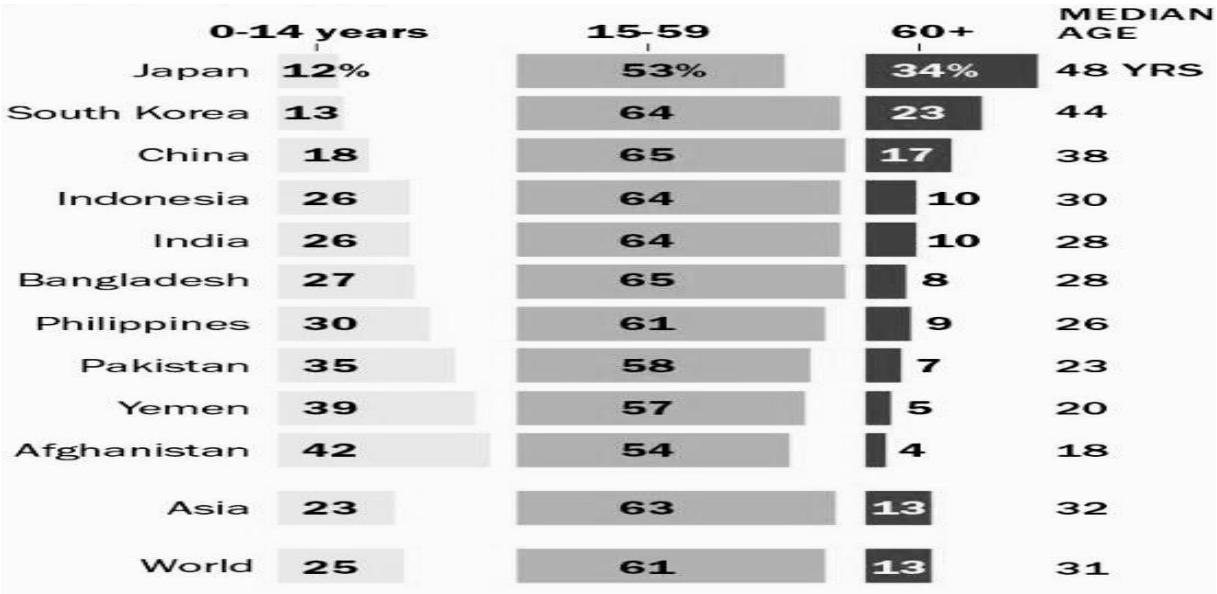


Figure 2.5 -Population age structure and median in Asian countries in 2020

Source:World Population Prospects. The 2021 Revision, United Nations.

Figure 2.6 shows the world aging degree and Figure 2.7 shows Median population age forecast, all of which show the aging situation of China in the world.

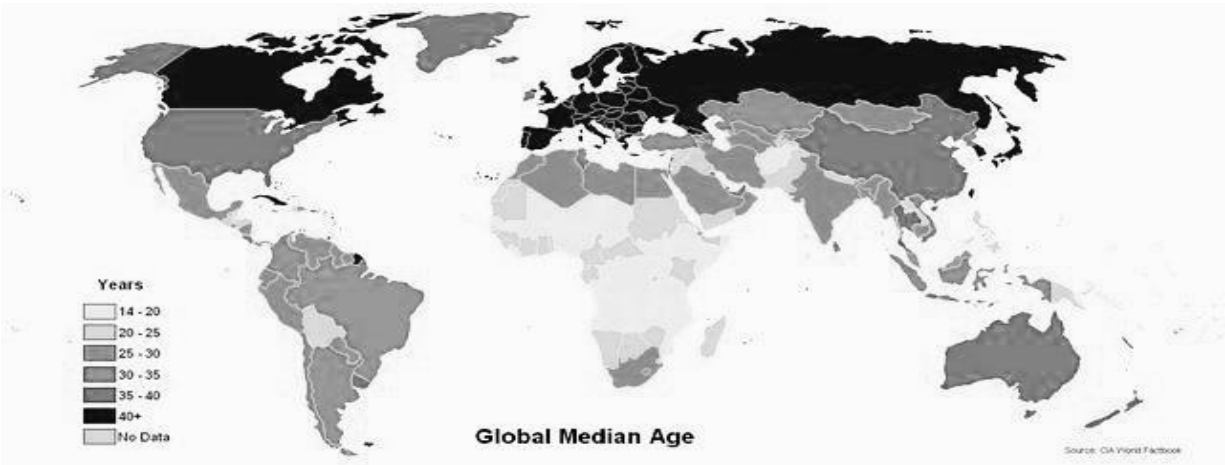


Figure 2.6. - Schematic diagram of world aging degree

Source: https://www.renkou.org.cn/hot/news/2019/0619/142255.html

In Figure 2.6, darker colors indicate higher degree of aging, while lighter colors indicate lower degree of aging. It can be seen that the degree of aging in China is lighter than that in developed countries such as Europe and the United States, while it is at a higher level in developing countries in Asia, Africa and Latin America.

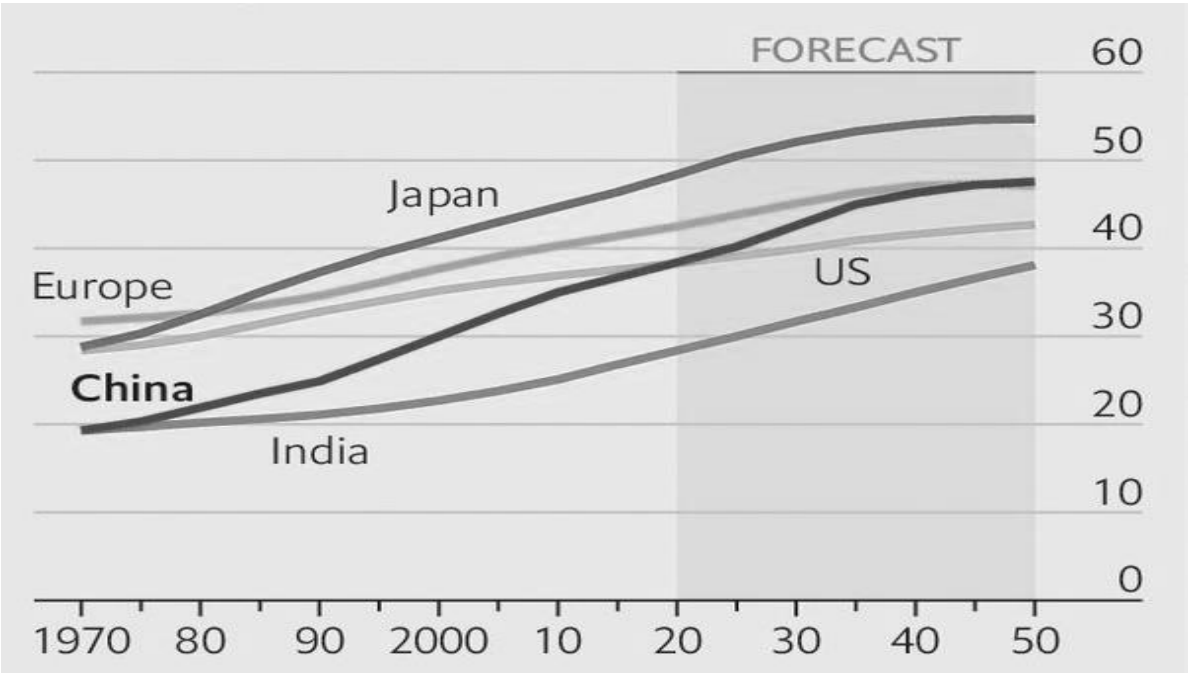


Figure 2.7 - Median population age forecast till 2050

Source:World Population Prospects. The 2021 Revision, United Nations.

Professor Wu Cangping, a Chinese demographer (2020), believes that China's aging population is mainly caused by the decline in fertility rate. He points out that "any decline in fertility rate will decrease the proportion of children and increase the proportion of elderly population".

Professor Du Peng's quantitative analysis of the factors of population aging in China from 1990 to 2020 proved (Table 2.3) that the decline in fertility rate had a much greater impact on population aging than the decline in mortality rate during this period.

The decline in fertility over the 40-year period reduced the proportion of children by 19.5 percentage points and increased the proportion of elderly by 2.7 percentage points. The decline in the death rate increased the proportion of people over 60 by 0.8 percentage points, but it also increased the proportion of children under 14 by 3 percentage points.

Therefore, in the early stage of China's aging population, the aging process is mainly dominated by fertility rate. According to the experience of Japan and other countries that took the lead in entering an aging society, with the deepening of the aging process, when the birth rate has been declining for a long time, the proportion of children and teenagers has greatly decreased, and the proportion of the elderly has increased, the impact of the decline in mortality rate on aging will gradually become apparent.

Table 2.3 - Factors decomposition of population aging in China, 2020

	Age 0～14 （%）	Age over 60 and above（%）
Early proportion	33.5	7.5
End proportion	27.6	8.6
Variable quantity	-5.9	1.1
Fertility effect	-19.5	2.7
Mortality effect	3.0	0.8
Age composition	10.6	-2.4

Source: Du Peng. The decline of fertility rate and population aging [J]. Chinese Journal of Population Science, 2020 (2) 12-17.

China is the world's most populous country, but also the world's oldest population. In the third national census in 1982, there were only 49.91 million people over 65 years old, accounting for 4.9 percent of the total population at that time.

By the fourth census in 1990 that number had risen to 63.68 million. In 2000, when China became an aged society, the number of people over 65 reached 88.21 million. By the end of 2021, China had 20.56 million people over the age of 65, exceeding 200 million， as shown in Figure 2.8.

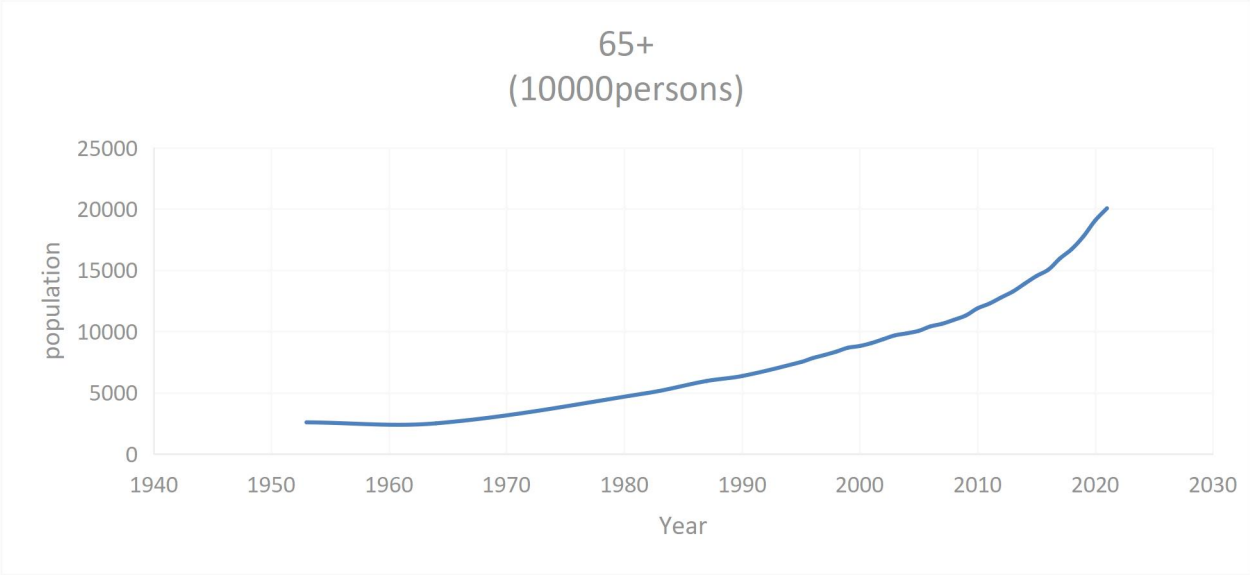


Figure 2.8. - Change of population over 65 years old in China from 1953 to 2030

Source: author`s research by China National Bureau of Statistics

According to the UN population forecast, by 2050, the proportion of the population over the age of 60 in Japan will be as high as 42.5%, although China's 36.5%, but this figure is still much higher than Britain, the United States, France and other European and American countries. There will be nearly 500 million elderly people aged 60 and above, and nearly 400 million elderly people aged 65 and above in 2050, as shown in Figures 2.9 and 2.10.

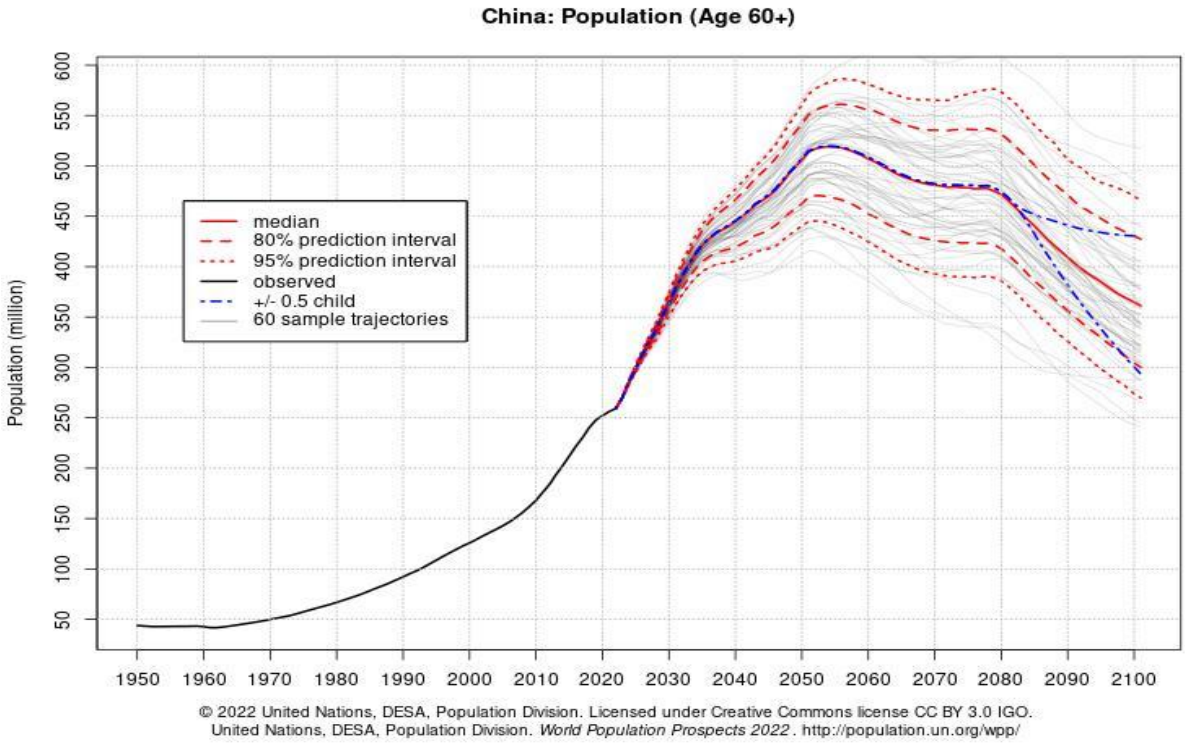


Figure 2.9- Trends of population aged 60 years and over in China, 1950-2100

Source:United Nations, 2022

In the first half of the 21st century, China will remain the country with the largest elderly population in the world.

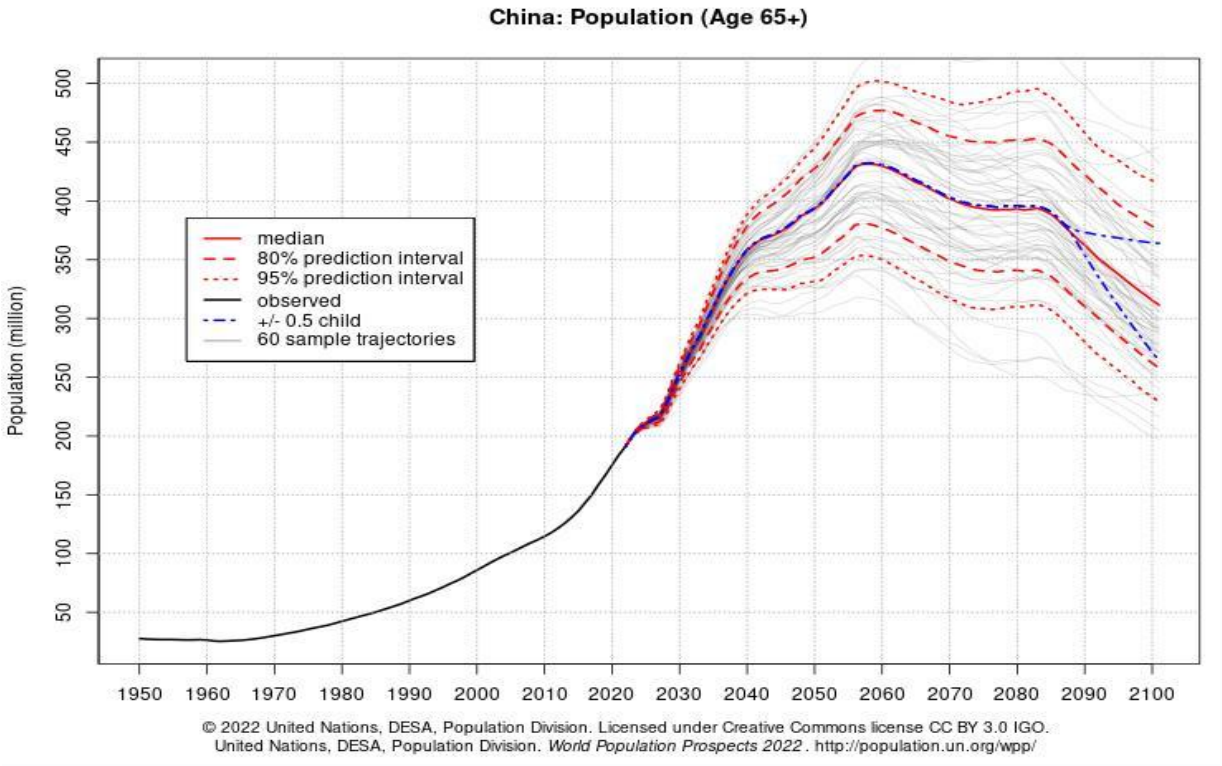


Figure 2.10 -Trends of population aged 65 years and over in China, 1950-2100

Source:United Nations, 2022

It is worth noting that while the scale of China's elderly population is gradually expanding, the scale of the elderly population is developing at a faster speed. As shown in Figure 2.11, the proportion of elderly population over 80 years old has been on the rise in these decades, which indicates that China is developing from an aging society to an high-aged society.

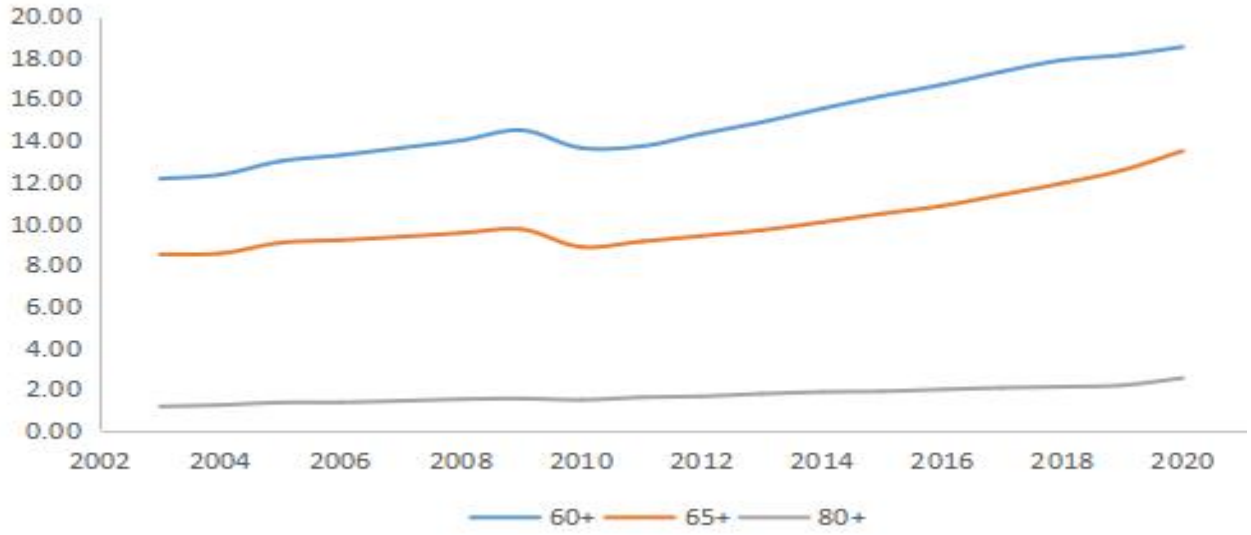


Figure 2.11. - The change of the elderly population structure in China

Source:Source: author`s research by National Bureau of Statistics 2003-2019 and Population Sample Survey, 2021

According to the United Nations, the number of elderly people over 80 years old will be close to 140 million in 2050, accounting for about 10% of the total population. Aging is a kind of "absolute aging" led by the direct increase of the elderly population itself, and "top aging" led by the decrease of the mortality rate of the elderly population. It reflects the longevity of the population, indicating that the process of population aging in China is transitioning from the demographic transition dominated by the decline of fertility rate to the post-demographic transition dominated by the decline of mortality rate.

China entered the aging society at the end of the 20th century, much later than the developed countries, but the process of population aging has shown the characteristics of faster and stronger momentum than the developed countries. If nature follows its course, China is likely to be in the same demographic transition phase as many developing countries with high birth rates, low death rates and high natural growth rates.

But since the one-child policy was introduced in the 1970s, fertility rates have fallen sharply and the ageing process has accelerated. It is estimated that before 2050, the number of elderly population in China will increase by 3% per year, much faster than the average annual growth rate of 1.68% of the total population, and also faster than the aging rate of developed countries.

As shown in Table 2.4, in 2019, scholars predicted that China would complete the demographic transformation in 2027, which was completed in France in the last 100 years, only lagging behind Japan in the development momentum of the aging process.

Table 2.3 - Estimates of the number of years it would take to move from 7% to 14% of the population aged over 65 in each country

French	1865～1980	115
Swedish	1890-1975	85
America	1944-2013	69
Britain	1930-1975	45
Spain	1947-1992	45
Japan	1970-1996	26
China	2000-2027	27

Source: author`s research by Westland Kinsella, 2021

In fact, by the end of 2021, China's population aged 65 or older will account for 14.2 percent of the total population, completing the demographic transition six years earlier than expected. By 2050, the proportion of China's population aged over 65 will rise to 23.07%, second only to developed countries and the highest level among developing countries. Figure 2.7 shows the changing trend of China's aging rate. From 2000 to 2030, China's aging accelerated. After 2030, the aging process began to slow down, and after 2050, the degree of aging at 60 began to decline.

The rapid aging of China today will inevitably lead to the rapid aging of China's population in the future. In 2020, the population aged over 80 in China will

reach 35.8 million, accounting for 13.6 percent of the population aged over 60 and 2.54 percent of the total population. At present, the annual average growth rate of the elderly in China is 3.5 percent, higher than Spain and other European countries and lower than Japan and South Korea and other Asian countries. However, the aging rate in China is expected to surpass that of Japan and South Korea in the second half of this century. By 2050, the number of elderly people in China is expected to increase to more than 100 million, accounting for 25% of the elderly population, and one in every 10 or four elderly people will be elderly. China's social pension burden will be heavy. Figure 2.12 shows the changing trend of the old-age dependency ratio of China's population from 1960 to 2050.

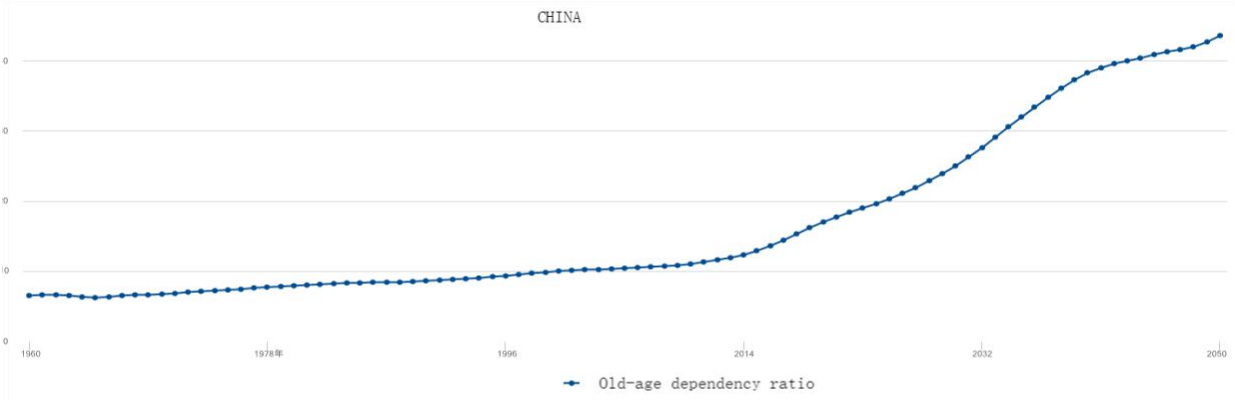


Figure 2.12-Elderly Dependency Ratio of China's population, 1960-2050

Source: author`s research by World bank Population estimates and projections, 2020

Population aging is running ahead of economic development. There is a familiar phrase to describe China's aging population - getting old before getting rich. Generally speaking, population aging is the product of social and economic development to a certain stage, so the population aging in developed countries appears in the period of economic development. However, due to the role of family planning, China's aging era has come ahead of schedule. It has entered the senile society when the economic level is not developed.

At the same time, it is accompanied by a rapid aging process, so the aging problem faced by China is much more serious than that of developed countries. China officially entered the ranks of the elderly society in 2000. At that time, China's per capita GNP was 840 US dollars, which was 3,976 international dollars

calculated by purchasing power parity. In 2001, the whole world also entered an aging society. At that time, the world's per capita GNP was 5,170 US dollars, which was 7,442 international dollars after conversion. No matter how it was viewed, China was lower than the international average level.

Professor Du Peng (2021) compared the urbanization and industrialization of China, the United States and Japan when they entered the senile society when he explained that China was in the aging stage of aging before getting rich. It can be clearly seen from Table 2.5 that the social development level of China when it entered the aged society is far lower than that of Japan 30 years ago and the United States 50 years ago.

Table 2.4 - Comparison of urbanization and industrialization levels in China, the United States and Japan when they enter the aged society

year	country	Urban population proportion%	The first industry	The second industry	The third industry
1950	America	64	7.3	37	54.5
1980	Japan	72.1	6.5	43.6	43.8
2020	China	36.92	16.4	50.2	33.4

Source: authors research based on Jiang Xiangqun, 2021

Figure 2.13 shows a scatterplot of gross national income (GNI) per capita and the proportion of people aged 65 years and over in the total population of 244 countries worldwide. It can be seen that the proportion of elderly population is positively correlated with GNI, that is, the proportion of elderly population will rise with the increase of per capita GNI. The line in the figure is a linear trend line. The position of China below the line indicates that China has a high degree of aging compared with other countries with similar income levels. Compared with other countries with similar levels of aging, China's income level is low, which means it is getting old before it gets rich.

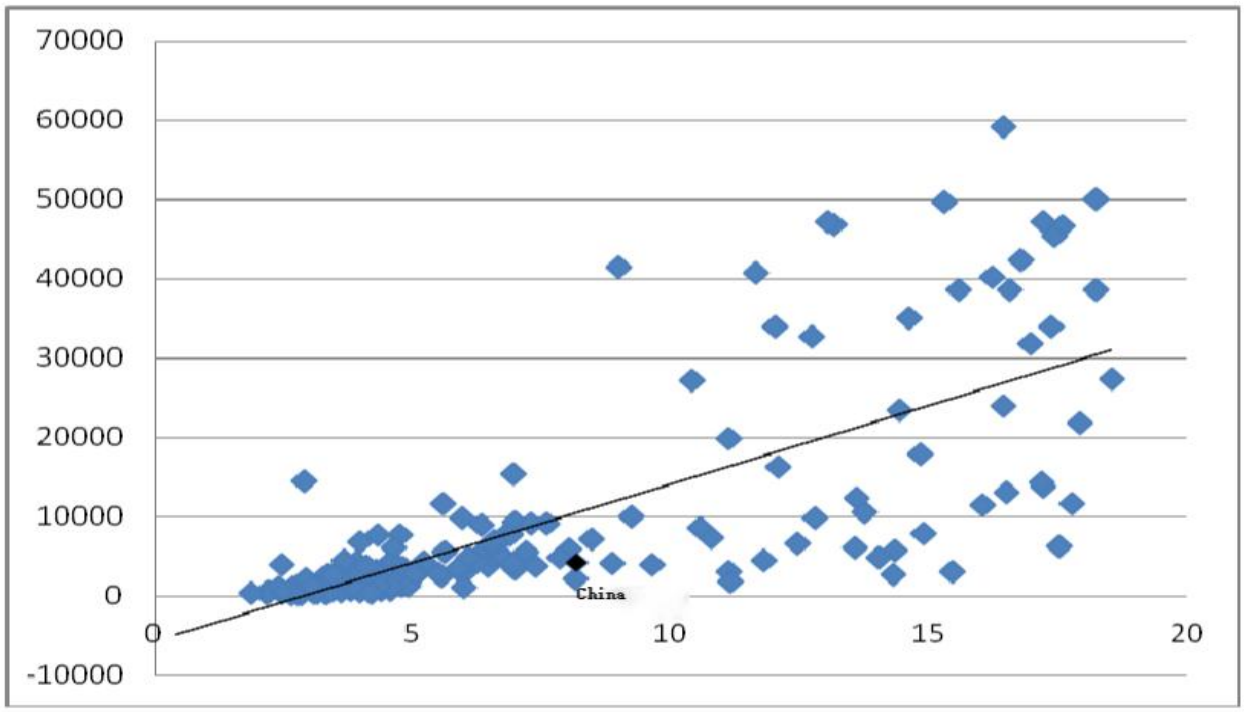


Figure 2.13. -Relationship between per capita income level and population age structure in 2020

Source: author`s research based on World Bank. World Development Indicators, Washington D. C., 2021.

As shown in Table 2.5, the latest data in 2021 shows that the fertility rate of the four places on both sides of China has been all lower than that of Japan; Mainland China has the lowest per capita income among the regions with the lowest fertility rates in the world

Table 2.5 - Global Regions with the Lowest Total Fertility Rate and their GDP per Capita (2021)

	Total fertility rate	Per capita GDP ($10,000)
Taiwan, China	1.07	3.2
South Korea	1.09	3.5
Singapore	1.15	6.4
Macau, China	1.21	5.8
Hong Kong, China	1.22	4.9
Chinese mainland	1.3	1.2
Japan	1.38	4.3

Source: author`s research based on World Bank. World Development Indicators, Washington D. C., 2021

Not only that, China has not fully prepared to deal with the old problem before it gets rich. This is mainly reflected in that the socialized old-age service system has not been fully established, and the development of old-age service can not keep up with the speed of the development of the aging population. According to the 2020 National Old-age Development Bulletin, by the end of 2020, China had 329,000 institutions and facilities for the aged, and the number of beds for the aged reached 8.21 million.

The total number of beds for the aged in China only accounted for 3.11% of the country's elderly population, lower than the proportion of 5%to 7% in developed countries, as shown in Table 2.6. More than 90% of the elderly in our country tend to care at home.

Table 2.6 - Total number of nursing homes and facilities and beds for the aged in China, 2015 -2020

year	Institutions and facilities for the Aged (Ten thousand)	Pension beds(Ten thousand)	The proportion of nursing beds to the elderly population
2012	4.4	416.5	2.15
2013	4.2	493.7	2.4
2014	9.4	577.8	2.72
2015	11.6	672.7	3.17
2016	14	730.2	3.16
2017	15.5	744.8	3.09
2018	16.8	727.1	2.91
2019	20.4	775	3.06
2020	32.9	821	3.11
2021	34	833	3.11

Source: author`s research based on Ministry of Civil Affairs

Although the supply of care services is increasing, there are still problems such as insufficient supply of care at home community and quality universal services. Under the State Council has issued by the "difference" national undertaking development and pension service system planning is put forward, by 2025, pension services more than 9 million total beds, a new urban area, new

residential construction pension service facilities success rate reached 100%, but compared with the large elderly population in our country is still insufficient.

The development of aging is unbalanced among regions. Due to the great difference in the level of social economic and cultural development among provinces, cities and regions in China, and the continuous increase of population flow among regions, the degree of China's aging population is also unbalanced among regions. In general, the eastern and coastal areas are economically developed and the proportion of the elderly population is high. The economic level of the central and western regions is relatively backward, and their aging degree is not high. There are great regional differences in aging, with serious aging in northeast China and Sichuan and Chongqing.

In 2020, the aging rate in Tibet, Xinjiang, Guangdong, Qinghai and Ningxia was less than 10%, and that in Tibet was only 5.67%. 13 provinces, including Hainan, Yunnan, Fujian, Guizhou, Jiangxi and Guangxi, between 10%-13.5%; 13 provinces including Hebei, Hubei, Tianjin, Hunan, Anhui and Shandong are higher than 13.5%, among which Liaoning, Chongqing, Sichuan, Shanghai, Jiangsu, Heilongjiang and Jilin are higher than 17.42%, 17.08%, 16.93%, 16.28%, 16.2%, 15.61% and 15.61%, respectively.

While Shanghai entered the threshold of becoming an elderly society in 1979, Ningxia will not reach it until 2012, a span of 33 years. Table 2.7 shows the development of population aging in China's provinces since 2000. It is worth noting that although the economy of Guangdong Province is relatively developed, the aging degree of Guangdong Province is relatively low, which is corresponding to the rapid aging process of Liaoning, Heilongjiang, Sichuan and Jilin.

In 2020, the aging degree of Liaoning Province is far more than that of other regions, and it has become the oldest aging region in China. Guangdong Province has the largest net population emigration in China, while Liaoning, Heilongjiang, Jilin and other places have been the net population emigration provinces, that is, Guangdong reduces its proportion of elderly population aged 65 years and above by relying on the emigration of young and middle-aged labor force from other

economically backward areas.

Table 2.7 - Proportion of elderly population aged 65 years and above by region in China, 2000 - 2020

region	Proportion of population aged 65 and above（2000） %	Proportion of population aged 65 and above（2010） %	Proportion of population aged 65 and above（2020） %
The national	6.96	8.87	13.5
Beijing	8.36	8.7	13.30
Tianjin	8.33	8.52	14.75
Hebei	6.86	8.24	13.92
Shanxi	6.2	7.58	12.90
Inner Mongolia	5.35	7.56	13.05
Liaoning	7.83	10.31	17.42
Ji Lin	5.85	8.38	15.61
Heilongjiang	5.42	8.32	15.61
Shanghai	11.53	10.12	16.28
Jiangsu	8.76	10.89	16.20
Zhejiang	8.84	9.34	13.27
Anhui	7.45	10.18	15.01
Fujian	6.54	7.89	11.10
Jiangxi	6.11	7.60	11.89
Shandong	8.03	9.84	15.13
Henan	6.96	8.36	13.49
Hubei	631	9.09	14.59
Hunan	7.29	9.78	14.81
Guangdong	6.05	6.75	8.58
Guangxi	7.12	9.24	12.20
Hainan	6.58	7.80	10.43
Chongqing	7.90	11.56	17.08
Sichuan	7.45	10.95	16.93
Guizhou	5.79	8.57	11.56
Yunnan	6.00	7.63	10.75
Tibet	4.50	5.09	5.67
Shaanxi	5.93	8.53	13.32
Gansu	5.00	8.23	12.58
Qinghai	4.33	6.30	8.68
Ningxia	4.47	6.41	9.62
Xinjiang	4.53	6.19	7.76

Source: author`s research based on China National Statistical Yearbook

There are differences in the degree of aging between urban and rural areas. Theoretically speaking, due to the low level of social and economic development in rural areas and the high fertility rate, the aging process of population should lag behind that of urban areas. However, in fact, the opposite is true.

According to the 2021 China Population and Employment Statistical Yearbook, the old-age dependency ratio in cities and towns across the country is 14.6 and 17.31, respectively, while the old-age dependency ratio in rural areas is 28.13.

As shown in Figure 2.14, the old-age dependency ratio in rural areas is higher than that in urban areas in most provinces and cities, which is mainly caused by population migration between urban and rural areas. As shown in Figure 2.15, after the reform and opening up, China's floating population has gradually increased, especially since 2020.

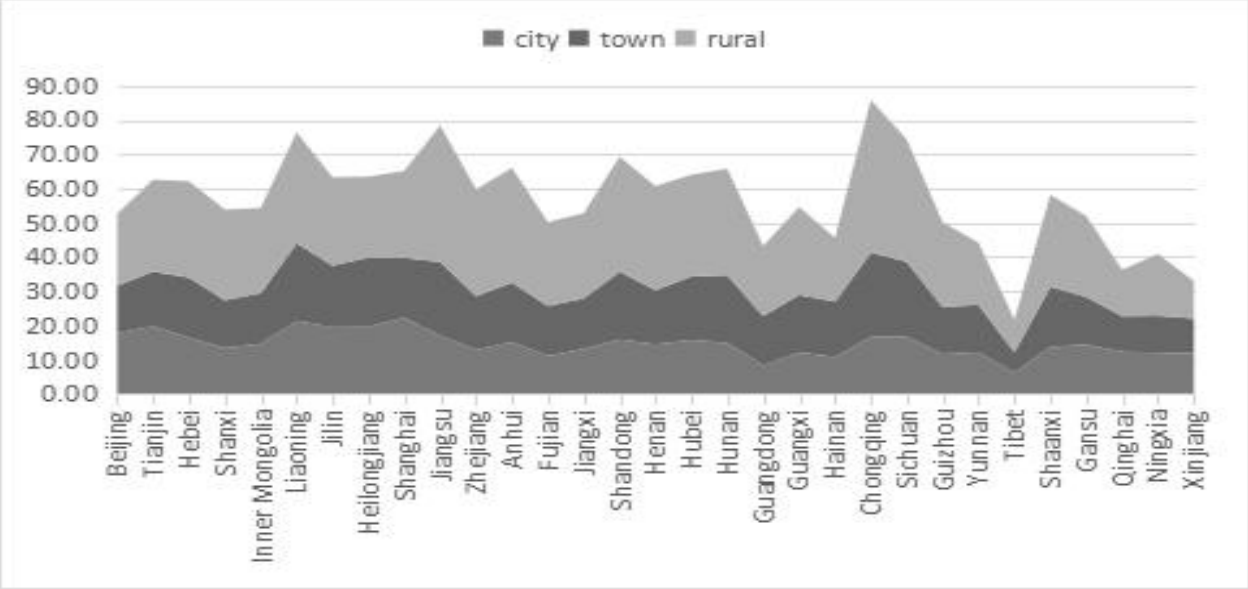


Figure 2.14- Old-age dependency ratio of cities, towns and rural areas in China by region ,2020

Source: China Population and Employment Statistics Yearbook 2021.

According to the Seventh National Population Census, there were 376 million floating population in 2020, and the floating population mainly came from rural areas, and the vast majority of them were working-age people. Therefore, the migration of working-age population between urban and rural areas on the one

hand reduces the degree of urban aging, and on the other hand increases the proportion of elderly population in rural areas. Figure 2.14 shows the comparison of the old-age dependency ratio in urban and rural areas in 2020.

It can be seen that the old-age dependency ratio in rural areas is higher than that in urban areas in most areas, except Xinjiang. In 2020, the old-age dependency ratio in China's cities was only half that in rural areas, and migration and floating population were the main factors. Taking Guangdong as an example, the old-age dependency ratio in urban areas is 8.3, and that in rural areas is 20.42, which is equivalent to 2.5 times of that in urban areas. The main reason is that the floating population in Guangdong has always ranked first in China. In 2020, among the permanent resident population in Guangdong, the inflow population from other provinces (more than half a year) reached 29,622,100. An increase of 8.1234 million over 2010, with an average annual growth rate of 3.26 percent.

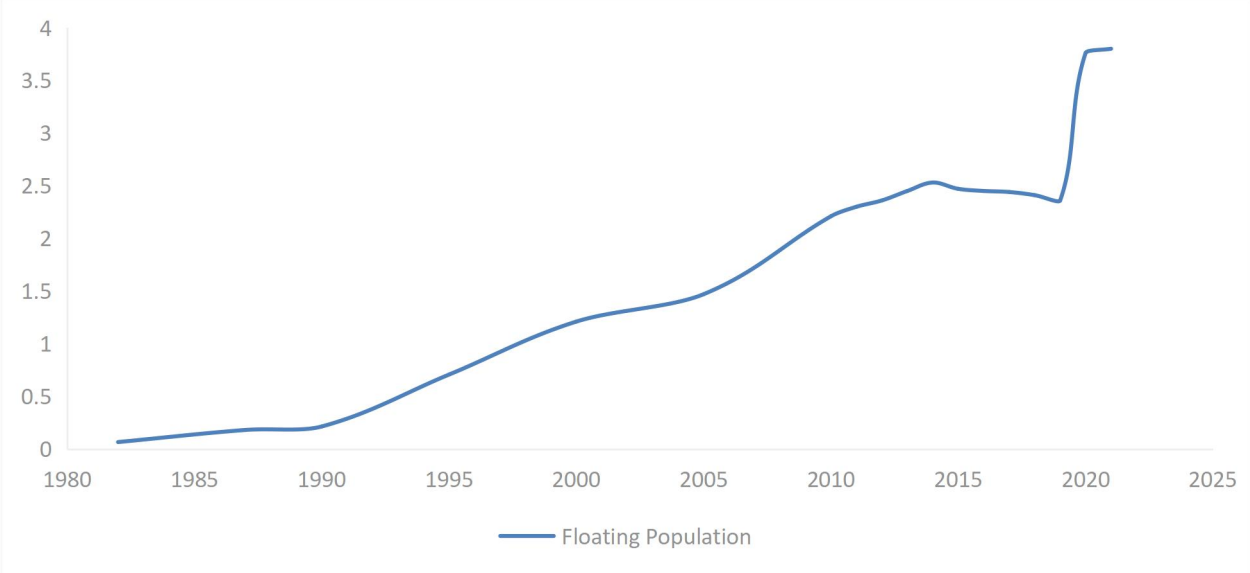


Figure 2.15. - Changes of floating population, unit (100 million persons)

Source: author`s research based on China's Population censuses and sample surveys, 1982-2021

According to the UN's high scenario, China's population will peak - at 1.482 billion in 2045, while the low scenario shows that China's population will peak at 1.357 billion in 2015. That is, China's population will start to decline gradually after peaking at 1.395 billion around 2025. Either way, ageing will continue after

the population starts to decline. In 2010, the median age of China's population was 34.5 years old. With the development of aging, the median age will continue to increase, reaching 38.8 years old in 2020, rising to 46.4 years old in 2040, reaching the highest value of 49.6 years old around 2050, and then slowly declining. The median age of the population will remain high until the end of the century.

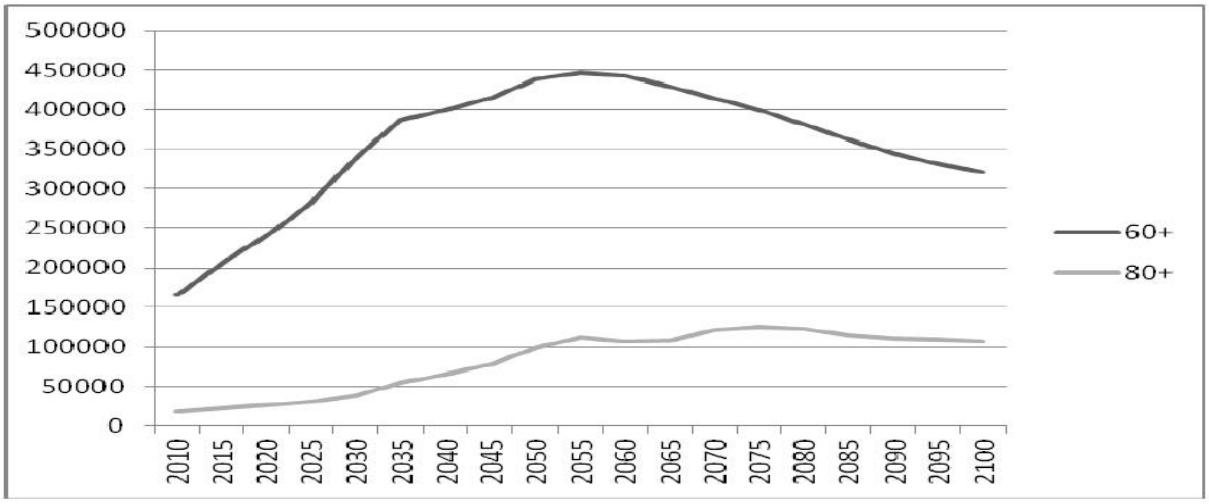


Figure 2.16 - Change Trend of China's elderly Population, 2010-2100

Source: author`s research based on World Population Prospects. The 2010 Revision, United Nations.

In the 21st century, China's population will continue the trend of aging in the end of the 20th century and show a trend of accelerated development. Figure 2.16 shows the elderly population in China from 2010 to 2100. The elderly population over 60 years old increased year by year until it reached the peak of 447 million in 2055, accounting for 35.6% of the population at that time. The number of people aged 80 and above will reach 125 million in 2075, accounting for 11.5 percent of the total population. Although the number of elderly people will start to decrease after the peak, the proportion of the elderly population will actually increase as the total population will decrease after 2030.

Table 2.8 shows the forecast data of the United Nations on China's aging in the future. Through calculation, it can be seen that the period from 1950 to 1970 was the process of inverse population aging, when the age structure of the population became younger. The period from 1970 to 2010 was a slow process of population aging. During this period, the proportion of elderly population over 60

years old increased from 6.6 to 12.3, an increase of 5.7 percentage points in 40 years.

Table 2.8 - Forecast of China's aging in the future

year	Aging situation			Value added every 10 years		
	60+	65+	80+	60 +	65+	80+
1950	7.5	4.5	0.3			
1960	6.6	4	0.2	-0.9	-0.5	-0.1
1970	6.6	4	0.3	0	0	0.1
1980	8	5.2	0.6	1.4	1.2	0.3
1990	8.9	5.9	0.9	0.9	0.7	0.3
2000	10.2	7	1.1	1.3	1.1	0.2
2010	12.3	8.2	1.4	2.1	1.2	0.3
2020	17.4	12	1.9	5.1	3.8	0.5
2030	24.4	16.5	2.8	7	4.5	0.9
2040	29.4	23.3	4.8	5	6.8	2
2050	33.9	25.6	7.6	4.5	2.3	2.8
2060	36.6	29.5	8.8	2.7	3.9	1.2
2070	36.8	30.2	10.8	0.2	0.7	2
2080	36.4	30.1	11.7	-0.4	-0.1	0.9
2090	35.1	29.1	11.3	-1.3	-1	-0.4
2100	34.1	28.2	11.4	-1	-0.9	0.1

Source: author`s research based on World Population Prospects, United Nations (2020).

The proportion of the population over 65 years old increased from 4 to 8.2, with an average annual increase of 1.8 percent. The period from 2020 to 2050 is a process of rapid population aging, accompanied by the population growth peak of the 1950s to 1970s, the birth cohort entered the old age (the average annual net increase of population from 1950 to 1974 was 14.68 million, among which the average annual net increase of population from 1955 to 1959 was 13.88 million, and the average annual net increase of population from 1950 to 1974 was 13.88 million. 1965-1974 average annual net increase of 20.36 million), population aging began to develop rapidly.

The proportion of the population over 60 years old in 2020 was 5.1 percentage points higher than that in 2010, with an annual growth rate of 3.52 percent, and that in 2030 was 7 percentage points higher than that in 2020, with an annual growth rate of 3.43 percent. In 2050 people over the age of 60 will make up

a third of the population and people over the age of 65 will make up more than a quarter of the population.

From 2050 to 2100, the population aging stage or the aging stage is stable. During this period, the proportion of the population over 60 years old will rise slowly, reach the maximum of 36.8% of the total population in 2070 and then start to decline, and the elderly population in this period will always be more than 33%. The proportion of the population aged 80 or over will continue to increase, and will exceed 10 percent of the total population around 2070. As life expectancy is expected to increase, the number and proportion of the elderly will also likely exceed current expectations.

Figure 2.17a- China's population pyramid, 1950

Source: United Nations, 2022

As can be seen from Figure 2.17a, in 1950, China still had a typical age structure of young population, with a large number of children and a small number of old people. The population pyramid was wide at the bottom and narrow at the top, showing a growth structure. In this period, the birth rate of children and the death rate of the elderly population both decline, and the process of population

aging will begin to accelerate.

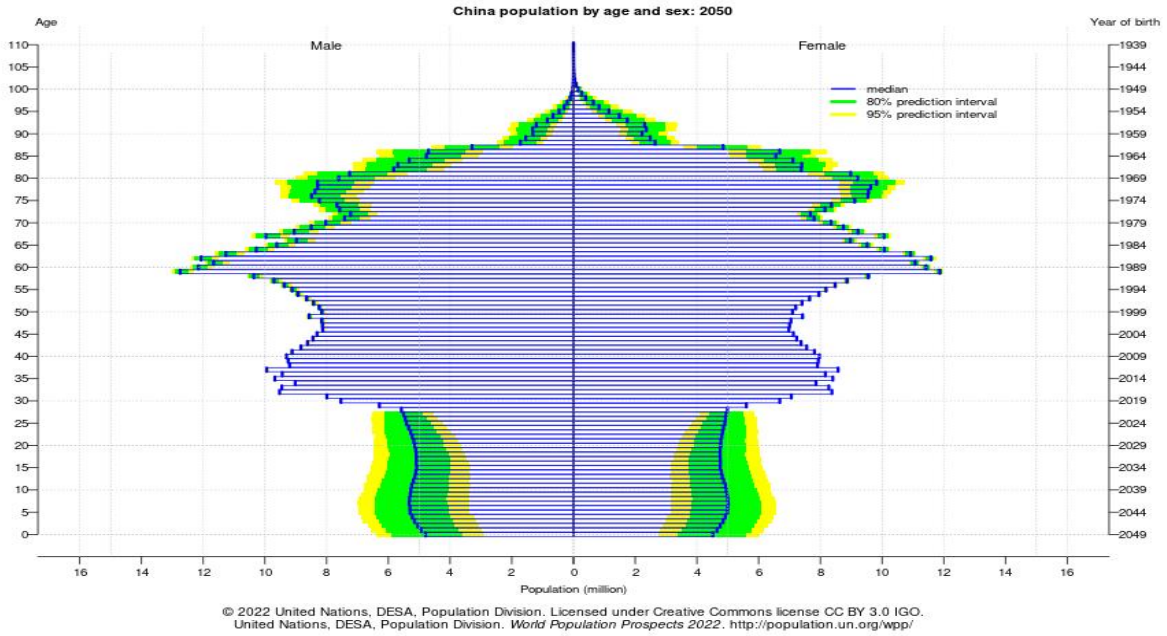


Figure 2.17b - China's population pyramid, 2050

Source: United Nations, 2022

In 2050, the population pyramid shows a shrinking structure with a width at the top and a narrowness at the bottom. At this time, the mortality rate is greater than the birth rate, the total population starts to decline, and the degree of population aging will be at the highest stage.

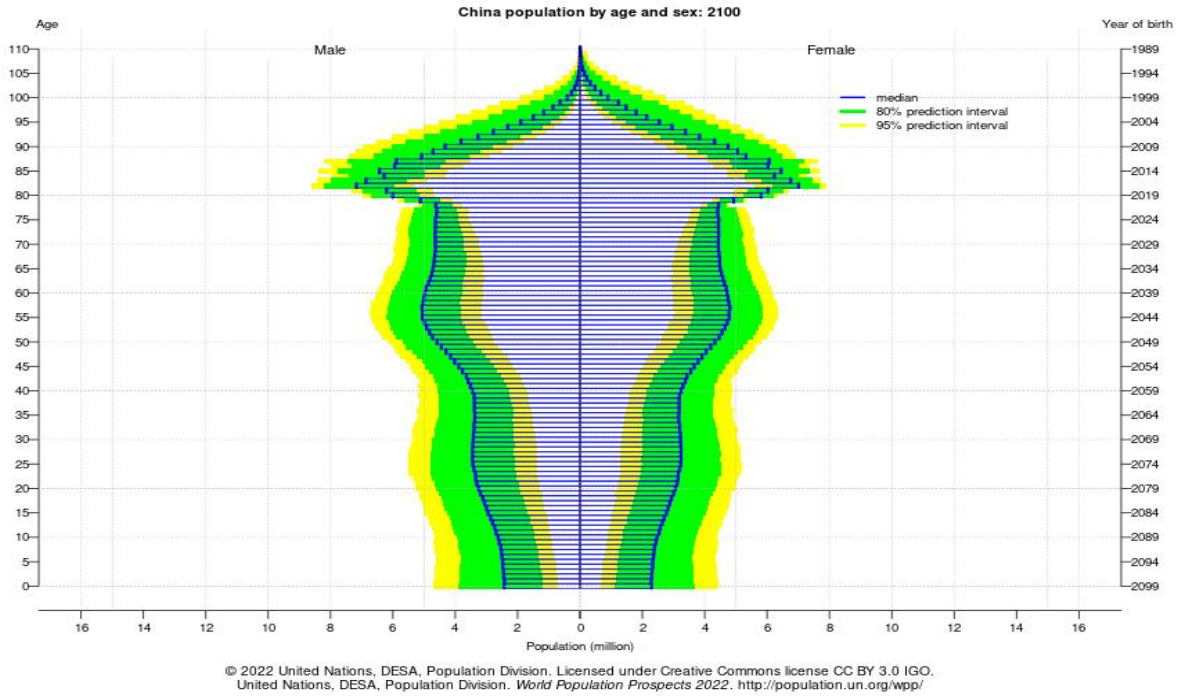


Figure 2.17c - China's population pyramid, 1950-2100

Source: United Nations, 2022

In 2100, the population pyramid shows a columnar structure. In this period, the mortality rate is close to the birth rate, and the number of people of all ages is basically the same, which is in a relatively stable population age structure.

2.2. Analyze of current situation of human resources for the aged in China

China has always been a country with a large population and a large human resource. Likewise, China has the largest elderly population in the world, so it also has the largest elderly human resources. As shown in Figure 2.18, the number of elderly people over 60 years old in China has reached 250 million, far exceeding the 140 million in India, the second country. Western Europe and Japan, which have a relatively high degree of aging population, are even further behind China. According to the United Nations, there were 1.07 billion elderly people in the world in 2021, and China's elderly population accounted for 23.4% of the world's elderly population, exceeding China's 18.6% share of the world's total population.

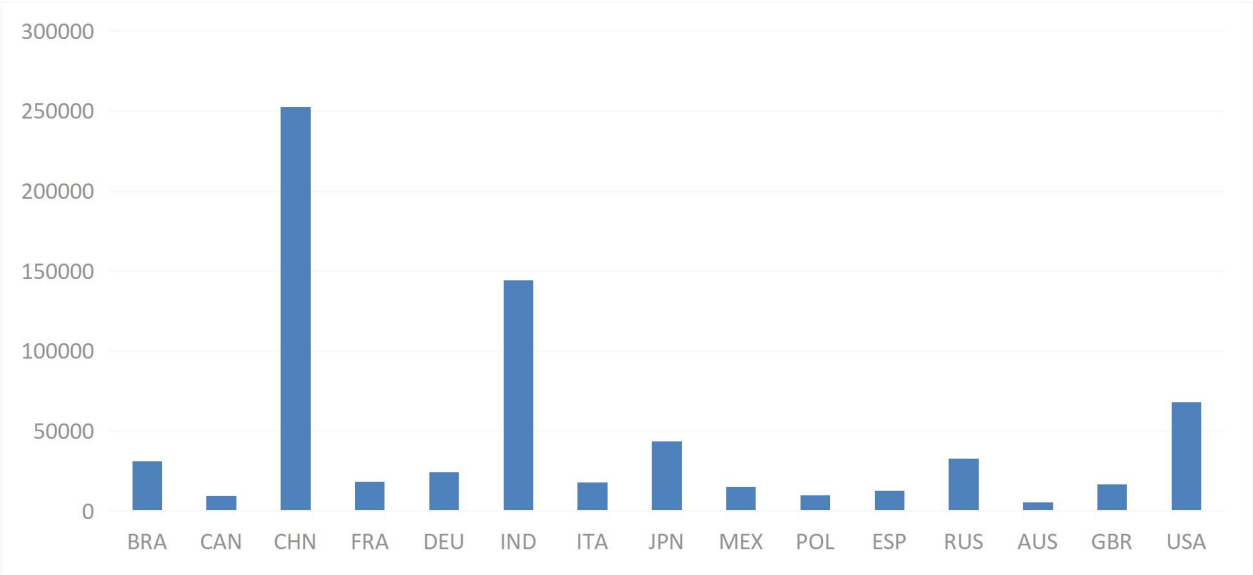


Figure 2.18. - Number of population over 60 years old (per thousand) in some countries in 2021

Source: author`s research based on World Bank Population Estimates and Projections, 2022

Because China implemented its family planning policy earlier than other developing countries, the number of elderly people in China will not continue to grow rapidly, even though the country is aging rapidly. Because the population born in the 1960s and 1970s is gradually getting older, China's elderly population will maintain a high growth momentum within 25 years.

In 2025, the elderly population over 60 years old will be 280 million, and in 2030, it will grow to 340 million, an increase of 60 million in five years. China will account for 24.9 percent of the world's elderly population in 2035, when it will account for only 16 percent of the world's population. When babies born after 1975 under the population control policy in 2035 begin to age, the growth trend of China's elderly population will decline rapidly, reaching a peak of 446 million in 2055.

In contrast, the world's elderly population will keep growing. In 2060, China's elderly population will decline to 19.4% of the world's total elderly population, and in 2100, China's elderly population will only account for 11.3% of the world's total. It can be seen from the changing trend of China's elderly population and the world's elderly population: on the one hand, China will be faced with extremely rapid aging and increasingly prominent aging problem within 30 years; On the other hand, China will have abundant elderly human resources for a period of time. How to make better use of these resources to turn the problems that hinder progress into impetus for progress will become the key to whether China can successfully meet the challenge of population aging.

Figure 2.19 clearly shows the change of the elderly population and the total population in China. China's total population grew 2.1 percent in 2015 from 2010, while the elderly population grew 24.9 percent. In 2020, the total population increased by 1.3 percent over 2015, and the elderly population increased by 16.7 percent. By 2030, the total population is 0.1 percent lower than five years ago, but the elderly population will rise by 20.7 percentage points due to the inertia of the population's age structure and longer life expectancy.

The increment of China's total population has been in a downward trend,

while the elderly population will maintain a relatively high growth trend, reflecting the rapid aging process in the age structure of the population. But from another Angle, it also clearly shows the necessity of developing the elderly human resources, if the elderly human resources can not be effectively used, then it will become a heavy population pressure.

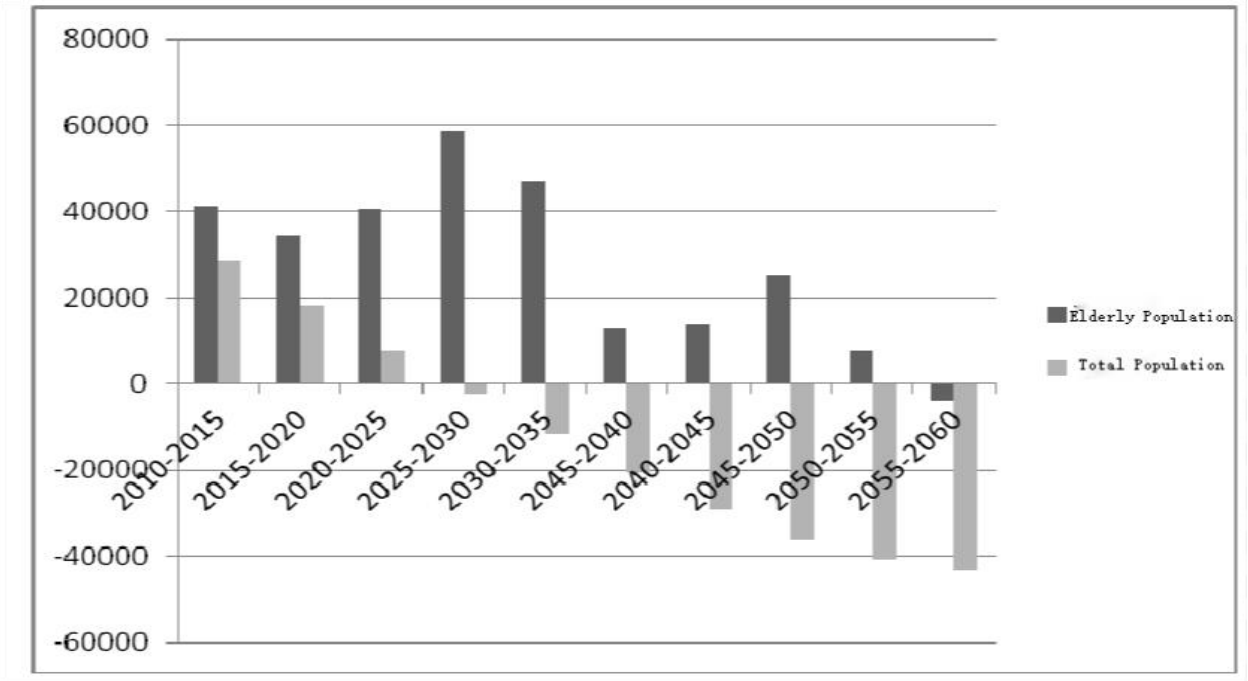


Figure 2.19. - Prediction Unit of China's Elderly Population and the Change of China's total Population (1000 persons)

***Source**: author`s research based on World Population Prospects, United Nations (2021).*

The term "elderly" tends to refer broadly to people over the age of 60, and policies related to older people often treat the elderly population indiscriminately, as if all older people were the same. In fact, just as a person's life is divided into young, young, middle-aged and old, the group of the elderly can be further divided according to their age, physical condition and mental condition. For the sake of convenience, the elderly aged 60-69 years old are regarded as the young elderly population, the elderly aged 70-79 years old are called the middle aged elderly population, and the elderly over 80 years old are the very old elderly population. Younger and older people are healthy and energetic. In addition, most of them just retired from their jobs.

According to Continuity theory, everyone has a unique habit, hobby,

personality, life style and behavior pattern, which will be changed by personal experience and environment, but these characteristics are continuous. That is, a person does not change the habits of the previous decades just because he or she retires. A real example of this is that many older people, for a period of time after retirement, usually a year or two, are not used to living idle and always want to do something. They have a strong desire to work and are excellent human resources for the elderly.

The physical health of the middle-aged elderly is not as healthy as that of the younger elderly. The visual and auditory organs decline significantly, and the tissue function and the body's ability to adapt to the normal environment gradually decline. Some elderly people begin to need the assistance of others or instruments. Therefore, the middle and old people are not suitable for productive activities, but the old people in good mental state can still engage in mental work. In addition, being unfit to engage in productive activities does not mean being unable to participate in activities. Being able to engage in public welfare activities or personal activities is also the development of human resources for the elderly. Due to physiological objective factors, the elderly are usually not used as human resources for the elderly, and only a few scientific, technological, cultural and political elites are still playing a role for the society at an advanced age

Table 2.9 shows the UN's projections of the future changes in China's low - and middle-aged elderly population. The young elderly population aged 60 to 64 years old is the key object of the development of elderly human resources. This group has a total of 66.8 million people in 2021. When the total population of China begins to decline in 2030, the population group aged 60 to 64 years old will grow to 110 million, which is a huge and rich development potential of human resources treasure house. There were 73.11 million people aged 65 to 69 in 2021, and the number will rise to more than 100 million in 2035, an average increase of 2.57 million per year, or 4 percent per year. Although this part of the population group is not the first choice for human resource development, its role in the future can not be ignored. Most countries have generally raised their official retirement

ages, or plan to. America, for example, raised the retirement age for full pensions from 65 to 67. The pension age was raised from 60 to 61 in 2013 and will rise to 65 in 2033. The Canadian government raised the pension age from 65 to 67. Private universities in Japan have also raised the retirement age for professors to 70. Based on October 29, 2021, 19 of the fifth plenary session through "the central committee of the communist party of China 14 to develop the national economy and social development five-year plan and 2035 vision", since 2022, China also should implement incremental delay retirement, the retirement age delay 1 every 3 years for women and men every six years delay retirement age 1 year old, Until 2045 when they reach 65 at the same time.

Table 2.9 - Forecast of China's low and middle Aged Elderly Population from 2020 to 2055 Unit (10,000 persons)

2020		2025	
60-64	7457	60-64	8609
65-69	7032	65-69	6895
70-74	4366	70-74	6136
75-79	2614	75-79	3481
2030		2035	
60-64	11057	60-64	10775
65-69	8010	65-69	10338
70-74	6069	70-74	7109
75-79	4957	75-79	4962
2040		2045	
60-64	8302	60-64	9073
65-69	10100	65-69	7816
70-74	9239	70-74	9076
75-79	5879	75-79	7717
2050		2055	
60-64	10800	60-64	9471
65-69	8578	65-69	10241
70-74	7069	70-74	7800
75-79	7639	75-79	6007

Source: author`s research based on World Population Prospects, United Nations, 2021.

In addition, even if they are not formally included in the labor force, they can actively participate in social and economic activities according to their own circumstances, personal needs and market needs. Under normal circumstances, the

government does not require people aged 70 to 79 to continue working, and only outstanding people such as academicians will get the honor of lifetime employment. However, with the prolongation of the average life expectancy and the improvement of the health level of the elderly, the middle-aged and elderly people continue to engage in economic, public welfare and collective activities according to their personal interests and hobbies, which is beneficial to themselves and the society.

The 52nd session of the United Nations General Assembly has called on all countries to strive to build a society "for all, regardless of age", where the elderly are no longer regarded as pensioners, but as subjects and beneficiaries of social progress. So old People will be considered as part of human resources.

According to the 7th National Census in 2020, it can be clearly seen that except Tibet and Qinghai, the elderly human resources are relatively poor, and the rest of the regions are rich in elderly human resources (Figure 2.20).

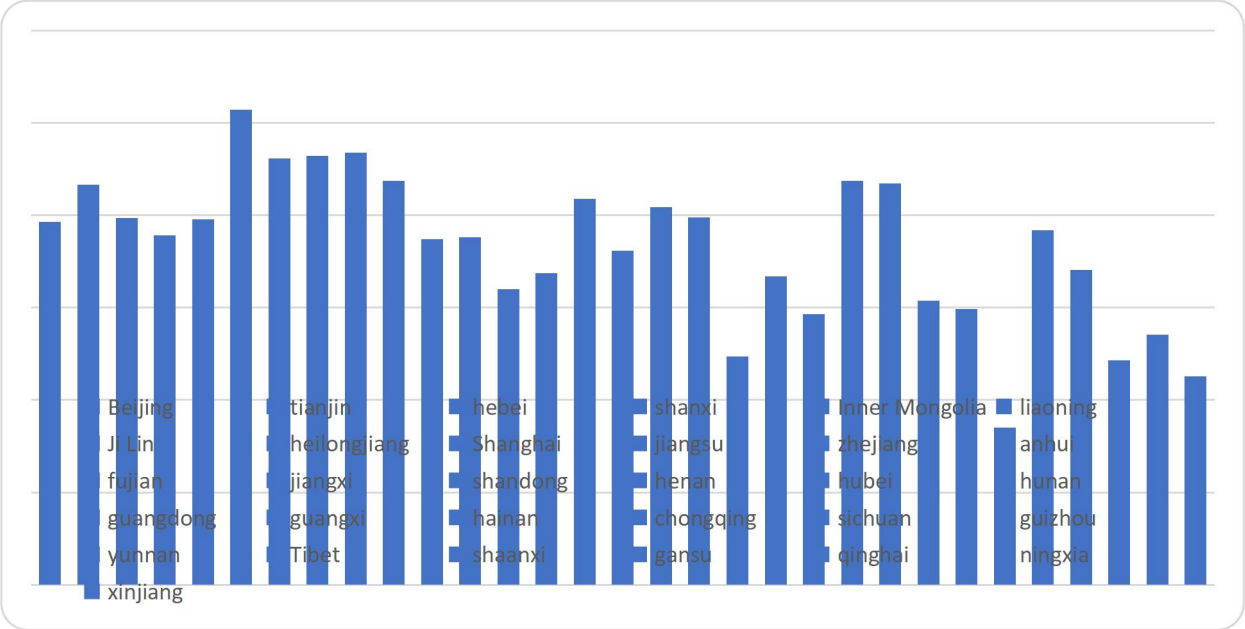


Figure 2.20. - Proportion of population aged 60 and above by region in the seventh National Census

Source: author`s research based on Announcement of China's seventh National Census, 2021

Due to the higher level of economic development, the aging degree in North China and East China is also higher than that in other parts of the country, which corresponds to sufficient elderly human resources. In addition, due to the strong

demand for labor in economically developed areas and the good education situation in these areas, the elderly human resources in these areas are relatively easy to be developed.

In 2020, the number of people aged 60-69 reached 82.1 million in urban areas and 65.27 million in rural areas. It can be seen that there are a large number of young elderly people in urban areas, and the development potential of elderly human resources is also great.

Aged human capital refers to the sum of skills, knowledge, health status and level of workers obtained through education, training, health care, labor migration and employment information. It is a qualitative aspect of aged human resources. After decades of study and work, the elderly are often very skilled and experienced, and have accumulated a large amount of production and life knowledge, with a high stock of human capital.

The total human capital of the elderly is difficult to estimate because production skills, experience and knowledge are difficult to measure, and data on the elderly are scarce. The education level of the elderly is easy to be calculated and the data are detailed. Moreover, the years of education are positively correlated with the accumulation of human capital through education, training or "learning by doing". The longer the years of education, the higher the ability of human capital to accumulate experience in labor and the easier it is to accept new technologies and knowledge. In addition, the longer the years of education, the more attention people pay to maintaining their health, and the higher the cost of information collection and migration to select suitable occupations. Therefore, this paper analyzes and calculates the human capital of the elderly by using the index of the years of education of the elderly population.

Table 2.10 shows the educational status of the population aged 60 years and over since 1982. In the early 1980s, the illiteracy rate of China's elderly population was as high as 79.4%. The severe lack of formal education for the vast majority of the elderly population is a legacy of history before the founding of New China. Since then, driven by the succession of birth cohort sizes, the overall educational

status of the elderly population has gradually improved, but by the end of the 1980s, nearly 80% of the elderly population was still basically illiterate. Since the 1990s, China has embarked on a "fast track" of improving the education level of its elderly population, and the basic illiteracy rate has declined by an average of no less than 2 percentage points a year.

Table 2.10 - Review of the composition of average years of education and education level of China's elderly population

year	Average years of education (unit: years)	Composition of Educational level (unit: %)				
		illiteracy	Primary school	Junior high school	Senior high school	University and above
1982	1.4	79.4	16.4	3.1	0.9	0.3
1987	1.8	75.0	19.1	4.1	1.3	0.5
1990	2.1	70.4	22.3	4.9	1.7	0.7
1995	2.7	62.8	27.2	6.2	2.3	1.4
2000	3.9	47.5	36.8	9.5	4.1	2.1
2005	4.4	42.4	37.9	12.2	4.7	2.9
2010	5.9	22.5	49.7	18.7	5.8	3.3
2015	6.0	22.4	46.1	21.3	7.0	3.2
2020	6.7	16.9	43.6	26.8	10.0	3.6

Source: Du Peng, Li Long. Prospects for the development trend of education level of China's elderly population [J]. Population and Development, 2022, 28(1):9.

In particular, since the founding of the People's Republic of China in the 21st century, the basic illiteracy rate of the elderly population has dropped from 47.5% in 2000 to 22.5% in 2010, thanks to a series of initiatives, such as the campaign to eliminate illiteracy, which focused on the young and middle-aged, and the establishment, reform and opening of educational institutions to promote basic education among children and adolescents. The 25 percentage point change in a decade is unprecedented.

During the same period, as China enters an aging society, the total number of elderly people continues to increase, and the number of educated elderly people will reach 233 million by 2020. According to the seventh national census, 36.69 million people aged 60 and above have a high school education or above, an increase of 20.85 million compared with 2010.About eighty percent from the past

can't read so far nearly ninety percent received education, the basic features of aging population have changed dramatically, they have better parallel with the time synchronization, and society, using the resources provided by The Times development, grasp the social progress of "dividend" knowledge accomplishment, for the Chinese older human resource development provides a larger space.

The average years of education of China's elderly population will continue to grow at a relatively high speed to 9.8 years by the middle of the 21st century, and they will basically have a high school education. The proportion of those with high school education or above will exceed 35% (Table 2.11).

Table 2.10 - The average years of education and the composition of education level of China's elderly population

year	Average years of education (unit: years)	Composition of Educational level (unit: %)				
		illiteracy	Primary school	Junior high school	Senior high school	University and above
2025	7.4	12.0	38.1	33.8	12.3	4.6
2030	8.0	8.7	32.9	40.5	12.9	5.7
2035	8.4	6.7	27.7	44.9	14.0	7.4
2040	8.9	5.4	23.3	47.1	15.0	9.6
2045	9.3	4.7	19.4	47.4	16.1	12.6
2050	9.8	4.0	15.0	45.7	18.4	16.8

Source: Du Peng, Li Long. Prospects for the development trend of education level of China's elderly population [J]. Population and Development, 2022, 28(1):9.

It is expected that by 2040, the average years of education of the elderly population will exceed 9 years and the whole population will have reached the level of junior middle school education. By 2050, the average years of education will be nearly 4 years higher than that of 2015. The basic illiteracy rate of the elderly population will further decrease to 4.0%. The elderly population with junior high school education will occupy the dominant position, and the proportion of educated elderly population in the denominator can be seen to jump from 27.5% in 2015 to 47.7%. The number of senior citizens with a high level of education is

expected to exceed 80.5 million, making them the third largest group of educated people below the level of junior middle school education and close to the level of senior high school education.

Under the general trend of continuous improvement of the average years of education for the elderly population in China, it can be predicted that the composition of education for the elderly will show distinct characteristics of phased development with the basic realization of modernization by 2035. On the one hand, the proportion of the elderly population with very low education level will decline significantly before 2035. On the other hand, the proportion of older people with higher levels of education rises rapidly after 2035. Although by 2015, the vast majority of the elderly population had fundamentally reversed their lack of education, it is estimated that more than 20 percent, or 50 million, of the elderly population could still barely read.

The pace of improvement in the education status of the elderly has not stopped. By 2035, the basic illiteracy rate will continue to decline, with an average annual decline of nearly 0.8 percentage points, and eventually drop to less than 7 percent. Over the same period, the proportion of the educated elderly population with a primary school education dropped by about 30 percentage points, to less than 30 per cent. In contrast, between 2036 and 2050, because the uneducated elderly population will remain relatively large, the basic illiteracy rate will remain at a certain level, and will continue to decline to 4%, and the annual decline in the proportion of primary school education group will also be smaller.

At the other end of the education chain, the proportion of the elderly population with higher education levels has jumped from a low level of slow growth to an uptick. In particular, the proportion of the educated elderly population reaching higher education level will increase by 3.7 percentage points between 2016 and 2035. It will rise by about 10 percent over the next decade. The above characteristics of phased development are actually the results of vigorously popularizing compulsory education and continuously developing higher education after the reform and opening up. According to the above prediction, we can foresee

a large number of high-quality aged human resources in the future.

By 2035, when China has basically achieved modernization, the total size of the elderly population will exceed 400 million, and the average of them will have reached the level of primary school education and junior middle school education. The phenomenon of basic illiteracy, represented by the elderly female population, will "die out" at a relatively low level. When China becomes a great modern country by 2050, the overall size of the elderly population will approach its peak level, and the proportion of senior high school and higher education will increase significantly.

Health status is a non-negligible component of human capital, especially for the elderly, physical health may be particularly precious. The World Health Organization regards health as one of the three pillars of active aging, and healthy body is the premise of developing human resources for the elderly.

According to the fourth sample survey on the living Conditions of the elderly in urban and rural areas in China, 30% of the elderly are in good health. The urban elderly are in better health condition than the rural elderly. 32.97% of the elderly think their health condition is good or very good, and only 24.76% of the elderly think their health condition is poor or very poor. Overall, the self-rated health status of the elderly was better. From the perspective of urban and rural differences, there are significant differences in self-rated health of urban and rural elderly, and the self-rated health status of urban elderly is better than that of rural elderly. Urban elderly people think their health is very good or relatively good, 37.80%, 10.12 percentage points higher than rural elderly people, As shown in Table 2.11.

Table 2.11. - Self-rated health status of the elderly, %

How do you feel about your health?	National	City	Rural
Very good	6.58	8.00	5.00
Better	26.39	29.80	22.68
Average	42.27	42.62	41.88
More bad	19.79	15.93	23.98

Very poor	4.97	3.76	6.29

Source: author`s research based on The fourth Urban and Rural Elderly living conditions Survey, 2020

Nationally, there are significant differences between male and female elderly people in self-rated health, and male self-rated health status is significantly better than female self-rated health status. The proportion of male elderly people who think their health is very good or relatively good is 37.74%, 9.12 percentage points higher than that of female elderly people.

The proportion of elderly men who think their health is very or relatively poor is 21.11%, 6.98 percentage points lower than that of elderly women. Further contrast of inner cities and rural internal different gender self-reported health status of the elderly can be found that different gender urban old people or rural elderly people were in significant difference in self-reported health, whether urban or rural elderly, the elderly male elderly self-reported health conditions are better than older women. Specifically, in urban areas, elderly men think their health is very good or relatively good, accounting for 43.02%, 10.04 percentage points higher than that of elderly women; In rural areas, the proportion of elderly men who think their health is very good or relatively good is 32.88%, which is 9.26 percentage points higher than that of elderly women in rural areas (Table 2.12).

Table 2.12 - Self-rated health status unit % of the elderly by gender in urban and rural areas

Scope	Gender	Very good	Better	Average	More bad	Very poor
National	Female	5.09	23. 53	43. 29	22. 55	5.54
	Male	8.22	29. 52	41. 15	16. 76	4.35
City	Female	6	26. 98	44. 32	18. 33	4. 13
	Male	10	33.02	40.69	13.19	3.33
Rural	Female	4	19. 62	42. 13	27. 35	7.13
	Male	7	25. 88	4L62	20.47	5.42

Source: author`s research based on The fourth Urban and Rural Elderly living conditions Survey, 2020

The younger the elderly, the better their self-rated health. About 40 percent of people aged 60-64 rated their health as very good or fairly good, compared with 20.79 percent of those aged 85 and above. The proportion of the elderly aged 85

years and above who consider their health condition to be very or relatively poor is 38.71%, which is about -20 percentage points higher than that of other age groups. The self-rated health status of the elderly in different age groups was further compared between urban and rural areas.

The results showed that there were significant differences in self-rated health between urban and rural elderly in different age groups. In urban areas, the overall self-rated health level of the elderly decreased with age. 45.94% of the elderly aged 60-64 thought their health was very good or relatively good, which was 21.56 percentage points higher than that of the elderly aged 85 and above. In rural areas, 35.46% of the elderly aged 60-64 think their health is very good or relatively good, which is 19.04 percentage points higher than that of the elderly aged 85 and above (Table 2.13).

Table 2.13 - Self-rated Health Status of the elderly by age group in urban and rural areas

Scope	Age	Very good	Better	Average	More bad	Very poor
National	60 - 64	9.71	31.10	40.96	15.00	3.22
	65 ~ 69	6.74	27.68	43.33	18.24	4.00
	70-74	5.23	24.42	43.65	21.40	5.31
	75 -79	3.93	22.03	42.71	24.78	6.55
	80 - 84	3.24	20.13	42.02	26.52	8.08
	85+	2.56	18.23	40.50	28.40	10.31
City	60-64	11.50	34.44	40.12	11.54	2.4!
	65 ~69	8.21	31.07	43.31	14.55	2.86
	70 - 74	6.56	28.39	44.08	17. (M	3.93
	75 ~ 79	4.81	25.98	44.23	19.93	5.05
	80-84	4.26	23.36	44.31	21.97	6.10
	85+	2.88	21.50	43.27	24.40	7.96
Rural	60~64	7.84	27.62	41.85	18.61	4.08
	65 - 69	5.22	24.14	43.36	22.09	5.19
	70 - 74	3.80	20.16	43.19	26.06	6.79
	75 -79	2.93	17.55	40.99	30.27	8.26
	80-84	1.93	15.96	39.05	32.41	10.65
	85+	2.16	14.26	37.13	33.27	13.17

Source: author`s research based on The fourth Urban and Rural Elderly living conditions Survey, 2020

Across the country, there are significant differences in self-rated health status among the elderly with different education levels. In general, with the improvement of education level, the self-rated health status of the elderly is better, and the self-rated health status of the elderly in college is the most optimistic. Specifically, for the elderly who consider their health status to be poor or very poor, 34.25 per cent have not attended school, 24.62 per cent have a primary education, less than 20 per cent have a secondary or high school/technical secondary/vocational education, and less than 10 per cent have a college or undergraduate degree or above.

Table 2.14 - Self-rated health status of the elderly with different education levels in urban and rural areas

Scope	Educational background	Very good	Better	Average	More bad	Very poor
National	NoSchooling	4.10	20.16	41.50	26.94	7.31
	PrimarySchool	6.22	26.28	42.88	19.85	4.77
	Junior high school	9.43	31.63	42.03	13.69	3.22
	Senior SecondarySchool	10.06	33.61	42.61	11.24	2.48
	Junior college	10.63	38.44	41.05	7.98	1.89
	Bachelor degree or above	8.83	39.05	42.16	8.25	1.70
City	No Schooling	4.97	23.26	42.48	23.25	6.04
	Primary School	7.24	28.67	42.97	17.26	3.86
	Junior high school	10.00	33.18	42.31	11.79	2.72
	Senior Secondary School	10.09	34.35	42.91	10.43	2. *22*
	Junior college	10.65	38.55	4).05	7.86	1.89
	Bachelor degree or above	8.86	38.98	42.18	8.28	1.71
Rural	NoSchooling	0.53	18.17	40.87	29.30	8.12
	PrimarySchool	5.34	24.25	42.80	22.06	5.55
	Junior high school	8.32	28.59	41.49	17.42	4.19
	Senior Secondary School	9.91	29.65	41.02	15.60	3.82
	Junior college	9.41	32.94	41.18	14.12	2.35
	Bachelor degree or above	0.00	62.50	37.50	0.00	0.00

Source: author`s research based on The fourth Urban and Rural Elderly living conditions Survey

The self-rated health status of the elderly with different education levels in urban and rural areas was further compared. There were significant differences in self-rated health status between the elderly with different education levels in urban and rural areas. Similarly, the elderly with higher education level had better self-rated health status. In the inner city, 49.20% of the senior college students think their health is good, which is 20.97 percentage points higher than that of the senior citizens who have not been to school. In rural areas, 62.50% of the elderly with a bachelor's degree or above think their health is relatively good, which is 43.80 percentage points higher than that of the elderly without schooling.

2.3. Assessment of existing problems of elderly human resource development

Since ancient times, China has had the traditional virtue of respecting the elderly, and the elderly's continued participation in the labor force is regarded as "an old man with something to do" and "an old steed in stable stable, aspiring for thousands of miles". Since the founding of the People's Republic of China, especially since the reform and opening up, the government has paid more and more attention to the work of the elderly, and issued a series of policy documents to encourage retired and retired cadres to give full play to their surplus energy.

As China steps into an aging-oriented society, The State Council's 12th Five-Year Plan points out: "We will pay attention to the development of human resources for the elderly, and support the elderly to participate in economic development and social welfare activities in an appropriate way. Implementation of the central organization department, the central propaganda department, the united front, the personnel department, Ministry of Science and Technology, the people's liberation army general political department, China Association for Science and Technology, ministry of labor and social security on further opinion, give play to the role of retired professional and technical personnel, improve the policies and

measures, and set up the service platform, to support the general retired professional and technical personnel play a better role.

We should give full play to the active role of the elderly in community service, caring for and educating the next generation, mediating neighborhood disputes and family conflicts, and maintaining social order. We continue to explore new forms of 'making things more productive for the elderly', actively do a good job in organizing the 'The Silver Age Action', and extensively carry out volunteer services for the elderly. The number of elderly volunteers has reached more than 10% of the elderly population."

In 2021, the CPC Central Committee and The State Council issued guidelines on strengthening work on aging in the New Era to encourage the elderly to continue to play a role. We will combine the productive activities of the elderly with the provision of care for them, improve policies and measures on employment, voluntary services, and community governance, and give full play to the role of the elderly at a younger age.

We will explore flexible employment models suitable for the elderly in schools, hospitals and other work units, as well as in community housekeeping services and public place service management. We will encourage local governments to establish an information base for senior personnel, and provide job introductions, vocational skills training, and innovation and entrepreneurship guidance services for the elderly who are willing to work. We will carry out the "Yinling Campaign" to encourage the elderly to take an active part in grassroots democratic supervision, changing customs, civil mediation, culture, education and health activities in the form of voluntary services.

We will give play to the active role of the elderly in family education and inheritance of family traditions. We will strengthen the building of grassroots Party organizations for retired officials and workers, encourage veteran Party members to transfer their organizational relationships to their regular places of residence in a timely manner, guide veteran Party members to play their roles in light of their actual conditions, and do a good job of providing spiritual care and ideological

guidance to the elderly. A comprehensive clean-up of unreasonable regulations that prevent the elderly from continuing to function.

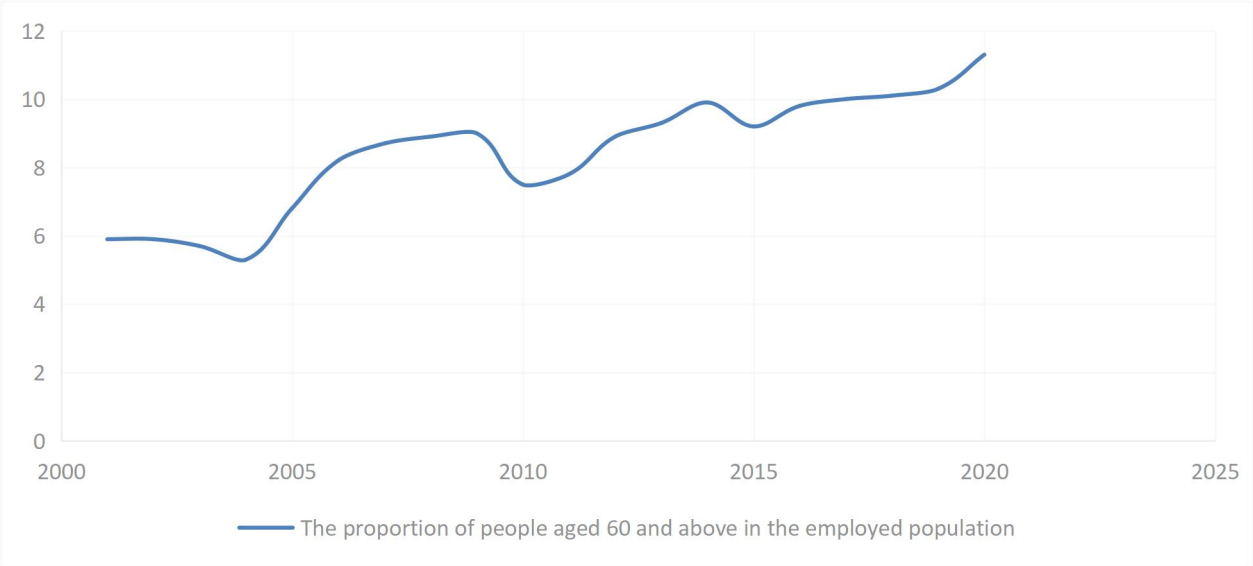


Figure 2.21. - Changes in population aged 60 and above in the employed population from 2001 to 2020

Source: author`s research based on China Labor Statistics Yearbook, 2001-2021

By examining the employment status of the elderly and comparing the employment population of all ages in 2020, the youth aged 16-19 accounted for 0.9% of the total employed population, and the youth aged 20-29 accounted for 16.5% of the total. Middle-aged workers aged 30-39 and 40-49 accounted for 25.9 percent and 24.5 percent of the total employed population, respectively, making them the backbone of the labor force. The pre-aged labor force population aged 50-59 accounts for 20.9% of the total employment, and the elderly population aged 60 and above who are still working accounts for 11.3% of the employed population.

It can be seen that the elderly labor force still occupies a certain share in the production field. From the longitudinal comparison of the proportion of the employed population of the elderly in the total employed population in recent years (Table 2.15).

It can be seen that the employed population of the elderly experienced a process of decline first and then rise from 2001 to 2009. From 2001 to 2004, the employed population of the elderly over the age of 60 decreased from 5.9% to

5.3%. Since 2005, the proportion of the employed population of the elderly began to rebound, which was 6.8% in 2005 and then continued to rise. In 2009, the total employed population of the elderly over the age of 60 reached 9%.

Table 2.15 - Employment status of employed persons by age, %

Age	Employed Persons	Employee	Employer	Self-Employed	Unpaid Familial Worker
16-19	100.0	77.9	0.7	17.9	3.6
20-24	100.0	85.1	0.8	12.7	1.5
25-29	100.0	80.7	1.6	16.7	1.0
30-34	100.0	73.7	2.5	22.7	1.1
35-39	100.0	69.0	3.0	26.7	1.2
40-44	100.0	65.3	2.9	30.6	1.2
45-49	100.0	61.2	2.5	34.9	1.4
50-54	100.0	53.3	2.2	42.9	1.6
55-59	100.0	47.3	1.6	49.0	2.0
60-64	100.0	31.1	1.2	65.0	2.7
65+	100.0	17.2	0.7	78.8	3.3

Source: author`s research by China Population and Employment Statistics Yearbook 2021

From 2010 to 2012, the employed population of the elderly over 60 years old declined slightly, and then kept exceeding 9%, reaching 11.3% in 2020. The employed population of the elderly over 60 years old reached 84.82 million, which was similar to the total population of Germany in 2020.

The elderly labor force over the age of 60 is difficult to be accepted by the labor market. The degree of employment of the labor force after the age of 50 is greatly reduced, with an average decline of 8 percentage points every five years (Table 2.16).

Only 6.7% of the total number of people over the age of 65 are still employed. However, the proportion of the labor force engaged in self-employment is on the rise, with an average increase of 9 percentage points every five years after the age of 50, and more than 65 percent of the labor force over the age of 60 engaged in self-employment.

Tables 2.16 and 2.17 show the education level of the employed people of all

ages in 2020 and 2010. Among the total employed population in 2020, only 2.4% have not been to school, which is 1% lower than that in 2010. The figure was 8.1 percent for those aged 60-64 and 16.7 percent for those aged 65 and over, down 5.6 percent and 7.9 percent from 2010, respectively.

Table 2.16 - Educational attainment of employed persons by age in 2020, %

Age	No Schooling	Primary School	Junior Secondary School	Senior Secondary School	College	University	Graduate and Higher Level
Total	2.4	16.3	41.7	17.5	11.3	9.8	1.1
16-19	0.2	2.7	54	35.8	5.9	1.3	0
20-24	0.1	2.3	31.3	25.6	25.2	15.1	0.4
25-29	0.1	2.7	31.2	23.9	19.5	20.4	2.1
30-34	0.2	4.3	38.8	21.2	17.5	16.1	1.9
35-39	0.4	6.8	44.2	18.4	13.8	14.3	2.2
40-44	0.8	11.7	46.6	18.6	11.4	9.6	1.3
45-49	1.4	17.5	49.7	16	8.5	6.2	0.6
50-54	2.1	24.6	50.5	12.3	5.7	4.4	0.4
55-59	3.1	24.9	48.2	15.8	4.5	3.1	0.3
60-64	8.1	41	37.3	12.3	0.9	0.4	0
65+	16.7	56.3	22.3	4.1	0.4	0.2	0

Source: author`s research by China Population and Employment Statistics Yearbook 2021

In 2020, 30.44 percent of workers over 60 years old had a primary school education, up from 9.51 percent in 2010. In 2010, workers with a junior high school education or above accounted for 20.56 percent of the elderly labor force, while the figure rose to 36.73 percent by 2020.

Table 2.17 - Educational attainment of employed persons by age in 2010,%

Age	No Schooling	Primary School	Junior Secondary School	Senior Secondary School	College	University	Graduate and Higher Level
Total	3.4	23.9	48.8	13.9	6.0	3.7	0.4
16-19	0.5	9.7	71.9	16.6	1.2	0.1	0.0
20-24	0.4	7.4	59.0	20.7	8.8	3.6	0.1
25-29	0.6	8.5	53.4	16.8	11.0	8.8	0.9
30-34	0.9	13.1	53.4	16.2	9.1	6.5	0.9
35-39	1.3	18.7	55.0	13.4	6.8	4.3	0.5
40-44	1.8	24.3	53.8	11.6	4.9	3.2	0.3

45-49	2.4	24.8	49.1	15.8	4.8	2.8	0.3
50-54	5.1	36.1	38.2	15.2	3.6	1.6	0.2
55-59	8.7	50.7	30.4	7.0	2.2	0.9	0.1
60-64	13.8	62.0	20.9	2.6	0.5	0.2	0.0
65+	24.6	58.9	14.1	1.8	0.3	0.2	0.0

Source: author`s research by China Population and Employment Statistics Yearbook 2011

The number of senior citizens with college education rose from 350,000 in 2010 to 750,000 in 2020, accounting for 0.008 percent of the total. The above data indicate that although the overall quality of China's elderly labor force has been greatly improved during the decade from 2010 to 2020, the overall education level is still relatively low, and most of them are engaged in non-professional and non-technical jobs.

The primary industry is still the main industry for the elderly. As shown in Table 2.18, in 2000, 91.1 percent of the elderly over 60 years old were engaged in agriculture, forestry, animal husbandry, fishing and water conservation, which decreased to 62 percent in 2010 and further decreased to 46.9 percent in 2020. Well above the all-age average of 8.1 percent. Due to the second industry mechanization level of reduced physical demands, so engaged in the production, transportation, equipment operation of the second industry old people increased from 2.1% in 2000 to 13% in 2020, accounting for 4.3% of the total number of the second industry, with the aging of the population in the future, more younger elderly engaging in non-agricultural work the elderly is the trend of The Times.

Table 2.18 - Occupational Units of the elderly over 60 years old in China by Age Group, 2000-2020, %

Year	Age	Total	Unit Heads	Technical Personnel	Clerk and Related Workers	Business Service Personnel	Producers of Agriculture, Forestry, Animal Husbandry, Fishery and Water Conservancy	Production, Transport Equipment Operators and Related Workers	Others
2000	60-64	100	0. 6	2.0	1.6	3. 9	89. 0	2. 7	0. 05
	65+	100	0.2	0. 8	1. 2	3. 1	93.1	1. 6	0. 04
	60+	100	0. 4	1.4	1. 4	3. 5	91. 1	2. 1	0. 05

2010	60-64	100	1.9	4.2	5.7	17.2	57.6	13.3	0.1
	65+	100	1.1	3.9	4.9	13.7	68.6	7.7	0.1
	60+	100	1.6	4.0	5.4	15.8	62.0	11.0	0.2
2020	60-64	100	1.6	3.2	10	33	35.6	16.4	0.3
	65+	100	0.8	2.4	5.8	23.7	57.3	9.8	0.2
	60+	100	1.2	2.8	7.8	28.2	46.9	13.0	0.2

Source: author`s research by China Population and Employment Statistics Yearbook, 2001-2021

The proportion of the elderly working in the tertiary industry, such as business and service industries, has experienced a rapid increase from 2000 to 2020. In 2020, the proportion of elderly people over 60 working in the tertiary industry was 28.2 percent, a certain gap compared with the whole age average of 39.3 percent. However, the proportion of the elderly aged 60-64 engaged in the tertiary industry is high, 8.5 times that of the elderly aged 60-64 engaged in the tertiary industry in 2000.

What is noteworthy is the change in the proportion of professionals and technicians over 60 years old, which was only 1.4 percent in 2000, increased by 4 percent in 2010, and decreased to 2.8 percent in 2020. With the rapid development of Internet technology, especially the wide application of robots since 2016, the level of intelligence is getting higher and higher. Many retired people are less likely to engage in professional and technical work after retirement because of their low education level. Moreover, due to the nature of the work, the person in charge of state organs, enterprises and institutions and other occupations have strict age restrictions, so there are not many elderly employees.

The number of hours worked per week decreases with age. As shown in Table 2.19, the average weekly working hours of urban workers did not change significantly between the ages of 16 and 49, while the working hours began to shorten significantly after the age of 50.

In 2020, the average working hours of those aged 50 to 59 decreased by 2% every five years, while the average weekly working hours of those aged 60 to 64 decreased by 2% compared to those aged 55 to 59, and decreased by nearly 15% for those aged 65 and over. A cross-sectional look at the data shows that the increase in working hours is the overall trend. The total average working hours of

employed people in 2020 increased by 3.3 percent compared to 2015, while the working hours of those aged 60-64 and over 65 increased by 2.4 percent and 1.6 percent, respectively, less than the overall increase. The working hours of the elderly were shorter than those of the general population, but the difference was not large.

Table 2.19 - Weekly working hours of urban employed persons, hours

Age	2015	2016	2017	2018	2019	2020
Total	45.5	46.1	46.2	46.5	46.8	47.0
16-19	48.4	48.4	48.6	48.3	48.1	48.6
20-24	46.2	46.7	46.5	46.8	46.3	47.0
25-29	45.8	46.3	46.5	46.6	46.9	47.2
30-34	45.7	46.4	46.5	46.8	47.5	47.9
35-39	45.9	46.4	46.6	46.9	47.2	47.7
40-44	46.1	46.6	46.7	47.0	47.5	47.8
45-49	45.7	46.3	46.4	46.8	47.6	47.7
50-54	44.9	45.6	45.9	46.4	46.9	47.0
55-59	43.9	44.7	44.8	45.2	45.7	45.7
60-64	42.4	42.8	43.3	44.1	43.9	43.4
65+	37.2	38.4	38.9	39.1	39.0	37.8

Source: author`s research by China Population and Employment Statistics Yearbook, 2021

Over the past six years, the working hours of the elderly aged 60 to 64 were only 6.5 percentage points lower than the average, and the working hours of the elderly aged 65 and over fell by 17.1 percent. In 2020, 26.5 percent of workers over 60 years old worked an average of 40 hours a week, meaning that more than a quarter of them still adhere to the eight-hour working week. While 9.4 percent work less than 20 hours per week, 22.4 percent work between 20 and 39 hours per week, and 41.7 percent work more than 40 hours per week, which means that most of the elderly work at least 8 hours per day.

Today, lifelong learning is advocated all over the world. In a rapidly changing environment, everyone needs to keep learning to meet the demands of The Times. In line with the concept of lifelong education proposed by the United Nations Educational, Scientific and Cultural Organization, the development of informal,

community-based recuperation education programmes for older persons should be promoted in order to help them develop a sense of self-reliance and a sense of responsibility towards society. Such programmes should be supported by Governments and international organizations.

In 1996, China passed the Law on the Protection of the Rights and Interests of the Elderly, which clearly stipulates: "The elderly have the right to continue to receive education. The state develops education for the elderly and encourages the public to run schools for the elderly. People's governments at all levels should strengthen leadership and make unified plans for education for the aged." Active development of education for the aged plays a potential role in social, economic and cultural development, especially in strengthening intergenerational cooperation and consolidating family relations. At the same time, because education is the main way to increase the stock of human capital, education for the aged is also a way to develop the aged human resources.

At present, the most important educational institutions for the elderly are universities for the elderly. In 1983, China's first university for the elderly was established in Shandong Province. According to the Report on the Development of Education for the Elderly in China (2019-2020), by the end of 2019, there were about 76,000 universities (schools) for the elderly in China. About 10.882 million students are enrolled in the school.

More than 80 per cent of students are under 70, with the highest proportion, or about half, of those aged between 60 and 69. In addition to school learning, network digital education has gradually become an important form of education for the elderly. According to the report, according to incomplete statistics, there were more than 6,000 schools for distance education for the elderly in China in 2019, about six times the number in 2017.

There are about 36,000 teaching sites of distance education for the elderly, nearly 6,000 more than in 2017. The university for the aged has made great contributions to the society with the aim of "increasing knowledge, enriching life, edifying sentiment, promoting health and serving the society" and the policy of

combining "learning, music, contribution and teaching".

"In the future, study is the best pension." Vice chairman of China aging Wu Yushao said, geriatric education in our country still faces such problems as insufficient development, unbalanced, should by having the elderly education the key to the grassroots community, blend in geriatric education community life and development of remote education, maximise elderly incremental education resources, to meet the growing needs of learning in the elderly.

But in recent years, there have been many problems such as unbalanced regional development level, insufficient investment in the education fund for the elderly. The number of universities (schools) for the elderly in eastern and coastal provinces is relatively concentrated, in sharp contrast to the western region. There are great differences in the number of senior students in different regions. East China is the region with the largest number of senior students, reaching 5.823 million, accounting for 53.6% of the total number of senior students in China, while the number of senior students in northwest and Northeast regions only accounts for 4.3% and 3.9% of the total number of senior students in China. According to the data of 18 provinces and cities, the investment of national fiscal education funds in education for the elderly is low, and the investment in education for the elderly needs to be increased.

The higher education entrance examination was reinstated in 1977, but only 270,000 students were admitted. Before 1977, a total of 3.144,200 students were enrolled in Chinese universities. Now these college students have entered the elderly, but compared with the huge elderly population, the population of the elderly with advanced education is still very few.

As shown in Figure 2.22, only 3.6% of China's elderly population received higher education in 2020. Moreover, most of the college students over the age of 60 have retired. Although these college students have extensive knowledge, their knowledge is still relatively backward compared with the ever-increasing knowledge of modern society.

In addition to these college students, there is still a big gap between the

knowledge of the elderly with technical secondary school and high school education and the modern society, and it is difficult to be competent for some jobs, which objectively restricts their re-employment.

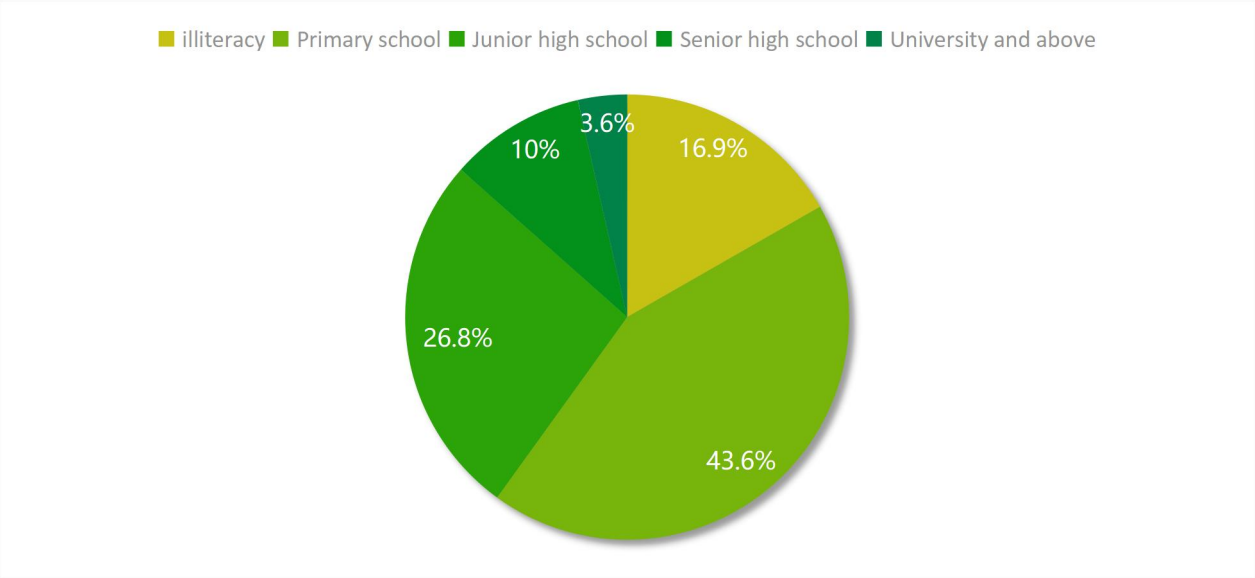


Figure 2.22. - Education level of the elderly in 2020, %

Source: Du Peng, Li Long. Prospects for the development trend of education level of China's elderly population [J]. Population and Development, 2022, 28(1):9.

According to the Report on the Development of Education for the Aged in China (2019-2020), by the end of 2019, there were about 76,296 universities (schools) for the aged in China, 14,135 more than in 2017, with a year-on-year growth of 22.7 percent. Over the past five years, the number of universities (schools) for the elderly in China has increased by 15,790, with an annual average growth of 4.7 percentage points.

In 2019, the number of students in senior universities (schools) in China was about 10.882 million, 2.75 million more than in 2017, a year-on-year growth of 33.8%, with an average annual growth rate of about 12.7%. In the past five years, the number of students enrolled in senior universities (schools) has increased by an average of 7.4 percentage points per year.

Based on this, it can be estimated that in 2021, there are about 83,636 universities for the elderly in China, and the number of students is about 12.552

million. At the end of 2021, the country's elderly population is 260 million, and the number of students in the university only accounts for 4.7% of the elderly population.

So across China, universities for the elderly are still overwhelmingly in short supply. Universities for the elderly are addressing the problem of insufficient supply through distance education, which currently has 5 million senior citizens participating in distance education, but still cannot meet the needs of the elderly. In addition, the quality of education is uneven. Universities for the elderly with good conditions and quality are extremely scarce. Moreover, many schools also set the entrance threshold, which leads to a large number of elderly people can not enter the school to study, and the knowledge update of the elderly is difficult.

In recent years, scholars' suggestions on the development of human resources for the elderly are endless, but the country has not given a positive response to them except for the policy of delaying retirement. Existing in our country, the protection of old people's rights is only basic life for the elderly, such as food, clothing, shelter, line protection, neither involves the problems of the elderly and not again obtain employment provide specific legal protection of the aged, the elderly again obtain employment rights are not legal confirmation, make their reemployment did not get the support and recognition.

This also makes it natural for society to exclude the elderly from social labor resources, which is difficult to implement in practice. In addition, there is a serious lack of norms to promote and discriminate against the employment of the elderly, which is in sharp contrast to developed countries.

What is more important is that the government has neither corresponding guidance nor specific plan on how to make full use of and develop the elderly human resources. The development of the aged human resources in china is still in a loose, spontaneous disorder state at present, therefore, the country should introduce relevant policies and planning as soon as possible, take practical action to respond to the development of the aged human resources, so as to make the aged human resources play reasonably

Employers do not hold an absolute negative attitude towards the employment of the elderly, because there are also some positions suitable for the elderly. However, due to the physical strength is relatively weak in the elderly, completely avoid the incidence of during its working is hard to achieve, but once the elderly on the job, servantchoose a person for a job the unit must needs certain civil liability, and the responsibility for the unit of choose and employ persons, is not negligible, for some small and medium-sized enterprises, the civil liability would be a heavy burden.

Therefore, this makes the employer prohibitive. Employers lack systematic policy support, which directly leads to the practice of hiring the elderly is rare, many companies and enterprises and employers have to exclude the elderly based on the knowledge and physical advantages of the young and middle-aged labor force. In the specific operation, the labor relationship between the elderly and the employer needs to be supported by policies. Otherwise, the health factors of the elderly not only increase the employment risk of the employer, but also lack practical guarantee for the re-employed elderly, which makes the employment of the elderly become an armchair strategy and lack of concrete operability.

Another reason for the gap between employment behavior and employment intention of the urban elderly is the lack of re-employment channels for the elderly. Although a talent market for the elderly has been established in China since the 1990s, and good results have been achieved in these years, there is still no authoritative organization for the comprehensive coordination and management of the development of human resources for the elderly.

There are many institutions involving the elderly, such as the Bureau of veteran cadres, Labor Bureau, civil affairs Bureau, Human resources and social Security Bureau, and the commission of aging, but there are no special responsible organizations for the development of elderly human resources. Many elderly workers are still in a scattered, spontaneous and uncertain state, which undoubtedly increases the difficulty of re-employment for the elderly. And the senior talent market usually can only solve the re-employment of "senior talent", that is, the

elderly with strong professional ability and technical level. Taking the talent information of Hefei elderly talent market as an example, most of the 117 elderly job seekers have middle and senior professional titles or college degrees or above, while ordinary elderly workers are difficult to get the chance of re-employment under the market economy system.

The system is instructive to people's behavior. The internal retreat system makes people unwilling to continue working and retire early, while the positive incentive system can promote the development of human resources for the elderly, but there are not many positive systems for the re-employed elderly. Although China has the "protection of rights and interests of the elderly law", but such as the old people's re-employment rights can not be protected. At the same time, because the elderly labor force is in the edge of the law, its labor rights and interests are often not protected, such as wage arrears, dismissal at any time and other violations of the interests of the elderly workers occur.

In addition to institutional security, the elderly also need institutional support and incentives, such as the tax reduction and exemption system commonly implemented in the West, which have not been put on the agenda in China. Institutions are unconsciously formed by people in the process of long-term practice, including value beliefs, ethical norms, moral concepts, customs, ideologies and other factors. The deep reason why the development of the aged human resources can not be taken seriously is people's long-term concept of the aged.

As a traditional agricultural country, China's production and life depend on the old people's words and deeds, so China has the traditional virtue of respecting the elderly. Since modern times, the traditional relations of production have been impacted by the industrial revolution and the information revolution. The previous experience began to fail to guide the new labor production, and science and technology became the primary productive forces.

Old people become abandoned by The Times, and their social status is also much worse than before, which leads to a lot of prejudice and discrimination

against the old people. In response to prejudice and discrimination against older people, Robert Butler, president of the International Longevity Center in the United States, proposed the term ageism and ranked it as the third biggest discrimination in society, only after racial discrimination and gender discrimination. Social psychologists believe that ageism stems from two aspects: one is from people's perception, that is, from people's stereotypes; the other is from people's emotions and attitudes.

Usually old age gives people a feeling of dying, they are sickly, slow, poor memory, conservative, stubborn, out of step with The Times. Whether or not this perception is correct, when translated into behaviours, habits, laws or social policies, it deprives older persons of their rights and leads to unjust treatment of older persons at all levels of society.

In a social survey on ageism, respondents choose one to three of the 15 expressions of ageism that they feel most strongly about. The 15 statements are:

1. Daily life is increasingly restricted by society and other people

2. Fewer opportunities to participate in society

3. Employment opportunities have decreased with age

4. Employment or re-employment is subject to more age restrictions

5. Your voice in important matters diminishes with age

6, too old to get more opportunities in the work

7. There is an age limit in the policy of college entrance examination and postgraduate examination

8. Don't want to hang out with older people

9. Gradually losing control of family property

10. Children are less and less willing to discuss important family matters with you

11. More restrictions on marriage rights by children around them

12. Ageism exists in media or literary works

13. People of other ages are biased against older people

14. Businesses are unwilling to develop and sell products for the elderly

15. The society is not willing to serve the elderly

The results obtained are shown in Figure 2.23: the most selected item is the lack of opportunities to participate in society, followed by the decrease of employment opportunities, and then the more age restrictions on employment or re-employment. Together, these three items accounted for 52 percent of all ageism statements, indicating that ageism was most prevalent in older people's work fields.

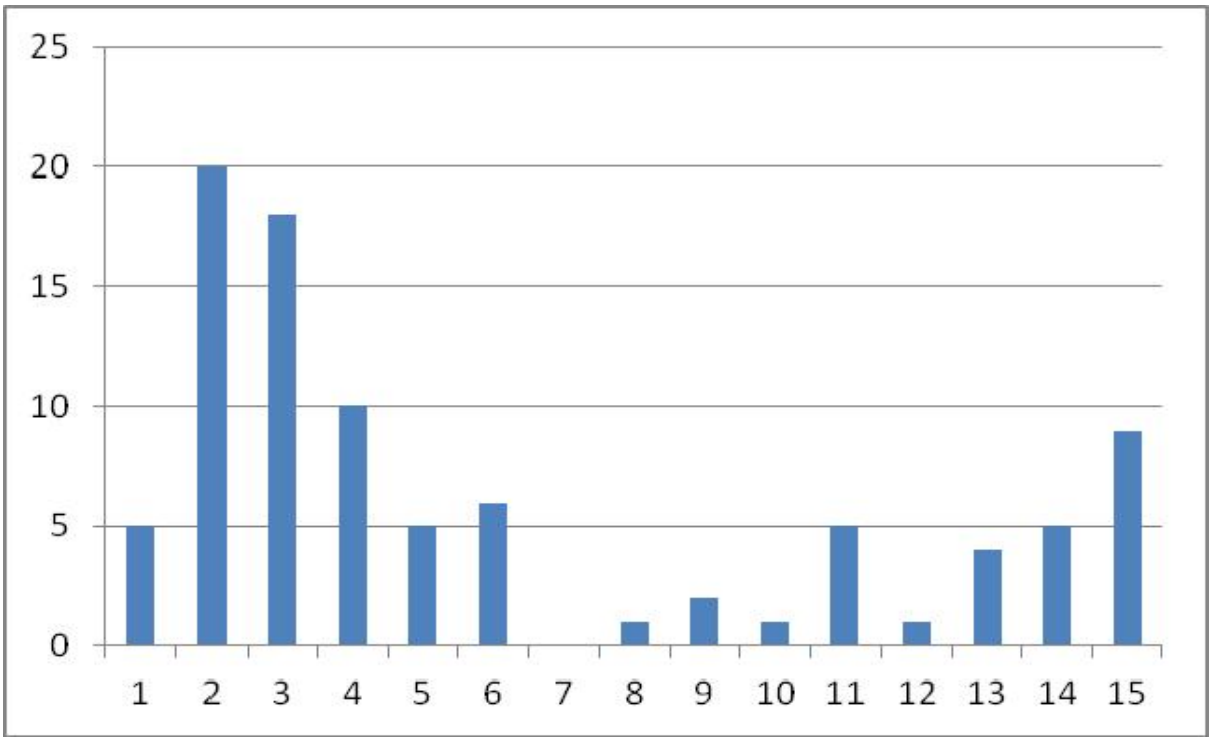


Figure 2.23. - Distribution of age discrimination, person

Source: author`s research based on Age Discrimination and Elder Abuse, China Renmin University Press, 2020

There are usually three arguments against the participation of the elderly in work, namely, the old are useless, the old are useless, and the old are competing for jobs. The Chinese call it retirement, while Western scholars call it disengagement theory. The disengagement theory, first proposed by Cumming and Henry, argues that aging is inevitable and will eventually lead to a decrease in the older person's interaction with others in the social system to which he belongs.

Such disengagement is normal and necessary, as society cedes power from the old to the young. Therefore, older people should reduce their activity level, seek out more negative roles, reduce the frequency of interaction with others, focus on their inner life, and finally gradually withdraw from society. Disengagement is

seen as an adaptive behavior that helps older adults maintain a sense of self-worth while adjusting to the loss of previous roles.Cumming and Henry propose nine hypotheses:

1. Everyone expects to die, and people's abilities degrade over time, so everyone will lose contact with others in society.

2. Since an individual's interactions with others enhance norms, norms weaken when an individual reduces interactions with others. So this detachment becomes a cycle or self-perpetuating process.

3. Since the central role of men in America is critical and the central role of women is social emotion, the process of disengagement will distinguish men from women.

4. People's lives are always changed by changes in self-esteem. For example, aging is a change in self-esteem, which leads to the deterioration of knowledge and skills. Success in an industrial society requires proper knowledge and skills. To meet this need, age stratification ensures that young people acquire enough knowledge and skills before the old lose them.

5. The whole process of detachment occurs when both the individual and society are ready to separate. When neither party is ready, continuous engagement occurs. When individuals are ready and society is not, there is a separation between individual expectations and the rest of society, but participation occurs from time to time. When society is ready and individuals are not, the result of separation is detachment.

6. Men's central role is work and women's is home. When one leaves the central role, he loses his social life space.

7. The following circumstances occur: individual feel life is not much; Individuals want smaller living Spaces; Loss of self-esteem. The individual agrees to separate from society in the following circumstances: an affluent society, a reasonable and legal retirement; The nature of the nuclear family; There are differential mortality rates.

8. Less interaction and detachment of the central character will lead to

changes in the remaining characters.

9. Disengagement theory is independent of culture, but its form is limited by culture.

A sample survey conducted by Age Concern and the University of Kent in autumn 2004 found that a third of people thought the demographic shift to an ageing society would lead to a decline in living standards, security, health, employment and education, while the same number said they thought the over-70s were no longer useful.

Because the elderly have entered the old age of life, physiological function began to decline, physical strength, energy are not as good as before, some simple actions can not be completed, life began to need care, so often give people with useless feeling. This stereotype has been imposed on all the elderly, although only 11.07% of them need care, according to the 2006 China Urban and Rural Elderly Tracking Survey.

As a result, people think that old people are unable to do some jobs. Modernization theory holds that the status of the elderly in society is negatively correlated with the level of social industrialization. In the pre-industrial era, the elderly were highly valued because they controlled scarce resources and possessed traditional cultural knowledge. With the rapid development of modern society and technology, the traditional knowledge mastered by the elderly will be eliminated within a period of time. Compared with the young and the elderly, the acceptance ability of new things is poor, so it is difficult for them to adapt to social changes. That is why new jobs are usually occupied by young people, while many unemployed older people are unable to find new jobs.

Not only in China, but around the world, governments that propose to postpone retirement plans have faced opposition from young people. On July 13, 2010, the French cabinet passed a draft bill on the reform of the retirement system, extending the legal retirement age from the current 60 years old to 62 years old, and raising the retirement age from 65 years old to 67 years old to receive full pension. However, the proposal has aroused strong complaints from labor unions,

especially young people, who believe that if the retirement age is extended, there will be fewer jobs and they will face a tougher job search crisis when they enter society.

Diligence is a traditional virtue of the Chinese nation, so the labor force participation rate of the elderly in China is very high. As shown in Figure 2.24, the labor force participation rate of the population over 65 years old in China reached 26.5% in 2020, only 1 percentage point higher than that in Japan, but much higher than that in western developed countries such as Europe and America.

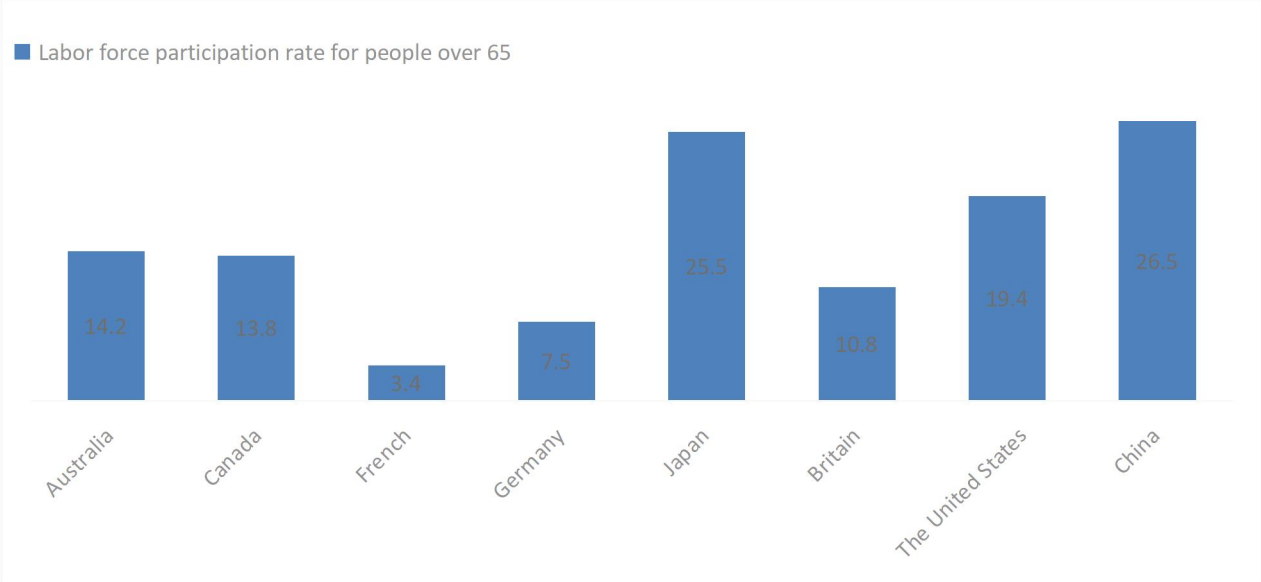


Figure 2.24. - Labor force participation rates of people over 65 in selected countries, 2020

Source: author`s research based on China Population and Employment Statistics Yearbook 2021, OECD

However, we should also recognize that China's working-age population is mainly concentrated in the rural areas, while in fact, the level of employment of the urban elderly is not high. In 2020, the employment rate of the urban elderly was 17.5 percent. Even the employment rate of the elderly aged 60-64 in urban areas is 26.2%, while the employment rate of the elderly aged over 65 is even lower, only 12.9%, which is lower than the labor force participation rate of the elderly population in China, as shown in Table 2.20.

As mentioned above, the urban elderly are better educated and healthier than the rural elderly, and their ability to work should also be better than the rural

elderly. However, the reality is quite the opposite. According to the 2021 China Population and Employment Statistics Yearbook, 49.3% of the rural elderly over 60 years old are employed, while the 60-64 year old age group reaches 72.6%. More than 70% of the males in this age group are still engaged in labor, so it is the rural elderly who pull up the labor force participation rate of China's elderly population. As can be seen from the employment and working conditions of the city old people, the development of the aged human resources in our country is still in the primary stage, and there is much room for it.

Table 2.20 - Employment Situation of China's elderly in 2020

Age	National elderly population(10000)	National elderly employed population (10000)	Employed population/elderly population(%)
60+	26401	8511	32.2
60-64	7338	3452	47.0
65+	19063	5059	26.5
Age	Urban elderly population(10000)	Urban elderly employed population(10000)	Employed population/elderly population(%)
60+	14266	2498	17.5
60-64	4594	1203	26.2
65+	10028	1295	12.9
Age	Rural elderly population(10000)	Rural elderly employed population(10000)	Employed population/elderly population(%)
60+	12135	5983	49.3
60-64	3100	2249	72.6
65+	9035	3733	41.3

Source: China Population and Employment Statistics Yearbook 2021

The second manifestation of the low level of elderly human resource development is that most of the industries engaged in by the elderly have low technical content. According to the 2021 China Population and Employment Statistics Yearbook, the elderly engaged in agriculture, forestry, animal husbandry and fishery account for 84.3% of the employed population over 60 years old, the elderly engaged in the secondary industry accounts for 7.4%, and the tertiary industry accounts for 8.3%.

Among them, the elderly population that can absorb urban retired people, such as residential service, public management and social organization employment, account for 1.5% of the total. The industries that can reflect the elderly human capital, such as scientific research, technical services and geological survey, account for only 0.079%, and the education industry accounts for only 0.43%. As mentioned above, compared with the young labor force, the elderly labor force is at a disadvantage in physical strength, energy and learning ability, while the elements such as knowledge, skills, experience and experience that need time to accumulate are more prominent.

Therefore, the elderly do not have comparative advantages in the primary and secondary industries. The reality is that the elderly in the primary industry account for 90%, but the total employed population in the primary industry only accounts for 43.3% of the total employed population in 2020, which is obviously contrary to the theory. There are roughly two reasons for this.

First, people who used to be engaged in the secondary and tertiary industries no longer continue to work after retirement, and there is no such thing as retirement in agricultural production. Practitioners continue to work after the age of 60, so the proportion of elderly farmers increases.

Secondly, in recent decades, more and more young rural workers have migrated to cities for work. They are engaged in non-agricultural production in cities or towns, but when they get old, they stay at home to work in agriculture. The number of workers in the secondary, tertiary and primary industries is one by one.

The premise of the elderly human resources development is the subjective will of the elderly. According to the survey, most of the elderly in rural areas do not want to participate in labor in fact, but because of life, the elderly willing to work less than a quarter of the actual working elderly. If the elderly were to work at all, only 8% of the rural population over 60 would be employed, which would lead to a decline in the labor force participation rate of China's elderly population. Because the subjective labor will of the rural elderly is not strong and the level is not high,

so the goal of developing the elderly human resources can only rely on the urban elderly to achieve.

As I have said before, the current retirement system is a product of the 1950s and badly out of step with The Times. With the exception of a few scientific and political elites, most non-farm workers must leave the workforce when they reach retirement age, regardless of their health or personal desire. With the extension of the average life expectancy of Chinese people and the improvement of their health status, more and more retired elderly people can and want to work, which leads to the situation that the proportion of urban elderly people willing to work is higher than the actual proportion of employed people.

The Social Security Administration of the United States has made statistics on the official pension age of 172 countries in the world. The situation of major countries is shown in Figure 2.25.

Developed countries have all raised the official pension age to over 60 years old. From the international point of view, postponing the retirement age is a common way to deal with the aging population in the world. The retirement age of the world's major economies is generally above 65 years old. According to its statistics, of the 172 countries in the world, 26 have a retirement age below 60 for men and only six have a retirement age below 55 for women. The state pension age for men is 60 in 60 countries, accounting for 35 percent of the total, and for women it is 60 in 66 countries, accounting for 38 percent. Half of the countries in the world already have a full retirement age for men over 60, and 48 of those countries have a retirement age of 65. The retirement age for women is over 60 in 48 countries and 65 or older in 32.

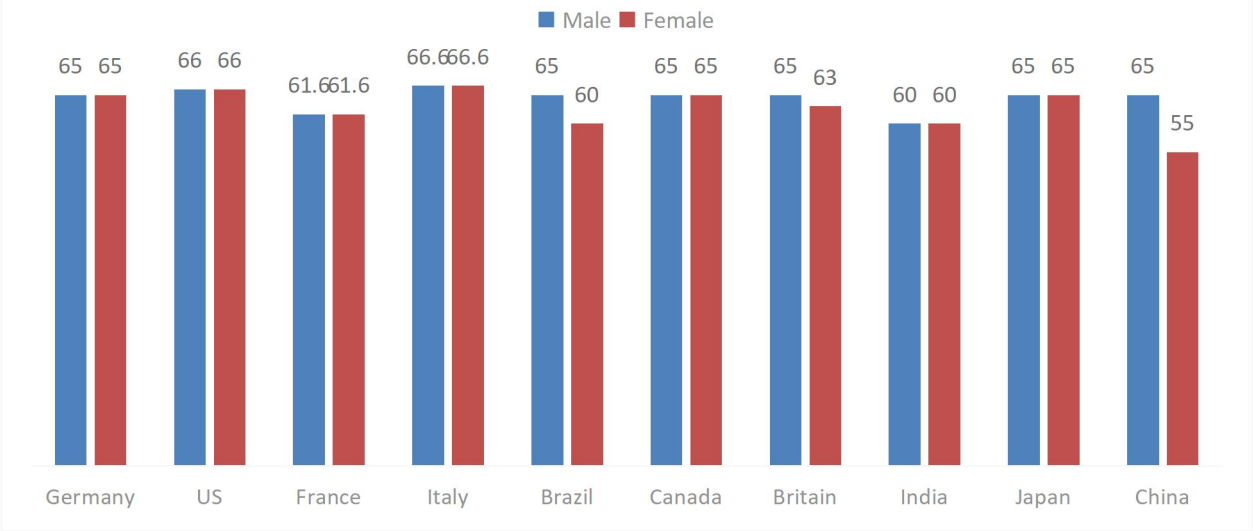


Figure 2.25. - Statutory pension ages in some countries

Source: author`s research based on SSA, ISSA. Social Security Programs Throughout the World, 2020

Moreover, many countries are planning further increases in the official retirement age. America plans to raise its pension age to 67 in 2027, with proposals to eventually raise it to 70; Britain plans to raise the state pension age to 68 in 2024-46; Italy will retire at 65 for both men and women in 2018, with plans to raise the retirement age to 68 by 2050. In 2010 the government passed a gradual increase in the retirement age from 65 to 67. In Germany, the official retirement age will be raised to 66 by 2024 and 67 by 2031.

On March 13, 2020, the Japanese government finalized an amendment to the National Civil Service Law after the Cabinet meeting, extending the retirement age of national civil servants from 60 to 65, increasing it by one year every two years from 2022, and postponing it to 65 by 2030. It also decided to revise the Public Prosecutors Office Law to postpone the retirement age of Japanese prosecutors from 63 to 65. In addition, a law passed in 2018 stipulates that workers can choose their retirement age between 60 and 70, but if they choose to be older than 65, the pension will be raised appropriately.

The legal retirement age in France is 61.6. In France, people who have worked for 40 years can receive a "full pension," or 80 percent of their pre-retirement salary. In December 2019, according to the report of the European

Union News Agency quoted by the European Network, the World Economic Cooperation and Development Organization (OECD) released "Pension Overview" showed that the legal retirement age of Italy is 66.6 years old, which is one of the highest in the world.

China's aging population is not as high as the developed countries in the West, but it is also higher than the average level of developing countries. China's retirement system is obviously too rigid. In fact, the idea of flexible retirement system was put forward in the early 1990s. In 2017, the Ministry of Human Resources and Social Security proposed to roll out a plan to delay retirement, but it would be implemented gradually after at least five years and only extended by a few months each year.

The 14th Five-Year Plan in 2021 and the outline of the 2035 Vision and goals clearly state that the legal retirement age will be gradually raised in accordance with the principles of "adjustment in small steps, flexible implementation, categorization and overall consideration".

Thirty-one provincial-level governments have held meetings to solicit opinions on the reform of gradually raising the legal retirement age, and 31 provincial-level governments have completed the work so far. However, it has not yet been decided when it will be officially implemented.

Calls for a flexible retirement system have been growing in recent years but the proposal has not been implemented. According to the minister of Human Resources and Social Security, the reason why the plan has not been decided is that the current employment situation in China is still serious and complex, the employment pressure is very large, especially in recent years to resolve the excess production capacity workers, the diversion of resettlement pressure is greater, therefore, the formulation of such a plan needs to be more prudent.

In order to raise employment level, China also once carried out a policy to encourage early retirement. My father used to be a railway worker in a state-owned railway company. In 1994, due to the restructuring of the state-owned enterprise, my father, then only 48 years old, and some of his colleagues of the same age were

encouraged to retire early in order to reduce the burden on the enterprise. In 1998, there were 1.339 million new enterprise retirees in 23 provinces, of whom 275,000, or 18.9 percent of the total, took early retirement in violation of state regulations.

Among them, 169,000 people took early retirement on the grounds of medical withdrawal, accounting for 66.7% of the illegal early retirement; The 21,000 who cited special jobs accounted for 1.59 percent of the total number of violations. The phenomenon of early retirement will lead to the decrease of the average retirement age.

First of all, it is not discussed whether the early retirement of the old will increase the employment level of the young. Suppose that the jobs vacated by the early retirement of the old can be completely filled by the young. As a result, youth unemployment has fallen, but only by shrinking the workforce through early retirement. The total number of people employed in society has not changed. However, early retirement will lead to the rise of social pension costs, increasing the burden of young people's pension. The country needs to spend a certain cost to train each worker.

The longer it takes to train the labor force, the more cost it will pay, and the higher its future income will be. The rigidity of the retirement system will shorten the service life of the labor force and reduce the income, and the loss caused by early retirement will be greater, which is not in line with the principle of maximum income. Even if some older people are willing to continue working, the reverse incentive provided by early retirement policies can make them change their minds and eventually leave the workforce early.

Conclusions to the Chapter 2

By the end of 2021, China's population aged 65 or older will account for 14.2 percent of the total population, completing the demographic transition six years earlier than expected. By 2050, the proportion of China's population aged over 65

will rise to 23.07%, second only to developed countries and the highest level among developing countries. Figure 2.7 shows the changing trend of China's aging rate. From 2000 to 2030, China's aging accelerated. After 2030, the aging process began to slow down, and after 2050, the degree of aging at 60 began to decline.

The rapid aging of China today will inevitably lead to the rapid aging of China's population in the future. In 2020, the population aged over 80 in China will reach 35.8 million, accounting for 13.6 percent of the population aged over 60 and 2.54 percent of the total population. At present, the annual average growth rate of the elderly in China is 3.5 percent, higher than Spain and other European countries and lower than Japan and South Korea and other Asian countries. However, the aging rate in China is expected to surpass that of Japan and South Korea in the second half of this century. By 2050, the number of elderly people in China is expected to increase to more than 100 million, accounting for 25% of the elderly population, and one in every 10 or four elderly people will be elderly.

China officially entered the ranks of the elderly society in 2000. At that time, China's per capita GNP was 840 US dollars, which was 3,976 international dollars calculated by purchasing power parity. In 2001, the whole world also entered an aging society. At that time, the world's per capita GNP was 5,170 US dollars, which was 7,442 international dollars after conversion. No matter how it was viewed, China was lower than the international average level.

By the end of 2020, China had 329,000 institutions and facilities for the aged, and the number of beds for the aged reached 8.21 million. The total number of beds for the aged in China only accounted for 3.11% of the country's elderly population, lower than the proportion of 5%to 7% in developed countries. More than 90% of the elderly in China tend to care at home.

The development of aging is unbalanced among regions. Due to the great difference in the level of social economic and cultural development among provinces, cities and regions in China, and the continuous increase of population flow among regions, the degree of China's aging population is also unbalanced among regions. In general, the eastern and coastal areas are economically

developed and the proportion of the elderly population is high. The economic level of the central and western regions is relatively backward, and their aging degree is not high. There are great regional differences in aging, with serious aging in northeast China and Sichuan and Chongqing.

In 2020, the aging rate in Tibet, Xinjiang, Guangdong, Qinghai and Ningxia was less than 10%, and that in Tibet was only 5.67%. 13 provinces, including Hainan, Yunnan, Fujian, Guizhou, Jiangxi and Guangxi, between 10%-13.5%; 13 provinces including Hebei, Hubei, Tianjin, Hunan, Anhui and Shandong are higher than 13.5%, among which Liaoning, Chongqing, Sichuan, Shanghai, Jiangsu, Heilongjiang and Jilin are higher than 17.42%, 17.08%, 16.93%, 16.28%, 16.2%, 15.61% and 15.61%, respectively.

The proportion of the population over 60 years old in 2020 was 5.1 percentage points higher than that in 2010, with an annual growth rate of 3.52 percent, and that in 2030 was 7 percentage points higher than that in 2020, with an annual growth rate of 3.43 percent. In 2050 people over the age of 60 will make up a third of the population and people over the age of 65 will make up more than a quarter of the population.

From 2050 to 2100, the population aging stage or the aging stage is stable. During this period, the proportion of the population over 60 years old will rise slowly, reach the maximum of 36.8% of the total population in 2070 and then start to decline, and the elderly population in this period will always be more than 33%. The proportion of the population aged 80 or over will continue to increase, and will exceed 10 percent of the total population around 2070. As life expectancy is expected to increase, the number and proportion of the elderly will also likely exceed current expectations.

In addition, even if they are not formally included in the labor force, they can actively participate in social and economic activities according to their own circumstances, personal needs and market needs. Under normal circumstances, the government does not require people aged 70 to 79 to continue working, and only outstanding people such as academicians will get the honor of lifetime

employment. However, with the prolongation of the average life expectancy and the improvement of the health level of the elderly, the middle-aged and elderly people continue to engage in economic, public welfare and collective activities according to their personal interests and hobbies, which is beneficial to themselves and the society.

In 2020, the number of people aged 60-69 reached 82.1 million in urban areas and 65.27 million in rural areas. It can be seen that there are a large number of young elderly people in urban areas, and the development potential of elderly human resources is also great.

Aged human capital refers to the sum of skills, knowledge, health status and level of workers obtained through education, training, health care, labor migration and employment information. It is a qualitative aspect of aged human resources. After decades of study and work, the elderly are often very skilled and experienced, and have accumulated a large amount of production and life knowledge, with a high stock of human capital.

The total human capital of the elderly is difficult to estimate because production skills, experience and knowledge are difficult to measure, and data on the elderly are scarce. The education level of the elderly is easy to be calculated and the data are detailed. Moreover, the years of education are positively correlated with the accumulation of human capital through education, training or "learning by doing". The longer the years of education, the higher the ability of human capital to accumulate experience in labor and the easier it is to accept new technologies and knowledge. In addition, the longer the years of education, the more attention people pay to maintaining their health, and the higher the cost of information collection and migration to select suitable occupations. Therefore, this paper analyzes and calculates the human capital of the elderly by using the index of the years of education of the elderly population.

At the other end of the education chain, the proportion of the elderly population with higher education levels has jumped from a low level of slow growth to an uptick. In particular, the proportion of the educated elderly population

reaching higher education level will increase by 3.7 percentage points between 2016 and 2035. It will rise by about 10 percent over the next decade. The above characteristics of phased development are actually the results of vigorously popularizing compulsory education and continuously developing higher education after the reform and opening up. According to the above prediction, we can foresee a large number of high-quality aged human resources in the future.

By examining the employment status of the elderly and comparing the employment population of all ages in 2020, the youth aged 16-19 accounted for 0.9% of the total employed population, and the youth aged 20-29 accounted for 16.5% of the total. Middle-aged workers aged 30-39 and 40-49 accounted for 25.9 percent and 24.5 percent of the total employed population, respectively, making them the backbone of the labor force. The pre-aged labor force population aged 50-59 accounts for 20.9% of the total employment, and the elderly population aged 60 and above who are still working accounts for 11.3% of the employed population. Only 6.7% of the total number of people over the age of 65 are still employed. However, the proportion of the labor force engaged in self-employment is on the rise, with an average increase of 9 percentage points every five years after the age of 50, and more than 65 percent of the labor force over the age of 60 engaged in self-employment. Over the past six years, the working hours of the elderly aged 60 to 64 were only 6.5 percentage points lower than the average, and the working hours of the elderly aged 65 and over fell by 17.1 percent. In 2020, 26.5 percent of workers over 60 years old worked an average of 40 hours a week, meaning that more than a quarter of them still adhere to the eight-hour working week. While 9.4 percent work less than 20 hours per week, 22.4 percent work between 20 and 39 hours per week, and 41.7 percent work more than 40 hours per week, which means that most of the elderly work at least 8 hours per day.

Among them, the elderly population that can absorb urban retired people, such as residential service, public management and social organization employment, account for 1.5% of the total. The industries that can reflect the elderly human capital, such as scientific research, technical services and geological

survey, account for only 0.079%, and the education industry accounts for only 0.43%. As mentioned above, compared with the young labor force, the elderly labor force is at a disadvantage in physical strength, energy and learning ability, while the elements such as knowledge, skills, experience and experience that need time to accumulate are more prominent.

CHAPTER 3. THE COUNTERMEASURES AND SUGGESTIONS PROBLEMS IN DEVELOPMENT OF CHINA'S ELDERLY HUMAN RESOURCES

3.1. Cross-analysis on influencing factors of human resources in the context of aging population in China

China's seventh national census data show that China's urban permanent population is 901.99 million, accounting for 63.89% of the total population. Since 2010, 164.36 million rural residents have moved into cities and become urban residents. In the past 10 years, China's urbanization rate has increased by about

1.421% every year. With the rapid growth of this index, more and more farmers will become citizens in the future. In 2020, China's urbanization rate reached 63.89%, 16.11% lower than the 80% average of developed countries, 18.81% lower than the 82.7% of the United States, and 29.13% lower than the 93.02% of Japan. However, China is still in a period of rapid development, and the gap with developed countries is getting smaller and smaller. Liu Qiao, dean of the Guanghua School of Management at Peking University, said that according to the Guanghua Thought Power research group, China's urbanization rate will reach 75 to 80 percent by 2035, with nearly 400 million new urban residents, reaching the same level as developed countries (Figure 3.1.)

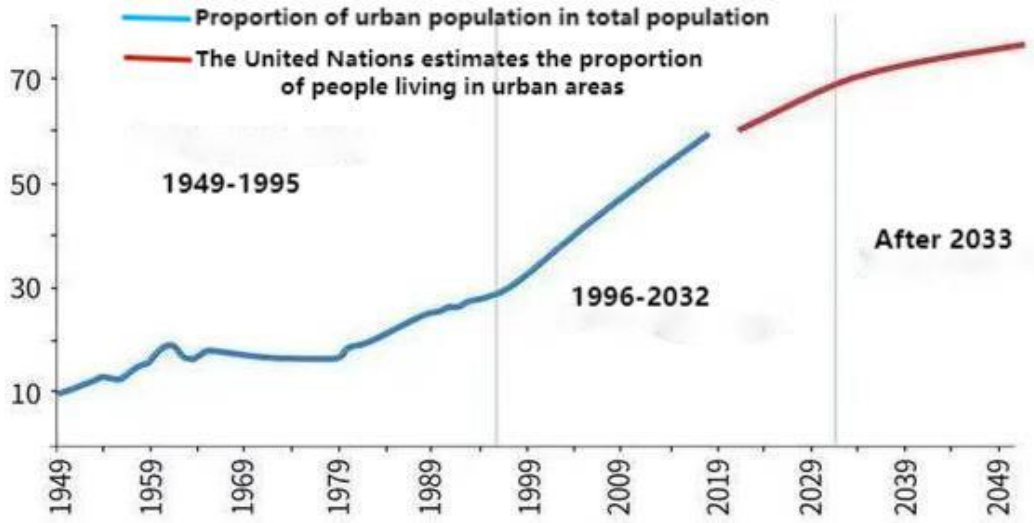


Figure 3.1 - The change of proportion of urban population in total population

Source: author`s research by United Nations, Wind, United Securities

As mentioned above, the urban elderly are better educated and healthier than the rural elderly. They should also be better able to work than the rural elderly. However, the reality is quite the opposite. According to the 2021 China Population and Employment Statistics Yearbook, 49.3% of the rural elderly over 60 years old are employed in 2020, and 72.6% of the elderly aged 60-64 years old are employed, and more than 70% of the males in this age group are still engaged in labor. And according to the survey, most of the elderly in rural areas say they will work as long as their health conditions allow.

However, the employment rate of the urban elderly was 17.5 percent in 2020. Even the employment rate of the elderly aged 60-64 in urban areas is 26.2%, while

the employment rate of the elderly aged over 65 is even lower, only 12.9%, which is lower than the labor participation rate of the elderly population in China.

Therefore, it is the rural elderly who raise the labor participation rate of the elderly population in China. In 2020, the number of people aged 60-69 reached 82.1 million in urban areas and 65.27 million in rural areas. It is estimated that there will be 200 million people aged 60-69 in China by 2050, and the urbanization rate will exceed 80%. By then, there will be about 150 million people aged 60-69 in urban areas. It can be seen that there are a large number of old and young elderly people in urban areas, and the employment rate is low. It can be seen that the elderly population in urban areas is large, but the employment rate is low.

In this paper, the elderly aged 60-69 years old are defined as the younger elderly. With the development of economy and the improvement of medical conditions and other factors, more and more younger elderly people are engaged in remunerative economic activities.

It can be seen that age is an indispensable factor in the influencing factors of the re-employment intention of the elderly. In the form of a questionnaire survey, this paper investigates the influencing factors of the re-employment of the elderly nationwide, and classifies 1592 samples from the age of 60 into one file every five years. Figure 3.2 shows the respective trends of employment intentions for the five different age groups. As can be seen from Figure 3.2, with the increase of age, the proportion of employment intention of the elderly decreases correspondingly, with a relatively obvious trend.

Among them, the proportion of people aged 60 to 64 who want to work is as high as 58.3 percent, while the proportion of people aged 80 and above who want to work is as low as 26 percent. The reason lies in the following: the majority of the young elderly aged 60-64 years old are in good physical health with their work habits developed over the years, employment willingness is very strong after they just retired from the post,; In contrast, the elderly aged 80 and older, most of whom are in poor physical health and are no longer fit to work. Therefore, this part of the population has the lowest proportion of employment intention.

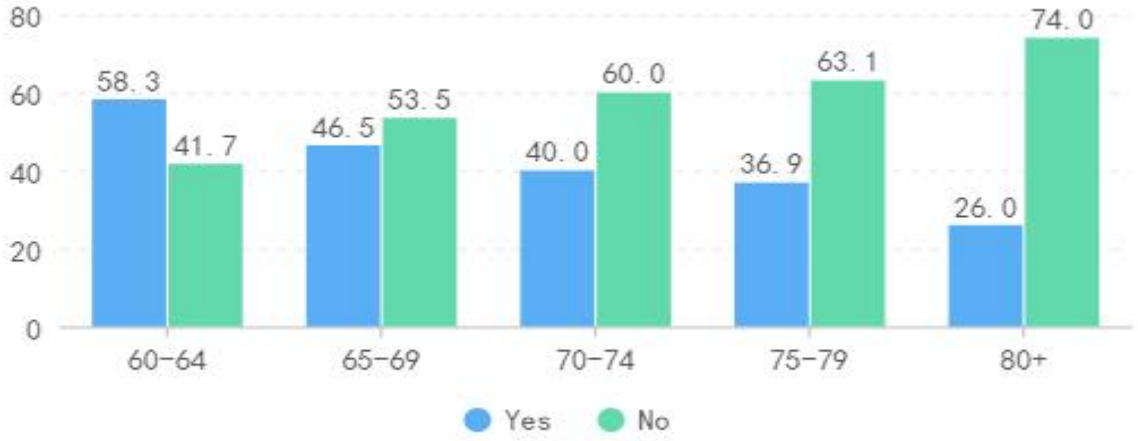


Figure 3.2 - The employment intention of the elderly in different age groups

Source: author`s research

As shown in Figure 3.3, from the perspective of gender, the employment willingness of elderly men is significantly higher than that of elderly women. The reason for this is that, on the one hand, because of the influence of traditional Chinese culture, women should take care of the family more than men, while men play the role of breadwinner. On the other hand, there is also some discrimination against female employment in the labor market, which leads to more opportunities for male elderly people to participate in employment than female elderly people throughout the life course. In addition, according to the statistics of the collected sample data, it is found that 61.9 percent of the elderly men and 44.2 percent of the elderly women have skills. As a result, older men with superior skills are also favored by the labor market.

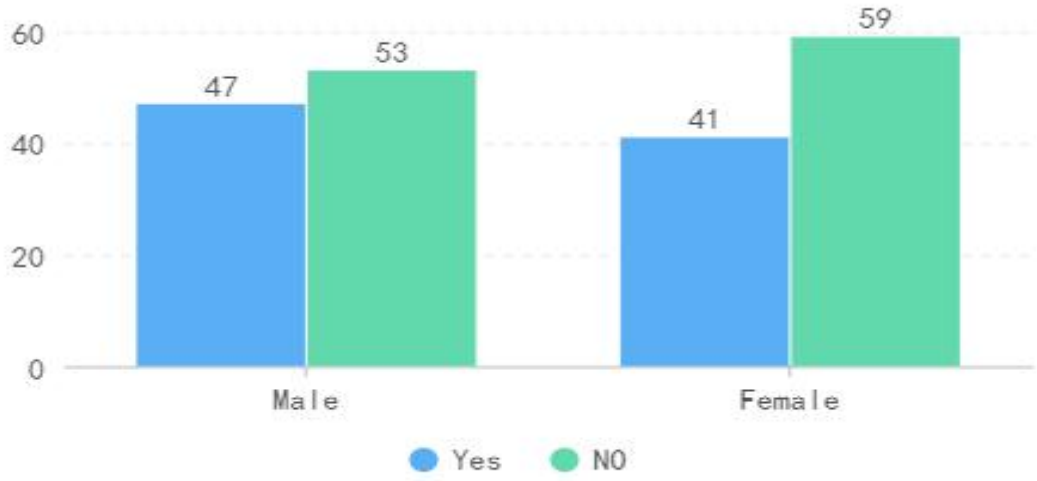


Figure 3.3- Employment willingness of urban elderly by gender

Source: author`s research

The health of the elderly is not only a prerequisite for the smooth development of the elderly human resources, but also a key core factor. The better the health status of the elderly, the higher the proportion of them willing to work, and vice versa (Figure 3.4).

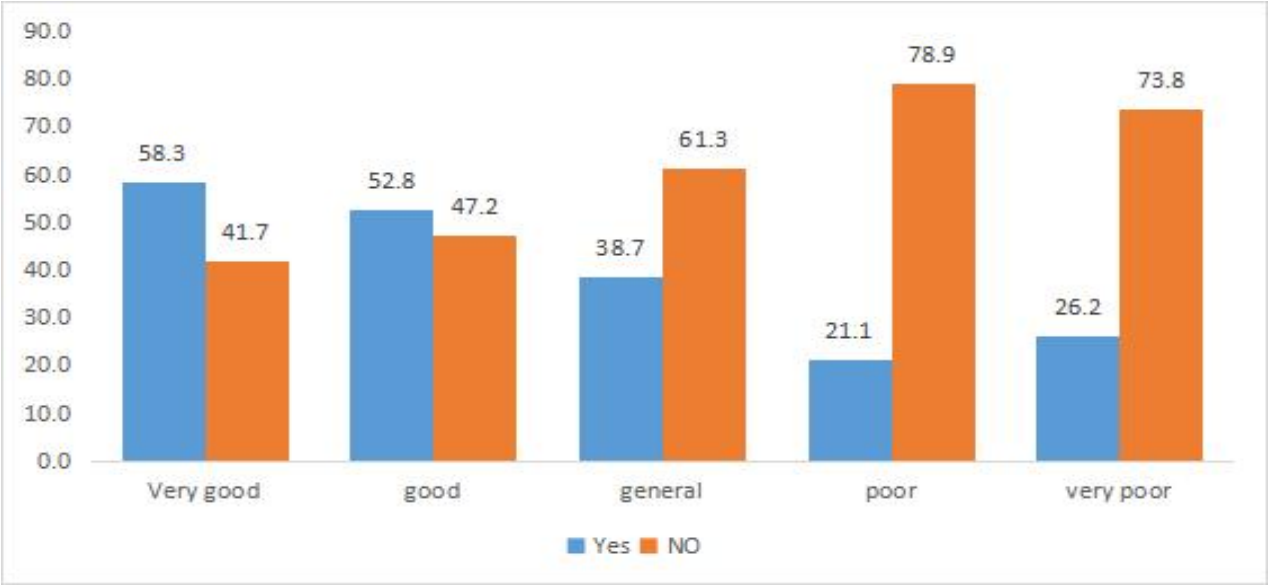


Figure 3.10-Relationship between health status and employment intention

Source: author`s research

As shown in Figure 3.4, 58.3 percent and 52.8 percent of the elderly with "very good" and "good" physical health were willing to work, respectively, while

the proportion of the elderly with "poor" and "very poor" physical health was very low. It should be noted that the proportion of the elderly with a self-rated health status of "very poor" who would like to be employed is 5.1 percentage points higher than that of the group with a self-rated health status of "poor" (21.1 percent).

The reason for this difference may be related to the individual sample of the questionnaire on the one hand, and on the other hand, it may be that for some respondents, the distinction between "poor" and "very poor" is not clearly defined. Therefore, the difference between the two groups of employment intentions is small, which can be regarded as having almost no impact on the overall analysis.

As can be seen from Figure 3.5, the employment intention of the "relatively rich" group was much higher than that of the "very difficult" group, while the employment intention of the "somewhat difficult" group was higher than that of the "more than enough" and "basically enough" groups.

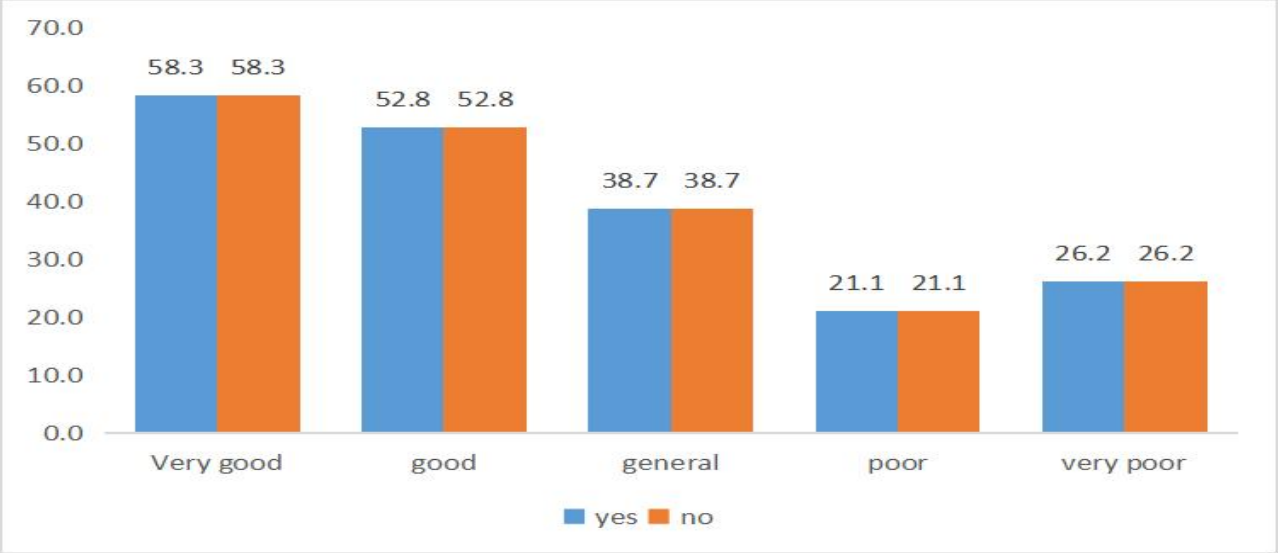


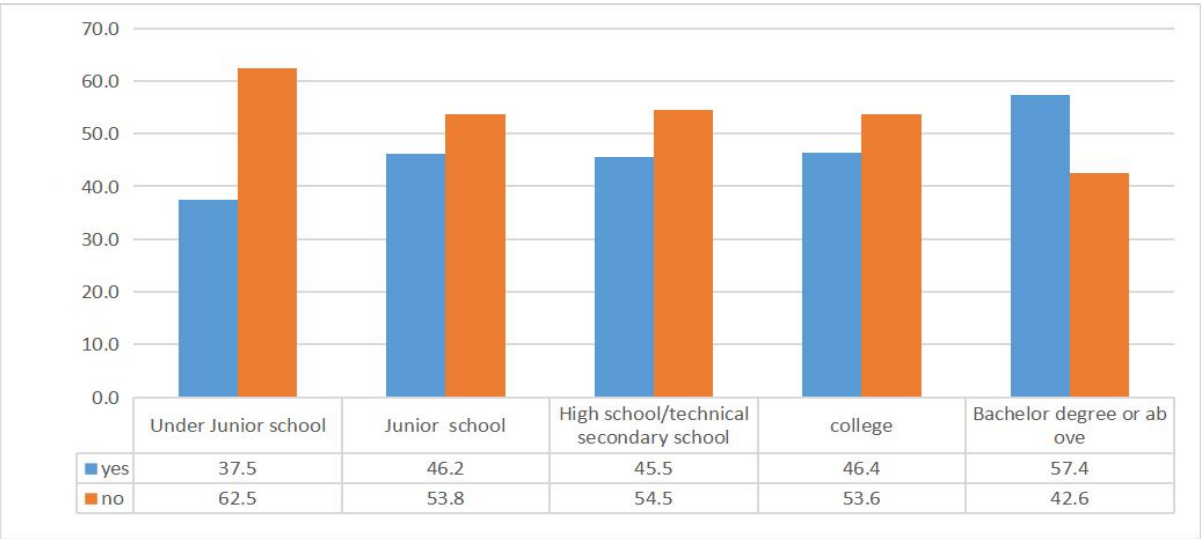
Figure 3.5 - Relationship between economic situation and employment intention

Source: author`s research

It can be seen that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. It can be seen that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. The impact of economic conditions on employment willingness may be related to health and other factors, and reflected

through them. It can be seen that the conclusion of the influence of economic situation on employment intention cannot be drawn from the appearance. The economic situation is not a single obvious factor, but a complex and multi-angle factor.

In the Questionnaire on the Status of Urban Elderly Human Resources Development, we divided the education status of the elderly into five grades, from high to low, which were bachelor degree or above, junior college, high school/technical secondary school, junior middle school and below junior middle school. From the statistical data, we can see that the elderly with the highest education level and bachelor's degree or above have a stronger willingness to work, while the elderly with the lowest education level and below junior high school have the lowest willingness to work (Figure 3.6).



	Under Junior school	Junior school	High school/technical secondary school	college	Bachelor degree or above
yes	37.5	46.2	45.5	46.4	57.4
no	62.5	53.8	54.5	53.6	42.6

Figure 3.6 - Relationship between educational attainment and employment intention

Source: author`s research

In theory, less educated older people are more likely to be economically disadvantaged and have more incentive to work, but the opposite is true. The author guessed that the effect of education level on the employment intention of the elderly may be reflected by the level of skills.

The elderly group with high education level has higher skills and more opportunities for re-employment, so it is easier for them to take up jobs again.

While the elderly group with low education level, most of them have no skills or low skills, so they have more obstacles to re-employment. In addition, there is little difference in the proportion of employment intention among the three groups of junior high school, senior high school/technical secondary school and junior college, which can be considered to be approximately the same.

The slight difference may be related to individual differences in data collection. It can be seen that the analysis of the employment situation of the elderly with different education levels only from the data level is somewhat random and scattered. Therefore, whether a certain group of elderly people are willing to continue employment or not may be more reflected in other factors.

Whether the elderly have skills and the level of their skills is an important factor for whether they can successfully go to work again, and it is also an important index to measure whether the elderly can take the initiative in the process of re-employment. It can be seen from Figure 3.7 that the proportion of the elderly with skills who are willing to continue employment is as high as 54.8%, much higher than that of the elderly without skills (31.7%). It can be seen that the elderly with skills have a stronger willingness to work and are more willing to join the labor force again.

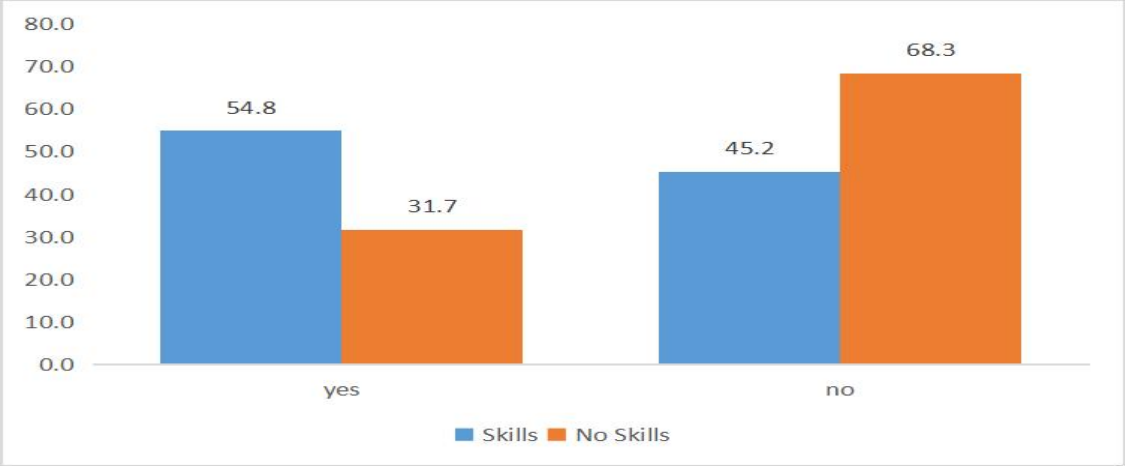


Figure 3.7 - The relationship between skill availability and employment intention

Source: author`s research

Whether older people have pensions is also an important factor in their

willingness to go back to work. It can be seen from Figure 3.8 that the proportion of employment intention of the elderly with pension is lower than that of the elderly without pension. This is because the elderly with pension have a guaranteed life after retirement, so their employment intention is relatively low.

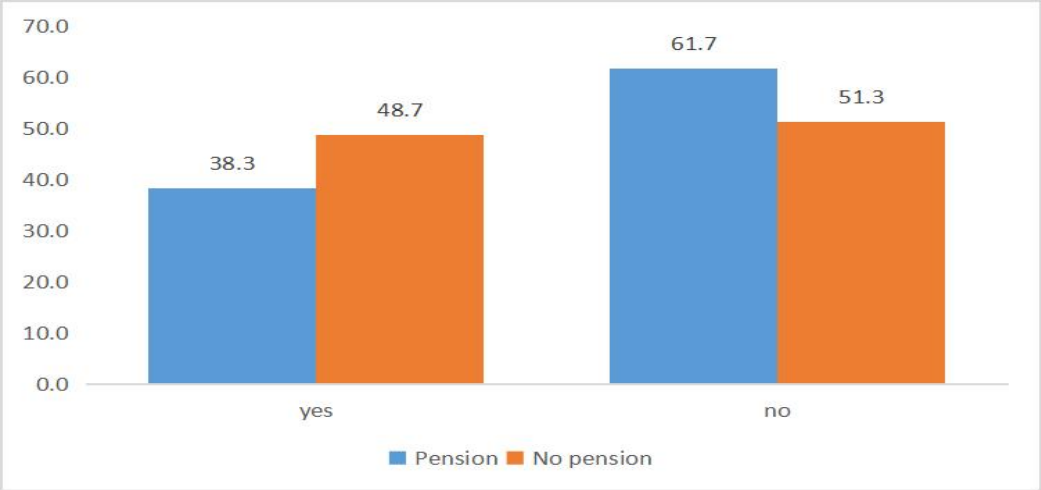


Figure 3.8 - Relationship between pension and employment intention

Source: author`s research

Through the above cross analysis of the seven influencing factors such as "age", "gender", "economic status" and "health status" and the employment intention of the urban elderly, on the one hand, we obtained a general relationship and influence of these factors on the re-employment.

On the other hand, we also found that all the influencing factors are not completely independent, but we can not give an accurate description of the degree of mutual influence between them. This means that it is difficult for our cross-analysis to analyze the influence of a single factor on the re-employment of the elderly while controlling for other variables.

Therefore, the above cross-analysis results are difficult to be completely accurate. In this case, it is necessary for us to verify and illustrate the above analysis results. Therefore, we conduct relevant technical processing through Logistic regression analysis, a statistical analysis software, in order to further test and prove the conclusion obtained from the cross analysis.

On the contrary, backward regression method and forced entry method do not

test the mutual influence between variables, which makes their conclusions inaccurate. Based on the above two points, the forward stepwise regression method is selected in this part, and the regression results are shown in Table 3.1 and Table 3.2.

Table 3.1 - Variables entered into the model

		B	S. E.	Wald	df	sig	Exp (B)
Stepl	health	-0.446	0.045	99.507	1	0	0.64
	constant	0.86	0.12	51.25	1	0	2.364
Step2	health	-0.39	0.046	72.45	1	0	0.677
	skill	0.801	0.108	54.97	1	0	2.229
	constant	0.284	0.143	3.936	1	0.47	1.329
Step3	health	-0.37	0.047	72.92	1	0	0.672
	skill	1.047	0.117	80.125	1	0	2.85
	pension	-0.816	0.116	49.347	1	0	0.442
	constant	0.545	0.151	13.075	1	0	1.725
Step4	age	-0.196	0.046	17.97	1	0	0.822
	health	-0.315	0.05	39.32	1	0	0.73
	skill	1.0611	0.118	81.187	1	0	2.888
	pension	-0.83	0.117	50.455	1	0	0.436
	constant	0.855	0.169	25.641	1	0	2.352

Source: author`s research

As shown in Table 3.1, the SIG values of health status, skills, pension and age in step 4 of SPSS output are all 0.000, which are all less than 0.05. This means that all four variables pass the significance test at a = 0.05. In other words, all four variables enter the model in turn. It can be seen that these four variables have a significant impact on the re-employment of the urban elderly in China. In addition, it can be seen from step 4 of Table 3.2 that the SIG values of gender, economic status and education level are 0.36, 0.61 and 0.282 respectively, all greater than 0.05, which means that the three variables have not passed the significance test of A = 0.05, that is, the three variables have no significant impact on the re-employment intention of the urban elderly nationwide.

Table 3.2 - Variables not entered into the model

			Score	df	sig.
stepl	Variables	age	16.163	1	0
		gender	2.569	1	0.109
		financil state	1.397	1	0.237
		education	4.838	1	0.028
		skill	55.899	1	0
		pension	23.297	1	0
step2	overall Statistics		127.655	6	0
	Variables	age	16.956	1	0
		gender	0.187	1	0.666
		financil state	9.252	1	0.002
		education	0.134	1	0.714
		pension	50.356	1	0
step3	overall Statistics		74.281	5	0
	Variables	age	18.15	1	0
		gender	0.646	1	0.422
		financil state	4.289	1	0.038
		education	1.604	1	0.205
step4	overal1 Statistics		24.701	4	0
	Variables	gender	0.827	1	0.363
		financil state	3.502	1	0.061
		education	1.157	1	0.282
	overal1 Statistics		6.588	3	0.086

Source: author`s research

Therefore, through the calculation of the quantitative mean of indicators, it can be seen that the relationship between health status and economic status is in the same direction. That is, the better the economic situation, the better the health condition, the more inclined they are to be employed, and conversely, the worse the economic situation, the worse the health condition, the lower their employment intention. It can be seen that the impact of economic status on the willingness of the elderly to work is reflected through health. This reflects the necessity and importance of Logistic regression analysis on the basis of cross analysis.

Table 3.3 - Quantitative Indicators of health for different economic conditions

financil state	health					Health indicators
	1	2	3	4	5	
1	164	61	44	16	12	1. 8
2	159	202	154	71	35	2.4
3	60	118	160	88	27	2.8
4	21	22	62	41	32	3.2
5	8	2	6	7	20	3.7

Source: author`s research

As can be seen from the Logistic regression results, the SIG value of education factor is greater than the significance level of 0.05, indicating that education factor has no significant impact on the employment intention of the elderly. Through the collation of the survey data, it is found that with the improvement of the education level of the elderly, the probability of possessing skills also gradually increases (Figure 3.9). This shows that with the progress of society and the development of economy, the influence of educational background on the old people's return to work is not very great. Instead, it is the life attitude and work experience accumulated in the process of social practice of the old people, or the work skills formed on the basis of the old people's work experience. This cross-tabulation part of the speculation about this point has been well confirmed.

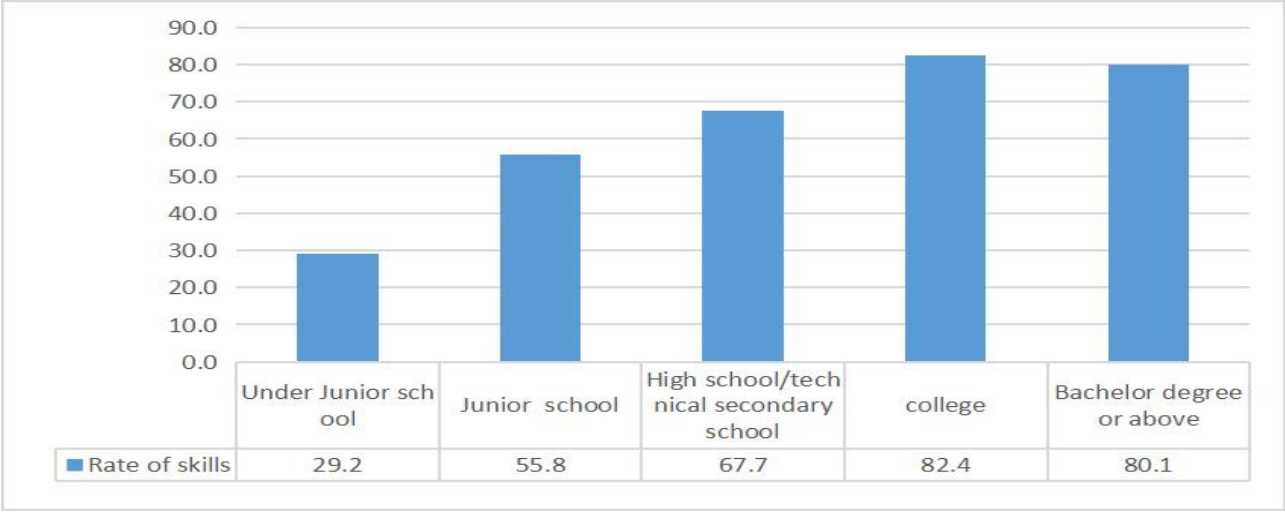


Figure 3.9 - Influence of education level on skills

Source: author`s research

As can be seen from Table 3.4, the Wald indexes of the four variables "age", "health status", "skilled or not" and "pension or not" are 17.970, 39.320, 81.187 and 50.455 respectively, which are all greater than the critical value of the Chi-square distribution 3.84 with 1 degree of freedom. This indicates that these four variables are all significant at the level of a = 0.05. Therefore, the hypothesis H_0 needs to be rejected, which means that the four variables entered into the model have passed the Wald test, so these four variables should be included in the model.

Table 3.4 - Likelihood ratio test of model coefficients and R_2-like index

Step	-2Log likelihood	Cox&Snell R Square	Nagelkere R Square
1	2075. 020a	0.066	0.088
2	2019. 249b	0.098	0.131
3	1967. 668b	0.127	0.17
4	1949. 520b	0.137	0.183

Source: author`s research

It can be seen from Table 3.4 that the likelihood results of each step are output step by step (-2loglkelyhood), which is the purpose of the stepwise forward regression method based on likelihood ratio 4.14 in SPSS analysis software by introducing variables step by step. As can be seen from the table, by calculating the likelihood ratio, it is found that the results of the four -2loglikelihood are much greater than the critical value of the Chi-square distribution with 1 degree of freedom (3.84), which means that for the newly added variables, their explanatory effect on the dependent variable is very obvious. In addition, it can be found from the data in the table that, Each new variable increases the R_2-like metrics Cox&Snellsquare and NagelkerkeRsquare.

The goodness-of-fit test of this model selects Hosmer and Lemeshow index. According to the fourth step in Table 3.5, its chi-square value is 18.148. By comparing this index with the chi-square distribution with 1 degree of freedom, sig = 0.000 is obtained, which is obviously less than the given significance level of 0.05, so the hypothesis is rejected. This indicates that the estimates of the model fit

the data at an acceptable level. In other words, the Logistic regression model has a good fit to the national data on the re-employment intention of the urban elderly.

Table 3.5 - Hosmer and Lemeshow goodness-of-fit index

		Chi-square	df	Sig
Stepl	Step	108.62	1	0
	Block	108.62	1	0
	Model	108.62	1	0
Step2	Step	55.77	1	0
	Block	164.032	2	0
	Model	164.032	2	0
Step3	Step	51.581	1	0
	Block	215.613	3	0
	Model	215.613	3	0
Step4	Step	18.148	1	0
	Block	233.761	4	0
	Model	233.761	4	0

Source: author`s research

In the Logistic model, SPSS software also output the prediction probability of the model. That is, the paper obtained the model from the sample data. Then, it can be reversed to test the sample data with the obtained model. It calculates the prediction accuracy of the model by comparing the observed value with the predicted value. It is the extent to which the model can explain the dependent variable to the index value of the significant variable selected by regression analysis. In addition, testing the prediction of the model can also test the role of the model obtained in the applicability of the survey sample and the degree of fitting to the data. It can be seen from Table 3.6 that the accuracy rate of the model for data prediction is 67.5%, which indicates that it has relatively good fitting to the data, that is, the probability of predicting the re-employment status of the urban elderly in China is 67.5%.

Table 3.6 - Classification table of model prediction

Observed	Predicted

		Employment intention		Percentage correct
		no	yes	
Stepl	Employment intention no	721	172	80.7
	yes	459	240	34.3
	Overall Percentage			60.4
Step2	Employment intention no	714	179	80
	yes	376	323	46.2
	Overall Percentage			65.1
Step3	Employment intention no	671	222	75.1
	yes	343	356	50.9
	Overall Percentage			64.5
Step4	Employment intention no	672	221	75.3
	yes	297	402	57.5
	Overall Percentage			67.5

Source: author`s research

Facing the complex problem of population aging, there is fundamentally nothing we can do to reverse this trend. Therefore, in the face of the severe situation brought by it and the reality of the low level of elderly human resources utilization in China, relevant policy-making departments should start to find out the reasons for the low level of elderly human resources utilization and clear obstacles for the development of resources for the urban elderly as soon as possible. This is not only an important measure to actively practice the goal of "productive aging", but also to adapt to the 21st century active aging strategy put forward by the United Nations World Assembly on Aging.

It is in this context that this paper investigates and analyzes the influencing factors of the reemployment intention of the urban elderly in China. Firstly, cross-tabulation was used to analyze the influencing factors. However, it was difficult to control other variables and analyze the influence of a single factor by this analysis method. Therefore, Logistic regression analysis was used to further test the significance of a single influencing factor when other variables were controlled. Finally, four factors such as age, health status, unskilled and pension have significant influence on the re-employment of the elderly, while gender, economic status and education level have no significant influence. After that, the model

coefficient, goodness of fit and prediction of the model are verified. So as to provide a certain reference significance for policy makers.

3.2. Suggestions on the development of human resources for the elderly in China

As we all know, China, as a country with a large population, is facing rapid aging in the current situation where the epidemic is still raging. The rapid aging will bring some problems to all aspects of economy and society. According to the experience of developed countries, the active development of human resources for the aged is an important measure to deal with the aging problem. However, through the above analysis, we find that the utilization degree of the elderly human resources in China is low, especially the urban elderly. Facing the increasingly severe aging situation, China must take active measures to develop the aged human resources. In the following, I will put forward some suggestions on the development of human resources for the elderly based on the problems facing China.

The current hindrance to the development of human resources for the elderly fundamentally comes from people's ideas, no matter from the macro to the social system or micro to individual behavior. When people's negative understanding of the elderly is transformed into behaviors, habits, laws or policies, it will lead to unfair treatment of the elderly at all levels of society. Therefore, in order to fundamentally remove the barriers to the participation of the elderly in society, the only way to start is to correct people's understanding.

As a matter of fact, people have a one-sided understanding of the old people's inherent conservatism and rigidity, passive withdrawal, introversion and loneliness. Due to the different experiences, environmental conditions and psychological qualities of each person, when they enter the old age, they also show different personality and psychological states. Old people nowadays are more optimistic

than before because of the development of economy and culture, the improvement of material life and cultural life .Although they are not as active as the young people, they are much more positive and optimistic than the old people a few decades ago.

When it comes to the issue of developing human resources for the elderly, the strongest voice is the argument that the elderly are competing for jobs. At present, the labor resources in China are still abundant, even facing the problem of surplus labor, and young people often face great employment pressure. If older people remain in the labor force, it will squeeze the labor market and cause massive unemployment, especially among young people.

1. Social development should not be hindered by unemployment

Employment has always been a top concern for policy makers. Employment and unemployment rates are not only indicators of labor market supply and demand, but also barometers of economic development. When a country's economy is thriving, the unemployment rate will usually be at a relatively low level, and once there is an economic crisis, the most intuitive manifestation is the rise of unemployment. Ordinary people have more personal experience of unemployment. One person's job loss often leads to a family's financial situation, and the loss of both spouses means that the family will lose their livelihood.

Therefore, high unemployment rate usually leads to a series of problems, such as the aggravation of people's dissatisfaction with the government and the rise of social crime rate, which not only affects social stability and unity, but also endangers the firm stability of the government. The emphasis on employment also reflects the responsibility of the government, but it does not mean that the more attention paid to employment, the better. If the government is too persistent, it is easy to fall into a mistake.

First, not all job losses are avoidable. For example, frictional unemployment is a normal state of unemployment. It is produced in the process of matching the worker with the job, and is a normal flow of labor. Countless enterprises exist in the labor market, every day there are bound to be some enterprises out of the labor

market, thus making the employees of these enterprises unemployed. At the same time, many companies are entering the labor market and need to hire new workers. In this process, it is inevitable to produce the labor force who have retired from their original jobs and have not found a new job for the time being. This is called frictional unemployment, which is a normal and temporary unemployment rather than a periodic one. It is a manifestation of the operation law of the labor market, and this kind of unemployment is unavoidable.

Secondly, unemployment will inevitably arise when the society develops to a certain extent. With the development of economy and the progress of science and technology, the structure of industrial sectors has been re-adjusted and configured, which will make some old working sectors disappear, resulting in unemployment. We call the unemployment structural unemployment .For example, after the invention of digital camera, people no longer need workers to produce film, so film production workers will be eliminated from the society, resulting in unemployment. It can be seen that with the continuous development of economy and the continuous progress of society, the old industry will always be replaced by the new industry, and the new industry will provide new jobs for the society.

Since the reform and opening up, China's economy has made brilliant achievements, and the Chinese society has also changed from the traditional agricultural society to the industrial and service society. According to statistics, more than 70 percent of all employees were engaged in traditional agricultural production in 1978, while only 23.6 percent were engaged in agricultural production in 2020. (Figure 3.10) Many of the labor force who quit from traditional agriculture have flocked to cities, joining the tide of urbanization. This process of labor flow separating from the primary industry and joining the secondary and tertiary industries is not only a catalyst for social development and progress, but also a kind of social progress.

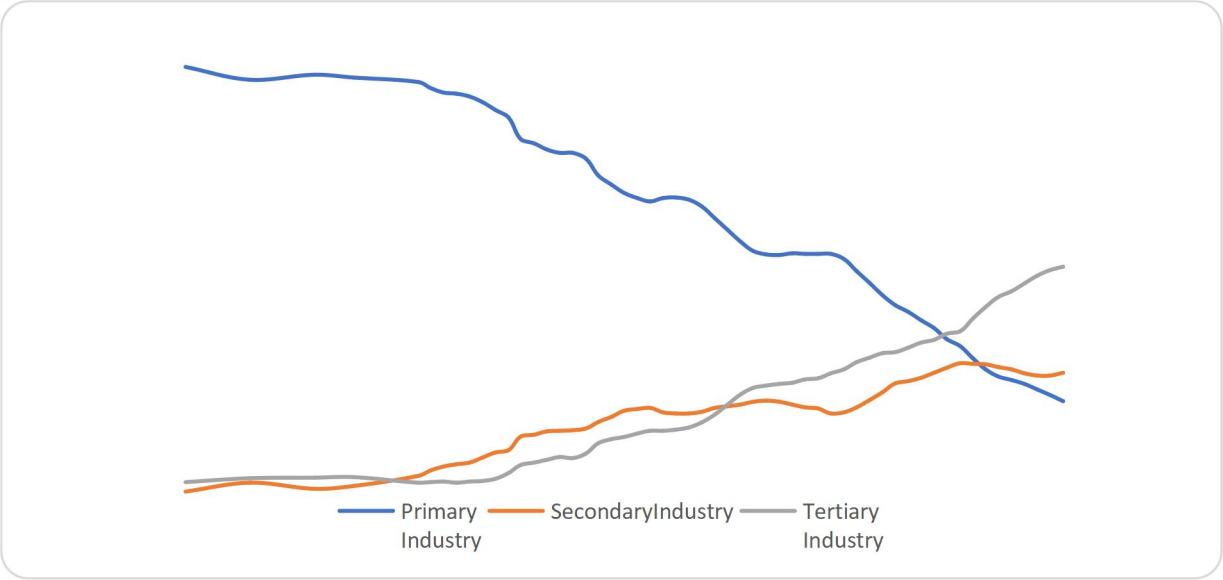


Figure 3.10 -Changes in the proportion of employed personnel in the three industries 1952-2020

Source: China Population and Employment Statistics Yearbook 2001-2021

Second, the ultimate goal of employment is to promote social development as a means. In the era of machine industry, many people believed that machines were the primary cause of unemployment, and that waves of unemployment were often accompanied by machine damage. This view was shared by Nobel Prize winners in economics. Gunner Muir, author of The Challenge of World Poverty, also mentioned in this work that in order to reduce unemployment, the use of machines should be reduced, which he believed would increase employment."

In "the wealth of nations" there was such an example: if a laborer manufacturing pins doesn't get any professional train and doesn't know how to use the professional machinery, so even if the worker does his best, he might not even produce a single pin in one day, let alone twenty ones. On the other hand, there are small factories with only a limited number of workers, let us say ten, and with simple machinery.

But if these limited workers work as hard as they can, they can produce 48,000 pins a day, or an average of 4800 pins per person per day. If the use of machines did indeed reduce the demand for labor, then only one in 4,800 workers would find a job after using the machines. This is clearly not the way to think about

things, because then every achievement we have today through technology is a cause of unemployment. Unemployment, according to this logic, began when primitive men tried to get out of their drudgery.

If employment is purely for employment's sake, then if you want to transport goods to New York, the departure point is assumed to be Chicago, then you can directly hire a large number of labor to carry the goods over, why use the train. The economic purpose of almost all countries, enterprises and individuals is to maximize social welfare, corporate profits and personal utility.

It is clear that all our progress is aimed at achieving maximum output with minimum input. From the beginning of machine manufacturing to the invention and application of steam engine to the later use of computers, all are social progress. Now, an achievement through science and technology can cover the workload of a lot of labor, and many high-tech jobs can not be solved by labor alone. If unemployment is often used as the reason to hinder the development of technology, then today's achievements will not be achieved by our human beings.

Some jobs are more suitable for the elderly. If the elderly are opposed to work in order to keep the jobs of the young, it will not only cause great wealth loss to the society, but also hinder the progress of the society, just like the behavior of human giving up the use of machinery. Employment is only a means, and the ultimate goal is development. Therefore, we should respect the choice of the market and recognize its rules, so as to encourage the elderly to achieve "productive aging". And the employment of the old simply does not cause the same amount of unemployment among the young

2. The aged labor force and the young labor force can coexist.

China will have more than 40 million retirees from 2021 to 2025, with an average of 8 million new retirees per year, according to a document released by the Ministry of Human Resources and Social Security at the end of June 2021. The Chinese government will implement a gradual retirement delay system starting in 2022, but this does not mean that 8 million jobs will be lost every year if the retirement delay system is implemented. Charles Harris and Dorothy Bauer,

experts on aging in the United States, pointed out in their article "Retirement Plans Now" that "It is generally believed that older workers should quit the workforce in order for younger workers to find jobs.

The theory assumes that only after an older worker drops out of the Labour force can a new worker take his place. The theory also assumes that jobs are a fixed number. But so far no evidence has been found that either hypothesis is correct. In passing the Employment Discrimination against the Elderly Amendment, Congress concluded that there was no evidence that the employment of the elderly would in any way harm the employment of the young."

The current unemployment problem in China is not the total unemployment caused by labor surplus, but the structural unemployment caused by the mismatch between the structural characteristics of labor force and the social demand for labor force. In 2003, the phenomenon of "migrant worker shortage" began to appear in the coastal areas of Fujian, and in 2004, it further spread to the economically developed areas in the southeast coastal areas such as Guangdong and Zhejiang. By 2005, the shortage of jobs in the eastern coastal areas had not eased, which drove up wages and sent a large number of migrant workers from the central and western regions to the southeastern coastal areas.

Cities such as Wuhan and Zhengzhou in the central region and Yinchuan, Lanzhou and Chengdu in the western region are also finding it difficult to recruit workers in labor-intensive, low-wage industries. Jiangxi, Shandong and other labor export inland provinces have also appeared the phenomenon of "migrant worker shortage" to varying degrees. Nowadays, the labor shortage has developed into a national phenomenon, especially in the industrial cities in the Pearl River Delta and Yangtze River Delta regions. Job listings are everywhere, with recruitment platforms and applications piling up but few candidates which force owners of small and medium-sized enterprises to go out and find workers themselves. China's manufacturing and service industries are facing a severe shortage of workers, according to a quarterly ranking of the top 100 occupations across the country that recruit more workers than seek jobs.

According to the 2021 Migrant Workers Monitoring Survey report, the total number of migrant workers in China in 2021 was 292.51 million, an increase of 6.91 million, or 2.4 percent, over the previous year. Of these, 171.72 million were migrant workers, an increase of 2.13 million, or 1.3 percent, over the previous year; There were 120.79 million local migrant workers, an increase of 4.78 million or 4.1 percent over the previous year. However, among all the migrant workers, 0.8% have not been to school, 13.7% have primary school education, 56.0% have middle school education, 17.0% have high school education, and 12.6% have college education or above. Although the cultural quality of migrant workers has been improved, more than 70% of migrant workers with junior high school education or below have a low overall cultural quality, which cannot meet the demand for talents of high-end intelligent manufacturing.

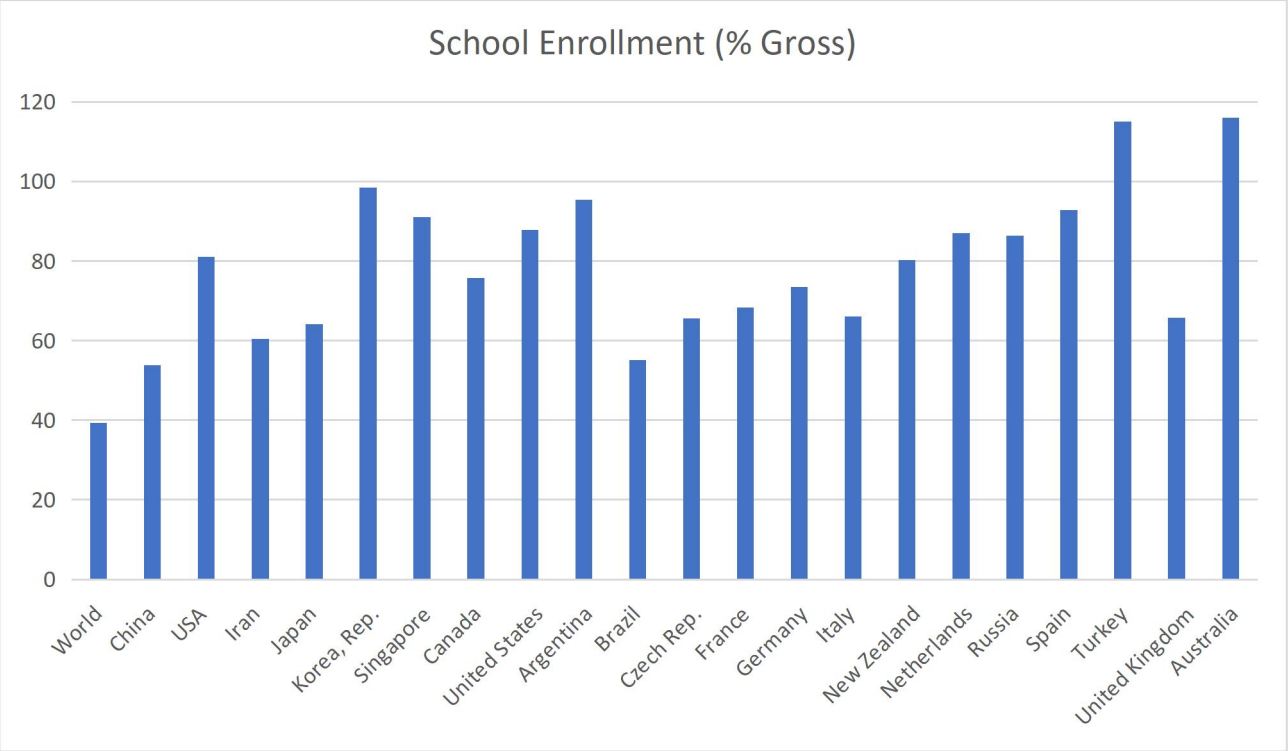


Figure 3.11 - Crude enrollment rate of university students in countries around the world in 2019

Source: International Statistical Yearbook 2021

Compared with the structural unemployment caused by migrant workers' lack of culture and technology, the unemployment of college graduates is more caused

by personal preference in choosing jobs. The crude enrollment rate of college students in China has reached the world average level, but it is far lower than that of developed countries (Figure 3.11). Therefore, the unemployment rate of college students in China is not caused by the surplus of talents. Many college students' psychological expectations are too high, but their personal ability is limited, which leads to the employment situation of college students. The number of college graduates in China reached 10.76 million in 2022, breaking the 10 million mark for the first time and setting a new record. According to a report on the employment attitude of 2022 graduates released by Zhaopin Research Institute, the enthusiasm of 2022 graduates for state-owned enterprises continues to rise. In recent years, due to the impact of the epidemic, some graduates choose to take the civil servant and teacher exams and get relatively stable jobs in state organs and public institutions. In addition, 2022 graduates are expected to work in IT, communications, electronics and Internet industries. They hope to work in developed areas and cities in the east and coastal areas, and generally have high salary expectations.

Therefore, it can be seen that the work of China's elderly people is often irreplaceable by the young. The young migrant workers are not perfect in knowledge and technology, and cannot engage in professional and technical work.College students lack practical experience and cannot immediately take up the burden left by the elderly. They are also unwilling to engage in low-paid and high-risk jobs, let alone go into remote areas and economically underdeveloped cities. Therefore, the employment of the elderly will not pose a threat to the employment of the young.

In fact, the aged labor force and the young labor force have a very good complementary relationship. With the growth of age, the physiological functions of the elderly gradually decline, but some functions do not appear obvious degradation, and some abilities are stronger than the young. Sensory organs such as vision and hearing decline in the elderly, but the decline of logical reasoning ability and word use ability is less. In terms of perception, the elderly observe things more slowly than the young, but they tend to observe things more

comprehensively, deeply and carefully. Compared with memory, the elderly maintain better understanding memory, but the mechanical memory decline is obvious, that is to say, the elderly have poor memory for things they do not understand, and the ability to accept new things is not as good as the young, but the elderly have strong memory ability for things they understand. In terms of intelligence, the study of psychologist Horne proved that with the increase of age, people's liquid intelligence, namely, cognitive ability based on physiological function of nervous system, would decrease by 3.75% every 10 years, while people's cognitive ability based on acquired experience, namely, crystalline intelligence, would increase by 3.64% every 10 years.

So the old and the young can choose what they are good at at work. Young migrant workers are energetic and often engaged in production-oriented and service-oriented industries. College students are perceptive and innovative, so they should be engaged in emerging industries rather than crowding into national administrative organs and public institutions.

Knowledge-oriented elderly people with high scientific and cultural quality can be rehired by schools and research institutions to continue to engage in scientific research and teaching tasks after retirement. Skilled old people have excellent labor skills and rich experience in production practice. Factories and enterprises need such talents to guide young people to work or solve technical problems. As long as the old and the young give full play to their respective advantages, they will not compete for jobs. On the contrary, the old will help the young to find jobs.

4. Old people can help young people find jobs. Affected by the aging population, the French social security system is becoming more and more difficult to sustain, because the welfare policy cannot be easily adjusted, the government has been bearing a heavy economic burden.

From the micro point of view, an old man's income after retirement is greatly reduced compared with before, and he has to buy products and services cautiously within the scope of pension payment, that is, his consumption power is reduced.

Due to the implementation of early retirement policy in France, many old people will enter the low-income state in advance, and they will cut back on spending and consumption, which will affect the earnings of some enterprises.

These employers have to lay off workers in order to reduce costs, and young people will lose their jobs first. If the flexible retirement policy is implemented, some of the old people who have reached retirement age can continue to work, and some of the old people who have retired can return to the society according to their own will and market demand.

These people not only increase their own income, but also create additional wealth for the society. According to the theory of "production creates demand", older people with higher incomes will have more demand for goods and services, which will lead to the production of more goods and services, and more people, especially the young, will find jobs.

In 2004, Japan passed an amendment to the Elderly Labor Law, which planned to extend the legal retirement age of workers to 65 and raise the legally guaranteed employment age to 65. From 2005 to 2020, as GDP remained high, the labor force participation rate of the population aged 16-64 increased by 8%, so the unemployment rate decreased by 1.7%.

In 2005, the German government raised the legal pension age to 65 years old, after which Germany's GDP continued to grow, the labor force participation rate of the population aged 15-64 increased by 9.9%, and the unemployment rate decreased by 6.9% from 2005 to 2020. Therefore, we can see that the employment of the elderly helps to create more social wealth and promote social employment.

From the macro point of view, if a part of the workers quit the production team earlier, it will lead to a reduction in the level of social productivity. The decline in the ability of the whole society to create wealth leads to the decline in the ability of the whole society to buy, and eventually the market demand for labor is reduced and youth unemployment is increased.

Luxembourg has the highest GDP per capita in the world and one of the lowest unemployment rate in Europe. Because the country has the greatest ability

to create wealth per person, it also has the greatest ability to buy, and its workforce is therefore more employable. Therefore, in order to fully absorb the domestic labor force by the market, it is necessary to improve the consumption demand ability of the people, which is rooted in improving the level of national productivity. The elderly continue to engage in productive labor is conducive to the improvement of social productivity, so delaying retirement policy can promote employment, especially the employment situation of young people.

Disengagement theory holds that as they grow older, older people should reduce their activities, seek more negative roles, reduce interpersonal interactions with others, focus on their inner lives, and finally gradually disengage from society. The theory was criticized as soon as it was proposed.

Activity theory and disengagement theory are a pair of opposite social gerontology theories, but they have one thing in common, that is, they both believe that life satisfaction is the best standard to measure the social and spiritual adaptation of the elderly. Obviously, the life satisfaction that can be achieved from the disengagement theory is a low level of satisfaction, because the social needs of people cannot be met if they are separated from the society, and the needs are human nature.

Without the needs of people, the life will lose the goal and the development of people will lose the power. It advocates that people should focus on their inner life, which is essentially the inner peace achieved by the way of abstinence. It is the negative satisfaction achieved on the premise of abandoning human needs.

The purpose of activity theory is to maintain the connection between individuals and society, actively participate in society, and interact with society. It is also designed to enable retirees to achieve a higher level of life satisfaction, but it is designed to enable people to achieve higher levels of positive satisfaction by meeting their social needs. Active aging is not only a slogan, a program, but also an attitude. It allows people to realize their physical, social and spiritual potential throughout their lives and to participate in society according to their needs, desires and abilities.

As has been discussed above, the old and the young have their own advantages as well as mutual disadvantages. We should not only see the side of old age, but also the advantages of old age. The knowledge, experience, skills and other human capital of the elderly are accumulated with age. In modern society, simple work has been replaced by complex work, manual work has given way to mental work, the disadvantage of the elderly is not as obvious as in the past, and their advantages are gradually revealed.

First, the advantages of practical experience. After long-term social practice, the elderly have accumulated a large amount of knowledge, skills and wisdom, and have experiential human resources that are incomparable to other groups. These experiential human resources are not only used up in old age, but also become more abundant for some people. The Law on the Elderly clearly stipulates that "the state and society should value and cherish the knowledge, skills and experience of the elderly in revolution and construction." The accumulated knowledge of many older people is both past and present, and it is continuous. The accumulated experience of the elderly with the way of doing things, positive attitude, solid style of work, responsible spirit, observation, analysis, judgment ability make them are irreplaceable for the young in some aspects.

Second, the advantage of life experience**.** As the United Nations International Programme of Action points out, a longer life provides an opportunity to look back on one's life, correct some of the mistakes one has made, bring oneself closer to the truth and see the meaning and value of one's actions from a different perspective, which is probably one of the more important contributions that older people make to human society. There is also an old saying in China: "If you don't listen to the old, you will suffer a great loss."

In the long, complicated, tortuous and bumpy life experience, the elderly repeatedly compare and identify objective things, carry on the deep thinking, so that they can penetrate the surface of things, grasp the essence of things. The improvement of the level of social productivity and the progress of social civilization are developed based on the labor practices of the elderly, who play a

continuous role in promoting social and economic development. In analyzing problems, the elderly are more accurate, comprehensive, profound and farsighted.

They sum up many successful experiences and failure lessons, and form a more correct world outlook, outlook on life and values. These advantages not only play their own value, the development of social undertakings have a positive significance, but also for the education of the young generation, promote social civilization, is undoubtedly a huge wealth and capital.

Third, the advantage of psychological maturity. As people grow older, their physical strength gradually decreases, but their intelligence level does not. At the same time, older people are more psychologically mature than younger people. According to the demand degree of physical, mental and skill factors in different occupations, the famous jurist Posner divides the occupations into four categories: the early peak unsustainable type, which includes most fields of sports, mathematics, theoretical physics, chess and manual labor.

Psychologists have also found that the most active politicians in the world today are older, as the elderly are less likely to be emotionally active, which can prevent them from affecting their thinking. All 31 of China's provincial governors were born in the 1960s.

Fourth, social capital advantage. A person can usually obtain benefits through relatives, friends, classmates and other social relations. In economics, this ability to make use of his special position to obtain benefits is called social capital. The higher the benefits a person can obtain from these relations, the higher his social capital will be. On the one hand, in the relationship-oriented Chinese society, people have always been in a strict and complex relationship between human relations, both in terms of ideas and behaviors.

On the other hand, China's market economy is not mature and information transmission is not smooth. In many cases, only with the help of some "non-market" channels can the circulation of information be realized. In this case, a person's social capital is particularly important.

The elderly have built up a wide range of interpersonal relationships through

social activities in the long years, and their interpersonal resources and social communication ability are incomparable to those of the young. An older person can often use his personal connections to complete a business for a company at a lower cost than a younger person. In addition, older people usually have higher prestige, their words and deeds have more influence than ordinary people, and they are more likely to achieve the desired goal when coordinating problems than younger people.

Fifth, low cost development advantage. After the juvenile, adolescent and adult stages, the elderly enter the most mature stage of life. They have experienced years of school education, social life and production practice training, accumulated capital for most of their lives, and entered the stage of small input and high output. Human capital does not disappear when old people quit their jobs. Although they may not be as energetic as the young, the elderly have rich work experience, and can solve practical problems as soon as they start without training and accumulation and have higher stability. Otmar Fareon, founder of Fareon Engineering in Germany, employed many elderly project managers, engineers and mechanics in his company. He calculated that an experienced veteran could create three times more value than a 25-year-old.

Vienna international plan of action on the ageing, points out efforts s should be made by the mass media, educational institutions, Governments, non-governmental organizations and older people themselves to combat the stereotype that older people are always physically and mentally declining, unable to provide for themselves and have no role or place in society. Such efforts are necessary to build an integrated society at all ages. Because only the elderly themselves and other members of society from the concept of the old change their views on the elderly, the development of elderly human resources can be smoothly carried out, the elderly can be better integrated into the society.

3.3. Institutional guarantee and state support of aging human resource in

China

With the development of economy and the progress of society, the medical and health conditions have also been improved, which has led to a significant increase in the life expectancy of the population. Therefore, the legal retirement age should also increase with the progress of the society and the improvement of the average life expectancy. It should not be fixed. Otherwise, with the development of the aging population, there will be a series of social problems, such as labor supply shortage, heavy living burden of young people and pressure of pension security.

Throughout the world, it is found that the economic development degree and the average life expectancy change in a positive direction, that is, the average life expectancy of countries with more developed economy is also longer, so the age of legal pension is also older. The pension insurance reform plan implemented in Germany in 1992 gradually raised the current legal retirement age from 63 to 65 years old from 2000 to 2012, and in 2003 it was also stipulated that the retirement age was gradually postponed from 65 to 67 years old. In the UK, 65 will be fully implemented by 2020, with a further increase to 68 between 2024 and 2046. Under a 1983 law, the retirement age will gradually rise from 65 to 67 between 2002 and 2024.

Table 3.5 - Average Life Expectancy by region in China in 2020

Region	Life Expectancy in 2020	Male	Female	Region	Life Expectancy in 2020	Male	Female
National Total	77.93	75.37	80.88	Henan	77.60	74.59	80.84
Beijing	82.49	80.43	84.62	Hubei	78.00	75.73	80.53
Tianjin	81.30	79.32	83.40	Hunan	77.88	75.36	80.75
Hebei	77.75	75.20	80.52	Guangdong	79.31	76.75	82.22
Shanxi	77.91	75.64	80.47	Guangxi	78.06	74.64	81.98
Inner Mongolia	77.56	74.98	80.45	Hainan	79.05	75.83	82.84

Liaoning	78.68	75.96	81.54	Chongqing	78.56	75.86	81.64
Jilin	78.41	75.62	81.40	Sichuan	77.79	75.01	80.93
Heilongjiang	78.25	75.33	81.42	Guizhou	75.20	72.09	78.71
Shanghai	82.55	80.39	84.87	Yunnan	74.02	70.98	77.55
Jiangsu	79.32	77.02	81.83	Tibet	72.19	70.27	74.75
Zhejiang	80.19	78.09	82.58	Shaanxi	77.80	75.59	80.24
Anhui	77.96	75.52	80.72	Gansu	75.64	73.64	77.85
Fujian	78.49	75.81	81.55	Qinghai	73.96	71.72	76.43
Jiangxi	77.64	78.08	80.52	Ningxia	76.58	74.89	78.40
Shandong	79.18	76.46	82.11	Xinjiang	75.65	73.66	77.89

Source: China Population and Employment Statistics Yearbook 2021

At present, China is facing a serious aging problem, which is characterized by rapid development, "getting old before getting rich", and unbalanced development between urban and rural areas as well as between regions. The current legal retirement age in China is 60 for men, 55 for female cadres and 50 for female workers. The current retirement age is based on the retirement age determined in the 1950s. The legal retirement age was determined according to the productivity level and the average life expectancy at that time.

At present, China's productivity level has been much higher than before, and the average life expectancy has also greatly increased. In 1981, China's average life expectancy was 67.77 years, 66.28 years for men and 69.27 years for women. In 2020, China's national average life expectancy was 77.93 years, and in Beijing, Tianjin, Shanghai and Zhejiang, the average life expectancy was over 80 years.

The average life expectancy of women was higher, and in most areas, the average life expectancy was over 80 years. Only a few underdeveloped regions, such as Guizhou, Yunnan, Qinghai, Tibet Autonomous Region, Ningxia Autonomous Region and Xinjiang Uygur Autonomous Region, have an average life expectancy of less than 80 years, but all regions except Tibet have an average life expectancy of more than 75 years (Table 3.5).

As a result, normal healthy elderly people still have a life expectancy of nearly two decades or more after retirement. Therefore, the current retirement policy adopted in the 1950s has resulted in a number of elderly people who are still able to work being excluded from the working-age population prematurely, which

has seriously caused a waste of human resources. In addition, this retirement system sets the age of 60 for men and 55 and 50 for women.

This is a mandatory "one-size-fits-all" retirement model, which is unreasonable to some extent. Because of the complex types of industrial work in China, the demand for mental work and manual work varies greatly with different labor forces. Especially for people with different levels of education, such as masters and doctors.

Because they have been educated for a long time, they have a relatively short working life, and they face retirement before they have fully utilized their talents in the workplace. Therefore, retirement according to biological age rather than working age should be reformed.

Of course, as life expectancy increases, raising the legal retirement age should not be rushed. The willingness to continue work depends on the attitude of workers themselves, which is fundamentally different from machines. For the machine, the improvement of technology can run for several more years.

However, people are different. For those who are physically allowed and have the will to continue working, they will try their best to find opportunities to work again even if they retire from their jobs. However, some people may be some time before the official retirement age, but because of their subjective reluctance to work, so they will also appear to be inactive in the workplace.

Secondly, the differences between different regions of China should be taken into account. China has a large population and a vast territory. There are significant differences among different regions in terms of education, economic development and level of economic development. In addition, there are great differences among different regions in terms of population aging, labor participation rate of retired elderly and health degree of the elderly.

So, whether to delay retirement age and how to delay or how many years to delay and other issues need to be adapted to local conditions. Third, the retirement system involves many aspects of society, such as social security system, pension and endowment insurance. As a complex project, it can be said that the whole body

is connected, so the reform of the retirement system needs the corresponding coordination between various departments.

It is feasible for China to implement flexible retirement system at the present. Employee can make his own choice that retires in appropriate time according to the regulated period, and deal with relevant matter, then enter the mode that gets emeritus pension. According to the principle of voluntariness, workers who are physically allowed and willing to continue working, whether for spiritual or economic reasons, can continue to work and make contributions to society while gaining a sense of self-existence.

On the contrary, workers with relatively poor physical conditions and weak employment intentions can choose to leave their jobs. Therefore, for workers, this flexible retirement system is based on the premise of voluntary labor.so every worker can be taken care of in this way. In addition, the flexible retirement system is very flexible for employers.

If some enterprises or some departments need high-level talents, they can rehire retired elderly labor force, while some departments that are not suitable for the elderly to enter, such as low-end industries, will not passively accept the employment of retired elderly. It can be seen that the flexible retirement system is a two-way choice. Workers can choose whether to be employed according to their own willingness and working ability. While enterprises should also look at whether they need to employ the elderly and whether employees' abilities meet their needs.

But flexible retirement is easier said than done. Shanghai, China, launched a flexible retirement system on a pilot basis on October 1, 2010, which means older workers can delay the age at which they are eligible for retirement. In addition, the relevant departments in Shanghai proposed that the retirement age should be delayed to 65 for men and 60 for women.

Although the pilot still has many imperfections, it is significant because it is a key step in the government's reform of the retirement age. In March 2021, the National 14th Five-Year Plan and 2035 Vision Outline (draft) explicitly proposed for the first time that the legal retirement age should be gradually postponed in

accordance with the principles of small adjustment, flexible implementation, classification and overall consideration. Subsequently, 31 provinces held a working meeting to solicit opinions on the reform of gradually raising the legal retirement age.

So far, 31 provinces have held forums to solicit opinions on the gradual delay of the retirement age, and listened to opinions and suggestions from various sectors. On January 30, 2022, the Jiangsu Provincial Department of Human Resources and Social Security issued the Measures for the Implementation of Basic old-age Insurance for enterprise Employees in Jiangsu Province, which was formally implemented on March 1, 2022.

The measures innovatively stipulated the delayed retirement policy, and clearly stipulated that: after they apply for delay retirement age, then employer agrees and human resource and social security branch records, people who attend endowment insurance can delay retirement with not less than a year at least. It took 12 years from the pilot project in Shanghai in 2010 to the official implementation of delayed retirement in Jiangsu Province in 2022, and it may be some time before the nationwide implementation of delayed retirement is widespread.

The inspiration from developed countries is that the development of human resources for the elderly is not just a matter of a certain department. It involves all aspects of society. It is a comprehensive problem, and it can not be achieved by delaying retirement or introducing a few laws and regulations. However, delaying retirement is only a small step in the development of elderly human resources, which can only solve the demands of the elderly who are working and will soon face retirement. For the retired, unwilling to renew employment or willing to continue to work but failed to renew employment of these elderly, in order to make the elderly human resources to get a reasonable development and utilization, the state and all sectors of society also need to establish a set of elderly human resources development mechanism.

1. The law should protect the rights and interests of the elderly to work again. As the basic principle of people's life, the law is the basic model of the relationship

between people. The enactment of the law should be the premise of citizen action. The completeness of laws and regulations is the key to the smooth development and utilization of the elderly human resources. As early as the 1950s and 1960s, the United States, Japan and other countries had already given legal and regulatory protection to the re-employed elderly, and clearly proposed that employment should not be discriminated against because of age.

In addition, for every citizen, the Constitution stipulates that he has the right and duty to work. The Law on the Protection of the Rights and interests of the elderly also stipulates that the law protects all the legitimate rights and interests of the elderly to participate in labor. Even so, the regulations related to the re-employment of the elderly still need to be improved. The re-employment rights of the elderly cannot be protected and implemented. Facing this situation, China should rely on the legislative body to enact the "Law on the Prohibition of Discrimination against the Elderly in Employment" as soon as possible, and prohibit using age as one of the criteria in the re-employment process of the elderly.

The right of re-employment of the elderly should be protected and improved accordingly, and the legal income obtained by re-employment of the elderly should be protected. And It must be strictly prohibited that enterprises reduce the retirement pension of the re-employed elderly because the elderly have obtained legal income through re-employment.

2. Improve the judicial assistance framework of employment participation for the elderly. The smooth way of judicial relief can provide preconditions for the elderly to enjoy the right of participation in employment, which can guarantee the implementation of the right of participation in employment for the elderly to a large extent. In order to fully realize the judicial relief of the elderly participation right in employment, it is necessary to adopt the inclination protection policy for the elderly. In terms of the legal aid system, the state should provide free legal aid to the relatively poor and vulnerable elderly people, so as to guarantee their right to participate in employment from the judicial level.

It is also necessary to establish a diversified dispute resolution mechanism to

solve the disputes caused by the infringement of the right of participation in employment of the elderly by means of regulation and arbitration.

3. A special administrative department responsible for the re-employment of the elderly should be established. For example, in Japan, the Ministry of Health and Labor, the Ministry of Health for the elderly, and the Ministry of Countermeasures for the elderly are involved in issues related to the elderly. The establishment of some specialized agencies can bring the issue of the elderly into the government's agenda, so as to solve the employment problem of the elderly more quickly and better.

The successful experience of Japan's elderly human resources inspires us that China should also give full play to the role of government. The government should set up special administrative institutions and functional departments for the elderly. Although China now have multiple government agencies involved in the old problems such as aging committee, human resources and social security bureau, the Ministry of Civil Affairs, but if China want to develop old human resource systematically and scientifically, China also needs a special authority for the overall planning, management and coordination in order to avoid all kinds of problems in the process of older human resource development such as unclear rights and responsibilities, management blank or short-sighted.

In addition, it is necessary to establish a special information network for the development of human resources for the elderly to develop and manage of aged human resources orderly. On August 23, 2022, the China Senior Talent Network was launched, with the goal of developing, promoting, serving and researching senior talents. However, the website is not perfect at present, and the recruitment information provided at present is relatively small, which cannot meet the needs of the elderly and needs to be improved as soon as possible.

4. We should actively develop a digital technology system to promote the employment of the elderly. With the rise of new economic forms such as sharing economy and platform economy, "Internet Plus" information technology has widely penetrated into daily life and work, and the "digital divide" is very obvious

among the elderly. According to the 50th Statistical Report on Internet Development in China released on August 30, 2022, as of June 2022, the number of non-Internet users in China was 362 million.

In terms of age, the elderly aged 60 and above are the main group of non-Internet user (Figure 3.12). In June 2022, non-Internet users aged 60 and above accounted for 41.6% of the total non-Internet users in China, 22.5 percentage points higher than the proportion of the national population aged 60 and above.

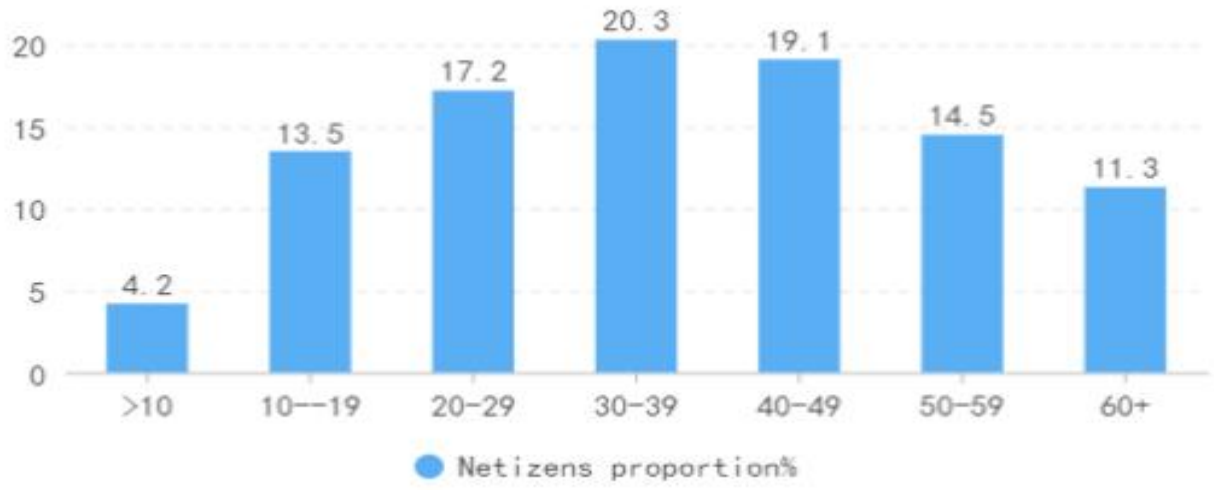


Figure 3.12 - Age structure of Chinese netizens

Source: China Internet Network Information Center (CNNIC) 50th Statistical Report on the Development of Internet in China 2022.8.30

The elderly are not familiar with the technology provided by information and network, and the children who directly provide "cultural re-feeding" are often not around. Coupled with the reduced value of the old people's experience and skills accumulated through time, this has become one of the main obstacles for the elderly to enter the labor market in China.

On the one hand, we should accelerate the transformation of Internet applications for aging, actively carry out special actions for the transformation of Internet websites and mobile Internet applications and focus on promoting the transformation of applications closely related to the economic activities of the elderly, so as to facilitate the elderly to obtain relevant information and services

related to employment and participation.

On the other hand, we should vigorously carry out intelligent technology education for the elderly. The Internet of the whole society must be retrofitted for aging. To enhance the ability of the elderly to use smart technologies, guide the elderly to understand new things and experience new technologies through experiential learning, trial and application, experience exchange, and mutual assistance, so as to actively integrate into the smart society and improve their ability to participate in modern economic activities.

5. The role of the market and government should be given full play. Just like other labor resources, the elderly human resources also have the characteristics of development, creativity, initiative and capital. The tremendous achievements China has made since 1978 fully demonstrate that it is the market that plays a fundamental role in allocating resources. The development of the elderly human resources is carried out under the mechanism based on the market, and its characteristic is to make choices independently through the market to avoid government and administrative intervention in the employment of the elderly.

In the process of China's elderly human resources development, in addition to the participation of the market and the government, the participation and support of social organizations, namely the third party social forces, is also very important. The participation of the third party forces includes not only some non-governmental organizations but also some non-profit organizations. For example, as a non-governmental organization, Silver talent in Japan also plays an irreplaceable role in the development of human resources for the elderly.

The Chinese government has also clearly stipulated that all sectors of society should be encouraged to participate in social service facilities related to the elderly. In the great cause of human resource development for the elderly, the more organizations join the better, the government should encourage and give support, these new organizations can be regarded as an important supplement to the development of human resources for the elderly. The government should also support and encourage more social groups and public welfare organizations to join

in as an important supplement to the development of human resources for the elderly.

The primary function of education is to promote individual development including individual socialization and individuation, which is a positive influence on human understanding and reforming the objective world and themselves. The UN Principles for Older Persons, adopted in 1999, explicitly states that older persons must have full access to the resources of society, such as education, culture and recreation, and be able to pursue opportunities to reach their full potential.

The Law on the Protection of the Rights and Interests of the Elderly was passed in 1996, which states that we should support society in running all kinds of schools. Among them, education for the elderly should be developed, because the elderly also have the right to receive education.

Therefore, the government should pay enough attention to this aspect, carry out unified planning, and make reasonable arrangements. The regression analysis above also proves that the elderly with strong skills are more willing to work. Through the survey, it is also found that with the improvement of the education level of the elderly, the probability of possessing skills also gradually increases. Therefore, it is the requirement of the country and society to strengthen the right of the elderly to receive education and improve their quality.

From the above analysis, we know that, on the whole, China's elderly are rich in human resources, but many of them have a low level of education, and a large part of them have not participated in formal cultural education. Therefore, although the number of elderly human resources is large, low quality restricts the development of the re-employment of the elderly in China. Improving the education level of the elderly labor force can not only enhance the quality of the elderly in China, so as to improve their employability, but also has a positive significance for the improvement of the daily living standard of the elderly. Therefore, we must set out from the reality of economic and social development to establish and perfect the education system for the aged.

- Build a lifelong education system. People need to develop in their life, so

people always consciously or unconsciously carry out conscious or unintentional learning; At the same time, people live in a dynamic social environment, and the society is changing all the time. If people want to adapt to social changes, promote social development, and achieve a dynamic balance with society, learning is bound to run through the whole process of a person's life. At present, education institutions for the elderly are mainly universities for the elderly.

According to relevant data, it is estimated that by 2021, there will be about 83,636 universities for the elderly in China, and the number of students will be about 12.552 million. Universities for the elderly are addressing the shortage of supply through remote education.

By the end of 2021, the country's elderly population was 260 million, and the total number of students in school and online students was about 19.72 million, accounting for 7.4% of the elderly population. Education resources for the elderly are far from meeting the education needs of the elderly.

In 2022, The State Council issued the 14th Five-Year Plan for the Development of the National Cause of Aging and the old-age Service System, which set the goal of establishing at least one university for the elderly in every county (city, district) by 2025. On the one hand, we should increase the construction of local universities for the elderly and strive to make them enter the community.

On the other hand, we should make full use of the existing educational resources. Colleges and institutions of all levels and types should be open to the elderly under the guidance of the value orientation of lifelong learning, so as to realize the sharing of educational resources. It is necessary to change the age limit for members of society to receive education, change the traditional education evaluation rules, and form an open enrollment system that is not subject to specific age restrictions, so as to provide different groups of society with fair opportunities for re-learning and re-education.

- Improve the skills and knowledge training system. The development of human resources for the elderly should not only make use of their human capital,

but also continue to develop their potential abilities. At present, universities for the elderly only teach the skills of piano, chess, painting and calligraphy to the elderly. The development of human resources for the elderly should not only cultivate the "leisure" of the elderly, but also improve the knowledge and skill level of the elderly.

Universities for the aged should cooperate with vocational and technical training schools to improve the special skills of the re-employed elderly and use colleges and universities to improve the cultural level of the elderly. It is of great significance to improve the intelligence and tap the potential of the aged to do a good job in the training of the aged human resources. We should improve the skills and knowledge training network for the elderly, so that the elderly constantly update their knowledge, adapt to the development of new science and technology, and create conditions for participation in social labor.

- Innovate the content and form of teaching. We will accelerate the development of community education for the elderly in urban and rural areas, and support all types of schools to establish universities or schools for the elderly and participating in education for the elderly. We will encourage innovation in the combination of nursing and education, and support community service institutions for the elderly in building learning centers.

We will give full play to the role of community education networks and provide education for the elderly at home. To build a national University for the aged with the support of the National Open University, and build a national platform for the sharing of education resources and public services for the aged. We will encourage local open universities to set up "open universities for the elderly", and encourage education institutions for the elderly to carry out online education for the elderly. We will make innovations in mechanisms to promote the opening of universities for the elderly run by departments, enterprises and universities to the public.

We will innovate the system and mechanism of education for the elderly, explore new models of education for the elderly, and enrich the teaching content.

We will support nongovernmental participation in the development of education for the elderly, and expand the number of universities for the elderly at all levels and of all types.

Human society is in the midst of an unprecedented wave of population aging, and there is no historical experience to draw lessons from, so all actions concerning the elderly should not stick to the old form. Education for the aged should not have a fixed model and should keep pace with The Times.

We should combine realism with innovation, demand with reality, and constantly improve quality and grade. We should adhere to the principle of "putting what we learn into practice and aiming at a specific target", and the teaching methods can be guided by the situation, such as discussion, activity, lecture, investigation and individual counseling, so as to constantly improve the teaching level.

- Standardize the school-running system. Education for the aged is a sun-rising cause with public welfare. To develop healthily, stably and sustainably, we must take the road of standardized construction. This needs to be incorporated into government planning, establish a scientific management system and security mechanism, make full use of various educational resources to develop education for the aged, and strive to form a situation where the whole society supports the development of education for the aged.

The system is a long-term means to ensure the development of elderly human resources, but the formation of the system can not be completed overnight, it needs a long time of research, demonstration, pilot, and finally put into practice. In addition, due to the market mechanism, the development of elderly human resources may not proceed as expected. Therefore, the development of the elderly human resources should not only be based on the system, but also take the policy as the auxiliary, so that the elderly human resources can be well and fast development and utilization through the coercive power of the government.

The following measures can be taken at the macro level:

1. We should raise the development of human resources for the elderly to

a national strategic level and implement the strategy of active aging. The International Plan of Action on Ageing adopted at the Second World Assembly on Ageing, held in Madrid, stressed that countries should attach great importance to the issue of ageing and integrate it into their development strategies.

The development of aged human resources is a huge, complex and related to the overall situation of social system engineering, we must understand and grasp this problem from the height of strategy, put it into the overall strategy of human resources development, and formulate a scientific strategic plan. The first is to raise awareness, both among officials and among the public. Although aging is not a new topic in academic circles, most government officials and ordinary people still lack due understanding.

It is urgent to popularize the knowledge of aging to the public so that people can understand the causes and problems of population aging. Through extensive publicity and education, all members of society can clearly understand the necessity of elderly human resources development. Only in this way can the following policies be understood and supported by the masses. In addition, only when officials at all levels have a deep understanding of the aging problem facing China, can they really pay attention to and implement relevant policies for the development of human resources for the elderly.

2. Research on aging should be vigorously carried out. Theory originates from practice, and theory surpasses practice itself by summarizing practical experience and critical reflection. China has a relatively late understanding of the problem of population aging, and the related research on aging is relatively backward. Therefore, in order to better solve a series of problems brought by population aging, we must strengthen the research on aging problem.

There is no successful experience for developing countries, especially a populous country like China, to deal with the challenge of aging without realizing modernization. Therefore, conditions should be created to establish comprehensive national research institutions in which we will organize researchers of relevant disciplines to study population aging and aging society as a major national macro

strategic subject, so as to provide a reliable basis for dealing with the grim situation of population aging and make China truly step into the track of scientific aging.

3. We should adhere to the policy of "seeking truth from facts".As the world's most populous country, China is also the largest elderly population and one of the few countries with rapid development of population aging, which is not comparable with any developed country with a small population. If we simply copy the experience or model of other countries in dealing with aging, it is very likely to repeat the mistakes of previous dogmatism.

To solve China's population problem, we must adhere to the principle of "reality". The acceleration of China's aging and the increasing gap between rich and poor in the elderly population are all caused by the past policies. Based on the "reality" of the past, it is necessary to make society more inclusive so that every older person can equally enjoy the common fruits of economic and social development. China is now in a critical period of building a moderately prosperous society in an all-round way.

The rapid aging of the population is superimposed with the transformation of the economic system and social reform, and accompanied by the profound adjustment of the pattern of interests. Starting from the present "reality", we must enhance the urgency and consciousness of coping with the challenges of the aging of the population and the aging society, and strive to eliminate various contradictions and problems caused by the aging of the population. China has entered and will live in an aging society for a long time. Based on the "reality" of the future, it is necessary to firmly grasp the trend of population development and introduce policies that are conducive to extending the demographic dividend, improving the quality of the population, promoting sustainable economic development and improving the living standards of the elderly.

4. Adhere to the policy of unifying economic benefits and social benefits.The market takes profit maximization as the principle. If the development of elderly human resources is completely left to the market, its social benefits will

be ignored. The reason why China's macroeconomic policy has tilted toward labor-intensive industries is that such industries can help solve more labor employment and alleviate social conflicts.

The development of elderly human resources is not only a simple economic activity, but also carries a part of social responsibility.Some simple tasks, such as park maintenance, are handed over to the elderly to make them feel valuable and reflect the civilization of modern society. Therefore, while the market lays emphasis on economic benefits, government policies should lay emphasis on social benefits, so as to combine the two organically.

5. We must resolve conflicts through development. From the perspective of China's aging development process, we must firmly seize the "first priority" of development and solve the problems we face with development. Population aging is a population phenomenon that only occurs when human society develops to a certain height. In other words, it is a problem brought about by development, so the solution to it also exists in the development of society.

On the one hand, China is facing the challenge of "getting old before getting rich". The task of development is heavier, the demand for development is more urgent, and the pressure of development is greater. On the other hand, population aging not only challenges the social economy, but also provides new opportunities for social development. As a valuable social asset, the elderly who can make a greater contribution than before will have an immeasurable boost for social development if properly used.

To develop human resources for the aged is to resolve contradictions in the course of development and to change the resistance to progress into the power of social development. In the implementation of the strategy of elderly human resources development will also meet with such or such problems, which requires our rulers can not retreat, must meet the difficulties, in the process of development gradually solve the problem.

6. Adhere to the people-oriented approach. Development depends on the elderly and development is for the elderly, so the fruits of development should be

shared with the elderly. Firstly, the development of elderly human resources depends on the development of the elderly with the help of human capital accumulated by the elderly over the years to improve labor productivity, so as to solve the problem of scarce labor resources in the elderly society, and help the economic and social development.

Secondly, the development of human resources for the elderly is for the development of the elderly. As has been discussed above, the development of elderly human resources is the need of the elderly themselves, so in the actual operation process should also meet the needs of the elderly as the principle. Forcing the elderly to continue working will not only discourage the elderly, but also make development meaningless.

Finally, the ultimate purpose of developing human resources for the elderly is to make the elderly share the fruits of development. The Political Declaration of the Second United Nations World Assembly on Ageing "reiterates the promotion of 'all people regardless of age. In the "shared society", "shared" not only refers to the sharing of social development results, but also includes the sharing of opportunities and rights to participate in social development. Only in line with the principle of people-oriented development of the elderly human resources, can make the elderly participate in the development of the maximum satisfaction.

The following measures can be taken at the micro level

1. Vigorously develop the departments that absorb the old people into re-employment. At present, the elderly in China are concentrated in the primary industry, while the elderly in developed countries are mostly engaged in the tertiary industry. The tertiary industry is an important indicator to measure the economic development of a country.

Developing the tertiary industry can not only prosper the economy and enrich people's lives, but also provide a large number of jobs for the society. Moreover, the tertiary industry has a deeper meaning for the development of aged human resources. Only by engaging in the tertiary industry can we give full play to

the advantages of human capital possessed by the aged talents and make them make full use of their talents and materials. Only by engaging in the tertiary industry can we improve the active degree of the elderly and meet the social needs of the retired; Only by engaging in the tertiary industry can we promote better economic and social development.

Therefore, vigorously developing the tertiary industry for the development of elderly human resources has positive practical significance

2. Introduce policies to support the elderly to start their own businesses. The Law of the People's Republic of China on the Protection of the Rights and Interests of the Elderly stipulates that the state should create conditions for the elderly to participate in the construction of socialist material and spiritual civilization.

In accordance with social needs and possibilities, the elderly should be encouraged to engage in business and production activities and set up social public welfare undertakings on their own free will and within their means. The self-employment of the retired elderly is the advanced stage of the development of the elderly human resources, and is usually an attempt of self-realization of the elderly. There are numerous practical examples of entrepreneurship in his later years.

This not only reflects the psychological appeal of some elderly people who are unwilling to be lonely after retirement, but also shows us their ambition and ambition. More importantly, they are completing the transcendence of themselves. The behavior of these old people has an immeasurable encouraging effect on other retired old people, so as to drive more old people to invest in economic construction.

Therefore, on the one hand, the government should help the elderly to remove all the institutional obstacles, such as simplifying some complicated procedures; On the other hand, relevant policies should be introduced to support the elderly to start their own businesses, such as low-interest loans, cash incentives, tax deductions .

3. Give appropriate policy preferences to enterprises that employ the

elderly. In a free market choice, pensioners are easily overlooked in the labour market because of the bias against them. Economics says that because people make decisions by comparing costs and benefits, their behavior will change when costs or benefits change. Public policies are measures that change human behavior by changing the costs or benefits people face.

In order to solve the problem of difficult re-employment of the elderly, the governments of developed countries such as the United States, Japan and Germany have introduced policies to reward enterprises that employ retired elderly people through tax cuts and other measures. These policies have played a positive role in promoting the re-employment of the elderly. Therefore, we should follow the successful experience of the above countries and formulate incentive policies in line with China's national conditions in combination with China's actual situation. We should not only give preferential policies to enterprises that employ the elderly, but also give individual income tax relief to the elderly who are reemployed.

4. Provide flexible working hours and post Settings for the elderly. Just like nursing mothers in the workplace, elderly human resources should also be considered as a special group and given special work care. Considering that their main contribution is not to create more work performance, but to transfer experience and ability between generations, work arrangements and post Settings should be more flexible and self-supporting.

Similar to the part-time work, for example, the four-hour work system is set for the elderly, and the time can be arranged freely. Only the key of work can be completed by month, and more attention will be paid to teaching and answering questions for the young. They can continue to realize their self-worth and social value while having enough energy and time to spend with their families, enjoy travel and enjoy their old age.

5. Multiple care, focus on the physical and mental health of the elderly. For all workers, physical and mental health is a necessary guarantee and precondition for the completion of work. The previous regression analysis also proved that the health status and the employment intention of the elderly were

inversely changing. For the elderly workers whose physical function is gradually weakened, physical and mental health is the focus of attention and protection.

Caring for the elderly can set up a good image of the enterprise, improve the market position of the enterprise, build a harmonious human resources development and management mode, enhance the employment satisfaction of employees, enhance the sense of belonging and identity of employees and so on. Therefore, enterprises should provide necessary care for the physical and mental health of elderly employees. For example, they should provide short-term living assistance and psychological counseling activities for the widowed elderly to help them quickly recover from grief, pay attention to their psychological demands, and provide employee assistance to reduce worries.

Conclusion to Chapter 3

Although China's elderly human resources development potential is relatively large, but there are still some problems in the development of human resources for the elderly in China.

The urban elderly are better educated and healthier than the rural elderly. They should also be better able to work than the rural elderly. However, the reality is quite the opposite. 49.3% of the rural elderly over 60 years old are employed in 2020, and 72.6% of the elderly aged 60-64 years old are employed, and more than 70% of the males in this age group are still engaged in labor. And according to the survey, most of the elderly in rural areas say they will work as long as their health conditions allow.

It can be seen that age is an indispensable factor in the influencing factors of the re-employment intention of the elderly. In the form of a questionnaire survey, this paper investigates the influencing factors of the re-employment of the elderly

nationwide, and classifies 1592 samples from the age of 60 into one file every five years. Figure 3.8 shows the respective trends of employment intentions for the five different age groups. As can be seen from Figure 3.7, with the increase of age, the proportion of employment intention of the elderly decreases correspondingly, with a relatively obvious trend.

The health of the elderly is not only a prerequisite for the smooth development of the elderly human resources, but also a key core factor. The better the health status of the elderly, the higher the proportion of them willing to work, and vice versa. 58.3% and 52.8 % of the elderly with "very good" and "good" physical health were willing to work, respectively, while the proportion of the elderly with "poor" and "very poor" physical health was very low. It should be noted that the proportion of the elderly with a self-rated health status of "very poor" who would like to be employed is 5.1 percentage points higher than that of the group with a self-rated health status of "poor" (21.1 percent).

It can be seen that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. It can be seen that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. The impact of economic conditions on employment willingness may be related to health and other factors, and reflected through them. It can be seen that the conclusion of the influence of economic situation on employment intention cannot be drawn from the appearance. The economic situation is not a single obvious factor, but a complex and multi-angle factor.

The slight difference may be related to individual differences in data collection. It can be seen that the analysis of the employment situation of the elderly with different education levels only from the data level is somewhat random and scattered. Therefore, whether a certain group of elderly people are willing to continue employment or not may be more reflected in other factors.

Whether the elderly have skills and the level of their skills is an important factor for whether they can successfully go to work again, and it is also an

important index to measure whether the elderly can take the initiative in the process of re-employment. It can be seen that the proportion of the elderly with skills who are willing to continue employment is as high as 54.8%, much higher than that of the elderly without skills (31.7%). It can be seen that the elderly with skills have a stronger willingness to work and are more willing to join the labor force again.

Through the above cross analysis of the seven influencing factors such as "age", "gender", "economic status" and "health status" and the employment intention of the urban elderly, on the one hand, we obtained a general relationship and influence of these factors on the re-employment.

On the other hand, we also found that all the influencing factors are not completely independent, but we can not give an accurate description of the degree of mutual influence between them. This means that it is difficult for our cross-analysis to analyze the influence of a single factor on the re-employment of the elderly while controlling for other variables.

Therefore, the above cross-analysis results are difficult to be completely accurate. In this case, it is necessary for us to verify and illustrate the above analysis results. Therefore, we conduct relevant technical processing through Logistic regression analysis, a statistical analysis software, in order to further test and prove the conclusion obtained from the cross analysis.

The values of health status, skills, pension and age - all four variables enter the model in turn. It can be seen that these four variables have a significant impact on the re-employment of the urban elderly in China. In addition, it can be seen that the SIG values of gender, economic status and education level are 0.36, 0.61 and 0.282 respectively, which means that the three variables have not passed the significance test of A = 0.05, that is, the three variables have no significant impact on the re-employment intention of the urban elderly nationwide. Through the collation of the survey data, it is found that with the improvement of the education level of the elderly, the probability of possessing skills also gradually increases. This shows that with the progress of society and the development of economy, the

influence of educational background on the old people's return to work is not very great. Instead, it is the life attitude and work experience accumulated in the process of social practice of the old people, or the work skills formed on the basis of the old people's work experience.

With the development of economy and the progress of society, the medical and health conditions have also been improved, which has led to a significant increase in the life expectancy of the population. Therefore, the legal retirement age should also increase with the progress of the society and the improvement of the average life expectancy. It should not be fixed. Otherwise, with the development of the aging population, there will be a series of social problems, such as labor supply shortage, heavy living burden of young people and pressure of pension security.

In the process of China's elderly human resources development, in addition to the participation of the market and the government, the participation and support of social organizations, namely the third party social forces, is also very important. The participation of the third party forces includes not only some non-governmental organizations but also some non-profit organizations. For example, as a non-governmental organization, Silver talent in Japan also plays an irreplaceable role in the development of human resources for the elderly.

Universities for the aged should cooperate with vocational and technical training schools to improve the special skills of the re-employed elderly and use colleges and universities to improve the cultural level of the elderly. It is of great significance to improve the intelligence and tap the potential of the aged to do a good job in the training of the aged human resources. We should improve the skills and knowledge training network for the elderly, so that the elderly constantly update their knowledge, adapt to the development of new science and technology, and create conditions for participation in social labor.

To develop human resources for the aged is to resolve contradictions in the course of development and to change the resistance to progress into the power of social development. In the implementation of the strategy of elderly human

resources development will also meet with such or such problems, which requires our rulers can not retreat, must meet the difficulties, in the process of development gradually solve the problem.

Adhere to the people-oriented approach. Development depends on the elderly and development is for the elderly, so the fruits of development should be shared with the elderly. Firstly, the development of elderly human resources depends on the development of the elderly with the help of human capital accumulated by the elderly over the years to improve labor productivity, so as to solve the problem of scarce labor resources in the elderly society, and help the economic and social development.

CONCLUSIONS

The dissertation substantiates theoretical, methodological and scientific-practical provisions on the management of human research development in the context of aging population in China. This paper puts forward the proposals to change the idea, guarantee the system and support the policy for the development of Chinese aged human resources. After the above theoretical and empirical analysis, the following conclusions are drawn:

1. Although an aging population is a symbol of social progress, people have more negative views of the aging population and are pessimistic about the future of an aging society. Although some scholars put forward that we should face the phenomenon of population aging positively and optimistically, the problem will be solved with the development of society, and the future is not as pessimistic as

we imagined, they still regard aging as a problem in the first place, but they have different views on the difficulty and prospect of the problem.

2. According to author`s definition, human resources refers to the total number of people with working ability within a certain range of the population. It is a general term for people with intelligence and physical strength who can promote social and economic development. The elderly human resources have the related characteristics of human resources, because it is a part of human resources after all, so as a unique group, it has its own characteristics. First, capital. However, the ability possessed by the elderly human resources is accumulated in their long-term working life, such as their experience, skills and various qualities formed through long-term life training. For young people, human resource development is mainly focused on "shaping", while for older people, it is focused on "utilization". Second, the time limit. General human resources also have timeliness, which is a characteristic of human resources different from material resources. It should be noted that compared with general human resources, elderly human resources have stronger timeliness, so the development of elderly human resources should be timely, otherwise the elderly die due to physical discomfort, then his knowledge, skills, experience and so on will not exist, which is a huge loss for the society.

3. By author`s opinion, development of human resources is to promote and induce the formation, development and improvement of people's potential physical strength, brain power, knowledge and skills by means of investment, education and training, that is, to promote the realization of potential ability process. The development of aged human resources is a process of mobilizing, utilizing and developing aged human resources of all classes and types in the whole society by using various ways, such as education, training, dispatching and cultural construction. By making full use of the unique advantages of the elderly, we can achieve the goal of making the best use of their talents, making the best use of their talents, getting the best of them and making the best of them.

4. The rapid aging of China today will inevitably lead to the rapid aging of China's population in the future. In 2020, the population aged over 80 in China

reached 35.8 million, accounting for 13.6 % of the population aged over 60 and 2.54 % of the total population. China officially entered the ranks of the elderly society in 2000. At that time, China's per capita GNP was 840 US dollars. In 2001, the whole world also entered an aging society. At that time, the world's per capita GNP was 5,170 US dollars. So, China was lower than the international average level.

5. Aged human capital refers to the sum of skills, knowledge, health status and level of workers obtained through education, training, health care, labor migration and employment information. It is a qualitative aspect of aged human resources. In 2020, the number of people aged 60-69 reached 82.1 million in urban areas and 65.27 million in rural areas. As mentioned in research, the urban elderly are better educated and healthier than the rural elderly. They should also be better able to work than the rural elderly. However, the reality is quite the opposite. In 2021 49.3% of the rural elderly over 60 years old are employed in 2020, and 72.6% of the elderly aged 60-64 years old are employed, and more than 70% of the males in this age group are still engaged in labor. And according to the survey, most of the elderly in rural areas say they will work as long as their health conditions allow.

6. The development of aging is unbalanced among regions. Due to the great difference in the level of social economic and cultural development among provinces, cities and regions in China, and the continuous increase of population flow among regions, the degree of China's aging population is also unbalanced among regions. In general, the eastern and coastal areas are economically developed and the proportion of the elderly population is high. The economic level of the central and western regions is relatively backward, and their aging degree is not high. There are great regional differences in aging, with serious aging in northeast China and Sichuan and Chongqing.

7. The research has shown that there are an indispensable factors in the influencing factors of the management of human resource development in the context of aging population: "age", "gender", "economic status", "health status",

“skills”, “pension” and the “education level”. In the form of a questionnaire survey, this paper investigates the influencing factors of the management of human resource development in the context of aging population nationwide, and classifies 1592 samples from the age of 60 into one file every five years. On the other hand, were also found that all the influencing factors are not completely independent, but we can not give an accurate description of the degree of mutual influence between them.

The values of health status, skills, pension and age - all four variables enter the model in turn. It can be seen that these four variables have a significant impact on the human research development of the urban elderly in China. In addition, it can be seen that the SIG values of gender, economic status and education level are 0.36, 0.61 and 0.282 respectively, which means that the three variables have no significant impact on the human research development intention of the urban elderly nationwide. Through the collation of the survey data, it is found that with the improvement of the education level of the elderly, the probability of possessing skills also gradually increases. This shows that with the progress of society and the development of economy, the influence of educational background on the old people's return to work is not very great. Instead, it is the life attitude and work experience accumulated in the process of social practice of the old people, or the work skills formed on the basis of the old people's work experience.

8. The research has shown that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. It can be seen that there is no necessary relationship between the quality of economic conditions and the level of employment willingness. The impact of economic conditions on employment willingness may be related to health and other factors, and reflected through them. It can be seen that the conclusion of the influence of economic situation on employment intention cannot be drawn from the appearance. The economic situation is not a single obvious factor, but a complex and multi-angle factor.

9. With the development of economy and the progress of society, the

medical and health conditions have also been improved, which has led to a significant increase in the life expectancy of the population. Therefore, the legal retirement age should also increase with the progress of the society and the improvement of the average life expectancy. To develop human resources for the aged is to resolve contradictions in the course of development and to change the resistance to progress into the power of social development. In the implementation of the strategy of elderly human resources development will also meet with such or such problems, which requires our rulers can not retreat, must meet the difficulties, in the process of development gradually solve the problem.

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APPENDEX A

Questionnaire on Working and Living Conditions of the elderly in China

In order to understand the real working and living conditions of Chinese elderly people, this questionnaire is specially designed. This questionnaire is only used for scientific research, so please answer truthfully, thank you for your understanding and support!（Note: There is only one answer to each question！）

Gender

○male ○female

Age

○60-64

○65-69

○70-74

○75-79

○80+

Where are you from?

○anhui○Beijing○chongqing○fujian○gansu○guangdong○guangxi○guizhou

○hainan○hebei○heilongjiang○henan○Hong Kong○hubei○hunan○jiangsu

○jiangxi○Ji Lin○liaoning○Inner Mongolia○ningxia○qinghai○shandong

○Shanghai○shanxi○shaanxi○sichuan○Taiwan○tianjin○xinjiang○Tibet

○yunnan○zhejiang

Your educational level

○Under Junior school

○Junior school

○High school/technical secondary school

○college

○Bachelor degree or above

How is your financial state?

○Very good

○good

○general

○poor

○very poor

Do you have any skills or expertise?

○yes

○no

How do you feel about your current state of health?

○Very good

○good

○general

○poor

○very poor

Do you have any pension?

○yes

○no

Would you like to continue gainfully employed after retirement?

○yes

○no