

**A Study of Influence Factors of the Demand of Joining Senior
Housing in Guangzhou, China: An Analysis based on Guangzhou
Senior Housing Market**

Yang Song

Thesis submitted as partial requirement for the conferral of the degree of
Doctor of Management

Supervisor:

Professor José Manuel Gonçalves Dias, Associate Professor, Lisbon University Institute
(ISCTE-IUL)

Co-supervisor:

Professor Li Mingshi, Professor, University of Electronic Science and Technology of China,
School of Management and Economics

March 2017



Instituto Universitário de Lisboa

**A Study of Influence Factors of the Demand of Joining Senior Housing in Guangzhou, China:
An Analysis based on Guangzhou Senior Housing Market**

Yang Song

- Spine -

**A Study of Influence Factors of the Demand of Joining Senior
Housing in Guangzhou, China: An Analysis based on Guangzhou
Senior Housing Market**

Yang Song

Thesis submitted as partial requirement for the conferral of the degree of
Doctor of Management

Supervisor:

Professor José Manuel Gonçalves Dias, Associate Professor, Lisbon University Institute
(ISCTE-IUL)

Co-supervisor:

Professor Li Mingshi, Professor, University of Electronic Science and Technology of China,
School of Management and Economics

March 2017

Statement of honor

Submission of master's dissertation or project work or doctoral thesis


I the undersigned state on my honor that:

- The work submitted herewith is original and of my exclusive authorship and that I have indicated all the sources used.
- I give my permission for my work to be put through Safe Assign plagiarism detection tool.
- I am familiar with the ISCTE-IUL Student Disciplinary Regulations and the ISCTE-IUL Code of Academic Conduct.
- I am aware that plagiarism, self-plagiarism or copying constitutes an academic violation.

Full name Yang Song
Course Management
Student number _____
I address _____
Personal email address ysz868@163.com
Telephone number 0086-18602005133

ISCTE-IUL, 30/03/2017

Signed

Yang Song 

Abstract

China has become an aging society and is confronted with issues of supporting the elderly. Ways of supporting elderly vary and are developing extremely fast. Meanwhile, conventional choices of staying at home to spend the rest of the elderly's lives lag behind. Though senior housing considered one of the best-socialized ways of supporting the elderly, it is seen that occupancy rate of senior housing and the market of senior housing is shrinking. Thus, it is urgent to explore the influence factors of the demand for joining senior house in China.

This thesis studies the behavior of joining senior housing of Guangzhou local elderly from the perspective of the interactive relationship of all the involved (government, real estate companies, operation institutions, and customers). The theory of planned behavior (TPB) defines the theoretical framework to analyze the influence factors of the demand for joining senior housing. Thus, the mechanism of intention towards joining senior housing is discussed regarding staying attitude, subjective norms, perceived behavioral control, and payment ability.

An empirical study is conducted about the relationship between customer needs and joining intention. First, from the perspective of staying attitude, subjective norms, perceived behavioral control and payment ability, twelve latent variables (expectations of joining senior housing, propensity of facilities, awareness of services, cultural values of supporting the elderly, social policies of supporting the elderly, perceived cost of joining senior housing, perceived reserved assets, perceived social security, perceived behavior control, joining intention and staying behavior) and twelve hypotheses are proposed. Second, a questionnaire is designed and data collection processed using a representative sample of interviewees. Using structural equation modeling, hypotheses regarding the mechanism and effect of influence factors are tested. Results confirmed that elements such as expectations of joining senior housing, the propensity of facilities, awareness of services and social policies of supporting the elderly exert a direct positive effect on the intention towards joining senior housing and indirect positive effect on staying behavior. Nevertheless, consumption value, the cultural value of supporting the elderly and perceived cost of joining senior housing have a negative effect on preventing the customer from choosing senior housing. Moreover, three

supply-front influence factors, i.e., the perceived cost of joining senior housing shows more negative affect, whereas perception of community services and the propensity of elderly caring facilities show more positive effect than others. Thus, raising the efficiency of supply front will promote the behavior of joining senior housing.

At last, based on the current status of Chinese senior housing, strategies are developed to promote the occupancy rate of senior housing. It is argued that government-lead marketized operation of the senior housing along with efforts from the supplier are the true power to promote the development of senior housing and increase the occupancy rate of senior housing. Strategic actions to promote the occupancy rate of senior housing include: senior housing companies should have accurate positioning; policies supporting the development of senior housing industry should be issued; efficiency of supplying senior housing should be improved. Limitations of the research are also discussed and managerial implications are explored.

JEL Classification: D15, H55, H75, J32, M31, M38.

Keywords: senior housing, joining intention, influence factor, staying behavior.

Resumo

O envelhecimento rápido da população chinesa criou novos desafios à definição de políticas de apoio à terceira idade. Estas formas de apoio têm tomado diversas formas e apresentam um desenvolvimento extremamente rápido. Em paralelo, a escolha tradicional de envelhecer em casa é uma opção cada vez menos viável. Embora a habitação sénior seja vista como uma das melhores formas de socialização de apoio à terceira idade, as taxas de ocupação destes projetos e o mercado de habitação sénior têm diminuído na China. Assim, é urgente compreender os fatores que influenciam a procura e explicam a escolha de habitação sénior na China.

Este trabalho de investigação estuda o comportamento de escolha de habitação sénior pela população idosa de Guangzhou, China, num contexto mais alargado de interação com todas as partes envolvidas (autoridades, empresas imobiliárias, empresas de gestão de habitação sénior e clientes). A teoria do comportamento planeado (TPB – *Theory of planned behavior*) define o quadro conceptual que permite analisar os fatores que influenciam a procura por habitação sénior. Assim, o mecanismo explicativo da intenção de entrar no regime de habitação sénior é analisado em termos de atitudes de participar nesta opção, normas subjetivas, controlo comportamental percebido e recursos monetários disponíveis (capacidade de pagamento).

O estudo empírico analisa a relação entre as necessidades do cliente e as intenções de entrar no regime de habitação sénior. Primeiro, com base nas atitudes face a participar nesta modalidade, normas subjetivas, controlo comportamental percebido e recursos monetários disponíveis (capacidade de pagamento), doze variáveis latentes (expectativas de entrar no regime de habitação sénior, instalações, disponibilidade de serviços, valores culturais de apoio à terceira idade, políticas sociais de apoio à terceira idade, custo percebido de entrar no regime de habitação sénior, montante de bens materiais percebidos como necessários, segurança social percebida, controlo comportamental percebido, intenção e comportamento de participar na habitação sénior) e doze hipóteses são propostas. Segundo, desenvolveu-se um questionário e procedeu-se à recolha de dados utilizando uma amostra representativa de inquiridos do segmento em estudo. As hipóteses sobre o mecanismo e os fatores influenciadores em estudo são testados utilizando modelos com equações estruturais. Os

resultados confirmam que a expectativa de entrar no regime de habitação sênior, instalações, disponibilidade de serviços e as políticas sociais de apoio à terceira idade têm um efeito positivo direto na intenção de entrar para um regime de habitação sênior e um efeito indireto no comportamento associado. Em oposição, o valor de consumo, os valores culturais de apoio à terceira idade e o custo percebido de selecionar uma habitação sênior têm um efeito negativo na escolha de habitação sênior pelo consumidor. Para além disso, três fatores do lado da oferta, i.e., custo percebido de entrar no regime de habitação sênior mostra um efeito negativo, enquanto a percepção de serviços na comunidade e a disponibilidade de serviços para o segmento idoso mostram um efeito mais positivo. Assim, o aumento da eficiência da oferta promoverá o comportamento de escolha de habitação sênior.

Por fim, tendo por base o contexto atual da habitação sênior na China, são desenvolvidas estratégias de promoção de modo a aumentar a taxa de ocupação das habitações sênior. A abertura deste sector à economia de mercado por parte do governo conjugada com o esforço por parte da oferta são os verdadeiros fatores de promoção do desenvolvimento da habitação sênior e do aumento da taxa de ocupação nestes empreendimentos. Ações estratégicas para aumentar a taxa de ocupação de empreendimentos de habitação sênior são: as empresas promotoras devem tornar o posicionamento dos empreendimentos mais preciso; as políticas de apoio ao desenvolvimento do sector de habitação sênior são necessárias; a eficiência da oferta de habitação sênior deve ser melhorada. As limitações da investigação são discutidas e implicações para a gestão propostas.

Códigos JEL: D15, H55, H75, J32, M31, M38.

Palavras-chave: habitação sênior, intenção de escolha de habitação sênior, fatores influenciadores da intenção e da escolha do regime de habitação sênior, comportamento de permanência em habitação sênior.

Acknowledgement

This thesis has been shaped and improved through the efforts of several people. I would like to extend my sincere appreciation to everyone who supports me and help me during my writing.

First, I would like to give my appreciation to my fabulous supervisors Professor Li Mingshi and Professor Jos é Dias. Professor Li Mingshi has steered me through the lonely waters of this demanding research. His profound wisdom, generous support, and kind encouragement not only enhance my respect for him but also energized my research process. Professor Jos é Dias always encourages me to move forward and his suggestions are a great help for this thesis. Their inputs greatly improved the content of this research effort and their guidance expanded my knowledge of research methodology, theory-building, and data analysis. Professor Li Mingshi and Professor Jos é Dias, they are my mentors and great friends.

Second, I do appreciate for all the professors who gave lectures to me. I learned academic methods from those professors and I cannot reach current academic achievement without their efforts.

Third, I would like to thank Mr. Qu Tongming and Mr. Ma Jian. They gave me a lot of support in the questionnaire and on-site survey. It is their help and efforts that make my research more comprehensive.

Last, but not the least, I would like to express my deepest gratitude to my wife and daughter. Their love, support, and inspiration made this journey worthwhile.

Contents

Chapter 1 Introduction	1
1.1 The dilemma of Chinese senior housing	1
1.2 Research subject	3
1.3 Research objective	4
1.4 Research methodology	5
1.5 Research structure.....	5
Chapter 2 Research Background	7
2.1 Aging population of China	7
2.1.1 Large group of aging population	7
2.1.2 Regional imbalance of Chinese aging population	9
2.1.3 Aging before getting rich and weak social security system.....	11
2.1.4 Family size change and more empty-nesters	13
2.1.5 Supporting the elderly: from the traditional to the socialized.....	15
2.2 Chinese aging population enhances the development of senior housing in China.....	17
2.2.1 The definition of senior industry and its relevant concepts	17
2.2.2 The status quo of senior housing in China.....	17
2.3 Opportunities and challenges that senior housing companies confront	19
2.3.1 Dilemma for Chinese senior housing industry and its upgrading.....	19
2.3.2 Real estate companies' exploration in senior housing industry.....	21
2.4 Chapter conclusion	22
Chapter 3 Literature Review	25
3.1 Characteristics of the demand for joining senior housing in China	25
3.1.1 Welfare-oriented and socialized endowment.....	25
3.1.2 Chinese fertility policy and the demand for joining senior housing.....	26
3.1.3 Senior housing for a diversified elderly demand	28
3.2 Factors affecting the demand for senior housing market	30
3.3 Intention of joining senior housing.....	32
3.4 Income of the elderly	33
3.5 Social security system in China.....	35
3.6 The supply and quality of senior housing.....	36
3.6.1 The supply of senior housing.....	36
3.6.2 The quality of senior housing services	39

3.7 Chapter conclusion	41
Chapter 4 Conceptual Model and Hypotheses	43
4.1 Theoretical model of intention towards joining senior housing	43
4.1.1 Theory of planned behavior and TPB model	43
4.1.2 Effective demand	44
4.1.3 Life cycle theory of consumption	45
4.1.4 The STP methodology	46
4.2 Analysis of influence factors of the demand for joining senior housing	46
4.2.1 Influence factors from market demand view	46
4.2.2 Influence factors from market supply view	50
4.3 Selection of indexes of influence factors	53
4.4 Proposition of hypotheses	56
4.4.1 Attitude towards joining senior housing and intention towards joining	56
4.4.2 Subjective norms and intention towards joining	59
4.4.3 Payment capacity and perception behavioral control	61
4.4.4 Perceived behavioral control and intention towards joining senior housing	63
4.4.5 Perceived behavioral control and the behavior of joining senior housing	63
4.4.6 Intention of joining senior housing and behavior of joining senior housing	64
4.5 Hypotheses and conceptual model	65
4.6 Chapter conclusion	66
Chapter 5 Methodology	67
5.1 Advantages of quantitative analysis methods	67
5.2 Measurement of variables	67
5.2.1 Attitude towards joining senior housing	68
5.2.2 Subjective norms	70
5.2.3 Payment capacity	71
5.2.4 Perceived behavioral control	73
5.2.5 Intention of joining senior housing	73
5.2.6 Behavior of joining senior housing	74
5.3 Questionnaire design	74
5.4 Data collection	75
5.5 Chapter conclusion	75
Chapter 6 Results	77
6.1 Characterization of the sample	77
6.2 Reliability test	79

6.3 Common method bias	81
6.4 Structural equation model.....	82
6.4.1 Validity test.....	82
6.4.2 Model setup.....	82
6.4.3 Model identification.....	83
6.4.4 Model evaluation	85
6.5 The influence factors of demand for senior housing	86
6.6 Empirical analysis of influence factors of the demand for joining senior housing	91
6.7 Chapter conclusion	94
Chapter 7 Discussion.....	96
7.1 Research results of the influence factors on intention towards senior housing.....	96
7.2 Analysis of research results	97
7.2.1 Attitude of joining senior housing and intention of joining.....	97
7.2.2 Subjective norms and intention towards joining.....	98
7.2.3 Payment capacity of senior housing and perception behavioral control.....	99
7.2.4 Perceived behavioral control and intention towards joining senior housing	100
7.2.5 Perceived behavioral control and behavior of joining senior housing.....	100
7.2.6 Intention of joining senior housing and behavior of joining senior housing	100
7.3 Theoretical and managerial implications.....	100
7.3.1 Define the market position of senior housing estate.....	101
7.3.2 Establish a social support system of senior housing.....	102
7.3.3 Increase the efficiency of senior housing supply and promote institutionalization of senior housing Estate	103
Chapter 8 Conclusions	105
8.1 Results	105
8.2 Theoretical contribution	106
8.3 Research limitations	107
8.4 Future developments.....	108
Bibliography.....	109
Appendix 1 Interview Outline.....	119
Appendix 2 Questionnaire on the Factors Affecting the Demand of Senior Housing in China.....	121
Appendix 3 Estimate of path coefficients in the model.....	128
Appendix 4 Variance estimate for the model.....	131

List of Tables

Table 2-1 The percentage of different groups of aging people in China (%)	8
Table 2-2 Population projection of aging from 2015 to 2050	9
Table 2-3 The proportion of people over 60 in cities, counties, towns from 1990 to 2050	9
Table 2-4 Distribution of the family type of the elderly in China	14
Table 4-1 Hypotheses of this study	65
Table 5-1 Operationalization of expectation towards senior housing	68
Table 5-2 Operationalization of propensity of elderly care facilities	69
Table 5-3 Operationalization of perception of community services	69
Table 5-4 Operationalization of cultural values	70
Table 5-5 Operationalization of consumption value	70
Table 5-6 Operationalization of policies for supporting senior housing	71
Table 5-7 Operationalization of perceived cost of joining senior housing	71
Table 5-8 Operationalization of perceived reserved assets	72
Table 5-9 Operationalization of perceived social security	72
Table 5-10 Operationalization of perceived behavioral control	73
Table 5-11 Operationalization of intention towards joining senior housing	73
Table 5-12 Operationalization of behavior of joining senior housing	74
Table 6-1 Sample characterization	77
Table 6-2 Descriptive Statistics and Reliability Analysis of Sub-scales	80
Table 6-3 KMO and Bartlett's Test	81
Table 6-4 Total variance explained	81
Table 6-5 Fit index analysis	85
Table 6-6 Estimate of path coefficients	88
Table 6-7 Standardized Direct Effect among Model Latent Variables	89
Table 6-8 Standardized Indirect Effect among Model Latent Variables	90
Table 6-9 Standardized total effect among model latent variables	90
Table 7-1 Results of hypotheses verification	96

List of Figures

Figure 2-1 The comparison between aging population of China and developed countries	7
Figure 2-2 The increase rate of Chinese population and its aging population	8
Figure 2-3 The regional distribution of Chinese aging population from 1990 to 2010	10
Figure 2-4 GDP per capita of different countries in population aging stage.....	11
Figure 2-5 Structural tendency of the age of Chinese population	12
Figure 2-6 Tendency of the growth of labor population in China and developed countries	12
Figure 2-7 Income and expenditure of Chinese national retirement insurance fund from	13
2010 to 2014	13
Figure 2-8 The percentage of empty-nest families from 1995 to 2010.....	15
Figure 2-9 Investment and sales of commercial housing from 2005 to 2014	20
Figure 2-10 Statistics of inventory in Chinese major cities.....	20
Figure 4-1 Theory of planned behavior model.....	43
Figure 4-3 Conceptual model of the relation between the influence factors of the demand for joining senior housing and the behavior of joining senior housing	55
Figure 4-4 Conceptual model of relation between influence factors of the demand for joining senior housing and behavior of joining	66
Figure 6-1 The preliminary structural equation model.....	84
Figure 6-2 Estimate results of model (unstandardized parameters)	87
Figure 6-3 Estimate results of model (standardized parameters)	88

Abbreviations

CCRC	continuing care retirement communities
TPB	theory of planned behavior
STP	segmentation, targeting, and positioning
LA	expectation towards joining the senior housing
PT	the propensity of facilities in the senior community
RC	awareness of services in the senior community
TC	cultural values
SC	consumption values
PS	social policies of supporting the elderly
ST	the perceived cost of joining the senior community
RA	perceived reserved assets
SS	social security
PBC	perceived behavior control
SW	intention towards joining the senior community
SB	the behavior of joining the senior community

Chapter 1 Introduction

1.1 The dilemma of Chinese senior housing

As reported by the fifth national census data, Chinese population over 60 years reached 130 million in 2000, which takes up 10.3% of the total population; and the population over 65 is 88 million, which accounts for 7.0% of the total. According to the United Nations, currently, China has become an aging society. Population Research Center of the Renmin University of China states that by the end of 2027, Chinese population aged 65 and over will reach 14% of the total population and China will be an intense aging society. By 2050, population aged 65 will nearly double and 80-aged and over will soar to 6.5% of the total population (Jiang & Du, 2013). It is estimated that one out of every three will at or above the age of 60 by 2100. At that time, China will be a hyper-aging society (Mu & Zhang, 2011).

Compared with developed countries, aging population in China is fast-growing, hyper-aged, and large-numbered. Besides, China is a developing country, which has not yet become rich enough but its people have already become old. When China was defined as an aging country, its per capita GDP was USD 949. Unlikely, the per capita GDP of developed countries is above USD 5000 when they were defined as aging countries (Wu, 2011). What is worse, Chinese One-child policy over the past decades makes numerous 4-2-1 type families and the old-age dependency ratio has been increasing. It is estimated that old-age dependency ratio will reach 64.5% by 2050 (Wei & Jin, 2014). The rising cost of supporting the elderly is weakening advantages of traditional ways of supporting the elderly. Socialization of supporting the elderly has been taken into consideration by the Chinese government for seeking a way out of the dilemma.

Retirement industry, which is also called retirement service industry, provides the elderly with facilities, services, and goods according to their needs. The retirement industry involves production and service industries. From the perspective of market segmentation, the retirement industry includes senior housing market, pension services market and daily necessities market and senior financial market (Wu & Dang, 2014). It is proposed that retirement industry is born with both profitability and commonweal and its profit-making in retirement industry is different from other industries (Li & Ban, 2015). First, the development

of retirement industry is consumer-oriented and follows the needs of the elderly. Second, retirement industry cannot be purely market-oriented or non-profitable. Its operation should be supervised by the central government, but still be market-oriented. In the early 1990s, retirement industry emerged in China and currently it is still in its early stage. Senior housing has attracted a great number of investors in the past years. Among those investors, there are real estate companies, such as Greentown and Vanke; insurance companies, such as Taikang Life Insurance and Ping An Insurance (China). Their participation in retirement industry accelerated the development of senior housing and senior services market. According to Cric Research (2015), by the end of 2014, more than 30 large retirement communities 800 senior housing projects have been put on the market, providing 265,000 beds for the elderly. The senior housing market is growing rapidly and is expected to be the most promising industry among emerging industries in Chinese retirement industry.

Nevertheless, compared with developed countries, the senior housing market in China is still in exploration. Currently, most of the senior housing projects in China follow Continuing Care Retirement Community (CCRC) pattern which provides one-stop lifetime retirement services and is popular in US. Illustrations include Qinheyuan (亲和源) in Shanghai, Greenland Group's 21-city (21 城孝贤坊) and Sunshine City (阳光城) in Haikou. Unfortunately, due to political, economic and cross-cultural differences between China and US, those communities copy of the US model seem to be a failure. Besides, reasons such as the lack of experienced talents to provide service and management, deficiency of policy supporting, and large aged population base make operation problems a long standing issue. In November 2004, China Business reported that the occupancy rate of ZhonghaiHuashancheng (中海颐园-华山城) was less than 20% and that of Chimahu Senior Housing (赤马湖养老山庄) in Hunan province was under 10%. Zhang Jiazhen (2014) cast doubts upon the investment return rate and an occupancy rate of Taikang Life Insurance. China Youth Daily (2014) reported that the occupancy rate of Qinheyuan in Shanghai is merely 60% after the 7-year operation. All those figures are disappointing against the contract of high-frequent news that elderly empty-nester died alone at home. In short, CCRC pattern cannot be applied to Chinese senior housing through the simple copy. Overseas successful cases suggest that occupancy rate is the foundation of long-term return for investing senior housing. The severe imbalance between supply and demand of Chinese senior housing makes the development of senior housing market a struggle.

Zhang and Zheng (2014) argues that the reason for low occupancy rate is that pension

institutions have not provided services that the elderly do need, i.e., lack of effective demand. Most of the relevant studies point out that potential demand for senior housing is large, whereas effective demand is small. The elderly population is different from other customer groups. First, the elderly are growing weak and their living circle is narrowing down. Thus, the elderly prefer more comfortable environment. Second, less communication between the elderly parents and their children makes old people feel lonely and isolated. Third, spiritual needs of the elderly are more than material ones. As for customer behavior, the elderly have their propensity and brand loyalty. Last, the elderly will be very careful on the decision making. Most of the elderly are rational buyers and their decisions will be affected by their family income. For most of the elderly, they tend to be driven by economic factors because their disposable income may decrease year by year.

Therefore, comprehensive research on influence factors of the demand for joining senior housing in China shall take all those things listed above into consideration. In this early development stage of Chinese senior housing, increasing the occupancy rate of senior housing is a priority to improve the development of Chinese senior housing.

1.2 Research subject

From the economic point of view, effective demand refers to the social needs of purchasing capacity and purchasing desired (Hu, 2010). When applying effective demand to senior housing, the elderly's effective demand means their payment capacity and it reflects their intention towards joining senior housing. It asserts that the older consumer is searching for convenience, including the convenient use of the product or service, as well as convenient procurement of the product, being rational and of frugality because of their mental, physical, traditional value limitations (Moschis, 1996; Sherman et al., 2001). Besides, payment capacity will directly affect their intention and behavior of joining senior housing. Thus, inspired by effective demand theory, from the perspective of the theory of planned behavior, this thesis explores how elements such as attitude, subjective norms, and payment capacity affect intention towards joining senior housing.

This research studies the relation between the influence factors of the behavior of joining senior housing. The research focuses on developers of senior housing, operation and management institutions, and elderly customers. The conceptual model is based on the theory of planned behavior to understand factors influencing the demand for joining senior housing

and the behavior of joining senior housing. Degrees of affecting among different influence factors are described and relations hypothesized. In particular, the thesis focuses on:

- i. The influence of the intention towards joining senior housing and perceived behavior control on the behavior of joining in senior housing;
- ii. The influence of attitude, subjective norms, and payment capacity on their intention towards joining senior housing.

1.3 Research objective

Senior housing is a key component of Chinese social security system. Developing senior housing is an effective way for an upgrade and sustainable development of Chinese real estate industry. In the context of aging population and high inventory real estate in China, it is urgent to integrate senior housing, social security system, and real estate industry in order to promote the realization of the demand for senior housing. It closely relates to future benefits of China and Chinese real estate companies and will surely be a significant subject in future senior housing research. Objectives of this thesis include:

- i. Analyzing urban elderly's demand for senior community services from the perspective of effective demand theory and TPB, and exploring the main influence factors of the demand for joining senior housing, which aims to provide new solutions for senior housing;
- ii. Conducting surveys to characterize urban elderly's pension demand and senior housing supply, analyzing the mechanism of the influence factors of joining senior housing and behavior of joining senior housing, exploring factors promoting elderly's behavior of joining in senior housing, and then proposing recommendations to increase occupancy rate of senior housing;
- iii. Specifying elderly customer's pension needs through analyzing influence factors of joining senior housing, and clarifying the positioning and segmentation for Chinese real estate companies and inevitable government-led market operation. The research will be the reference for real estate companies in improving the development of senior housing industry and for government in solving aging population issue.

1.4 Research methodology

The relation between the influence factors of the demand for joining senior housing and the behavior of joining senior housing is explored based on related literature and in-depth interviews with a group of experienced experts in the senior housing industry. Hypotheses and the conceptual model are proposed. After model operationalization, the questionnaire is developed. Data collection and data analysis proceed afterward.

Theoretical part includes: first, related literature is collected and summarized. Based on literature review, in-depth interviews with a group of experienced experts in the senior housing industry are conducted in order to clarify the relationship between the influence factors of the demand for joining senior housing and the behavior of joining senior housing, which adds more practicability to this research. On the basis of literature review and in-depth interviews with a group of experienced experts in the senior housing industry, decision-making of behavior of joining senior housing is analyzed from the perspective of effective demand theory, the TPB, the life-cycle hypothesis, the Segmentation, Targeting, and Positioning (STP) approach. Besides, important influence factors of the demand for joining senior housing are explored from the point of view of demand and supply. Last, conceptual models and hypotheses are proposed and related variables are defined.

The empirical part includes: structured questionnaire and scales are designed according to theoretical analysis and hypotheses. After conducting the pilot test of the questionnaire, items with low reliability were revised. Then, a final questionnaire was prepared. Structural equation model is used to test the conceptual model using collected data. IBM SPSS 22 and IBM AMOS 24 were used to check reliability, describe the sample, and test hypotheses.

1.5 Research structure

This thesis explores the relationship between the influence factors of the demand for joining senior housing and the behavior of joining senior housing. It consists of eight chapters as follows:

This chapter, Introduction, describes the Chinese aging society and deficiency of effective demand. It emphasizes the importance of studying the demand for joining senior housing. Research subject, research objective, research methods, and structure are established.

Chapter 2, Background, describes the characteristics and significance of research subject

in the context of Chinese aging population trend, status quo of Chinese senior housing, opportunities, and challenges of Chinese real estate senior housing investment.

Chapter 3, Literature Review, provides the literature review about the senior housing market, characteristics of demand for joining senior housing, influence factors of the demand for joining senior housing, supply and demand for senior housing, and the result of supporting the elderly. It reveals that few theories have been used to explain the demand for joining senior housing, which is the niche of this thesis.

Chapter 4, Conceptual Model and Hypotheses, builds on the literature review, namely the TPB, to identify influence factors of the demand for joining senior housing and the behavior of joining senior housing. The conceptual model contains twelve constructs and establishes twelve hypotheses among them.

Chapter 5, Methodology, defines the operationalization of constructs into indicators, by identifying scales of measurement of each construct to explore the relationship between the influence factors of the demand for joining senior housing and the behavior of joining senior housing. Data collection and analysis strategies are also defined.

Chapter 6, Results, describes the sample and the reliability of scales used to measure the twelve constructs. Then, a structural equation model is estimated to test the hypotheses.

Chapter 7, Discussion, discusses results by providing a feedback to the literature. Moreover, suggestions on how to promote the behavior of joining senior housing are proposed.

This thesis ends with concluding remarks that summarize the whole research. Limitations of this thesis and future research are also discussed.

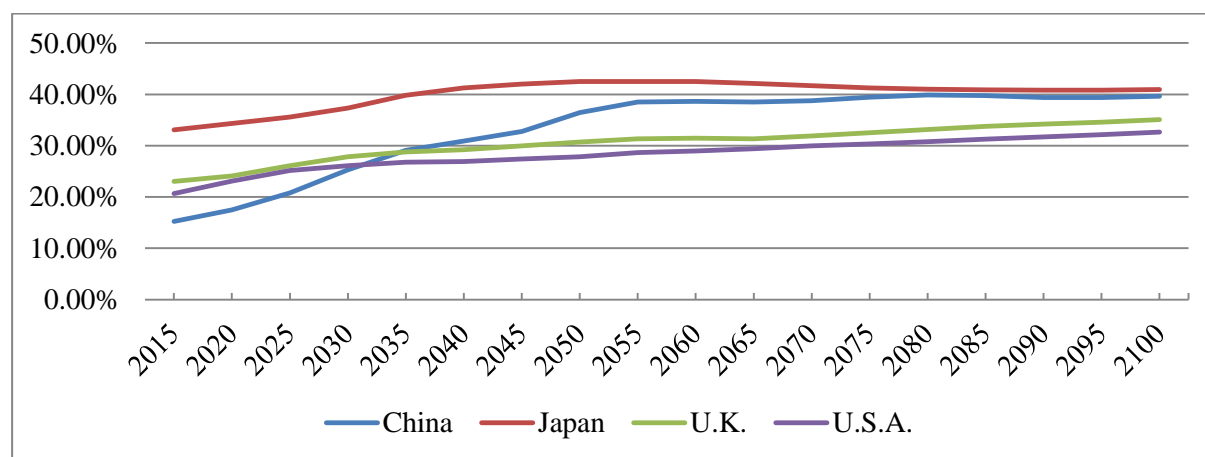
Chapter 2 Research Background

2.1 Aging population of China

2.1.1 Large group of aging population

The global economy has boomed since the Second World War. Because of the increase in average life-expectancy of the aged and the decrease in birth rate, the global population aging problem has been attracting more and more attention. According to the statistics provides by the UN in 2009, 68 out of the total over 190 countries in the world have stepped into the stage of population aging (Li, H., 2012). Thus, many countries, including China, have to face this social issue.

China has entered the stage of population aging since 2000 (Chen, 2009), with 130 million people aged 60 and older, which accounts for 25% of that group in the whole world, 50% of that in Asia, and the total of that in Europe (Zhang & Sun, 2011). It is predicted that in 2050 the number of people aged 60 and older will rise to 430 million, equal to the 22% of that in the world. In other words, China will become the country with the most aged people.

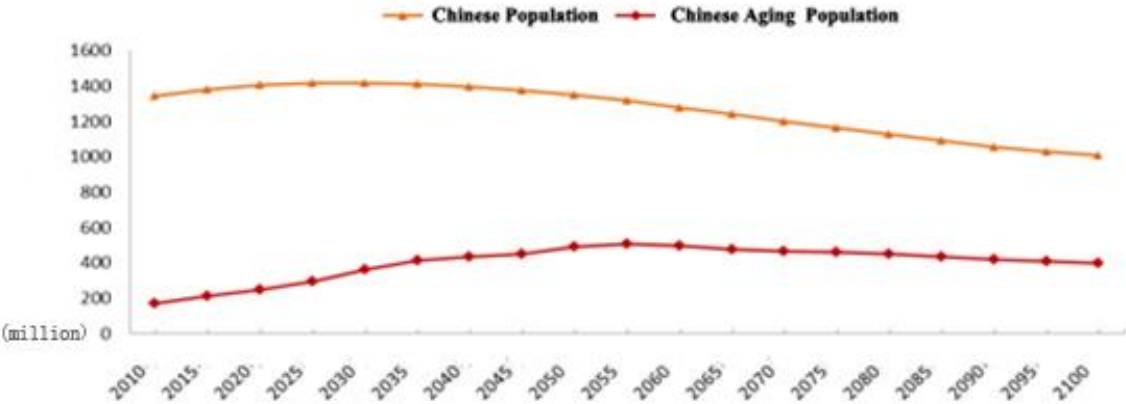


Source: *World Population Prospects 2015* by UN: <http://esa.un.org/unpd/wpp/DVD>

Figure 2-1 The comparison between aging population of China and developed countries

According to the Sixth National Population Census of China in 2010, the number of people aged 60 and older has amounted to 178 million, accounting for 13.26% of Chinese total population, with 2.93% up compared with the result of national population census in

2000; the number of people over 65 has risen to 119 million, which was 8.87% of the total population, 1.91% higher than that number national population census in 2000 (Liu & Zhou, 2012). As shown in Figure 2-1, from 2010 to 2025, it is estimated that Chinese aging population will increase by 0.34% annually (Li B, 2007), way faster than developed countries (excluding Japan). According to the statistics from World Population Prospects 2015 issued by UN, it is predicted that an average increase rate of 3.24%, much higher than the increase rate of Chinese population, the number of people aged 60 and older will account for 32.8% of Chinese population by 2050, 21.2% higher than the average in the whole world; the number of people aged 80 and older will increase by 5.4% annually (Cao et al., 2015).



Source: World Population Prospects by UN: <http://esa.un.org/unpd/wpp/> DVD

Figure 2-2 The increase rate of Chinese population and its aging population

As shown in Table 2-1, the aged group takes a high percentage, while the percentage of the older is increasing rising. The aging population aged 70 to 79 in 2010 has dropped 5.6% compared with that in 1990. In 2015, population aged 60 to 69 is 2.93% higher than the number in 2010. Meanwhile, 0.19% increase for people over 80 in 2015 compared with that in 1990. It is obvious that aging population cannot be neglected in China.

Table 2-1 The percentage of different groups of aging people in China (%)

Year	60-69 aged	70-79	Over 80	Total (%)
1990	57.80	37.60	4.60	100
2000	58.84	31.93	9.23	100
2010	56.18	32.00	11.82	100
2015	59.11	28.87	12.01	100

Source: State Council and National Population Census Department (1993); National Bureau of Statistics of the People’s Republic of China (2012).

As shown in Table 2-2, Chinese aging population will witness 2 million more annually

from 2015 to 2050, with about 100 million aging people in China. By 2050, this number will account for 25.6% of the global aging population, 43.3 of the Asia aging population (Ma, 2010). With the increase of the aged, the number of dysfunctional aging people is rising. According to the statistics from National Institute on Aging, there are over 0.4 billion dysfunctional (0.124 billion, 6% of the aged population) and semi-dysfunctional aged people in China, accounting for 19.5% of the total of the aged people. Chinese population aging phenomenon projects the social issues, including pension.

Table 2-2 Population projection of aging from 2015 to 2050

Year	80 and over (m)		Percentage of people over 60		Percentage of people over 65	
	Predicted by National Aging Population Office	Predicted by UN	Predicted by National Aging Population Office	Predicted by UN	Predicted by National Aging Population Office	Predicted by UN
2015	0.264	0.22	12.28	10.68	18.99	16.36
2020	0.307	0.26	12.38	10.79	17.64	16.92
2030	0.424	0.39	12.08	11.47	17.82	15.31
2040	0.637	0.65	15.77	16.25	19.97	20.50
2050	0.945	0.98	21.77	22.32	29.26	29.61

2.1.2 Regional imbalance of Chinese aging population

It is a common phenomenon that there is an inversion between urban and rural population aging, while in China, it is particularly the case. As shown in Table 2-3, the difference in proportion of the aged between urban and rural areas in 1990, 2000, and 2010 is 0.10%, 0.84% and 3.50% respectively, indicating that the inversion of aging population in urban and rural areas is expanding, by 2030, to 7.23%, with the urban aging rate 29.14% and the rural aging rate 21.91%, respectively.

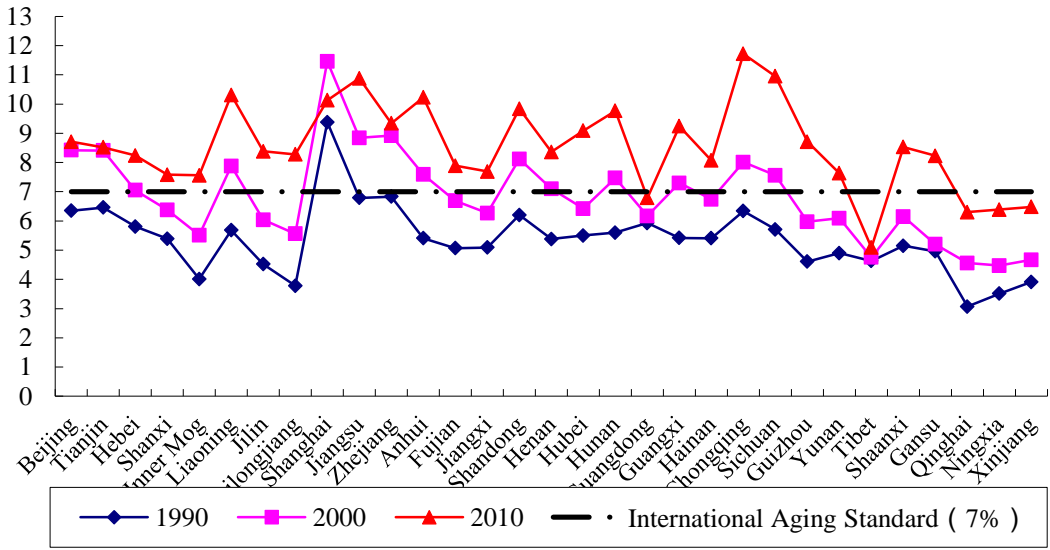
Table 2-3 The proportion of people over 60 in cities, counties, towns from 1990 to 2050

	1990	2000	2010	2020	2030	2040	2050
Cities	8.62	10.05	11.48	15.20	21.91	27.27	32.14
Counties	7.20	9.01	12.01	-	-	-	-
Towns	8.72	10.89	14.98	20.23	29.14	29.70	27.32

Source: State Council and National Population Census Department (1993). National Bureau of Statistics of the People's Republic of China (2015).

The principal cause of this inversion is the flow of population, among which the young people moving from rural to urban areas account for the majority. This flow accelerates the population aging process in rural areas.

The regional differences in population aging rate are in accordance with the regional economy, featuring in higher rate in the east and lower in the west. As shown in Table 2-3, the rate is higher in the developed eastern coastline cities, while lower in the underdeveloped western areas, such as Tibet, Qinghai, Ningxia, and Xinjiang that still not step into the population aging society. By the time of the sixth national population census in 2010, Chongqing in the west part boasts the highest percentage of both people over 60 and people over 65, followed by Chengdu in the west, Jiangsu in the east, and Anhui in the middle. Divided by the east, the middle, and the West, the percentage of people over 65 in 11 eastern provinces, 8 middle part provinces, and 12 western provinces was 8.96%, 8.79% and 8.96% respectively, forming a phenomenon: increasingly higher rate in the west while a slowing-down rate in the middle.



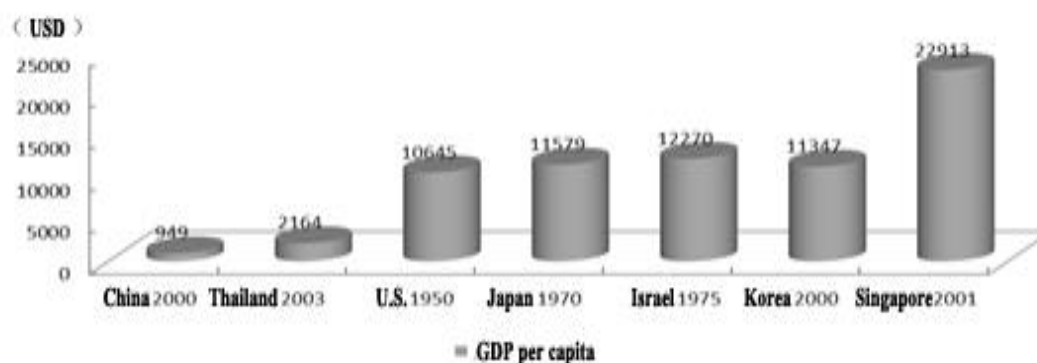
Source: State Council and National Population Census Department (1993). National Bureau of Statistics of the People’s Republic of China (2015).

Figure 2-3 The regional distribution of Chinese aging population from 1990 to 2010

2.1.3 Aging before getting rich and weak social security system

2.1.3.1 Aging before getting rich

When China entered the population aging stage in 2000, the GDP per capita was 499 US dollars, about 1/6 of the world average, 8.19% of that in Japan, and 8.9% of that in the US, both of which shared similar population aging level with China (Figure 2-4). Up to 2014, GDP per capita in China accounts for 13% and 12% of that of Japan and US, even though it has risen to 7313 US dollars, making China one of the countries with medium standard income between 3865 and 11905 US dollars, issued by the World Bank in 2008. With its economy rise by 7% annually, Chinese aging population will peak after 2050 (Figure 2-2), when it is economically equal to middle-level developed country. This indicates that the phenomenon “aging before getting rich” will exist in China for a long time and is the primary feature of Chinese aging society in this century.

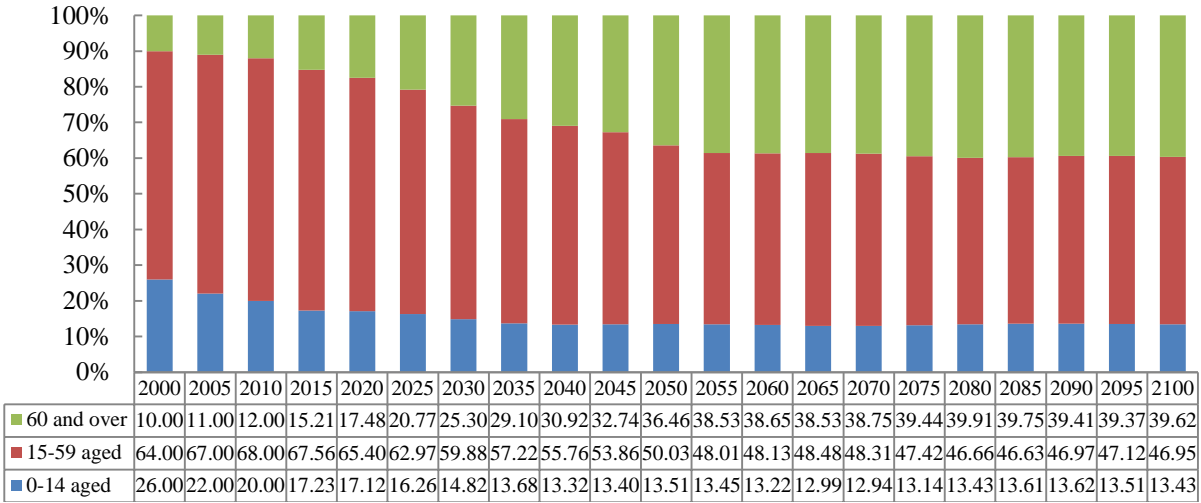


Source: China Population and Development Research Center. 2011; World Bank Database

Figure 2-4 GDP per capita of different countries in population aging stage

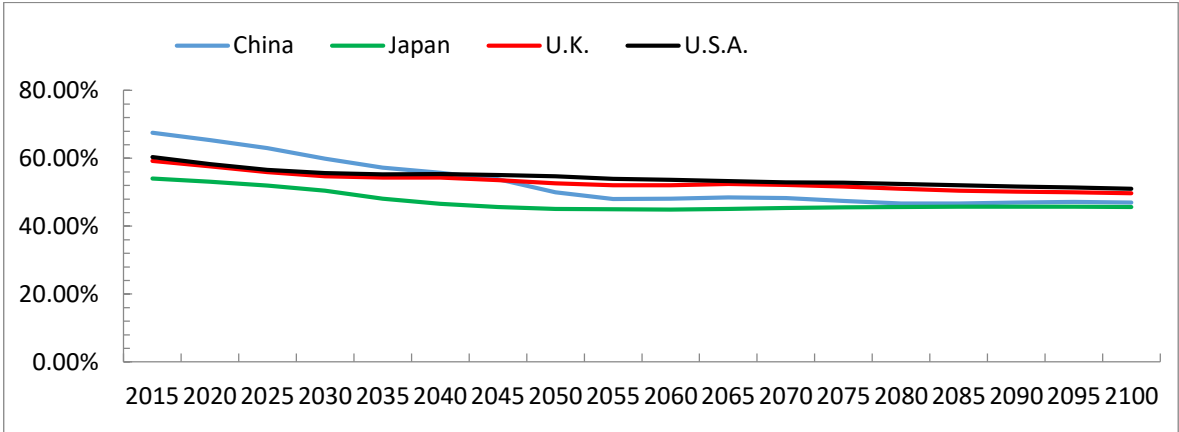
With Chinese population aging issue getting increasingly serious, the dualistic economy that is unique in China is facing Lewis Turning Point, i.e., a shortage of labor force. As shown in Figure 2-5, Chinese labor force hit the peak in 2010 and entered into a decrease in 2012. Thus, Chinese demographic dividend is disappearing, leading demographic debt. Meanwhile, other negative effects, such as low payment rate, low saving rate, and dropped investment payback rate, have fallen in China, too. It is predicted that the labor force proportion will drop by 17.97%, lower than that in countries like UK and US (Figure 2-6), while the proportion of the aged population will increase by 24.46%, way higher than China’s counterparts, such as UK and US. Meanwhile, in the coming 15 years, the amount of female between 23 to 28 years old will drop by 44.3%, with no obvious increase in birth rate. People between 0 to 14 years

old will account for 14.82% of the total population (see Figure 2-5), leading China to a phase of few newborn.



Source: World Population Prospects 2015 by UN: <http://esa.un.org/unpd/wpp/> DVD

Figure 2-5 Structural tendency of the age of Chinese population



Source: World Population Prospects 2015 by UN: <http://esa.un.org/unpd/wpp/> DVD

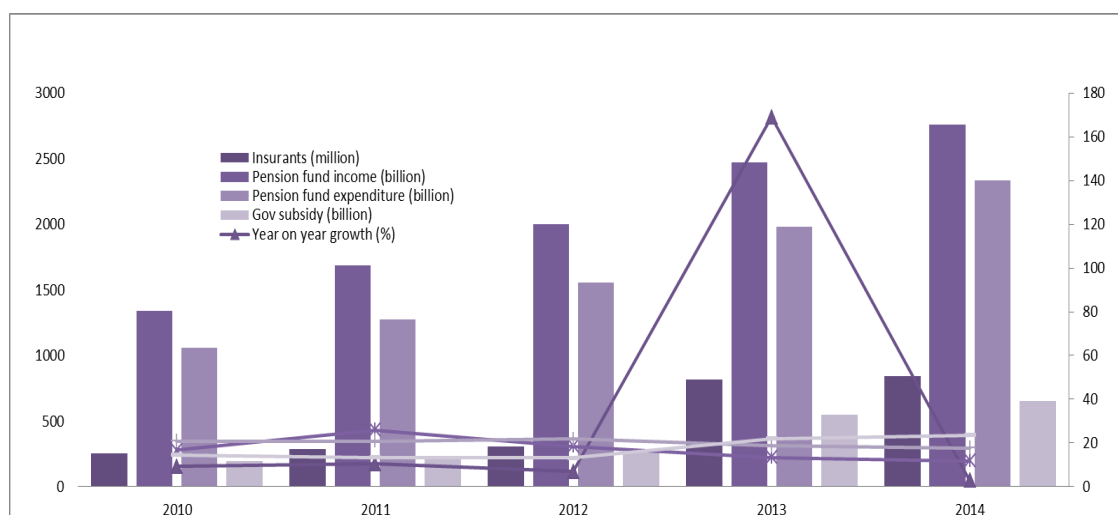
Figure 2-6 Tendency of the growth of labor population in China and developed countries

2.1.3.2 Developing society and weak social security system

China was still a developing country when population aging started in China. In 2000, its HDI was 0.59, lower than the world’s average. Yang J (2014) points out the number grew to 0.719 in 2013, ranking 91 in the world, which is higher than the contemporary world average 0.702. However, it still fell behind developed countries, including US (0.914), Germany (0.911), UK (0.892), and Japan (0.890). Compared with Chinese boost of GNI per capita since 2000, Chinese national health and education levels have not improved too much, which means that economic achievement has been effectively used for social development.

In 1996, China national social security system started. China was defined as an aging country in 2000 and at that time Chinese endowment fund reached RMB 227.8 billion covering 31.7 million retired staff (24.4% of the total aged population in the year of 2000). The annual expenditure per capita was RMB 6987. By August, 2012, China has set up an urban and rural retirement insurance system, and the number of people covered by retirement insurance has risen to 82000 from 30400.

To analyze Chinese retirement insurance capability from the aspect of aging dependency ratio inside of the system, without a demographic dividend, the working-age population has turned into a aging population, leading to an inevitable drop in the labor force participation rate and more pressure on the paying capacity of the retirement insurance system. As shown in Figure 2-7, Chinese aging dependency ratio was 1:6.4 in 2000, and is 1:4.46 in 2015, and will rise to 1:1.55 in 2050. By that time, every 1.55 working-age person shall take the responsibility of taking care of one of the aged. Meanwhile, Chinese aging population burden coefficient has increased drastically. The aging population dependency ratios in urban and rural areas was up to 32.5% and 27.9% in 2012 from 6.6% and 8.4% in 1982 (Wei & Jin, 2014). With the issue of the aging population getting more and more serious, there will be a heavier burden on pension collection and a huge risk in keeping a balance between the collections and spending of social retirement insurance funds.



Source: Ministry of human resources and social security of the People’s Republic of China (2006)

Figure 2-7 Income and expenditure of Chinese national retirement insurance fund from 2010 to 2014

2.1.4 Family size change and more empty-nesters

Due to 30-year implement of One-child policy in China, the One-child population has

reached more than 100 million and the number of 4-2-1 family surges. According to Chinese Family Development Report 2015 issued by China National Population Planning Commission, the average number of family members in China is 3.35 people and two-member families take up 21.9% of the total surveyed households, and three-member accounted for 31.7%; four-member for 21.0% and five-member for 11.5%. It is concluded that smaller family size is the majority (Tang, 2005). As for the family structure, nuclear families (husband, wife, and their children) take up 64.3%.

Chinese 2010 census data is shown in Table 2-4. It is seen that two-member elderly families overwhelm with 31.54%, whereas three-member, four-member, and five-member families are 16.34%, 15.90%, and 17.37%, respectively. In 2016, as China ends its decades-long One-child policy and allows couples to have a second child, 30% of China's population is over the age of 50 and those females hesitate or even refuse to have a second child. The reform will do little change to the majority of 4-2-1 family structure.

Table 2-4 Distribution of the family type of the elderly in China

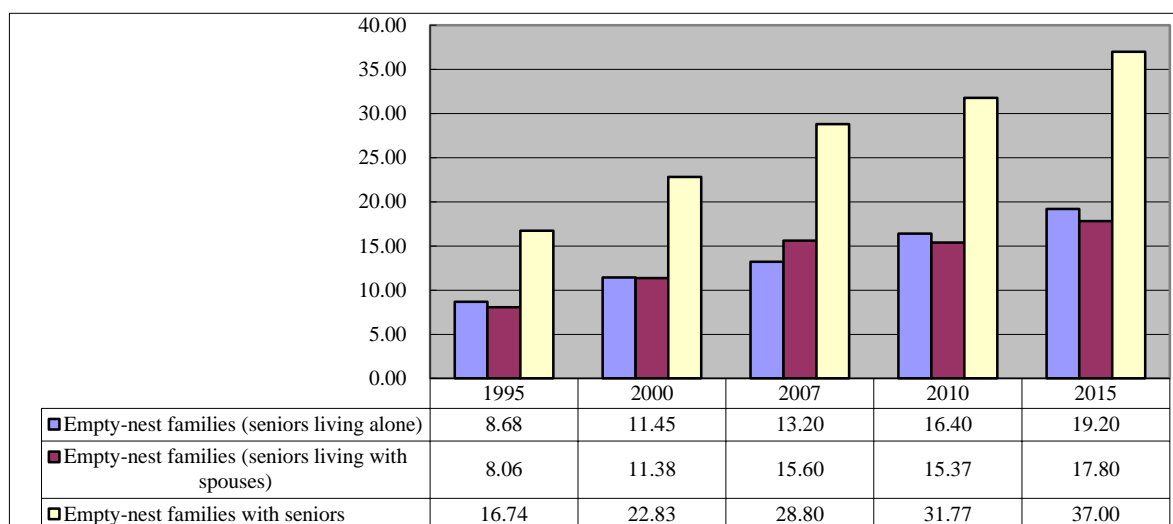
Family type	City		Town		County		East	Middle	West
	2000	2010	2000	2010	2000	2010	2010		
1-member	8.46	8.11	9.53	8.98	8.24	7.57	8.99	7.34	7.09
2-member	33.17	31.54	32.11	29.76	27.55	23.98	30.29	26.39	22.53
3-member	15.95	16.34	13.54	12.12	14.00	11.79	13.12	12.35	13.59
4-member	16.86	15.90	14.38	13.03	14.44	12.61	13.34	12.93	14.47
5-member	17.29	17.37	17.22	18.31	18.92	19.83	17.96	19.71	19.52
6 or more	8.27	10.74	13.22	17.80	16.85	24.22	16.30	19.52	22.80
Total (%)	100	100	100	100	100	100	100	100	100

Source: National Bureau of Statistics of the People's Republic of China (2016).

The number of empty nesters increases in the recent years and has become a key feature of Chinese aging population (Tan et al., 2015). According to the Sixth census data in China in the year of 2010, elderly aged 60 and over who live in an empty nest account for 32.65%; and elderly who live alone account for 14.84% of the entire aging families. The number of empty-nest families has increased by 9% from 2000 to 2010 (shown in Figure 2-7). More than 20% of families support at least one aged member who is 65 or over, and among those families, 33.17% are empty nest families. As shown in Figure 2-7, by the end of 2015,

empty-nest families take up 37% of total numbers of families with seniors and 17.8% of seniors living with their spouses. More than 20% families support at least one senior aged 65 or above.

Looking at the development and results of the world aging population, it is common that elderly live alone. According to data released by China National Bureau of Statistics, 14% of elderly live alone and this average rate in developed countries is 24%. As shown in Figure 2-8, elderly live alone in China in 2010 takes 19.20% of Chinese total population. A survey on empty nesters live in Beijing, Shanghai, Wuhan, and Xiamen conclude that empty-nester group is more likely to feel lonely, down, sick, or temper-lose, and this group needs professional and specialized nursing and care services (Liu F et al., 2012). However, professional care and supports for empty-nester in China are still underdeveloped, which is a key element that should be taken into consideration in order to resolve the issue of supporting the elderly.



Source: National Bureau of Statistics of the People’s Republic of China (2016).

Figure 2-8 The percentage of empty-nest families from 1995 to 2010

2.1.5 Supporting the elderly: from the traditional to the socialized

As the aging population is increasing in China, traditional ways of supporting the elderly seem not work in this new era. Average life expectancy of Chinese citizens changes from 66.77 to 74.83 from the year of 1987 to 2010. Birth rate decreases from 5.8 to 1.5 during the past 40 years (Zhang J, 2013). China ended One-child policy and allowed two children for one couple in 2015 in order to increase the birth rate. However, most of the families in China

still are 4-2-1 type and burden to support parental generation. To make things worse, some adults give more caring to their young children than to seniors (Mu, 2009). Traditional home-based supporting the elderly cannot meet the pension needs of the elderly.

Even in the new economic and social environment where parents and children are no longer living together or sharing property, the connotation of filial duty has still been inherited and put into practice. The idea of a family-centered pension is ingrained in Chinese seniors. Currently, more and more Chinese reach their retirement age before they become rich and be fully ready to live a comfortable senior life. In addition, home-based care service is still developing and community service for seniors is also inadequate. In order to cope with those problems, the government has issued and implemented successively a series of regulations, such as Seven-year Work Brief for Service-for-seniors in China (1994-2000), the Tenth Five-year Plan for Service-for-seniors in China (2001-2005), Spark Program: Community Service for the Benefits of the Elderly, and The Twelfth Five-year Plan for Service-for-seniors in China. All those documents help establish six sound systems, which are strategic plans on aging issue, fundamental social guarantee for seniors, medical and health service for seniors, agreeable environment construction for seniors, socialized service for seniors and management of seniors. During the process, the government is defined as the core driving force to improve socialized supporting.

In 2012, Law on Protection of Rights and Interests of Seniors was amended on the basis of Constitution of the People's Republic of China. It stipulates on the level of law that seniors shall enjoy pension rights, and the government, as well as the whole society, is required to shoulder the responsibility of perfecting the social security system and policy. Both seniors' living standard and socialized ways of supporting are improved, then the goal of health pension and active aging can be reached; and in the end, seniors may be well-supported, may enjoy good medical treatment, enjoy their aging life; and they may do things, learn things, and also teach things. The six aspects of the strategic goal are in exact accordance with traditional Chinese culture. It has already been presented in the Book of Rites that: "All people respect and love their own parents and children, as well as the parents and children of others. The aged are cared for until death adults are employed in jobs that make full use of their abilities and children are nourished, educated, and fostered. Widows and widowers, orphans and the old without children, the disabled and the diseased are all well taken care of. ... This is an ideal world—a perfect world of equality, fraternity, harmony, welfare, and justice. This is the world called "Da-Tong" (Chinese word, namely, prosperous and harmonious society)."

Socialized ways of supporting the elderly will make the six goals listed above true and carry forward thousand years of traditional Chinese culture.

2.2 Chinese aging population enhances the development of senior housing in China

2.2.1 The definition of senior industry and its relevant concepts

Regarding the aspect of the definition of senior housing, consumers of senior housing are all the elderly whose consumption characteristics, propensity, consumption field are totally different from the consumer of younger age. Products and services must be elderly-oriented in order to meet the needs of the elderly. Moreover, pension industry is a combination of public welfare and profit gaining instead of a pure market behavior (Lynn & Wang, 2008).

According to the nature of senior housing, consumers of senior housing are the elderly and the consumption propensity is different from younger consumers. Besides, senior housing is not a profit-oriented activity (Wei & Jin, 2014). The income of senior housing should come from the income of senior services rather than selling real estate (Zhang & Zheng, 2014). From the perspective of needs of the elderly, senior housing should create a senior community to meet elderly's diversified pension needs. Compared with staying at home and institutional support for elderly, a senior community not only meet the basic needs of the elderly, but also meet their needs of higher level, such as affiliation need, respect need, and self-fulfillment need. In other words, staying at home and institutional support for elderly only make basic living and medical needs filled, whereas senior community reaches the goal of "the aged are cared for until death adults are employed in jobs that make full use of their abilities and children are nourished, educated, and fostered" described in *The Book of Rites*. Therefore, senior housing is aimed to produce effective social security of public welfare and to gain profit via market competition, which is different from others in real estate industry.

2.2.2 The status quo of senior housing in China

With the rapid development of the economy, senior housing in China becomes promising and turns to be a leader in the senior industry. Majority of the senior housing market is taken by real estate companies, large state-owned companies, and insurance companies. Twenty real estate companies among the top 50 in China, such as Greentown, Vanke, Poly, Evergrande, and Longfor Properties have entered senior housing market (Li W, 2013). Besides those large

companies, small and medium-sized real estate companies have also taken the same action. By the end of 2015, more than 100 senior housing projects have been built (Qiu, 2013). Representatives include Greenland Group's 21 Cities, Vanke Happy City (万科幸福汇), Vanke Liangzhu Culture Village (良渚文化村), Poly Hexihui (和熹会) in West Mountain in Beijing, and Xitangyue (西塘越) in Shanghai. Those projects are developed for medium and high-end older customers through a combination of selling and renting.

Taikang Insurance is the first qualified insurance company in the senior housing industry. Following Taikang Insurance, other insurance companies have been joining senior housing industry continuously, including Ping An Insurance (China), China Life Insurance, China Pacific Life Insurance, Xinhua Life Insurance, Qianhai Life Insurance and Union Life. Public disclosed data shows that those insurance companies have invested about RMB 100 billion in senior housing (Su, 2013). At present, there are three development modes when insurance companies invest in the senior housing industry. First, a development model combines construction and operation represented by the Taikang Life Insurance. Second, an insurance company cooperates with a real estate company to develop a joint-invested senior housing project, that is the case for instance of the China Life Insurance's senior community in Langfang. Third, participating senior housing project through equity investment and providing insurance service to customers, which is represented by Ping An Insurance (China) of the pension (Wu & Dang, 2014).

Besides, large state-owned companies also become a player in the senior housing industry. In 2013, Sinopec invested RMB 8 billion in Tianfu Huize Peach Blossom Health Center (天府惠泽桃源颐养中心) located in Pi County in Sichuan province. It emphasized health care and supporting the elderly and planned to construct more than 10,000 beds (Zhou, 2013). In the same year, Sinohydro Group invested RMB 8 billion in Chongqing Bishan (璧山) to build a senior housing project and will soon put it into operation (Yu, 2013).

In addition, overseas investment companies and professional senior service providers also show interest in Chinese senior housing industry. Examples include: Yanda Group's Yanda International Health City (燕达国际健康城); Emeritus established high-end pension agencies in big cities such as Shanghai and Beijing; SECOM cooperated with Shanghai Lujiazui Group to build a leading senior housing project in Shanghai; a Danish pension company has established a 500-bed West Endowment Center (西部养老中心) in western China. Zhilin Capital injected USD 100 million into Qinheyuan in Shanghai in 2010.

Currently, there are three operation modes of Chinese senior housing. First, long-term operation, in which membership or rental make developers gain profits. This model is usually used in the health center and senior apartment projects, such as Yanda International Health City, Easter Garden Evergreen Homeland (新东苑快乐家园) in Shanghai, and Sino-Ocean Holding's Season Living (椿萱茂). Second, integrated senior community and theme-community for migrant elderly (this group travels to warmer southern China to spend winter days and goes back to northern China like migrant birds) combine selling senior housing and membership. Examples are Silver Apartment Sun City (太阳城银龄老年公寓) in Beijing, Taishenhexiang Villa (太申祥和山庄) in Beijing, and Qinheyuan in Shanghai. Last, purely selling senior housing as ordinary real estates, such as Vanke Happy City and Vanke Liangzhu Culture Village.

In conclusion, Chinese senior housing is still exploring its way of development. None of the modes listed above have turned losses into gains and they are still exploring (Li F, 2012). Besides, wrong positioning, deficiency of scale economic effect and lack of experienced talents make the situation worse (Ma, 2010). Although real estate companies and investment institutions motivate investment in the senior housing industry, they are not very confident about the future of the industry. Senior community is seen as similar to senior housing and this misunderstanding is still widespread (Liu, 2014).

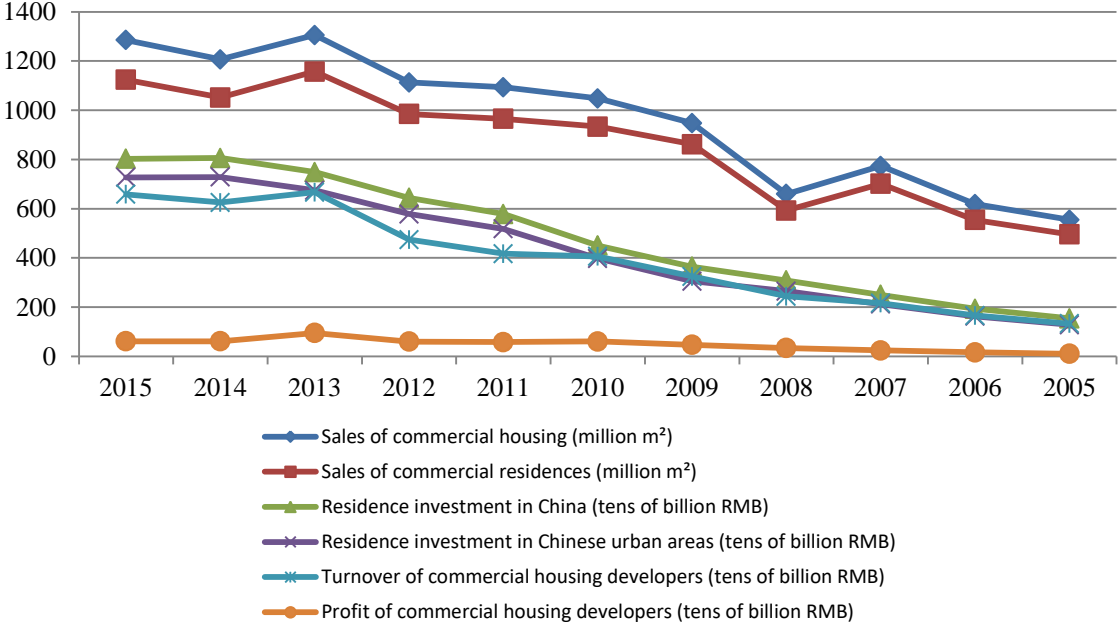
2.3 Opportunities and challenges that senior housing companies confront

2.3.1 Dilemma for Chinese senior housing industry and its upgrading

In 1981, Chinese central government encouraged Shenzhen and Guangzhou to be a reforming pilot of commercial properties. Welfare-oriented public housing distributed by government started after the reform. From 2004 to 2014 (except the year of 2008), the annual sales of commercial housing in China continuously rises by 20% (see Figure 2-9). However, the high-speed stage ended in 2013 and profits for real estate enterprises shrank by 10% and high profit no longer exists in Chinese real estate industry.

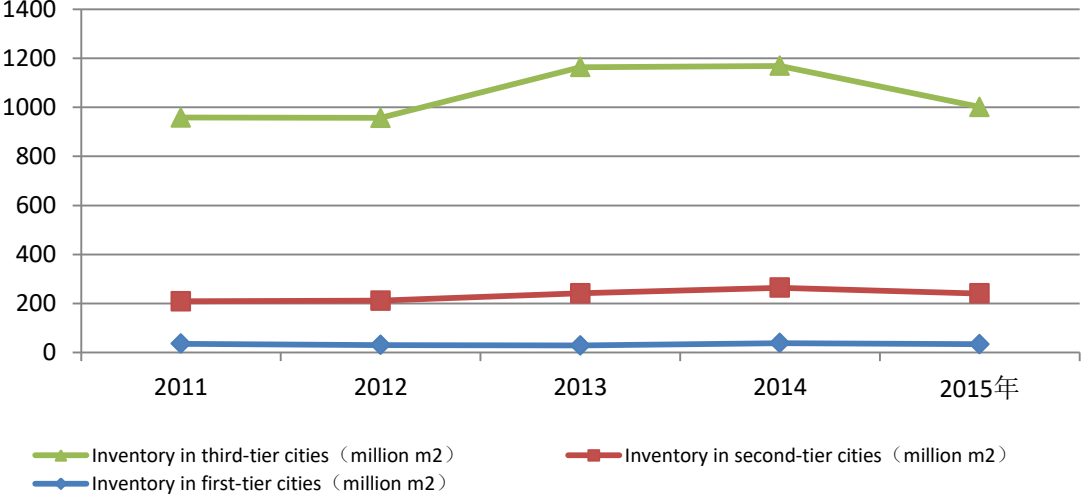
After 2010, investment in Chinese real estate industry has been slowing down. Total investment is RMB 9597.9 billion in 2015, which is merely 1.0% year-on-year growth (2.8% growth, considering currency inflation, the actual rate is 1.0%). Newly built commercial houses in 2015 are 1066.51 million square meters, which is a year-on-year 14.6% decrease.

Meanwhile, sold commercial houses in 2015 falls 8.8% year-on-year and were 737.77 million square meters. Total debt in 2015 decreased 4.8% compared with that of 2014, overseas investment fell 53.6%, China Real Estate Business Conditions Index dropped by 0.1%.



Source: National Bureau of Statistics of the People’s Republic of China (2015).

Figure 2-9 Investment and sales of commercial housing from 2005 to 2014



Source: National Bureau of Statistics of the People’s Republic of China (2015)

Figure 2-10 Statistics of inventory in Chinese major cities

High inventory, monopoly, and slow increase characterize in Chinese real estate industry. It faces huge pressure in reducing unsold houses as the investment speed slows down. In 2015, residential housing for sale reached 718.53 million square meters. According to public media data, it is expected that total national residential housing for sale is more than 1 billion square

meters. By the end of 2015, only three real estate companies gained annual revenue of RMB 200 billion and seven real estate companies belong to the RMB 100 billion revenue club. Real estate sold by the top 100 in the industry takes up 39.64% (Sina Property, 2016), which leaves little market share to numerous medium- and small-sized real estate companies. Facing high inventory and burdening high-speed growth, Chinese real estates will seek their way through upgrading to the promising senior housing market and pursuing sustainable development.

2.3.2 Real estate companies' exploration in senior housing industry

Revenue of real estate companies declined in 2008. Since 2008 large real estate companies have started launching new senior housing projects, one of the representatives is Sino-Ocean Land Holdings. Sino-Ocean Land founded Sino-Ocean Land Senior Housing Real Estate Development Center in April 2012 and added senior housing to its core strategic business along with previous residential housing, commercial housing, and financial service. Since 2012 the cooperation between Sino-Ocean Land and Columbia Pacific Management, Inc. (CPM for short) and Emeritus Corp, which is the largest senior service operator in America, has resulted in its first high-quality senior housing project: Senior Living L'amore-Kaijian Apartment (椿萱茂 凯建). Besides, Sino-Ocean Land cooperated with a global dementia care expert and Memory Journey, the first domestic dementia care solution, was launched and further successfully applied to Senior Living L'amore-Shuangqiao Senior Apartment (椿萱茂·双桥) in Beijing. In 2016, another project, Senior Living L'amore-Qingta Senior Apartment (椿萱茂·青塔) in Beijing started its soft operation.

Senior Living L'amore has currently built three product lines: Assistant Living (AL), mainly serving seniors who need assistance and care, especially dementia care; Continuing Care Retirement Community (CCRC), providing a full set of retirement solution for all types of seniors, including energetic type, self-dependent type, assistance-needed type and dementia type; Community Full Age Assistant (CFAA), providing a full range of community services, covering consumers from infant to seniors.

Building on the experience in Beijing, Sino-ocean plans to launch similar senior projects in multiple key cities such as Guangzhou and Shanghai. Aiming to make Senior Living L'amore a high line senior housing brand in China, Sino-Ocean plans to rapidly build a business model by exploring first-tier cities. Meanwhile, Sino-Ocean will continuously enhance investment on senior communities to enlarge their scales. Within 3 to 5 years, the business model of large CCRC and CFAA will be copied. Based on the past two years' data

analysis of Senior Living L'amore-Kaijian, it was estimated that the project would be profitable only when its occupancy rate would be more than 90% (Sohu Focus, 2015). Unfortunately, the actual occupancy rate was 50% by the end of 2015 (Xinhua News, 2015), leading strong negative effect on Sino-Ocean senior housing projects.

Similar to Sino-Ocean Land, other senior housing companies are also faced with problems of low occupancy rate, which are frequently reported by Chinese media. Due to low occupancy and slow payback, investment companies become hesitant to invest in the senior housing industry. In 2015, one-third of seniors felt hard to support themselves and that population reached 5 million. Moreover, 20.7% of the elderly living in urban areas and 41% in rural areas consider they are underprivileged (Yang Y, 2014).

Meanwhile, elderly live alone and empty nest families are getting worse and will face more non-economic issue. According to a survey on Chinese family situation in 2015, the elderly who receive little psychological support out numbers those who receive little economic support; 23.8% of elderly in the urban area frequently feel lonely. Elderly living alone or losing couple suffers more loneliness, which triggers a series of negative emotions such as anxiety and upset. Their psychological needs for care and spiritual support overcome their needs for communications with their children. News about elderly living alone and lacking psychological care from their children are not rare in recent years. Only by building a comprehensive socialized security system and increasing occupancy rate of senior housing, can China solve the issue of supporting the elderly and enhance healthy development of society.

2.4 Chapter conclusion

As the increasing of world average life expectancy and fall of birth rate, Chinese aging population is increasing. Affected by decades of One-child policy, the structure of Chinese population is imbalanced. Moreover, China is not a rich country yet, while it turns to an aging society. Traditional home-based supporting the elderly cannot fit more appearance of empty nest families. Meanwhile, Chinese real estate companies have entered senior housing industry, but receive little payback. Thus, previous market competition cannot increase occupancy rate of senior housing. Under these circumstances, this thesis aims to explore factors that influence the demand for joining senior housing and to find the relation between the influence factors of the demand for joining senior housing and the behavior of joining in senior housing, which

will surely be pivotal for solving the dilemma of senior housing.

From the analyses in this chapter, it is seen that Chinese economy and aging population are in serious regional imbalance. According to China's sixth census data, the total population of Guangzhou reaches 12.7 million accounting for 0.95% of the national total population. Since population aged 60 years and over is 1.2972 million in Guangzhou, the city has become a typical representative of the aging society. Aging population in Yuexiu, Haizhu, and Liwan areas in Guangzhou has exceeded 20%. That aged population is increasing fast but its family support is weak. Elderly living alone in Guangzhou reached 112300 in the year of 2015. All those figures show Guangzhou is eligible for this study on supporting the elderly and senior housing. Therefore, in this thesis, intention, and behavior of elderly living in Guangzhou are taken as a sample to analyze influence factors of the demand for joining senior housing.

Chapter 3 Literature Review

This research explores the relationship between the influence factors of the demand for joining senior housing and the behavior of joining in senior housing. Existing theories and studies on the subject discuss the demand for joining senior housing from four perspectives: characteristics of the demand for joining senior housing, influence factors, intention and choices of supporting the elderly, and elderly's income. Considering that few studies explore the demand for joining senior housing, relevant theories such as that of the demand of supporting the elderly, social security, services of senior housing, and effects of supporting the elderly will be reviewed and discussed in this chapter.

3.1 Characteristics of the demand for joining senior housing in China

The demand for joining senior housing connects to concepts such as social welfare, profit-making, expectation, and the propensity of the elderly. Compared with the elderly in developed countries, Chinese are deeply affected by the traditional value of supporting the elderly and long-term One-child policy.

3.1.1 Welfare-oriented and socialized endowment

Schulz (2010) proposes that low fertility and declining death rate result in the increase of world aging population, which has deeply affected the world economy, society, and welfare policies. Yang Y (2014) argues that aging population leads the change of consumption pattern, which is worse than the decrease of working population and demographic dividend due to growing aging population. In an aging society, the percentage of the aging population overweight that of other age groups and industries related to elderly consumption will surely continuously surpass other industries. Under this condition, it is estimated that elderly care service industry will become a backbone to push the senior market and senior housing will enter the mainstream. However, Hua (2013) points out that limited reserved assets and income of the elderly will impede the development of senior housing as growing high cost of supporting the elderly. In European countries, facing an aging population, expenditures of nursing service, medical care and elderly care felicity burden public finance, which may

trigger financial risk in the future.

Welfare pluralism theory is first put forward by Titmuss (1976), claiming that welfare comprises social welfare, financial welfare, and occupational welfare and that they should be coordinated between various systems. Besides, Pestoff (1992) emphasizes the crucial roles of the private sector and business organizations for welfare provision. Similarly, Liu and Xu (2013) states that government should not be a direct welfare provider, but a manager and regulator, and suggests that a diversified welfare system consisting families, communities, public sectors and market organizations will be more effective and productive to meet the welfare needs of whole society.

Affected by welfare pluralism theory, British National Health Service and Community Care Act 1980 and Public Care made communities equipped with elderly care service and constructed an elderly care system composed of non-profit-making (government, communities and private sectors) and profit-making organizations. Japanese Long-term Care Insurance System for the elderly was initiated in 2000 to promote community-based and facility based care system. Ma and Wei (2013) suggest that the demand for joining senior housing in western developed countries appears during the process from whole-society welfare system to sound socialized welfare system. Looking back to China, current aging but not rich China and elderly care less developed China is similar to western counterparts when changing from whole-society welfare system to socialized welfare system. Thus, the government should encourage social sectors to provide elderly care and support senior housing (Liu & Xu, 2013).

From above, no matter developed countries or developing countries, the demand for joining senior housing appears during the process from welfare-oriented system to the socialized welfare system. In this process, it revolves government policies in social security and public industries, elder care facilities provided by real estate developers, elderly care services from operational managements, expectations, and the propensity of joining senior housing from family members and the elderly themselves. Therefore, government, real estate developers, operational managements, families and the elderly themselves are closely related to the demand for joining senior housing.

3.1.2 Chinese fertility policy and the demand for joining senior housing

Compared with pro-natalist policies encouraging childbirth in developed countries, Chinese government held One-child policy from the 1980s, resulting in significantly dropping

in fertility rate. Wang (2010) proposes that long-term low fertility rate will lead to zero population growth, which will directly affect the structure of the population, social and economic development, and international competition in comprehensive strength.

Affected by One-child policy, Chinese families mainly fall into 4-2-1 type and more small-scale and empty nest families appear. The elderly faces risk of endowment and their demands of joining senior housing accelerate (Song, 2013; Wei & Jin, 2014). The family life cycle can be divided into six phases from a demographic perspective: formation, expansion, stabilization, shrinking, shrinking completed, and destruction, among which the phase of shrinking refers to “empty nest” stage, and destruction means the “loss-of-the-only-child” stage. These six stages are in accordance with the WHO’s division of the life cycle of a nuclear family. Unlike those families with children, empty-nest families or families losing the only child, will urgently eager to receive emotional support and elderly care. In other words, they will have stronger demand for joining senior housing.

The number of families losing the only child reaches 1 million by the year of 2010 and it is estimated to be more than 11.84 million in 2050, which will bring huge endowment risk (Wang et al., 2010). Meanwhile, due to some of the only child refuse to support their parents, the mortal risk of supporting will appear in 4-2-1 type family (Duan & Zhang, 2007). Children who are the only child in the family but are disabled cannot bear the responsibility of supporting their parents (Mu, 2009). Considering endowment risks, Hu and Xing (2013) propose that social endowment system should include a subsidy for families who lose their only child should be supported by government and assisted by the community. In addition, it is suggested that legal assistance and liability system for families who lose their only child are necessarily based on the analysis of data of elderly care demand, knowledge, and fulfil the responsibilities of government regarding the support of the elderly in Hangzhou city (Mei et al., 2013). Wang X (2013) considers that senior community is mature in developed countries and it may be helpful for elderly who lose their only child in their retirement. Demands of joining senior housing among the elderly losing their only child are stronger than those of not losing their only child (Zhu, 2013). Chinese aging population makes typical 4-2-1 families and growing demand for joining senior housing. Compared with other elderly, the ones who lose their only child are fragile in both welfare and benefits. Moreover, due to spiritual consolation and elderly care become more significant and urgent for them, their demands of joining senior housing are stronger than their counterparts.

Chinese 4-2-1 family type is not the only reason for empty nest phenomenon. It is also

closely related to workforce flow as high-speed economic increase and weakening of family ethics. It is estimated that empty nest families will take up more than 90% of the total families by the year of 2030 (Li et al., 2003), which will reinforce those family members' demand for joining senior housing. The demand for joining senior housing is rarely studied in developed countries, whereas Chinese research explores it mainly from aspects of psychological and life conditions. Chen (2009) conducted a survey of 290 respondents aged 60 and over elderly in empty nest families and concluded that those elderly had a good income but lacked spiritual condolence and daily care. Besides, the mental health of those elderly is deeply affected by their relationship with their partner or children (Shi, 2012).

Chinese government ended One-child policy and allowed two children for every couple in 2015. However, the increase of birth rate cannot stop the aging trend in China and one-child families will continuously grow, which will lead higher risk of endowment for elderly (Yang Y, 2014). Studies show that empty nesters living with their partners are less mentally healthy than non-empty nesters, but they are healthier than those who live alone (Wang & Shi, 2008). In other words, elderly who live alone yearn for more spiritual condolence and daily care. Since senior housing can provide elderly care, medical services, and spiritual condolence for this group, senior housing will be their choices for spending their retirement (Liu, 2010). Senior communities may be suitable for elderly in an urban area (Li & Ban, 2015). In addition, Liu (2014), based on her study from the perspective of effective demand, concludes that the demand for joining senior housing is increasing because the growing number of empty nest families and individual loss self-care ability when growing old. Therefore, both the elderly in empty nest families and the elderly living with their children have an urgent demand for joining senior housing.

3.1.3 Senior housing for a diversified elderly demand

Traditional family-centered service-for-seniors has always been dominating in China. In each family, the filial generation supports the parental generation both financially and spiritually. That the tradition has been continuing for generations derives from the idea of filial duty, which is deeply and particularly rooted in Chinese culture. According to that idea, people are required to “expand the respect for the aged in one’s own family to that of other families”; and “the high level of filial piety is to respect parents, next not to bring shame to them, the low to feed them.” “To take care of parents, to respect the ancestors, and to carry on the family line” constitute the core of the traditional Chinese family-centered pension culture.

What is more, Chinese seniors regard having plenty of children as a symbol of a happy life (Guo & Zhang, 2011). The idea of filial duty forms an element of family ethic that requires children to feed their parents and to respect them; and it has already been ingrained in the mind of Chinese people, becoming a part of Chinese ethical culture. In the 1990s, almost all the seniors were supported by their own families. Even in the new economic and social environment where parents and children are no longer living together or share property, the connotation of filial duty has still been inherited and put into practice. As the cost of supporting the elderly grows, the only child in 4-2-1 type family faces heavy pressure to support the elderly in the family. Thus, the traditional way that filial generation supports the parental generation both financially and spiritually cannot meet their needs anymore. Under this condition, senior housing provides endowment resource and reduces filial generation's burden. As traditional way of supporting the elderly changes, senior housing will be the choice of the elderly in their retirement. Meanwhile, the market-oriented senior housing can meet diversified demands of the elderly.

Existing studies of the demand for joining senior housing ignore the deep and real need of the elderly. On the one hand, those studies aim to explore a way to resolve all issues of supporting the elderly via senior housing but fail to integrate the elderly's material and spiritual needs. Thus, their findings are not real needs of the elderly. On the other hand, existing studies of the demand for joining senior housing focus on the elderly but ignore that different age leads diverse choices. According to Maslow's hierarchy of needs, the elderly do have physiological needs, safety and security, love and belonging, self-esteem, and self-actualization (Maslow, 1943). In this research, based on Maslow's hierarchy of needs, the needs of the elderly can be divided into economic needs, caring needs, and psychological needs, which are shown as follows:

i. Economic needs. Economic needs refer to those of the elderly for maintaining the most basic requirements for their own survival, including food, clothing, shelter, and other basic requirements. For them, only the most basic living conditions are met, can other needs be talked about, which is the basic condition on a sense of security. Low-income Chinese elderly rely heavily on the national security system and is mainly supported by housing subsidy, minimum pension, and relief.

ii. Caring needs. Generally speaking, the elderly have a strong desire for old-age care including health care and medical care as well as services for protecting the safety and health of the life due to the recessed body organs, declined physical functions, and reduced cognitive

abilities and other reasons. Especially against the background of China's growing aging population, the need for caring the elderly is increasingly urgent. Therefore, the satisfaction of the care needs of the elderly is the basis for achieving "a sense of security" and "medical assurance" after getting old.

iii. Psychological needs. Psychological needs of the elderly include not only the emotional needs and the needs of belonging but also those of being respected as well as common recognition of self-realization. Respect for the elderly is a traditional Chinese virtue, and also a psychological need of the elderly who hope to get the recognition and respect from the family and society, obtain higher social status and build self-esteem. Consequently, the fulfilling of psychological needs of the elderly is the foundation for the elderly to get "a sense of old happiness and worthiness".

Therefore, the demand for joining senior housing differs from the demand for joining a public nursing community or public nursing institutions. When basis economic and caring needs are met, the elderly choose to join senior housing because of their higher level psychological needs.

3.2 Factors affecting the demand for senior housing market

The demand for senior housing has long been a very important topic of analysis. From the initial charity institutions to community senior caring services, scholars in a developed country have completed a rather mature system about the demand for senior housing. This analysis can be conducted at both macro and micro levels. From a macro perspective, existing studies are based on demography, sociology, economics, and social security theory (Wolf, 1990; Crimmins et al., 1990). From a micro perspective, studies hold that personal aspects such as age, education, vocation, income, habit, and value affect the demand for joining senior housing. Based on analyses of policies, economy, and society at that time, Wolf (1978) and Harrington and Swan (1987) propose that demographic structure, economic resource, traditional culture and family structure will be significant influence factors on the demand for joining senior housing. Further, Lynn and Wang (2008) summarize the factors that affect demand for senior housing as population aging trend, community's geographical environment, senior caring manners, and seniors' consumption ability.

With the process of aging population growth in developed countries, seniors' demands for community caring grow. It is found that seniors' age, educational background, profession

type, income level, personal hobbies, and values strongly influence their idea about moving into the senior caring community (Wolf, 1990; Soldo et al., 1990). Besides, it is showed that health condition, children, spouse, and self-care ability are also important factors that influence seniors' demands of joining senior housing (Groger & Kinney, 2007). As the senior caring community is growing mature, scholars start to study senior housing demands through analyzing CRRC. It shows that the primary motivation for seniors to choose senior community is its health care services, elderly care facilities, medical nursing services, or service quality (Sheehan & Karasik, 1995; Cohen et al., 1998).

Unlike Western studies, existing studies of senior housing by Chinese scholars explore the subject more from a micro perspective. It is stated that factors affect the demand for joining senior housing include age, marriage, educational background, vocation, family income, self-care ability, medical care and pension (Shi, 2012; Tan et al., 2015). Self-care ability is significant for the elderly age 65 and beyond when choosing senior housing. A quantitative analysis shows that registered residence, education, vocation, family income and self-care ability of the elderly are influence factors of the demand for joining senior housing (Kang & Zhang, 2013).

Chinese studies of senior housing also involve traditional filial piety, traditional home-based endowment, social security, and house-for-pension scheme. Affected by traditional filial piety, parental generation takes filial generation's spiritual condolence for granted, which will affect their choice of joining senior housing (Xiong, 2014). For instance, 50% of the elderly state that they do need spiritual condolence and older elderly need more than younger elderly (Shi, 2012; Wang & Guo, 2013). Based on data of older elderly in 1998, via logistic regression, it was shown that living place affects the choice of joining senior housing (Zhang M, 2011). In addition, research points out that 11.2% of the elderly chose senior housing with comprehensive equipment and facilities in Yangtze River delta area and social security system and the distance between the senior community and living place of their children are important when choosing senior community (Feng & Guo, 2014). However, it seems that house-for-pension scheme and traditional Chinese filial piety are contradictory (Zhang Dainian, 2011). It is stated that house-for-pension scheme affects payment ability of the elderly directly and then affects the demand for joining senior housing (Cao et al., 2014).

Moreover, the income of the elderly cannot be ignored. Financial security or income is the priority when the elderly considering the joining of senior housing (Hu & Guo, 2012). Older with higher pension prefer senior housing than their counterparts (Liu et al., 2014). A

survey of 900 respondents aged 60 and above and analysis via logistic regression shows payment capacity, medical insurance and illness are primary factors influence the elderly's demand for joining senior housing (Tan et al., 2015).

According to the literature review, it is found that logistic regression and quantitative analysis are frequently used to explore the influence factors of the demand for joining senior housing. Only a few studies that use quantitative analysis are based on the TPB model. Xu (2013) conducted an empirical study of purchase intention towards senior housing.

3.3 Intention of joining senior housing

With the development of senior housing in China, studies of the intention towards senior housing by Chinese scholars contribute to this research. Long and Feng (2007) report that 47.6% of 850 respondents aged 65 or below live in Jiangsu province refused filial generation's supporting because they did not want to their children to have an extra added burden, 63.7% of them refused because of shortage of children's family income, and 5.09% of them chose senior community. It is reported that 11.2% of 1200 respondents aged 60 and above prefer to choose a senior community in their retirement (Chu et al., 2007). Thus, a portion of the Chinese elderly does have the intention towards joining senior housing.

It can be concluded that the main expectations for seniors are good medical services and nursing services. Kichen and Roche (1990) surveyed seniors' expectation through interviewing 442 seniors living in CCRC by email and 50 seniors living in senior care community face to face. It was found that the motivation behind 71.9% of seniors living in CCRC and 22% of seniors living in the senior community to live in senior community is its health care services. This viewpoint has been identified again by Groger and Kinney (2007) who did a survey by interviewing 20 seniors living in continuing care retirement community. It shows that the primary motivation for seniors to choose senior community is its health care services and medical nursing services. Research by Biggs (2000) and Baker (2002) also find security is a major factor. This phenomenon is evident in females and the unmarried (Giber et al., 1998).

Besides, the elderly choose senior housing not only for better-caring services but also for an independent living because they do not want to burden their family members or relatives. In a survey described in Cohen et al. (1988), 87% of respondents report that they live in senior community because they want to stay self-reliant. Chen (2014) has drawn the same

conclusion and reinforces that the elderly prefer independence and communication with their peers when joining senior housing. Minnix and William (2013) showed that senior communities can provide seniors safety, esteem and respect, and opportunities to participate in various community activities, which are main reasons for seniors to choose senior housing. The primary motivation to join senior housing is better life quality, followed by expectation towards access to nursing care and medical services (Zhou & Li, 2013). Hence, involvement in community activities while keeping in touch with the world outside the community for community integration and social recognition is an important factor.

Similarly, seniors' value, gender, age, educational background and income level strongly influence their idea about moving into the senior caring community (Yang & Li, 2014). Empty nesters will consider family structure, the income of their children and their educational background when joining senior housing (Niu & Zhang, 2015). Filial duty in China is both positive and passive in influencing the demand for joining senior housing (Liu, 2011).

Chinese filial piety is affected by ancient The Book of Rites: "People who are filial should see to it that their parents get enough to eat. But even dogs and horses are cared for to that extent. If there is no feeling of respect, wherein lies the difference?" Parental generation is significant to the Chinese family and filial generation should offer both material support and spiritual condolence to the elderly. Thus, senior housing will meet diversified demands of the elderly.

3.4 Income of the elderly

The intention towards joining senior housing depends largely on the income of the elderly. Therefore, financial conditions of the elderly are the foundation of exploring the influence factors of the demand for joining senior housing. Source of income and influence factors of their income will be taken into consideration.

However, Chinese regional economic development is greatly imbalanced. Wu (2008) believes that the income gap between the urban and rural elderly population and the elderly live in coastal cities and second-tier cities enjoy higher disposable income than other regions. Income of male elderly is higher than that of female ones (Shi, 2009). From the perspective of the modern theory of demand, the level of the elderly's income and their payment abilities determine their demands for senior housing. Therefore, the real estate for the elderly should

position in the high-income group who live in developed cities and have demand for a high-quality retirement community.

Filial generation supports parental generation, namely, the elderly rely on their children (Qian, 2011). For younger seniors, their own income supporting themselves takes up a larger share than economic resource from their children. However, as the growing old and exit from workforce, they will face endowment risk when their children cannot afford to support them. Unfortunately, based on a survey, 80% of elderly does not prepare well with abundant reserved assets for their retirement lives, 50% of them regard that their reserved assets are not enough for decent retirement lives, and only 2% of them have already purchased commercial endowment insurance (Guo & Chen, 2009). Moreover, more elderly in urban areas purchase commercial endowment insurance than in rural areas.

Apart from age, gender, and marriage, education and vocation before retired are also important factors affect the elderly's intention towards joining senior housing (Jiang & Du, 2014). Life standard and income of their children affect the income of the elderly (Wang & Chai, 2006). House-for-pension scheme or a reverse mortgage may be positive to increase the disposable income of the elderly (Tan et al., 2015).

Same conclusions are drawn by Wang and Chai (2013), Zhang M (2011) and Zhang J (2014). They hold that positive results include: reduce government's endowment burden, increase the disposable income of the elderly, and integrate commercial endowment insurance and social security. On the opposite, some scholars disagree with the house-for-pension scheme. First, Chinese land system will limit the liquidity and sustainability of house-for-pension scheme (Gu, 2012) and credit system in China cannot support this scheme currently (Chai, 2013). High housing price will increase the difficulty to calculate corresponding pension (Xu & Li, 2011). Moreover, the regional economy is imbalanced in China and the reverse mortgage market is hard to control (Yuan, 2011; Cao et al., 2014). Thus, the nationwide reverse mortgage is not wise.

Reverse mortgage started in the 1970s in America. Chen (2011) hold that it is needed by America elderly. However, risks of the reverse mortgage were pointed out (Feinstein et al., 1989). For instance, high commission and mortal risk and repayment risk (Klein & Sirmans, 1993) cannot be ignored. Besides, longer life expectancy is also another factor to take into account (Davidoff & Welke, 2007).

Similarly, Chinese scholars state the risks of a reverse mortgage. Life expectancy of the elderly, real estate market fluctuations, interest rates, moral risk, liquidity, operation, payment

and value risks, all are obstacles to the implementation of the house-for-pension scheme (Zhang & Wang, 2011). Studies on the process and operation model of reverse mortgages by Chen (2011) and on the intention towards house-for-pension scheme (Zhu, 2011; Zhang & Li, 2014) that analyses economic, educational, and aging conditions of twenty cities in China show that both filial and parental generation hesitate to choose house-for-pension scheme against Chinese traditional filial piety. House-for-pension scheme and Chinese traditional filial piety are contradictory (Zhang Di, 2011). Therefore, house-for-pension scheme in China should adjust according to Chinese traditional cultural values and the supply of elderly care facilities.

3.5 Social security system in China

Chinese scholars have reached a consensus that comprehensive social security system will ensure against many risks for seniors (Pan, 2009). Most of the developed countries use three systems proposed by the World Bank in 1994 (World Bank, 1994). It suggests that financial security for the old and economic growth would be better served if governments relied on three systems: i) A publicly managed system with mandatory participation and the limited goal of reducing poverty among the old; ii) A privately managed mandatory savings system; iii) A voluntary savings system. Given that study ignored sustainable financial support from the government, in 2005 the World Bank suggested that tax-based system and extended family-based system should be added to original three systems.

Currently, Chinese social security system is based on World Bank's three systems. Feldstein and Samwick (1996) hold that cash basis system relies on high rate, which will lead many negative impacts and advocate funds to solve pension problems. Feldstein (1999) asserts that old-age insurance system with a fixed payment and fixed annuity are more reasonable for both rural Chinese citizens and urban ones. Nevertheless, pension insurance transition will surely reduce pension welfare. It is possible to amend parameters in those systems to solve transition issue. Chen (2010) analyzed conditions of Chinese labor force growth, wage growth, and interest rates and proposed that notional defined distribution (NDC) pension system can solve transition cost and empty account issue.

Although Chinese social security system covers a wide range of citizens, it cannot ensure them comfortable and decent retirement. China's pension fund faces a huge shortfall and it is worse in Chinese rural areas (Hao, 2013). China's pension fund can only meet basic living

standards of Chinese citizens (Zou, 2015) and the shortfall will continue to increase the difficulties of the Chinese market. Qiu (2015) suggests that Chinese government shall increase financial investment in social security fund and make citizens participate in supervision system. Ouyang and He (2015) finds that expenditure of families which participate in social security insurance is 19.2% higher and that of having a government-backed pension is 20.7% higher than that without participating in social security insurance. Thus, comprehensive social security insurance system will stimulate consumption and increase payment capacity of the elderly. Statistics show that RMB 1 social insurance expenditure will bring corresponding RMB 0.0197 civic consumption expenditure (Su & Li, 2012). Nevertheless, China is not rich but confronts aging issue when its social security system is weaker than developed countries. Since existing studies of social security affecting the demand for joining senior housing are rarely found, payment capacity of the elderly will be analyzed in this study.

3.6 The supply and quality of senior housing

3.6.1 The supply of senior housing

Since developed countries became aging societies decades ago, the development of senior housing is already at a mature stage. For instance, a survey conducted by American Centers for Disease Control and Prevention (CDCP) in 2004 in the United States shows that there are 16,628 elderly care institutions with 1.7 million beds and occupancy rates up to 86.3%. About 35% of the elderly rely on social medical insurance or medical aid scheme to cover occupancy costs and about 46% pay their occupancy costs at their own expenses (Jones et al., 2009). Every day, average 273,200 seniors live in day care centers, 1373.8 thousand in nursing homes, 713,300 in retirement communities (Harris-Kojetin et al., 2013). Most of the elderly care facilities are profitable and the government holds a very low share of them. Majority of home-based nursing and senior communities, institutions or business firms hold more than 50%. The biggest share of government is 10% in hospice care (US Census Bureau, 2012). Senior housing in the United States equals to the senior community in some degree and it takes up 20%, which will remain in continuous growth in real estate industry (Martin, 2013) and will need more nursing professionals (Croucher, 2006). Senior communities in the United States can be divided into the active aging community, assisted living community, senior apartment, independent living Community, skilled nursing facility, senior nursing center and

continuing care retirement community. Continuing care retirement community, i.e. CCRC, is the most popular among American seniors. A survey shows that CCRC enjoys high satisfaction: less than 1% of customers are unsatisfied with CCRC they live, 86.6% will recommend CCRC to their family members or friends, 84.1% are optimistic about the future of CCRC (Marx et al., 2011). Besides, Ayalon and Green (2013) analyze the data from a survey of 29 seniors and 19 adult children and report that seniors living in the senior community are healthier because they keep social connections. As costs of senior communities are not easily affordable for the public, it is suggested that federal governments should release effective policies of taxation, health care, and land planning to support the construction of senior community for low-income elderly (Stone, 2013).

Similarly, in UK, sheltered housing, extra care housing, care homes with nursing are popular among seniors and they share the same operation model with America CCRC. A report comparing services of those communities and traditional caring services in Britain shows that quality of services of those communities is much better (Bowblis & McHone, 2013). Meanwhile, it is asserted that choosing senior community is not the last choice of seniors, but they intend to choose specific senior community according to their own needs (Croucher et al., 2006). As for the caring cost of senior community, Laing and Buisson (2013) point out that caring cost relies on the type of elderly caring facilities and has small relevance with the self-care capacity of seniors. Although charges of different caring communities vary, the average margin of all those caring communities stays around 8%, which proves that community care facilities are of low profitability.

As for Japan, there are three kinds of operations modes of senior housing: lifelong care, rental model, a mixed pattern of lifelong care and rental (Fujiwara, 2006). In practice, a mixed pattern of lifelong care and rental is the most widely accepted one as it covers all pension service and offers clear and low monthly service charges. The elderly do not need to pay extra costs, which matches their propensity of a simple purchase. Thanks to Japanese long-term pension system, seniors living in privately run caring facilities only need to pay about 10% of operating cost and the rest of fees are covered by National Health Insurance Federation. This support largely contributes to the rapid development of senior housing in Japan (Murata, 2013). Therefore, the rapid development of senior housing in the US, UK, and Japan attributes to their comprehensive social security system, variable options of senior housing, diversified elderly caring services and abundant supply of elderly caring facilities.

As Chinese senior housing is still at the starting stage, existing research on senior

housing discusses the subject from aspects of strategies, developing model, operation model, and services. The trend of senior housing in China is forecasted in government support, elderly caring facility designing, financing channel and operation mode from aging population, pension industry and upgrade of real estate industry (Luo & Han, 2012; Zhang, 2013). Risks of operating senior housing and profit-making model are discussed from aspects of the land property, financing and pension services (Li Ch, 2012). Influence factors of senior housing are explored and it is concluded that immature financial eco-system in China leads to single service provision, which impedes the development of senior housing (Chen & Shi, 2013; Zhou, 2015). In addition, Zhang (2014) holds that control and limitation of land for senior housing by the central government is another obstacle to the development of senior housing. Factors such as aging population rate, urbanization rate, living area per capita, numbers of households, Engel coefficient, GDP per capita and city housing price affect the regional development of senior housing (Yuan, 2013). It is suggested that private-finance-initiative (PFI) is the best financial way for Chinese senior housing compared with build-operate-transfer (BOT), transfer-operate-transfer (TOT) and public-private-partnership (PPP) (Li Zh, 2013). It is seen that building a comprehensive financial system is significant for developing of senior housing, but relevant strategies are rarely discussed.

In the past few years, investment in Chinese senior housing reaches hundreds of billions of US dollars. There are fifteen types of senior housing projects, such as integrated senior community, the educational community, and senior community offering insurance services, tourist senior apartment, and medical senior apartment (Li F, 2012). Senior apartments are usually designed to 50 to 90 square meters per suite with standard twin rooms (Qiu, 2015). Besides, those senior apartments integrate entertainment, shopping mall, medical and nursing services (Ma & Wang, 2013). Unfortunately, few of senior housing projects meet the requirements and standards of China Senior Architecture Standard (Ding, 2014). Thus, successful cases of senior housing are rarely found in China.

Currently, selling, operation, and mix model of selling and operation can be seen in China. Existing studies make consensus that operating senior housing is the best way for its sustainable development (Ji & Ji, 2012; Ma & Wei, 2013) and operating will continue to be the trend in the future. If selling senior housing instead of operating, its derivative value will be wasted and will equal to the common housing (Gai et al., 2013). Half of senior housing projects in Western countries go to operating model, whereas only 1.38% in China.

Moreover, according to the literature review, the supply and demand of elderly caring

services are obviously imbalanced. A survey on community caring services in Chongqing shows that communities only offer basic caring service and even not include medical caring (Chen et al., 2010). Senior communities invested by China Life Insurance Group only receive customer with self-caring capacity (Xu, 2011). As the number of aging population in China grows, the number of senior institutions or communities is far less than seniors who need to join senior housing and services offered by those senior institutions or communities cannot meet seniors' needs, especially for disabled seniors (Tao, 2013). Since there is no national standard of regulating senior housing, most of the senior communities are not equipped with entertainment (Xu, 2015), education and medical facilities as they committed (Xi et al., 2013) and employees of those communities are not trained professionally (Lou, 2013).

Some scholars hold that wrong positioning of senior housing projects and a shortage of effective demand for seniors are key obstacles to developing senior housing. Senior housing in China focuses on high-end customers, leading rigid operation and profit model (Chen, 2014).

Barrier-free design, such as barrier-free accessibility, barrier-free operation, and barrier-free information perception is rarely seen in Chinese senior housing. Most of the nursing staff in Chinese senior housing are of low academic attainment and low degree of nursing skills. Senior nurses in Wuhan by the end of 2013 take up 3.51% of total nurses and the ratio of nursing staff to the elderly was 1:16, whereas 1:4 in developed counties (Cheng et al., 2015). Thus, training professionals is a long-term task for Chinese senior housing.

It is also found that facilities for the elderly are not designed according to characteristics of seniors. A report points out that equipped facilities for the elderly in senior housing in Beijing are still under construction after years of operation of those senior housing (Yan, 2013). Although senior housing is usually located in city outskirts with a nice environment, the occupancy rate is low because of high charges or terrible service quality (Sun & Zhang, 2015). Due to 30% to 50% extra cost of developing compared with the ordinary real estate (Ren & Gao, 2012) and no subsidy from the national social security system, senior housing in China has to turn to high-income seniors as their target customers. It is suggested that covering medical caring in the senior housing by national social medical insurance will increase the occupancy rate of senior housing (Yang & Xue, 2014).

3.6.2 The quality of senior housing services

Studies during past decades have discussed that caring services in senior communities do

improve health conditions of seniors. A comparison between conditions of 1666 seniors living in senior communities and those in traditional communities in the US show that medical costs of the senior-community-living group when approaching death are far lower than its counterpart (Ruchlin et al., 1993). Newcomer and Preston (1994) has made the same conclusion after interviewing 467 seniors living in CCRC and 518 seniors in traditional communities. Besides, the life expectancy of seniors living in CCRC is 1.5 to 2 years longer than seniors living in traditional communities (Scanlon & Layton, 1997). This benefit may be attributed to scientific meals, exercises, and better medical caring (Jacquelyn, 1997).

Besides, based on one-year data of health conditions of British seniors living in senior communities, it is stated that social connection, sense of security, and relaxed living environment are helpful for seniors keeping healthy (Kingston et al., 2001). Comfortable and free living environment improve the sense of happiness of 167 seniors living in CCRC (Jenkins et al., 2002). Living in the senior community gives seniors opportunities to join activities with other seniors, which create a sense of group identity and make seniors healthier (Biggs et al., 2000; Lawrence & Schigelone, 2002; Croucher, 2006; Bernard et al., 2007, Joseph Rowntree Foundation, 2009).

Recent years, subjective well-being is considered as a significant standard to verify the mental health of the elderly among Chinese academic field. It is pointed out that well-constructed medical system and moderate exercises enhance the elderly's sense of happiness based on the interviews to 144 seniors living in urban communities (Wang et al., 2010). A subjective well-being research shows that the elderly with low subjective well-being frequently complain the caring from their children and a stronger sense of happiness, a stronger sense of safety, and less anxiety increases their happiness (Gao et al., 2015). In addition, meeting diversified demands of the elderly will decrease their sense of anxiety and increase their subjective well-being (Wang et al., 2015).

Existing studies of Chinese senior housing explore much on the development of senior housing, ways of operation and developing through deductive and qualitative analysis. For further and broader academic area, it is still unexploited in aspects such as facility type, ways of joining senior housing, costs of joining senior housing, services of joining senior housing and quality of senior housing services.

3.7 Chapter conclusion

From literature review listed above, existing studies discuss characteristics of joining senior housing, influence factors of the demand for joining senior housing, intention towards joining senior housing, income and social security from aspects such as demography, sociology, psychology, economics. From a demographic view, influences of gender, age, marriage on the demand for joining senior housing are analyzed. Sociologically, family type and cultural value affect seniors' demand for joining senior housing. Psychological research explores basic needs of the elderly. Influences of income, consumption value, and reserved asset are analyzed from an economic viewpoint.

Most of existing analyses of the intention towards joining senior housing use logistic regression to confirm one or two influence factors. Systematic conceptual model is rarely found and those analyses are of limitations as follows:

- i. Existing studies analyze influence factors of the demand for joining senior housing from either the supply or the demand view instead of integrating the supply and the demand;
- ii. Existing studies choose specific respondents instead of random picking and their results are limited to certain region;
- iii. Micro studies of status quo and intention towards joining senior housing out number studies of services supply and service quality. Studies of pension policies, cost of joining senior housing and consumption value are rarely mentioned;
- iv. Research on influence factors of the demand for joining senior housing is rarely found, which is the niche of this thesis.

The study of influence factors of the demand for joining senior housing is interdisciplinary covering marketing, demography, sociology, and psychology fields. In this thesis, influence factors of the demand for joining senior housing will be analyzed from both supply and demand views. The relation between the influence factors of the demand for joining senior housing and the behavior of joining senior housing will be discussed to increase occupancy rate.

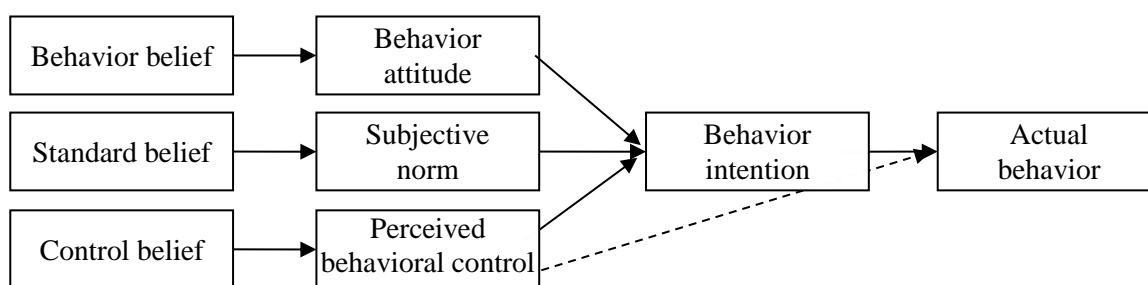
Chapter 4 Conceptual Model and Hypotheses

Studies of the demand and supply of senior housing serve as the foundation to explore the influence factors of the demand for joining senior housing in this thesis. In this chapter, relevant existing models will be analyzed and influence factors of the demand for joining senior housing will be clarified. Besides, a conceptual model of influence factors of the demand for joining senior housing will be proposed and then will be adjusted and verified according to empirical survey and in-depth interviews.

4.1 Theoretical model of intention towards joining senior housing

4.1.1 Theory of planned behavior and TPB model

Theory of planned behavior (abbreviated TPB) was proposed by Ajzen (1985) on the foundation of the theory of multi-attribute attitude and theory of reasoned action. This theory claims that behavior that is not completely controlled by individual will not only affect consumer behavior and attitude and subjective norms but also be constricted by consumers' perceived behavioral control. It is seen that perceived behavioral control can not only influence consumer behavior through behavioral intention, but also act directly on behavior (see Figure 4-1), and the degree to which control over the cognitive features determines the decision path of the consumer behavior.



Source: Ajzen (1985).

Figure 4-1 Theory of planned behavior model

Perceived behavioral control is the act of perception on the part of consumers after completing the degree of difficulties encountered, mainly subject to the influence of their own

control beliefs and convenience of perception. That is, if consumers believe they do not have their own resources or opportunities to perform an act, there shall not be a strong intention to perform such act (Ajzen, 1991).

TPB holds that:

i) Behavioral attitude refers to individual's opinion about whether a behavior is positive or negative. Behavioral attitude involves behavioral belief;

ii) Subjective norm describes the social pressure an individual feels to perform or not perform the behavior at hand. Together, behavioral attitudes and subjective norms are considered to determine behavioral intention. The behavioral intention will lead behavior performing. Subjective norms are affected by subjective belief which includes individual expectation and pressure from social group;

iii) Perceived behavioral control is an individual's perceived ease or difficulty to perform the particular behavior. It is assumed that perceived behavioral control is determined by the total set of accessible control beliefs;

iv) Behavioral intention is an individual inclination affected by both exogenous and endogenous factors. Behavioral intention is the decision-making process before performing the behavior;

v) Intention to perform a certain behavior precedes the actual behavior. The stronger behavior attitude, subjective norm or perceived behavior control, the stronger is the intention.

The TPB can explain rational consumer behavior beyond complete individual control. It is one of the most important models of consumer decision-making process. Joining senior housing is a rational consumer behavior beyond complete individual control. Factors such as individual propensity, existing knowledge, cultural values, and consumption values affect the intention towards joining senior housing and these factors can be attained and evaluated. The TPB provides a theoretical basis for exploring the elderly's intention towards joining senior housing. Thus, in this thesis, conceptual model will be developed from seniors' behavior attitudes, subjective norms, and perceived behavior control based on the TPB.

4.1.2 Effective demand

In economics, effective demand in a market is the demand for a product or service which occurs when purchasers are constrained in a different market (Keynes, 2009). As for senior housing, purchasing is less than services of senior housing. Most of the scholars studying

senior housing state that the effective demand is a significant issue for Chinese real estate industry. In this thesis, the study of effective demand will include analysis of senior's purchase capacity, the supply of senior housing, social endowment security, social benefits and preferential policies on senior housing.

Effective demand points out that constraining of purchases results from marginal efficiency and consumption propensity. When senior's income increases, the purchases of senior housing will go up. When purchases of senior housing are more than income growth, the shortage of effective demand will appear. If marginal efficiency (i.e. the payment capacity of the elderly) decreases, effective demand for senior housing will slow down.

Besides, effective demand theory holds that consumption involves investment (Keynes, 2009). Namely, the supply of senior housing depends on the demand for joining senior housing instead of investment. Thus, the central government should encourage public construction and improve social security system in order to enlarge the demand for joining senior housing. Meanwhile, corresponding policy supports such as preferential tax and investment policies should be made.

Moreover, effective demand theory proposes that income gap reflects a difference of consumer demand and rational intervention can be applied to resolve the short-term economic issue. Currently, rational intervention has been used in Chinese macroeconomy but no application in the senior housing market. Rational intervention can be social security, endowment policies and preferential policies for senior housing projects given by Chinese government.

4.1.3 Life cycle theory of consumption

Life cycle pertains to the spending and saving habits of people over the course of a lifetime. The theory assumes that individuals base consumption on a constant percentage of their anticipated life income. Besides that, social security and retired income are complementary. That is, consumption of seniors relies on their savings or reserved assets.

Keynes' effective demand theory emphasizes the relation between current consumption and current income, whereas life cycle theory highlights the relation between the current family consumption and expected income of the whole lifetime. It is revealed that a family's consumption is determined by its life cycle stage. Preparing for retirement is a long-term plan and family investment is necessary to help the family earn stable cash flow. Thus, life cycle theory is the theoretical foundation for analyzing the influence of reserved assets and social

security on the elderly's demand for joining senior housing.

4.1.4 The STP methodology

In the 1990s, the renowned marketing expert Philip Kotler proposed the STP approach that covers market segmentation, targeting, and positioning. It suggests that the market is heterogeneous with a diverse collection of consumers. No company can meet the needs of all consumers. Therefore, the market should be split into smaller groups in order to select appropriate target markets. Combined with the selected target markets and characteristics of them, the market position shall be achieved.

A market is composed of individuals and they are rarely homogeneous in benefits sought, purchase rates, price and promotion elasticities. Their response rates of products and services and promotion programs differ. Since consumers have dissimilar needs and wants, it is called a heterogeneous market and most markets are heterogeneous. As for senior housing, every buyer has individual needs, preferences, resources, and behaviors, which also affect the demand for joining senior housing and response rates.

With the STP methodology being introduced into the segmentation of the market based on customers' needs, it will not only clarify the effective demand of the market for senior housing but also promote the effective demand for senior housing. Given the diversity of the consuming activities of the aged as well as their needs for senior housing, it is significant to develop products and services differentiated from those provided by government and family.

4.2 Analysis of influence factors of the demand for joining senior housing

Based on effective demand theory and Chinese context, the potential demands of Chinese senior housing go beyond the supply of Chinese senior housing. In this section, main factors affecting the demand for joining senior housing will be analyzed from the perspective of supply and demand.

4.2.1 Influence factors from market demand view

4.2.1.1 Demographic influence factors

Demographic influence factors related to the demand for senior housing include gender, age, and registered household, duration of living in a certain city, education, occupation,

marital status, physical condition, and self-care ability. Among them, the gender influence arises from the fact that there is a stronger inclination of female seniors to stay with their kids than male seniors due to the relationship specific to Chinese culture between mother-in-law and daughter-in-law. The influence of age on senior housing demand lies on that aging relates to seniors' physical conditions and self-care ability and both of them greatly influence the demand in the senior housing market. Meanwhile, another aspect relating to aging is the increase of life span—if the life span is longer than expected, consumption difficulties would arise.

In China, there is a high association between occupation, level of education, and economic situation. That is to say, seniors' occupations and level of education directly determine their economic income. With the changes of Chinese socio-economic structure and shifts of people's viewpoints on the elderly support, influences from occupation and education on the senior housing market are weakening. Marital status influence senior housing demand since seniors' model of living will affect their propensity to senior housing. This is especially true for those who live alone after they have divorced or widowed, with more intensive feeling of loneliness and worse physical and psychological status, ask for better caring and support and have more urgent demand for senior housing.

The health status of seniors revolves psychology, physiology, and social environment. With the process of aging, seniors would have difficulty in walking around and subject to diseases and at the same time they are confronted with psychological problems such as loneliness and distress. All those will result in a particular concern on their own health conditions, and also, more urgent demands would arise for the elderly support, medical care and respect from others. Self-care ability is an essential part of seniors' health condition and at the same time, the main reference when the target consumers are determined by the elderly care services and medical services. Meanwhile, seniors' self-care ability influences their dependence on medical care and also their demand for community care and psychological comfort. Thus, seniors' self-care ability is an important influence factor shaping senior housing demand.

To sum up, gender, age, registered household, duration of living in a certain city, education, occupation, marital status, physical condition and self-care ability are demographic influence factors of the demand for joining senior housing. These factors will be analyzed in Chapter 6.

4.2.1.2 Societal influence factors

Societal factors cast their influence on senior housing demand due to their influence on seniors' care demand and psychological demand, which include among others the ways of supporting the elderly, traditional senior support culture, living models, seniors' expectation, anticipation of the development in senior-care service industry, and welfare policies from the government.

Currently, ways of supporting the elderly in China are mainly home-based supporting, institutional supporting, and community supporting, among them home-based supporting is the best way for seniors to spend their senior lives as well as the prevailing way of the elderly support during a period of time in the future. With the rapid development of Chinese economy, there has been a fundamental shift in urban families' structure, and a gap between traditional home-based supporting the elderly and modern family structures arises, which has led to the weakening of the role of home-based support of the elderly. As a result, seniors cannot have their care demand fulfilled, with psychological care being the least fulfilled. At the same time, the availability of institutions for the support of elderly managed by the government still has a long way to go to meet the soaring demand for senior support in the Chinese market.

Besides, the quality of the services that those institutions provide is heterogeneous, which causes problems regarding the supply of services. Community support for the elderly is a compromising way between the home-based support and institutional support, which can well adapt to seniors care demand and psychological support demand. Community support for the elderly is on its way to play a major role in the support of elderly in China. Meanwhile, senior housing is a key part in community support. The socialization process of senior support, where home-based support and institutional support give their way to the senior housing market, will be under influence of Chinese traditional culture on the elderly support, which will deter seniors from moving into senior communities and hence decrease the demand for senior housing.

With the development of Chinese economy and the process of urbanization as well as the influence from developed countries changes are taking place in seniors' viewpoints on their senior lives. Seniors' housing propensity casts its influence on senior housing demand. There are three ways of living: living alone, living with their spouses, and living with family members.

According to life cycle theory, it is known that seniors living alone or living with their spouses are empty-nesters whose demands for senior care services are stronger and more

urgent than those living with their families. When it comes to senior housing, empty-nesters seniors' care demand and psychological demand from the senior community are more prominent. Meanwhile, empty-nesters seniors' propensity in lifestyle and housing is less influenced by their families, i.e., the way how living models influence seniors housing propensity.

In addition, social security is the foundation of joining senior housing. According to Keynes' effective demand theory, the demand of senior consumers could be effectively boosted by governmental policies of supporting the elderly, housing, taxation, credit, and welfare. Welfare policy, among others, exerts influence on their demand more directly. Its influence is mainly in the socialization of pension and social security systems. The government releases welfare initiatives to coordinate every department, family, market, and the society while putting its role into full play to promote efficient allocation of senior care service. The enhanced mechanism in commercial medical insurance, social insurance and pension shall also be available for those who may find senior housing unaffordable. As shown above, the socialization of senior care is conspicuous for senior housing demand.

4.2.1.3 Economic influence factors

According to life cycle theory, the current effective demand of Chinese senior housing is mainly restricted by limited payment capacity of the aged population resulting from an insufficient reserve of assets within its lifecycle. Besides, other factors that affect senior housing demand shall be taken into account, namely economic development that affects consumers' financial capacity, living standard, and interest rate. For the elderly, their payment capacity mainly depends on how much assets they save for senior service, and their total reserve assets consist of their income, individual savings, commercial insurance, and other assets that can be used to fund senior care (i.e., reserve mortgages and rental income). Their personal income among others is the most direct factor affecting the effective demand of retirement housing. In China, although the elderly who are urban consumers have certain payment capacity, the overall income prominently varies when considering the whole group and it is the income gap that suppresses their consumption demand and affects their choice of senior housing.

Currently, support from filial generation, pension, and other labor income are major sources of the elderly income. As Chinese aging exacerbates and family care weakens, the existing sources for senior care are not matching with diversified needs of the elderly. The deficiency of housing demand resulting from insufficiency of financial capacity calls for

joint-effort of both the market and the government. What determines their financial capacity, according to life-cycle theory, is not only their current income but also their total income for a lifetime. Besides, when they enter into retirement, their income would progressively decrease. Their individual savings then would have a huge impact on their payment capacity, which explains why their reserve assets to some extent are affecting their housing demand.

The living space per capita, as one of the indexes for living standard, also affects housing demand (Ding et al., 2014). Its influence integrates many factors that are non-quantitative, including national policies, seniors' attitudes towards senior housing and their lifestyles. The policy of interest rate directly affects the cost of senior housing for rent and sales. The stable and reasonable interest rate, therefore, could maintain housing demand, thus safeguarding the development of senior housing. What is more, keeping relatively high-interest rate could improve operational capacity of real estates on senior housing and stimulate their investment in it. Since economic development, household living standard, and interest rate mentioned above affect reserved assets of seniors, reserved assets will be taken in influence factors of payment capacity.

Therefore, personal factors such as gender, age, registered household, duration of living in a certain city, education, occupation, marital status, physical condition, and self-care ability will be listed and analyzed in this research. Besides, expectation towards senior housing, cultural values, consumption values, social security and the reserved asset will be taken as influence factors of the demand for joining senior housing.

4.2.2 Influence factors from market supply view

From market supply view, influence factors of the demand for joining senior housing revolve government and senior housing developing.

4.2.2.1 Government

According to the effective demand theory, governmental favorable policies of land, fiscal revenue and taxation, credit, and public service policies of social security, as well as policies and regulations in relevant industries affect the supply of senior housing and seniors' demand for joining senior housing. Government policies on the elderly support are the foundation for the development of housing industry for that purpose. At the early stages of that industry, the policy support from the government side is of crucial significance. To boost the socialized

elder support service and solve Chinese problems in that regard, favorable policies of land, fiscal revenue, taxation and credit provided by the government can effectively lower the cost for developers, hence increasing the purchasing ability of the elderly and the effective demand of the market. At the same time, favorable land prices can also reduce the developers' investment costs. Favorable policies for credit can increase the profits and cut operation risks to bring in more housing investment. Taxation exemption and reduction can roar up developers' involvement. With all the favorable policies, the effective demand for elderly support housing will see a dramatic rise.

Senior housing is quasi-public in nature and relevant service should also be included into public service of social security, which mainly covers service in elderly support, health care, living standards, and employment. Among them, elderly support security and healthcare security service, to some extent, pushes forward societal share in elderly support by covering the elder's medical care and their spiritual needs. Government is the major supplier of public service in social security. It shoulders the responsibilities of making public service policies, grant fiscal investment and service regulation. It should, for the sake of social fairness, maintain relatively equal service to different people in different regions.

In addition, innovation to strengthen the ability to offer public service is necessary, which, in turn, will correspondingly improve the service quality and efficiency, bringing influences on living propensity. The influences of policies for related industries on senior citizen's propensity mainly come from policies and measures that government releases on elderly support facilities and service. For example, policies in elderly that support finance, products, service, and industries will definitely coordinate with policies in the housing market.

In conclusion, endowment policies related with the senior community will be taken into account in this study of influence factors of the demand for joining senior housing.

4.2.2.2 Senior housing developing

According to TPB, facility types, living models, service content, and quality are major factors on living propensity and payment abilities from the perspective of developers. In terms of service content, elder support facilities if looking at practices in developed countries fall into the following types: independent living, assisted living, and integrated living. In China, elder support facilities are divided by housing types, namely apartments, high-end senior housing, government subsidized communities, and retirement community with mixed ages.

The above two classifications are similar in nature, both based on the location of the elderly facility, living environment, and elder's living habits.

The cost of different senior community varies and the cost will directly influence seniors' living propensity. To date, the living arrangement of elderly support housing mainly consists of four types: i) one-off payment + service fees, ii) accommodation fees + service fees, iii) monthly rental fees + service fees, and iv) purchase fees + service fees. Monthly rental is the first option, followed by one-off purchase (Liu & Zuo, 2011).

It seems that different living models entail significant discrepancy in terms of living fees and payment ability, which decide the living model of the elderly. At the same time, appreciation expectation on elderly support facilities is also an important factor affecting their choice over living models.

Illustrated by CCRC, the most popular senior housing program in the United States shows that service content and quality have a certain level of impact on elderly's behavioral attitudes towards living models. As for content, CCRS is a retirement community that provides independent living and assisted living facilities and service. Compared to ILC, ALC, and SNC, it offers more service and meets the various needs of the elderly (Marx et al., 2011).

Considering senior housing reality in China, the demand for various types of senior services is significantly higher than its supply. Though the demand is increasing all the time, the actual utilization ratio is extremely low, which leads to a heavy imbalance explained by the content and quality of the senior services offered.

As for the relation between the service quality and the housing demand, the decrease of senior services quality and efficiency resulting from the fact that home care function of families is weakening, and older people's old-fashioned ideas on elderly support and lack of knowledge on socialized senior services, shed huge amounts of influence on elder people's decision on property propensity.

From the analyses above from the perspective of effective demand, life cycle theory and the STP theory, it is seen that the elder's demand for a property is mainly influenced by their intention towards joining senior housing and their payment abilities. This thesis focuses on building a research framework of the influencers on the elder's housing propensity systematically. After the survey of the relevant literature and theories, it is found that direct factors influencing the intention towards joining senior housing include attitude towards joining senior housing, subjective norms, and perceived behavioral control. Payment capacity

has an indirect impact because it affects perceived behavioral control. A conceptual model (see Figure 4-2) is developed and tested in Chapter 6.

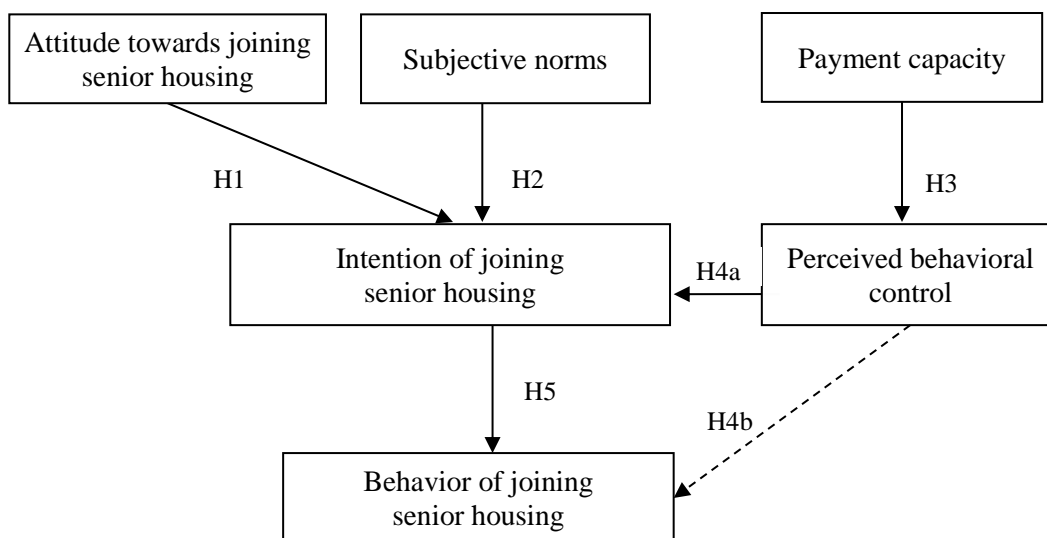


Figure 4-2 Influence factors of the demand for joining senior housing

4.3 Selection of indexes of influence factors

The former two sections serve to lay a theoretic foundation for this research by studying relevant theories on housing demand. Based on previous findings and interviews, indexes affecting influence factors mentioned above will be confirmed in this section.

I. Indexes of seniors joining senior housing

According to relevant field research and interviews along with conclusion and summarization of related literature, this thesis takes gender, age, education, career, marital status and self-care ability as influencing basic characteristics of the elder who choose senior housing. Besides, advised by experts interviewed in this field, it also takes into consideration the length of urban residence, income and the elder’s upper limit of the payment for the senior housing.

II. Indexes of attitude towards joining senior housing

The attitude of joining senior housing refers to the general assessment and inclination of the elderly on whether to join senior housing and which types of senior housing they shall

choose. Three indexes – expectation towards joining senior housing, awareness of elderly care services, and the propensity of elderly care facilities – are selected to reflect affective factors, cognitive factors and behavior inclination factors of attitude towards joining senior housing.

II. Indexes of attitude towards joining senior housing

The attitude of joining senior housing refers to the general assessment and inclination of the elderly on whether to join senior housing and which types of senior housing they shall choose. Three indexes, expectation towards joining senior housing, awareness of elderly care services, and the propensity of elderly care facilities are selected to reflect affective factors, cognitive factors and behavior inclination factors of attitude towards joining senior housing.

III. Indexes of subjective norms

The subjective norms in this research refer to the social pressure the elderly receive, that is the influence of social culture and collective values from important individuals and groups when they have to make a choice on whether to move into a retirement community. According to the consumption characteristics of the elderly and the conclusion from professional interviews, this research uses the traditional idea of home care and the policies of public service to analyze the influence that subjective norms of the demand for senior housing have on consumers' decision-making.

IV. Indexes of perceived behavioral control

The perceived behavioral control reflects the difficulty level of the elder's action of housing, which depends on skills, resources, and opportunities they possess. When joining senior housing is not simply decided by individual will, perceived behavioral control can directly predict and explain the action results. During the process of field research and interviews, it is found that social capital is the primary source for the elder's to get social support, economic support, and life and mental care. Thus, the strength of the social capital directly influences the elder's housing action. The basic elements of social capital contain social networks, social norms, and social trust. Thus, considering the research subject, we choose social capital to reflect the strength of the elder's perceived behavioral control on housing demand.

V. Indexes of the elder's payment capacity

Considering the relationship between social security levels plus reserve assets of senior care, and senior payment ability, and also basing on pertinent literature on payment ability and housing, this thesis uses social security level and reserve assets for senior care to measure

the payment ability of the elder.

This research puts forward the theoretic foundation of the influencing factors of the senior housing demand. Qualitative analysis was also conducted on the influencing factors of the housing demand and selection of indexes. Besides, a conceptual model (see Figure 4-3) of the relationship between influencing factors on housing demand and the housing action is proposed in this research. It is a conceptual model consisting of 12 latent variables e.g. housing expectation, ways of housing, facilities types, and perception of elderly caring services, traditional ideas of home care for the aged, policies of public service, social capital, reserved assets, social security level, housing intention, payment ability, and housing action. Among which, housing expectation, housing ways, types of facilities for the elder, perception of the community service for the aged, traditional ideas of home care for the aged, policies of public service, social capital, and social security level are exogenous latent variables, while the housing intention and payment ability are intermediate latent variables, and the housing behavior is endogenous latent variable. The purpose of this research is to identify the degree and significance of the influence of those latent variables on the behavior of joining senior housing.

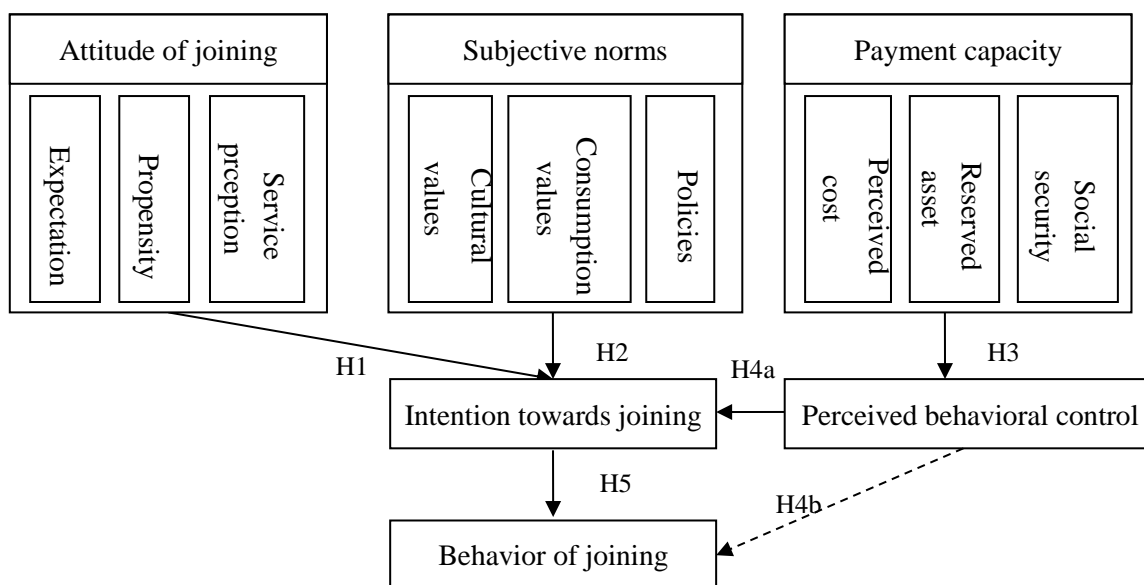


Figure 4-3 Conceptual model of the relation between the influence factors of the demand for joining senior housing and the behavior of joining senior housing

4.4 Proposition of hypotheses

4.4.1 Attitude towards joining senior housing and intention towards joining

I. Expectation towards senior housing

Expectation towards senior housing refers to an assumption of living situation in senior housing. The assumption is an expectation of living environment and an imagination of consumption in senior housing (Escalas, 2004). Besides, consumers' expectations affect their consuming behaviors in a positive way (Philips, 1996).

Generally, new products out of expectation of consumers enhance self-brand connection because consumers will interpret the meaning of their experiences by fitting them into the features of products (Zhao et al., 2009). In return, consumers' imagination or expectation of product and service make them get closer to the brand, which affects their intention towards consumption.

Most of Chinese seniors are not familiar with senior housing and they have no idea about elderly care services provided by senior housing. By using visual stimulation and on-site experience, seniors are able to conceive a real scene of senior housing and to construct their own expectations. Then, seniors actively incorporate themselves into their expectations of senior housing and imagine their consumption in the future, which may directly stimulate their intention towards joining senior housing.

II. Propensity of elderly care facilities

According to Lancaster (1966), consumers' propensity of certain product results from their needs for it. For seniors, their propensity for senior housing may involve location, environment, and living model.

The elderly may prefer to choose retirement community near hospital or shopping sites. As they grow older, a location near their family members, friends or relatives, environment with fresh air may become their considerations. Scenic destinations and historic sites will be their options.

Seniors will not choose senior housing under the circumstance that their needs for the facilities, living environment, and living model are not satisfied. The following elements are of great importance for increasing seniors' intention towards joining:

i. Safety and comfortability

As getting old, movement, sight, taste, hearing and physiological functions of the elderly are deteriorating and their psychological behaviors change. The decline of abilities, such as memory, intelligence, and learning, increases their needs for safety and accessibility. They may need more comfortable space than before.

ii. Diversified living space

Living space of senior housing should be flexible to fit the needs of seniors in different age classes. Younger seniors may be healthier in physical and mental dimensions than the older. As they grow older, the living space they use can adjust to more convenient space. For instance, ways for a wheel chair, special elderly care, or rehabilitation nursing should be taken into account.

iii. Personalized social space

Elderly facilities should be aimed to meet psychological and physical needs of seniors. The elderly have the demand of communication because communication makes them feel less lonely and ease their mood. If a senior housing can meet this psychological need, the intention towards joining may increase.

iv. Convenience of medical caring

Both medical caring facilities and services are important for seniors. Senior housing should cooperate with professional medical institutions to offer better and more professional facilities and services in order to attract senior customers. The convenience of medical caring service includes the content and quality of medical equipment and services, and more importantly, the efficiency of services.

As seniors grow older, they will tend to use easier and simpler way of life. At present, Chinese elderly with self-caring capacity will choose to live alone or live with spouse instead of living with their children. Most of them choose high-end retirement community or villa rather than ordinary senior community (Liu, 2014). It is seen that propensity of senior housing type affects their intention towards joining.

The propensity of elderly care facilities reflects the effective attitude towards behavioral intention and seniors' real needs. More propensity of elderly care facilities brings stronger intention towards joining senior housing (Williams & Ramamoorthy, 2007). Thus, there is a positive association between degree of the propensity of elderly care facilities and seniors' intention towards joining.

III. Perception of community services

Seniors will consider the quality of community services before they join a retirement community. Services provided in retirement community include but is not limited to daytime care, medical services, assistance, and education. However, Chinese retirement communities now are still underdeveloped and most of them only offer basic caring service to seniors. Employees in those retirement communities are not professional enough. As a result, seniors in China hold the stereotype that retirement communities work in the traditional way and will hesitate to join a retirement community.

When the elderly feel that their self-caring capacities are getting weak, they will rely much on assistance. If traditional home-based endowment does not work anymore, seniors will find a retirement community to spend the rest of their lives. When their physical capacities get weak, they will eager to find assistance and daily caring.

It is found that 28% of respondents live in special retirement communities (Clough et al., 2005). Besides, mental needs such as entertainment and education cannot be ignored and seniors prefer outdoor activities (Groger & Kinney, 2007). Compared with the elderly participating in fewer activities, seniors who frequently join outdoor activities are healthier, happier, and less depressed.

Perception of quality of community services is positively associated with seniors' intention towards joining senior housing (Williams & Ramamoorthy, 2007). Joining rate of seniors who think positively on the quality of community services is 1.87 and that of seniors who think negatively of the quality of community services is 1.38 (Xiao et al., 2012). In addition, the more consumers know a product or service, less prone are to purchasing risks.

To conclude, it is argued that:

H1a: Expectation towards joining senior housing has a positive impact on the intention towards joining senior housing;

H1b: Propensity of elderly caring facilities has a positive impact on the intention towards joining senior housing;

H1c: Perception of community services has a positive impact on the intention towards joining senior housing.

4.4.2 Subjective norms and intention towards joining

I. Cultural values

Filial duty is deeply rooted in Chinese traditional culture. Filial duty requires people to expand the respect for the aged in one's own family and it is the foundation of Chinese social ethics and morality. When filial generation supports parental generation based on filial culture, parental generation will gain economic and mental support. If seniors are sent to a retirement community, their children will bear the burden of being unfilially.

The elderly group is supported mainly by family members and their children look after them (Meng & Luo, 2004). "To take care of parents, to respect the ancestors, and to carry on the family line" is traditional Chinese filial culture to force seniors to choose to stay with their children. In return, their children rarely have the right to refuse this duty. If not, people will despise them. Therefore, traditional filial culture may indirectly impede the elderly's intention towards joining senior housing.

Based on this setting, the more conservative seniors' consumption views are, the less they are willing to transfer. That conforms to Hypothesis H2b.

II. Consumption value

Consumption value refers to principles or philosophies hold by customers, which reflect customers' ideology. Main consumption of Chinese seniors includes daily consumption and medical fees, which takes up more than 95% of total consumption (Zhu, 2012). Overall, Chinese seniors tend to live frugal lives and consider that senior housing is a luxury consumption.

Besides, senior housing is emerging in China in recent years. Since seniors are loyal to products or services they are using, they have not enough knowledge about senior housing and they may hesitate to join senior housing. Meanwhile, elderly facilities in senior housing are not mature, which lead to low satisfaction.

In addition, most Chinese seniors have the mental disposition to save money for the younger generation, which greatly reduces their consuming capacity for themselves. As high-end consumption grows popular among the younger generation, there is a large decrease of consumption of seniors themselves. This trend indirectly lessens seniors' intention towards joining senior housing.

Consumption value directly affects the decision-making of purchasing. In China, most of the Chinese seniors are conventional (Wang et al., 2015). They always keep high saving rate because they are worried about costs of health care and old-age pension and are unsure about how much those costs might change over time.

III. Policies for supporting senior housing

Medical insurance policies are a significant support for the development of senior housing. Comprehensive medical reimbursement system should be applied by senior housing in order to decrease seniors' medical burden. Zhu (2012) shows that if part of medical costs is taken by medical reimbursement system, the elderly will have higher intention to joining senior housing. Illustrations such as long-term insurance in Japan, medical subsidy in UK and medical insurance system in the US, the purpose of all of them is to support the development of retirement community.

Policies for supporting senior housing from government may involve public supporting and fiscal sides. For public supporting, the government should offer more preferential policies in power, gas, water, and sewage. It will decrease operational costs for senior housing developers. Fiscal support includes subsidies, financial support, and tax reduction. Government's endeavor to perfect its policies of senior services and service facilities will undoubtedly improve the actual quality of service facilities.

At the same time, services and efficiency of service of senior housing will be improved because of limited investment can be tilted to these parts. On the other hand, better services and elderly caring facilities will attract more seniors to join and stay.

To conclude, it is argued that:

H2a: Cultural values of joining senior housing have negative impact on the intention towards joining senior housing;

H2b: Seniors' consumption value has a negative impact on the intention towards joining senior housing;

H2c: Policies for supporting senior housing have a positive impact on the intention towards joining senior housing.

4.4.3 Payment capacity and perception behavioral control

I. Perceived cost of joining senior housing

Research shows that a retirement community is mainly judged by perceived cost because senior housing market contains asymmetric information (Pechmann & Ratneshwar, 1992). Judgement on perceived costs is based e.g. on equipment of senior housing, services, and qualities of services. For instance, it is considered that perceived cost of one-time purchase or purchasing the right to use is higher than month payment (Harris-Kojetin et al., 2013).

Payment capacity is perceived through costs of joining senior housing (Dodds et al., 1991). When costs of joining senior housing go high, payment capacity will be higher correspondently. If costs of joining senior housing are too high for seniors, they will give up, and turn to other options. Besides, seniors' payment capacity is determined by their reserved assets, which may indirectly exert a negative impact on the intention towards joining.

II. Perceived reserved assets

Potential demand for senior housing in China is huge but it is limited to seniors' payment capacity. Generally, income and reserved assets determine the elderly's disposable assets. The higher income or reserved assets, the more disposable assets are.

Majority of seniors' income comes from endowment pension. The rest of it results from the financial support from their children and labor income. Endowment pension offered by the government is the most sustainable and stable income for seniors. Unlike endowment pension, financial supporting from seniors' children is decreasing, because Chinese 4-2-1 family structure puts a lot of pressure on filial generation. The employment rate of seniors aged 60 to 64 is 37.4% and that of seniors aged 65 and above is 15.6% (Qiu, 2015). If employment rate of seniors increases, the payment capacity of seniors will go up. In addition, investment and reserve mortgages are other ways of increasing seniors' reserved assets.

Seniors' income is not the only judgment for their payment capacities. However, the reserved asset is more significant in their decision-making process. Seniors with abundant reserved assets will prefer better entertainment and higher life quality and they have the capacity to pay the higher cost. Abundant reserved assets for the elderly means stronger payment capacity and anti-risk capacity (Meng & Luo, 2004).

In addition, it is found that 70% of seniors with abundant reserved assets chose to live in

a high-quality retirement community or senior apartment (Zhao & Wang, 2007). Pursuing better medical and nursing services brings better lives for seniors. Therefore, reserved assets impact the intention towards joining senior housing.

III. Perceived social security

China's social security system includes social insurance, social assistance, and social welfare. With high-speed growing aging population, social security system ensures the elderly's basic old-age needs can be met. It serves as a social protection and relief for the elderly in the event of loss of income or labor capacity. Therefore, the improvement of social security system and the level of protection directly affect the elderly's choice of pension model. The Chinese government should give full play to market and institutions in order to improve endowment insurance, medical insurance, and social assistance.

Endowment insurance and medical insurance are two important parts of the Chinese social security system. Endowment insurance and medical insurance affect the income of the elderly to some degree seniors' consumption expectations. It shows that payment capacity of seniors who participated in medical insurance is 55% higher compared with those who did not participate in medical insurance; payment capacity of seniors who participated in both endowment insurance and medical insurance is 2.8 times higher than those who did participate either insurance (Dong, 2011). It can be seen that the insurance coverage of endowment insurance and medical insurance has a positive effect on payment capacity of seniors. Besides, endowment consumption of seniors with endowment insurance and medical insurance is higher than those without endowment insurance and medical insurance (Ma et al., 2014). It is shown that the basic endowment insurance and medical insurance promote the consumption of the elderly and is positively associated with the elderly's ability to pay.

Fiscal subsidy and social assistance are also important in Chinese social security system. But social assistance is not stable and is difficult to be gauged (Huang et al., 2015). Moreover, long-term care insurance may reduce seniors' requirement on reserved assets and increase the perceived behavior control of seniors (Jensen, 1992; Zhou-Richter et al., 2010). When seniors perceive a higher social insurance, it is more likely they will consume. A comprehensive social insurance system will not only remedy the deficiency of socialized reserved assets but also will be the most effective way to deal with the shortage of effective demand for senior housing.

Commercial insurance is a supplement for the social insurance system. Commercial insurance is another option for seniors to increase their income during their retirement lives because commercial insurance offers financial returns. When costs of endowment go up, those returns from commercial insurance can reduce part of their financial burden.

To conclude, it is argued that:

H3a: Perceived costs of joining senior housing have a negative impact on the intention towards joining senior housing;

H3b: Perceived reserved assets have a positive impact on the intention towards joining senior housing;

H3c: Perceived social insurance has a positive impact on the intention towards joining senior housing.

4.4.4 Perceived behavioral control and intention towards joining senior housing

According to Ajzen (1985), the behavior of consumers is affected by perceived behavioral control. When consumers perceive more factors out of their control, the less intention towards certain behavior they will have. Seniors who have a positive attitude towards joining senior housing may not join in the end, because the cost of joining may exceed their payment capacity. Under this circumstance, they have to choose home-based endowment or cheaper senior apartment.

To conclude, it is argued that:

H4a: Perceived behavioral control has a positive impact on the intention towards joining senior housing.

4.4.5 Perceived behavioral control and the behavior of joining senior housing

In this study, perceived behavioral control is one of the dimensions of the difficulty of joining senior housing. Cost of joining senior housing is served as a dimension to verify the difficulty of joining senior housing, whereas reserved asset and social insurance to verify payment capacity. If senior has stronger payment capacity, the higher the chance of joining senior housing.

Meanwhile, when seniors believe in their own perceived behavioral control, perceived behavioral control will have a positive impact on their behaviors. Thus, perceived behavioral control impels seniors to fulfill behavior of joining senior housing even though their attitude towards joining or subjective norms sometimes is not the driving force.

To conclude, it is argued that:

H4b: Perceived behavioral control has a positive impact on the behavior of joining senior housing.

4.4.6 Intention of joining senior housing and behavior of joining senior housing

Behavioral intention refers to subjective chance or possibility of certain motivation or intention when a consumer makes a decision (Eagly & Chaiken, 1993). If situations are suitable for behavioral control, the behavioral intention will directly lead to actual behavior.

The intention of joining senior housing means seniors' inclination or motivation in deciding to join. The decision includes joining or not, and joining what kind of senior housing. In other words, the stronger the intention is, the highest the chance of actual behavior happens.

Therefore, it is argued that:

H5: Intention of joining senior housing has a positive impact on the behavior of joining senior housing.

4.5 Hypotheses and conceptual model

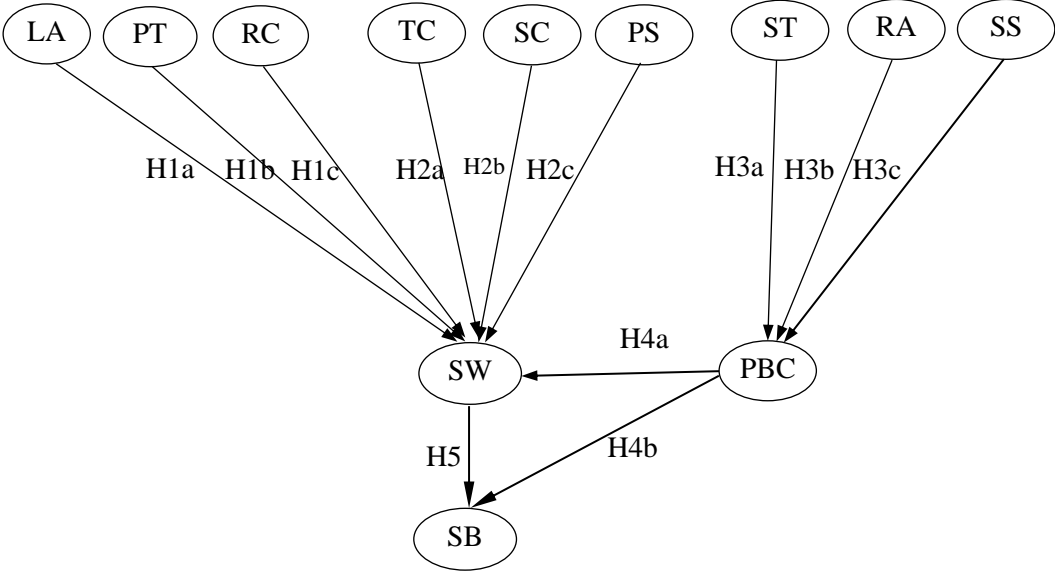
According to previous parts, hypotheses and conceptual model are shown as follows:

Table 4-1 Hypotheses of this study

Relation between	Relations among variations	Corresponding hypothesis
Attitude towards joining and intention towards joining	Expectation towards joining senior housing has a positive impact on the intention towards joining senior housing	H1a
	Propensity of elderly caring facilities has a positive impact on the intention towards joining senior housing	H1b
	Perception of community services has a positive impact on the intention towards joining senior housing	H1c
Subjective norms and intention towards joining	Cultural values of joining senior housing have a negative impact on the intention towards joining senior housing	H2a
	Seniors' consumption value has a negative impact on the intention towards joining senior housing	H2b
	Policies for supporting senior housing have a positive impact on the intention towards joining senior housing	H2c
Payment capacity and perceived behavioral control	Perceived costs of joining senior housing have a negative impact on the intention towards joining senior housing	H3a
	Perceived reserved assets have a positive impact on the intention towards joining senior housing	H3b
	Perceived social insurance has a positive impact on the intention towards joining senior housing	H3c
Perceived behavioral control and intention towards joining	Perceived behavioral control has a positive impact on intention towards joining senior housing	H4a
Perceived behavioral control and behavior of joining	Perceived behavioral control has a positive impact on behavior of joining senior housing	H4b
Intention of joining and behavior of joining	Intention of joining senior housing has a positive impact on behavior of joining senior housing	H5

The conceptual model is summarized in Figure 4-4. It contains twelve hypotheses and

twelve variables.



Note:
 LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);
 PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

Figure 4-4 Conceptual model of relation between influence factors of the demand for joining senior housing and behavior of joining

4.6 Chapter conclusion

In this chapter, eleven constructs which affect the demand for joining senior housing are proposed and the conceptual model describes the dependencies between those constructs. In summary, it is argued that:

I. Three exogenous variables (expectation towards joining senior housing, propensity of senior housing and perception of elderly care services) have a positive impact on both intention and behavior of joining senior housing;

II. Two exogenous variables (cultural values of supporting the elderly and consumption values) have a negative impact on both intention and behavior of joining senior housing;

III. Perceived policies of senior housing and perceived reserved assets have a positive impact on perceived behavior control;

IV. The intention of joining senior housing and perceived behavioral control have a positive impact on the behavior of joining senior housing.

Chapter 5 Methodology

This chapter identifies the indicators to measure the conceptual model and test the hypotheses. Thus, it defines the method to implement the empirical study. It covers the operationalization of the model and questionnaire design and includes a summary description of the data collection and analysis strategies.

5.1 Advantages of quantitative analysis methods

Based on statistical data analysis, a statistical model will be developed to answer the research questions through quantitative analysis. Quantitative analysis is a way of analyzing indicators and values of objects by setting and using a mathematical model. On the other hand, qualitative analysis is a way of analyzing nature, characteristics, and rules of development of objects according to past and present information by applying analyst's intuition and experience.

Influence factors and conceptual model were analyzed by a qualitative method in the first four chapters. The remaining of chapters shows ways and degree of influence that each influence factors exert on knowledge transfer, which adopts a quantitative design. It is necessary to note that two methods cannot be diametrically separated. They are complementary to each other because the qualitative serves as the foundation and the quantitative defines the confirmation of the conceptual model.

In this thesis, there are dependencies between variables of the constructed model and their relations will be analyzed in the following chapter by using IBM AMOS. Relations between influence factors of the demand for joining senior housing will be described in Chapter 6.

5.2 Measurement of variables

In order to design a questionnaire with reliability and validity, some items mentioned in the literature review and related closely with research subjects are taken into the questionnaire of

this research. Besides, general and tested items are also used in this research. Items in the questionnaire are kept consistently under the same context.

Some items considered in this research are used for the first time in China, and they do not exist in questionnaires within the range of the same context. Thus, the items are designed according to general theoretical rules and in-depth interviews with experts in the senior housing industry are applied to keep reasonability of questionnaire in this research. Moreover, the panel discussion is also applied to verify the reliability and validity of items in the questionnaire.

5.2.1 Attitude towards joining senior housing

I. Expectation towards senior housing

The expectation towards senior housing refers to the living situation in senior housing. Based on previous analysis, five items are proposed to measure the elderly's expectation towards senior housing.

Table 5-1 Operationalization of expectation towards senior housing

Latent variable	Theoretical foundation	Measurable variable
Expectation towards senior housing	Adapted from Phillips (1996), Escalas (2004), Zhao and other scholars (2009).	Joining senior housing will provide you with better medical care and nursing services. Joining senior housing will ensure better safety for you. Joining senior housing will provide you with a more relaxing social circle. Joining senior housing will offer you lots of meaningful activities which will enhance your sense of self-fulfillment. Joining senior housing will make you receive more social respect.

II. Propensity of elderly care facilities

Based on previous analysis, five items are proposed to measure the elderly's propensity of elderly care.

Table 5-2 Operationalization of propensity of elderly care facilities

Latent variable	Theoretical foundation	Measurable variable
Propensity of elderly care facilities	Adapted from Clough (2005), Williams and Ramamoorthy (2007), Liu (2014), Soldo and other scholars (1984), Wei and Luo (2015).	<p>You will choose a community convenient for shopping and near the hospital.</p> <p>You will choose a community neighboring my children or relatives.</p> <p>You will choose a community with various physical facilities.</p> <p>You will choose a community where environment fits your personal tastes.</p> <p>You will choose a community which is mixed apartment for the elderly and for your family members.</p>

III. Perception of community services

Based on previous analysis, five items are proposed to measure the elderly's perception of community services.

Table 5-3 Operationalization of perception of community services

Latent variable	Theoretical foundation	Measurable variable
Perception of community services	Adapted from Groger and Kinney (2007), Williams and Ramamoorthy (2007), and Martin (2013).	<p>A community built and operated by well-known company/companies provides better service.</p> <p>Communities for the elderly provide you with better caring service comparing with traditional institutions for the elderly.</p> <p>The more medical staff for the elderly communities own, the better caring and medical service offered.</p> <p>Communities for the elderly provide you with more spiritual consolation (education/entertainment/listening and etc.) comparing with traditional institutions for the elderly.</p> <p>Communities for the elderly offer a wider range of customized services (such as long-term escorting and traveling).</p> <p>Joining senior housing will offer you lots of meaningful activities which will enhance your sense of self-fulfillment.</p> <p>Joining senior housing will make you receive more social respect.</p>

5.2.2 Subjective norms

I. Cultural values

Based on previous analysis, five items are proposed to verify the elderly's cultural values.

Table 5-4 Operationalization of cultural values

Latent variable	Theoretical foundation	Measurable variable
Cultural values	Adapted from Meng and Luo (2004), Mao and Chi (2011), and Ding (2014).	<p>It embarrasses you to join and stay in a retirement community.</p> <p>If you live with children and/or grandchildren, others will consider you are happy.</p> <p>If you join and stay in a retirement community, others will consider your children are not filial.</p> <p>If you join and stay in a retirement community, your children will pay less attention to you.</p> <p>Your family members and/or friends disagree with your joining and staying in a retirement community.</p>

II. Consumption value

Based on previous analysis, five items are proposed to measure the elderly's consumption value.

Table 5-5 Operationalization of consumption value

Latent variable	Theoretical foundation	Measurable variable
Consumption value	Adapted from Zhu (2012) and Wang (2015).	<p>Joining and staying in a retirement community is a high-consumption for you.</p> <p>You consider that joining and staying in a retirement community is risky.</p> <p>Living with your children instead of joining and staying in a retirement community will save a lot of money for your children.</p> <p>If your old friends or colleagues do not choose to stay in a retirement community, you will not either.</p> <p>After experiencing the life living in a retirement community, you will consider to joining it.</p>

III. Policies for supporting senior housing

Based on previous analysis, five items are proposed to measure policies for supporting senior housing.

Table 5-6 Operationalization of policies for supporting senior housing

Latent variable	Theoretical foundation	Measurable variable
Policies for supporting senior housing	Adapted from Zhu (2012) and Wang (2015).	<p>If the government encourages the elderly to join and stay in a retirement community, you will join a community.</p> <p>If the medical cost you spend in a community is covered by social medical security, you will join a community.</p> <p>If existing public facilities provided by the government cannot meet your needs, you will join a community.</p> <p>If existing medical services proved by a public hospital cannot meet your needs, you will join a community.</p> <p>If the government gives subsidies to companies operating retirement community, you will join a community.</p>

5.2.3 Payment capacity

I. Perceived cost of joining senior housing

Based on previous analysis, five items are proposed to measure the perceived cost of joining senior housing

Table 5-7 Operationalization of perceived cost of joining senior housing

Latent variable	Theoretical foundation	Measurable variable
Perceived cost of joining senior housing	Adapted from Dodds (1991), Pechmann and Ratneshwar (1991), Harris-Kojetin (2013), Tan and other scholars (2015).	<p>You will refuse a large amount of charge before joining a retirement community.</p> <p>The cost of purchasing property of a retirement community cannot higher than standard commercial housing.</p> <p>Monthly or annual fees cannot exceed the amount of your endowment pension.</p> <p>You will refuse reverse mortgage for joining a retirement community.</p> <p>The cost of joining a retirement community must be lower than my reserved assets.</p>

II. Perceived reserved assets

Based on previous analysis, five items are proposed to measure perceived reserved assets.

Table 5-8 Operationalization of perceived reserved assets

Latent variable	Theoretical foundation	Measurable variable
Perceived reserved assets	Adapted from Dodds (1991), Pechmann and Ratneshwar (1991), Harris-Kojetin (2013), Tan and other scholars (2015).	<p>You can afford to join and stay in a retirement community with your own pension.</p> <p>You can afford to join and stay in a retirement community with your savings if your pension is not enough.</p> <p>You can afford to join and stay in a retirement community with the aid of financial support from your family members or relatives.</p> <p>You have other income (rental, assets, labor income and etc.) to support your stay in a retirement community.</p> <p>You accept house-for-pension scheme to support your stay in a retirement community.</p>

III. Perceived social security

Based on previous analysis, five items are proposed to measure the perceived social security.

Table 5-9 Operationalization of perceived social security

Latent variable	Theoretical foundation	Measurable variable
Perceived social security	Adapted from Zhou-Richter (2010), Ma and other scholars (2012), Zou (2015).	<p>Your social pension insurance will be a great help for covering the cost of your stay in a retirement community.</p> <p>Commercial medical insurance you purchased will be a great help for covering the cost of your staying in a retirement community.</p> <p>Purchasing commercial pension insurance will be a great help for your stay in a retirement community.</p> <p>Purchasing commercial medical insurance will be a great help for your stay in a retirement community.</p> <p>Long-term caring insurance will be a great help for covering the cost of your stay in a retirement community.</p>

5.2.4 Perceived behavioral control

Based on previous analysis, five items are proposed to measure the perceived behavioral control.

Table 5-10 Operationalization of perceived behavioral control

Latent variable	Theoretical foundation	Measurable variable
Perceived behavioral control	Adapted from Ajzen (1985), Chen and Shi (2013).	<p>You can decide to join and stay in a retirement community or not by yourself.</p> <p>You can afford to join and stay in a retirement community you like with your own pension.</p> <p>Your family members and society support my decision to join and stay in a retirement community.</p> <p>To join and stay in a retirement community is not a financial burden for you.</p> <p>You believe it is not difficult to find a suitable and comfortable community for you.</p>

5.2.5 Intention of joining senior housing

Based on previous analysis, five items are proposed to measure the intention towards joining senior housing.

Table 5-11 Operationalization of intention towards joining senior housing

Latent variable	Theoretical foundation	Measurable variable
The intention of joining senior housing.	Adapted from Eagly and Chaiken (1993), and Xu (2013).	<p>You would like to know more information on senior housing.</p> <p>You will consider joining and staying in a retirement community if it matches your needs.</p> <p>You will absolutely join and stay in a retirement community.</p> <p>You accept higher cost to stay in a retirement community compared with a traditional way of supporting the elderly.</p> <p>You will recommend your family members or friends to join and stay in a retirement community.</p>

5.2.6 Behavior of joining senior housing

Based on previous analysis, five items are proposed to verify the behavior of joining senior housing.

Table 5-12 Operationalization of behavior of joining senior housing

Latent variable	Theoretical foundation	Measurable variable
Behavior of joining senior housing	Adapted from Eagly and Chaiken (1993), Chen and Shi (2013).	Stay in a retirement community is your priority. You have decided to join a certain type of retirement community to spend the rest of my life. You have prepared a lot for joining and staying in a retirement community in the near future. You have decided to join and stay in the retirement community at a certain age. Joining and staying in the retirement community is/will be absolutely a right choice for you.

5.3 Questionnaire design

The operationalization of the 12 constructs described in the previous section is measured in the questionnaire using Likert-scale items. After the questionnaire was completed, experts of senior housing were interviewed, and managers of senior housing projects were organized to fill in the questionnaire for pilot-testing. Through interview and this pilot testing, the deviation, ambiguity, and blur existing in this questionnaire are detected, thus the questionnaire was modified and the final version of the questionnaire was prepared.

With a closed-book design, respondents filled in the questionnaires with their subjective views. Except for their basic personal information, all questions in the questionnaire required respondents' subjective answers. In the questionnaire, the scale of items is from 1 - "Totally disagree" to 7 - "Totally agree". Questions related to measuring were either cited directly from the measuring scales that were shown to be reliable or mature listed in the references, or the modified versions considering the purpose of this study. Moreover, some of them were derived from the analysis of related theories and references. This questionnaire included two sections: 8 questions cover personal information about the respondent and 60 items measure the 12 constructs in the conceptual model that covers the determinants of the staying behaviors of senior housing. The detailed questionnaire can be found in "*Appendix 2: Questionnaire on the Implicit Factors Affecting the Demands of Chinese Pension Real Estate*

Market".

5.4 Data collection

Respondents of this questionnaire are the elderly live in Guangzhou. The interviewees of this research are the elderly residents in Guangzhou who are aged 50 and over, have lived in Guangzhou for more than two years.

Respondents are selected by random sampling. Eleven different districts in Guangzhou, according to GDP, are divided into three areas: developed (GDP per capita: above RMB 200000), developing (GDP per capita: RMB 100000 - RMB 200000), and underdeveloped (GDP per capita: less than 100000 RMB). Stratified random sampling is applied. Two districts are randomly selected from each area. Four communities or apartments are randomly selected from developed area, four communities or apartments and eight communities or apartments are randomly selected from developing and underdeveloped area respectively. In sum, six districts, 32 communities, and 640 seniors are randomly selected for data pool. Trained interviewers give guidance to interviewees and conduct the field work using personal interviews. Among 640 seniors, some of them did not want to participate in the survey and only 576 of them finished the questionnaires. Out of those 59 are not valid and 517 were valid. If five consecutive questions share the same answer, or questionnaire is not completed, the questionnaire will be considered not valid. Thus, the returned rate of questionnaire reaches 89.76%.

5.5 Chapter conclusion

According to the 12 constructs included in the conceptual model, the questionnaire was initially designed with Likert-scale items. In total, 517 valid questionnaires are ready for the following analysis.

Chapter 6 Results

6.1 Characterization of the sample

Table 6-1 provides the main characteristics of the sample that covers 517 valid responses. The personal characteristics of questionnaire involve 11 factors, namely gender, age, registered residence, education, previous occupation, marital status, accommodation, family monthly income, self-care capacity, the residence time in Guangzhou and the widely accepted ratio of occupancy fee to a pension.

In terms of gender, the number of males is twice the number of females. Although it is different from the tendency of the feminization of Chinese elderly population, it is in accordance with the fact that males play a leading role in making decisions of real estate occupancy for the aged, especially in the empty nest families, who live with spouses. In view of age, people of 70 years and above account for 33.85% and people of 50-70 make up 65.15%. From the perspective of education, the respondents with the Bachelor degree and above account for 53.0%. Among them, the age of Masters and above mainly ranges from 50 to 60, which reveals the obvious advanced degree. Seen from the previous occupation, companies account for 27.66%, institutions 24.37%, and civil servants 28.05%. The latter two occupy 52.40%. In terms of residence, Guangzhou residents make up 51.06%. The residents in Guangdong Province account for 24.18%. People in other provinces make up 22.63%. The finding shows that Guangzhou residents account for more than half of the sample. In terms of residence time, people who live in Guangzhou for above 10 years constitute 55.13%, while those who live for 5-10 years make up 11.99%, which confirms to the majority of Guangzhou residents in the survey.

Table 6-1 Sample characterization

Items	Contents	Number of respondents	Percentage
Gender	Male	347	67.12
	Female	170	32.88
Age	50-60	209	40.42
	60-70	133	25.73
	70-80	93	17.99
	>80	82	15.86
Registered residence	Guangzhou	264	51.06
	Guangdong Province	125	24.18
	Other provinces	117	22.63
	Abroad	11	2.13
Education	High school or below	125	24.18
	Junior college	118	22.82
	Bachelor	145	28.05
	Master	103	19.92
	Doctor or above	26	5.03
Previous occupation	Companies	143	27.66
	Institutions	126	24.37
	Civil servants	145	28.05
	Individuals	67	12.96
	Others	36	6.96
Marital Status	Unmarried	5	0.97
	Married with children	315	60.93
	Married without children	60	11.61
	Widowed/divorced with children	95	18.38
Accommodation	Alone	42	8.12
	With spouses	132	25.53
	With children/relatives	323	62.48
Family monthly income	<=RMB 3,000	62	11.99
	RMB 3,001-RMB 5,000	N/A	0.00
	RMB 5,001-RMB 10,000	81	15.67
	RMB 10,001-RMB 20,000	256	49.52
	>=RMB 20,000	102	19.73
Self-care	Totally independent	78	15.09
	partly independent	350	67.70
	Totally dependent	113	21.86
Residence time in Guangzhou	1-3 years	54	10.44
	3-5 years	95	18.38
	5-10 years	75	14.51
	>10 years	62	11.99
The widely accepted ratio of occupancy fee to pension	<50%	285	55.13
	50%-100%	0	0.00
	100%-200%	368	71.18
	200%-300%	102	19.73
	>300%	47	9.09
		0	0.00

In view of marital status, the percentage of married people is 52.22%, most of whom are married people with children. As for accommodation, the percentage of people who live with

spouses reaches 73.50%. The percentage of people live alone is 15.67%, whereas only 10.83% live with children or relatives. Regarding family monthly income, the majority of people come from middle and high-income families. People with the monthly income of RMB 5,000 to RMB 20,000 accounts for 84.33%, among which the percentage of respondents with the monthly income of RMB 5000 - RMB 10000 is 49.52%, almost a half of surveyed people. In terms of self-care, 76.70% of people are totally independent while merely 10.44% of people are completely dependent. In terms of the widely accepted ratio of occupancy fee to pension, 71.18% of respondents choose the ratio of 50%-100% and no one chooses “below 50%” or “above 300%”. Generally speaking, statistics show that most respondents are the totally independent local middle or high-income people who live with spouses with the background of government, companies, and institutions, highly representing the consumption of real estate for elderly people.

6.2 Reliability test

The study mainly uses the Cronbach's α that reflects the internal conformity to test the reliability of the items. Analyses were performed using SPSS 22.

Table 6-2 summarizes reliability measures: means, standard deviations, and Cronbach's α of each item. Results show that Cronbach's α for each construct is above 0.75, which demonstrates the high reliability of the items to measure the constructs. In other words, the indicators show high reliability.

Table 6-2 Descriptive Statistics and Reliability Analysis of Sub-scales

Latent Variable	Item	Mean	Std. Deviation	Cronbach's α
Expectations of joining senior housing	LA1	6.000	0.8649	0.773
	LA2	5.998	0.8793	
	LA3	5.994	0.8727	
	LA4	5.992	0.8536	
	LA5	5.983	0.8636	
Facility propensity	PT1	5.969	0.8799	0.773
	PT2	6.029	0.8474	
	PT3	5.917	0.9186	
	PT4	5.992	0.8559	
	PT5	5.952	0.9274	
Awareness of service	RC1	6.033	0.8564	0.773
	RC2	6.077	0.8547	
	RC3	5.959	0.9151	
	RC4	6.077	0.8104	
	RC5	5.948	0.8600	
Social value	TC1	3.998	0.8271	0.777
	TC2	3.959	0.8937	
	TC3	3.981	0.8602	
	TC4	3.996	0.8627	
	TC5	3.983	0.8636	
Consumption value	SC1	3.996	0.8353	0.777
	SC2	3.983	0.9201	
	SC3	3.959	0.8628	
	SC4	3.981	0.8397	
	SC5	3.988	0.8913	
Policy of supporting the elderly	PS1	5.888	0.8821	0.772
	PS2	6.060	0.8729	
	PS3	5.940	0.9034	
	PS4	6.031	0.8277	
	PS5	5.928	0.8608	
Cost of joining senior housing	ST1	3.793	0.8858	0.778
	ST2	3.812	0.9532	
	ST3	3.785	0.9433	
	ST4	3.781	0.9567	
	ST5	3.772	0.9140	
Reserved asset	RA1	5.834	0.8801	0.774
	RA2	5.948	0.8734	
	RA3	5.839	0.8997	
	RA4	5.938	0.8559	
	RA5	5.867	0.8802	
Social security	SS1	5.896	0.8334	0.774
	SS2	6.056	0.8574	
	SS3	5.973	0.8645	
	SS4	5.963	0.8356	
	SS5	5.961	0.8752	
Perceived behavior control	PBC1	5.985	0.7495	0.771
	PBC2	6.039	0.8108	
	PBC3	5.934	0.8396	
	PBC4	5.985	0.7923	
	PBC5	5.948	0.8255	
Intention of Joining Senior Housing	SW1	5.992	0.8376	0.772
	SW2	6.037	0.8025	
	SW3	5.979	0.8338	
	SW4	5.963	0.8049	
	SW5	5.983	0.8293	
Behavior of Joining Senior Housing	SB1	5.901	0.8581	0.770
	SB2	5.992	0.8581	
	SB3	5.954	0.8569	
	SB4	5.959	0.8492	
	SB5	5.961	0.7915	

6.3 Common method bias

If survey data are collected by using the same questionnaire, common method bias (CMB) may exist. CMB reflects the common bias in the items of the questionnaire. Normally, CMB is tested with Harman’s single factor test, whose basic hypothesis is that: if method variance exists, a non-rotating factor could be obtained from the exploratory factor analysis of all research concepts, and this common factor could explain most of the variation. If this one factor accounts for most variance of a model, CMB will become a problem. Principal component analysis (PCA) was used in the test. Table 6-3 shows the values of Bartlett’s test and KMO statistic. Bartlett sphericity test assesses whether the items are correlated. If the items are not correlated, it is not possible to extract principal components. The KMO value below 0.5 leads to the same conclusion. As shown in Table 6-3, the Chi-square statistic is 13.196E3, the p-value is <0.001, and the KMO value is 0.823>0.5. Thus, a principal component analysis can be applied.

Table 6-3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.823
Bartlett's Test of Sphericity	Approx. Chi-Square	13.196E3
	df	1770
	Sig.	0.000

Table 6-4 shows the variance explained by the first component that is 10.183%, because it is far below 20% of the total variance, the impact of CMB is small and acceptable. Therefore, the structural equation model can be fit.

Table 6-4 Total variance explained

Comp onent	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	of Variance%	Cumulative %	Total	of Variance%	Cumulative %
1	6.110	10.183	10.183	6.110	10.183	10.183
2	4.564	7.606	17.789			
3	3.576	5.960	23.749			
4	3.367	5.612	29.361			
5	3.236	5.394	34.755			
.....			
60	.191	.318	100.000			

Method: Principal component analysis.

This study adopts Harman's single factor experiment for exploratory factor analysis (principal component analysis). Principal components with eigenvalues above 1 are retained.

6.4 Structural equation model

6.4.1 Validity test

Validity refers to the degree of variables reflecting the desired contents and is of great significance in measuring the factors that influence real estate for elderly people. In the study, validity is more important than reliability. Firstly, the measurement items tend to be subjective. Only by measuring the performance can we get the psychological characteristics and behavioral tendencies indirectly. Secondly, since the psychological characteristics of elderly people and the performance are partially relevant and there is no functional relationship between them, the performance cannot reflect the real mind exactly. Thirdly, as the measuring objects are subjective individuals and adjust their performances to conceal inner world, the difficulty of measurement increases.

Validity test falls into three categories, namely content validity, structure validity, and criterion validity. In terms of content validity, to enable the respondents to understand the contents of the questionnaire completely, this thesis makes detailed interviews researchers in the real estate for elderly people and developing and operating managers. The semantic description of some items is made. Meanwhile, benchmark with the literature is part of the questionnaire design. After the expert review, the items of the initial questionnaire were rewritten to improve content validity. In addition, items used to measure the constructs in the conceptual model regarding the influence the demand for real estate is adopted from the literature. Therefore, the content validity satisfies the research requirement.

6.4.2 Model setup

After the reliability analysis of 60 measurement items, it is found that all constructs have high reliability. They are directly regarded as observational variables in one-way relation to latent variables so that the initial model of occupancy demand is defined. The structural equation model of the research is composed of the measurement model and the structural model. The measurement model is made up of latent variables, measurable

variables, and covariance. Both models are combined to form the structural equation model (see in Figure 6-1).

6.4.3 Model identification

Model fitting should guarantee that the structural equation model is identifiable in parameters, the measurement model, and the structural model.

I. The identification of parameters

The further analysis requires the proper and excessively identified structural equation model in accordance with $DP \geq t$. On account of the requirement, we should observe the principle of “ $(p+q)(p+q+1)/2 \geq t$ ”. In the principle, “p” is the number of external observable variables; and “q” refers to the number of internal observable variables that can produce “ $(p+q)(p+q+1)/2$ ” different variances or covariance; and “t” is the number of estimated parameters.

From Table 6-1, “p”, the number of external observable variables is 60 and t equals 131. By computing, we conclude the unique variances and covariances available in the observed covariance matrix are $60 \times 61 \div 2 = 1830$ that are enough to keep the model identified.

II. The identification of the measurement model

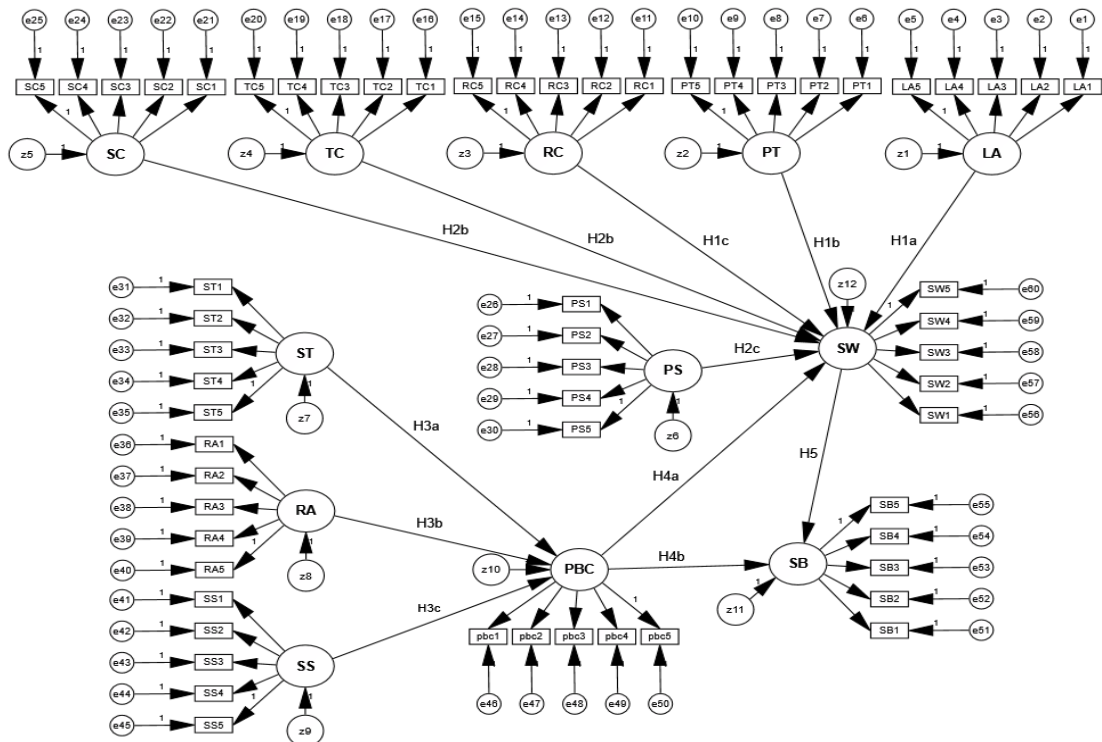
The measurement model is used to handle the relations between observational variables and latent variables. In this research, all latent variables are measured by five observational variables. In the confirmatory factor analysis, each observational variable only measures one latent variable. Therefore, the measurement model is identifiable.

III. The identification of the structural model

The structural model is used to process the relations between latent variables. From the perspective of the classification of structural models, all the recursive models are identifiable because the relations of variables in recursive models are a one-way causal relationship. The residuals are also assumed independent of all independent variables. Under these circumstances, we can get all the only definite parameters relevant to the model, like in regression analysis. The structural model in the research is an in recursive one and thus can be identified.

IV. The estimation of the structural equation model

The structural equation models are estimated using AMOS 24, which allows exploring dependencies between variables and validate model building. The thesis uses AMOS to construct the initial structural equation model (showed in Figure 6-1) and finishes the parameter estimation of the final model and model standardization.



Note: H1a-H5 are 12 hypotheses, describing dependencies among variables.
 LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);
 PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

Figure 6-1 The preliminary structural equation model

6.4.4 Model evaluation

Model evaluation refers to the difference between the estimated variance covariance matrix (Σ) and the observed variance covariance matrix (S). This study uses AMOS software to estimate the path coefficient (or load coefficient) of the latent variable and the corresponding test value to judge the significance of the model path coefficient.

Table 6-5 Fit index analysis

Statistical Test Quantity	Fit Standard or Critical Value	Test Result	Model Adaption Judgment
Square Values			
χ^2/df	<3.0 (p<0.05 reaches significance level)	1858.8/1699=1.094	Yes
Adjusted Goodness of Absolute Fit Index			
GFI	>0.90	0.897	Close
RMR	<0.05	0.033	Yes
RMSEA	<0.05	0.014	Yes
Adjusted Goodness of Value-Added Fit Index			
AGFI	>0.90	0.890	Close
NFI	>0.90	0.865	Close
RFI	>0.90	0.859	No
IFI	>0.90	0.987	YES
TLI(NNFI)	>0.90	0.986	YES
CFI	>0.90	0.987	YES
Adjusted Goodness of Contracted Fit Index			
PGFI	>0.50	0.833	Yes
PNFI	>0.50	0.830	Yes
PCFI	>0.50	0.947	Yes
CN	>200	517	Yes
Inner Quality of Model			
Estimated Parameter	p<0.05 (reaches significance level)	p<0.004 (reaches significance level)	Yes
Adjusted Goodness of Basic Fit Index			
Factor Loading	0.5~0.95	0.52~0.85	Yes
Error Variation	Both reach significance level without negative error variation	Both reach significance level without negative error variation	Yes

If the parameter does not have significant differences, the model and data fit are described. The model was estimated using maximum likelihood by minimizing the difference

between sample variance covariance matrix **S** and theoretical variance covariance matrix (**Σ**). In another perspective, if the theoretical model structure is rational for obtained data, the difference between sample variance covariance matrix **S** and theoretical variance covariance matrix (**Σ**) is not significant, that is, each element in the residual matrix (**Σ-S**) is close to 0, and then the fit degree between data and definition model is good.

The model fit index is a statistical index for the fit degree between theoretical structural model and data. Different model fit indexes could measure a theoretical model from complexity, sample size, relativity, and absoluteness. AMOS provides various model fit indexes to choose from, which are shown in Table 6-5.

It should be noted that the fit index shows the fit degree between theoretical model and data, and could only be used as a reference. It could not be used as the sole basis for the judgment of a model. When the goodness of model fit is high, background knowledge of problems concerned should be used in rationality discussion. When the fit index is not optimal but the model could be explained by relevant theories, the analysis of research still bears significance.

Results show that: $\chi^2/df= 1858.8/1699=1.094 <3.0$; $p=0.035<0.05$, which satisfies the significance requirement of $\chi^2/df<3.0$; $p=0.004<0.05$. The values of IFI, MNFI(TLI), NFI, and CFI are all close to 0.9 and satisfy the goodness standard $RMR=0.034$, $RMSEA=0.014$, which is an acceptable fit. GFI and AGFI are very close to 0.9, although not higher than 0.9, the usual threshold. PGFI, PNFI and PCFI are all above 0.50, $CN=517>200$, which satisfies the fit standard. Therefore, this model could be considered as one with high goodness-of-fit.

6.5 The influence factors of demand for senior housing

Standardized coefficients are reported to measure the relevant change level of variables. Therefore, standardized path coefficients (standardized loading coefficients) could be compared directly. The results of model parameter estimate are shown in Figure 6-2, and those of standardized parameters in Figure 6-3. Statistical significance test can be computed on the path coefficient (regression coefficient between latent variables) or loading coefficient (regression coefficient between the latent variable and the measurable variable). Generally, if the absolute value of the critical ratio (CR) is above 2.00 and the p-value below 0.05, then the coefficient is significant (not null effect). For instance, in Figure 6-2, between latent variable LA and latent variable SW, the absolute value of CR is 3.014 and the corresponding p-value

is 0.003, which is below 0.05. Thus, it could be considered that there is a significant difference between this path coefficient and zero.

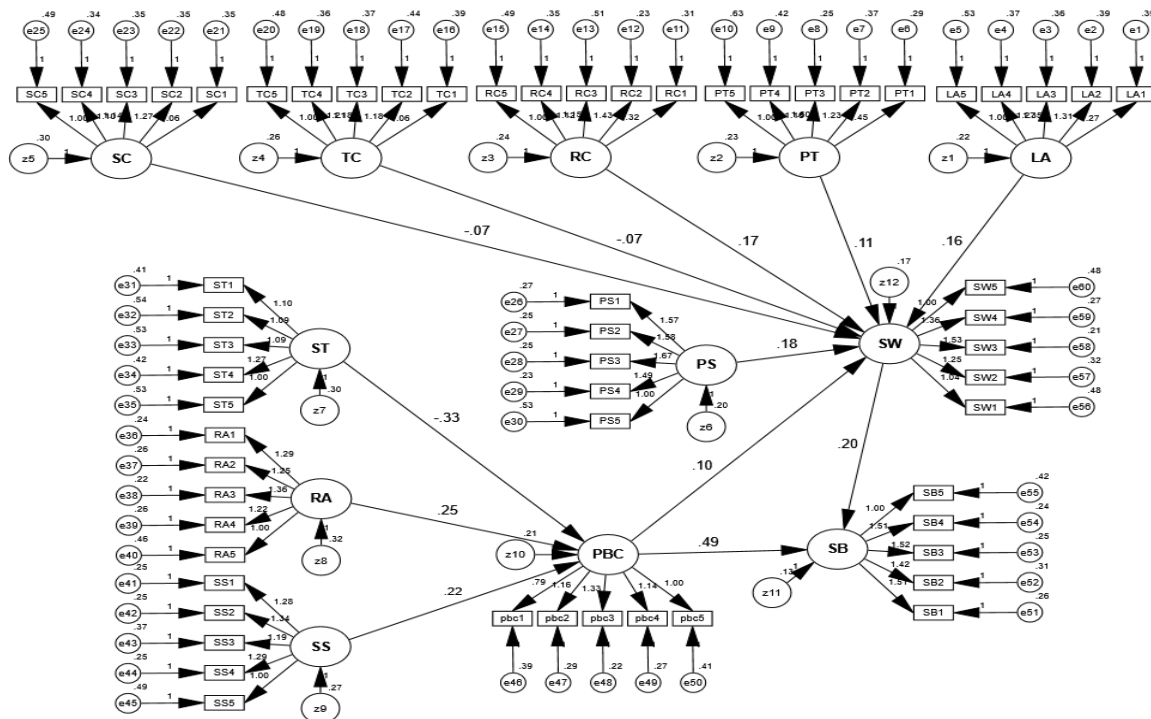
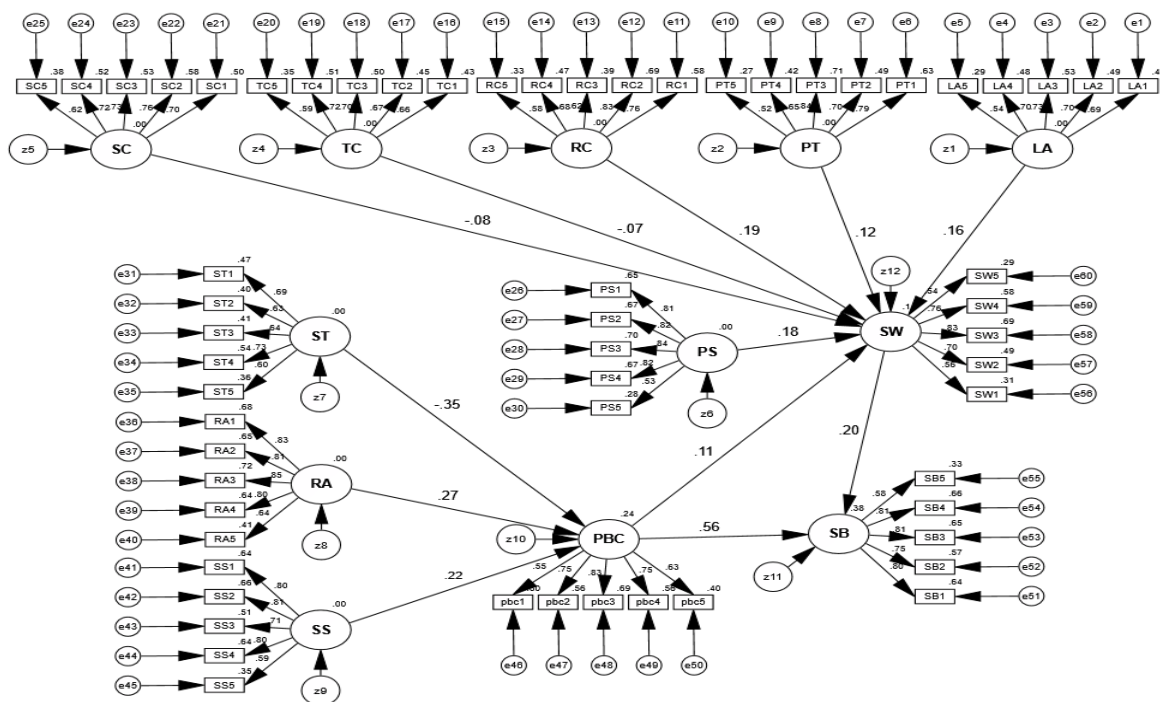


Figure 6-2 Estimate results of model (unstandardized parameters)



Note: H1a-H5 are 12 hypotheses, describing dependencies among variables.
 LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);

PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

Figure 6-3 Estimate results of model (standardized parameters)

The estimate of model parameters is shown in Table 6-6. The structural coefficients (standardized path coefficient estimates) between each latent variable and settlement intention or settlement behavior are from 0.097 to 0.494, which are relevantly low. SE is very low (<0.056). There are 7 coefficients which are significant (***, i.e., $p < 0.001$) under 0.001 level, 5 items are significant (*, i.e., $p < 0.05$) under 0.05 level. These 12 coefficients represent 12 hypotheses.

The 12 coefficients are reported in Appendix 3 that varies between 0.52 and 0.85. They are significant at 0.001 level (***, i.e., $p < 0.001$), which means the measurable variables accurately represent their relevant latent variables. The variance and covariance estimates are reported in Appendix 4.

Table 6-6 Estimate of path coefficients

			Estimate	S.E.	C.R.	p-value	Label
PBC	<---	ST	-0.328	0.054	-6.072	***	H3a
PBC	<---	RA	0.248	0.046	5.339	***	H3b
PBC	<---	SS	0.218	0.050	4.377	***	H3c
SW	<---	SC	-0.065	0.028	-2.308	0.021	H2b
SW	<---	TC	-0.065	0.028	-2.308	0.021	H2b
SW	<---	RC	0.171	0.048	3.575	***	H1c
SW	<---	PT	0.113	0.048	2.372	0.018	H1b
SW	<---	LA	0.156	0.052	3.014	0.003	H1a
SW	<---	PS	0.179	0.052	3.467	***	H2c
SW	<---	PBC	0.097	0.043	2.253	0.024	H4a
SB	<---	PBC	0.494	0.056	8.793	***	H4b
SB	<---	SW	0.200	0.048	4.205	***	H5

Note: “***” means significance at 0.01 level.

LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);
 PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

The main function of structural equation model is to reveal the structural relations between constructs (between latent variables and measurable variables, and between

measurable variables). These relations are displayed through path coefficient (loading coefficient) in the model. For structural equation model (Figure 6-1), the direct effect, indirect effect, and total effect of latent variables output by AMOS are shown in Table 6-7, Table 6-8 and Table 6-9, respectively. These data could clearly explain the effect – range and degree – of each influence factor on endowment real estate settlement demand.

I. Direct effect

Direct effect, the direct influence of latent causal variable (exogenous or endogenous) on the latent outcome variable (endogenous), is measured by the path coefficient from latent causal variable to latent outcome variable.

It can be seen from the data in Table 6-4 that, the standardized path coefficient from settlement expectation to settlement intention is 0.163, which means that the direct effect of settlement expectation on settlement intention is 0.163. It indicates that other conditions unchanged, if the latent variable “settlement expectation” goes up by 1 unit, the latent variable “settlement intention” will go up by 0.163 units. Standardized direct effect among other latent variables is shown in Table 6-7.

Table 6-7 Standardized Direct Effect among Model Latent Variables

	ST	RA	SS	PS	PBC	LA	PT	RC	TC	SC	SW	SB
PBC	-0.347	0.269	0.218	0	0	0	0	0	0	0	0	0
SW	0	0	0	0.182	0.113	0.163	0.122	0.190	-0.075	-0.081	0	0
SB	0	0	0	0	0.564	0	0	0	0	0	0.197	0

Note: The table data is significant at 0.05 level. All parameters are standardized. Direct effect is the path coefficient in the model.

LA (expectation towards joining senior housing); PT (propensity of senior housing); RC (perception of elderly care services); TC (cultural values of supporting the elderly); PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing); RA (reserved assets); SS (social security); SW (intention towards joining); SB (behavior of joining senior housing).

II. Indirect effect

The indirect effect is the indirect influence of a latent causal variable on latent outcome variable, through one or more medium latent variables. If there is only one medium variable, the indirect effect equals to the product of two path coefficients.

It can be seen from the data in Table 6-5 that, the standardized path coefficient from settlement expectation to settlement intention is 0.163, from settlement intention to settlement behavior is 0.20, then the indirect effect of settlement expectation on settlement behavior is $0.163 \times 0.20 = 0.032$. It indicates that other conditions unchanged, if the latent variable “settlement expectation” goes up by 1 unit, the latent variable “settlement behavior” will go up by 0.032 units. The standardized indirect effect among other latent variables is shown in Table 6-8.

Table 6-8 Standardized Indirect Effect among Model Latent Variables

	ST	RA	SS	PS	PBC	LA	PT	RC	TC	SC	SW	SB
PBC	0	0	0	0	0	0	0	0	0	0	0	0
SW	-0.039	0.030	0.025	0	0	0	0	0	0	0	0	0
SB	-0.204	0.158	0.128	0.036	0.022	0.032	0.024	0.037	-0.015	0.016	0	0

Note: The table data is significant at 0.05 level. All parameters are standardized. Direct effect is the path coefficient in the model.

LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);
 PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

III. Total effect

The total effect, the total influence of a latent causal variable on latent outcome variable, is the sum of direct effect and indirect effect and is given in Table 6-9.

Table 6-9 Standardized total effect among model latent variables

	ST	RA	SS	PS	PBC	LA	PT	RC	TC	SC	SW	SB
PBC	-0.347	0.269	0.218	0	0	0	0	0	0	0	0	0
SW	-0.039	0.030	0.025	0.182	0.113	0.163	0.122	0.190	-0.075	-0.081	0	0
SB	-0.204	0.158	0.128	0.036	0.587	0.032	0.024	0.037	-0.015	-0.016	0.197	0

Note: The table data is significant at 0.05 level. All parameters are standardized. The direct effect is the path coefficient in the model.

LA (expectation towards joining senior housing); PT (propensity of senior housing);
 RC (perception of elderly care services); TC (cultural values of supporting the elderly);
 PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
 RA (reserved assets); SS (social security); SW (intention towards joining);
 SB (behavior of joining senior housing).

6.6 Empirical analysis of influence factors of the demand for joining senior housing

I. Influence factors analysis of attitude towards joining senior housing: the examination of H1

a. Influence factors analysis of expectation towards joining senior housing: the examination of H1a

Table 6-9 demonstrates the influence of settlement expectation to intention towards joining senior housing. While other conditions remain the same, intention towards joining will raise 0.163 units if settlement expectation increases 1 unit. The research result from statistical analysis substantiates hypothesis H1a: higher settlement expectation favorably influences the intention towards joining senior housing in a more positive way.

In addition, settlement expectation also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will raise 0.032 units if settlement expectation increases 1 unit.

b. Influence factors analysis of propensity of senior housing: the examination of H1b

Table 6-9 shows the influence of retirement facility propensity to intention towards joining senior housing. While other conditions remain the same, intention towards joining will raise 0.122 units if retirement facility propensity increases 1 unit. The empirical study verifies the research hypothesis, which is that clearer retirement facility propensity poses more favorable and positive influence on intention towards joining senior housing.

In addition, retirement facility propensity also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will raise 0.024 units if retirement facility propensity increases 1 unit.

c. Influence factors analysis of perception of elderly caring services: the examination of H1c

Table 6-9 reveals the influence of retirement community service cognition to intention towards joining senior housing. While other conditions remain the same, intention towards joining will raise 0.190 units if retirement community service cognition increases 1 unit. The research result proves hypothesis H1c: higher retirement community service cognition has a more positive and favorable influence on intention towards joining.

In addition, retirement community service cognition also influences the settlement

behavior of senior housing. While other conditions remain the same, settlement behavior will raise 0.037 units if retirement community service cognition increases 1 unit.

II. Influence factors analysis of subjective norms of the demand for joining senior housing: the examination of H2

a. Influence factors analysis of cultural concept in settlement demand for senior housing: the examination of H2a

Table 6-9 shows the influence of cultural concept on the intention towards joining senior housing. While other conditions remain the same, intention towards joining will totally decrease 0.075 units if cultural concept increases 1 unit. The research result confirms hypothesis H2a: the more traditional cultural concept passively influences the intention towards joining senior housing in a much negative way.

In addition, the cultural concept also influences the settlement behavior of senior housing. While other conditions remain the same, intention towards joining will fall 0.015 units if cultural concept variable increases 1 unit.

b. Influence factors analysis of consumption ideas in settlement demand for senior housing: the examination of H2b

Table 6-10 shows the influence of consumption ideas on the intention towards joining of senior housing. While other conditions remain the same, intention towards joining will lower 0.081 units if consumption ideas increase 1 unit. The empirical study confirms the research hypothesis H2b: the more traditional consumption idea is, the more undesirable influence it poses on the intention towards joining of senior housing.

In addition, consumption idea also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will decrease 0.016 units if consumption ideas variable increases 1 unit.

c. Influence factors analysis of policies supporting senior housing: the examination of H2c

Table 6-10 reveals the influence of community elderly-care policy on the intention towards joining senior housing. While other conditions remain the same, intention towards joining will raise 0.182 units if community elderly-care policy variable increases 1 unit. The research result confirms hypothesis H2c: the intention towards joining senior housing grows more positively and favorably when the support from community elderly-care policy to retirement communities heaps larger.

In addition, community elderly-care policy also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will raise 0.036 units if community elderly-care policy variable increases 1 unit.

III. Influence factors analysis of payment capacity of joining senior housing: the examination of H3

a. Influence factors analysis of settlement cost perception on demand for senior housing: the examination of H3a

Table 6-10 demonstrates the influence of settlement cost perception on perceived behavior control: While other conditions remain the same, perceived behavior control will decrease 0.347 units if settlement cost perception variable increases 1 unit. The research result substantiates hypothesis H3a: the higher settlement cost perception passively influences the perceived behavior control of senior housing more obviously.

In addition, settlement cost perception influences the settlement behavior of senior housing (the latent variable) as well. While other conditions remain the same, settlement behavior will increase 0.204 units if perceived cost variable increases 1 unit.

b. Influence factors analysis of perceived reserve assets for joining senior housing: the examination of H3b

Table 6-10 shows the influence of retirement reserve assets perception to perceived behavioral control. While other conditions remain the same, perceived behavioral control will lower 0.269 units if retirement reserve assets perception variable increases 1 unit. Results confirm hypothesis H3b: the more sufficient retirement reserve assets are, the more favorable influence it poses to the perceived behavioral control of senior housing.

In addition, retirement reserve assets perception also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will lift 0.158 units if retirement reserve assets perception variable increases 1 unit.

c. Influence factors analysis of perceived social security on the demand for joining senior housing: the examination of H3c

Table 6-10 reveals the influence of social security awareness to perceived behavioral control. While other conditions remain the same, perceived behavioral control will raise 0.218 units if social security awareness variable increases 1 unit. The research result confirms hypothesis H3c: the more impeccable perceived social security is, the more positive influence it poses on perceived behavioral control of senior housing.

In addition, social security awareness also influences the settlement behavior of senior housing. While other conditions remain the same, settlement behavior will raise 0.128 units if social security awareness variable increases 1 unit.

IV. Influence factors analysis of perceived behavioral control of the demand for joining senior housing: the examination of H4a and H4b.

Table 6-10 demonstrates the influence of settlement intention towards joining to perceived behavior control: while other conditions remain the same, intention towards joining will increase 0.039 units if perceived behavior control variable increases 1 unit. The research result substantiates hypothesis H4a: the stronger perceived behavior control actively influences the intention towards joining of senior housing more positively.

Besides, Table 6-10 depicts the influence of perceived behavior control on settlement behavior in senior housing: while other conditions remain the same, settlement behavior will increase 0.204 units if perceived behavior control variable increases 1 unit. The research result substantiates hypothesis H4b: the stronger perceived behavior control influences the settlement behavior of senior housing in a more active and positive way.

V. Influence factors analysis of intention towards joining of the demand for joining senior housing: the examination of H5.

Table 6-10 figures the influence of intention towards joining to settlement behavior in senior housing: while other conditions remain the same, settlement behavior will increase 0.197 units if intention towards joining variable increases 1 unit. The research result substantiates hypothesis H5: the stronger intention towards joining poses a more favorable positive influence on settlement behavior of senior housing.

6.7 Chapter conclusion

The empirical analysis shows that settlement expectation, retirement facility propensity, retirement community service cognition, community elderly-care policy and perceived behavior control directly influence intention towards joining of senior housing in a positive way, thus influence settlement behavior of senior housing indirectly and positively, which accords with the hypotheses. On the other hand, cultural concept, consumption ideas, settlement cost perception directly influence intention towards joining senior housing in a negative way, thus restrain settlement behavior of senior housing indirectly and passively, which also accords with this study hypotheses. The original conceptual model of settlement

demand study of senior housing is verified by empirical analysis.

Results obtained by AMOS show that the structural equation model fits well (Table 6-1). This model connects various affecting factors of settlement demand for senior housing together organically to form a basically thorough entirety. It clearly shows the relationship between those affecting factors and the intuitional ultimate influence of constructs to perceived behavioral control, intention towards joining, and settlement behavior. This frame system has realistic guiding significance to the study of settlement demand for senior housing and this thesis based on this to discuss research results.

Chapter 7 Discussion

7.1 Research results of the influence factors on intention towards senior housing

This research proposes a new conceptual model based on which 12 hypotheses were derived. Results of empirical tests are summarized in Table 7-1.

Table 7-1 Results of hypotheses verification

		Hypothesis	Result
H1 Attitude of joining and intention towards joining	H1a	Expectation towards joining senior housing has positive impact on the intention towards joining senior housing	YES
	H1b	Propensity of elderly caring facilities has positive impact on the intention towards joining senior housing	YES
	H1c	Perception of community services has positive impact on the intention towards joining senior housing	YES
H2 Subjective norms and intention towards joining	H2a	Cultural values of joining senior housing have negative impact on the intention towards joining senior housing	YES
	H2b	Seniors' consumption value has negative impact on the intention towards joining senior housing	YES
	H2c	Policies for supporting senior housing have positive impact on the intention towards joining senior housing	YES
H3 Payment capacity and perceived behavioral control	H3a	Perceived costs of joining senior housing have negative impact on the intention towards joining senior housing	YES
	H3b	Perceived reserved assets have positive impact on the intention towards joining senior housing	YES
	H3c	Perceived social insurance has positive impact on the intention towards joining senior housing	YES
H4a Perceived behavioral control and intention towards joining		Perceived behavioral control has positive impact on the intention towards joining senior housing	YES
H4b Perceived behavioral control and behavior of joining		Perceived behavioral control has positive impact on the behavior of joining senior housing	YES
H5 Intention of joining and behavior of joining		Intention of joining senior housing has positive impact on the behavior of joining senior housing	YES

7.2 Analysis of research results

7.2.1 Attitude of joining senior housing and intention of joining

I. Expectation towards joining senior housing

The research shows that expectation towards joining senior housing has a positive impact on intention towards joining, which is in accordance with H1a. Besides, it verifies consumers' expectations affect their consuming behaviors in a positive way. Therefore, after an overall visual stimulation and on-site experience, seniors are able to conceive a real scene of living in senior housing and to build their own expectations. Then, seniors actively map their expectations into their living situation and imagine their consumption in the future, which may directly stimulate their actual behavior of joining senior housing.

II. Propensity of elderly caring facilities

According to this research, the propensity of elderly caring facilities has a positive impact on the intention towards joining, which supports H1b. Besides, it confirms that consumers' propensity to some certain properties of the product constitutes the main reason for their consumption. Seniors will not choose senior housing under the circumstance that their needs for the location of senior housing, facilities, living environment, and living model are not satisfied. As a result, in order to increase their intention to join senior housing, it is of great importance to take the following strategies: make sure the location of senior housing meets seniors' demands of convenience, emotions, environment and of the sense of belonging; satisfy their particular propensity towards natural environment, living atmosphere, cultural environment, and living model; and provide facilities, which match seniors' requirements.

III. Perception of community services

The research manifests that seniors' perception of community services has a positive impact on their intention towards joining. It supports H1c and the perception of community services is positively related to intention towards joining. According to research findings, the perception of community services includes the content and quality of senior service, and more importantly, the efficiency of service. Thus, senior housing is required to improve senior services of their working staff, and especially to enhance their serving awareness, so as to comfort seniors and provide personalized services to them. Only in this way, can the whole quality of senior service be improved, and the efficiency rose. That will help win a good perception of community services in the mind of seniors and will increase their intention

towards joining senior housing.

7.2.2 Subjective norms and intention towards joining

I. Cultural values

The research reveals that the more traditional or conservative cultural values seniors have, the less intentional of joining they are. On the one hand that is in accordance with H2a. On the other hand, it verifies that Chinese traditional cultural values reduce seniors' intention towards joining. However, the influence of cultural values is not obvious compared with other factors. Currently, family values in China remain traditional and conservative. Seniors who choose social provision would be considered to have unfilial children and engage their children and themselves into the moral pressure coming from the society. That constitutes an important factor for the reduction of their intention towards joining. Influence of cultural value is not obvious as expected because respondents live in Guangzhou embedded in modern cultural values. Thus, the influence of cultural value is still an important factor and cannot be ignored.

II. Consumption values

According to research result, the more conservative seniors' consumption values are, the less they have an intention towards joining. That supports H2b and shows that conservative or traditional consumption view still possesses a major position among Chinese seniors. Consumption views in a certain epoch reflect its ideology and directly influences consumers' decisions. Generally speaking, seniors tend to live an over frugal life, pay much attention to reserve than consume, and they often follow the masses when consuming. All those consumption trends may to some extent impose liquidity constraints on their consumption views. In addition, most seniors have the mental disposition to consume for the younger generation, which greatly reduces their consuming capacity for themselves, thus having a more obvious negative effect on their intention towards joining. Besides, senior housing in China is still in its primitive stage, on which seniors' perception of service in senior housing is far from enough, and they are not quite satisfied with senior service. Therefore, traditional consumption value should be guided and increase seniors' intention towards joining.

III. Policies for supporting senior housing

The research shows that seniors will have a higher intention towards joining senior housing when policies for senior housing are more supportive, which supports H3b. Relative policies of supporting senior housing include public services and fiscal preferential policies.

Government's endeavor to perfect its policies of senior services and service facilities will undoubtedly improve the actual quality of service facilities, and at the same time, senior services and raise the efficiency of service. It will increase seniors' intention towards joining. On the other hand, the government should make community medical service to be part of the national medical insurance system and improve reimbursement system in order to reduce seniors' medical expenditure, which will stimulate seniors' consumption and increase their intention towards joining.

7.2.3 Payment capacity of senior housing and perception behavioral control

The research displays that seniors will have low perception behavioral control when they perceive the cost of joining senior housing is high, which supports H3a. It is verified that consumers are able to perceive their own affordability through cost information. The higher perceived cost of joining senior, the higher the requirement of affordability is, and thus the lower seniors' perceived behavioral control is. Joining senior housing is a completely new, complex and professional behavior. It is difficult for seniors to make an accurate estimation. Thus, they only perceive the cost through the types of facilities, different services, and living models. The lower perceived cost of joining senior housing and the higher perceived payment capacity, the more seniors have an intention towards joining.

II. Perceived reserved assets

The research shows that seniors have higher perceived behavioral control if they perceive abundant reserved assets for supporting their endowment, which supports H3b. Besides, it is confirmed that perceived reserved assets variable is the most significant influence factors of intention and behavior of joining senior housing. A more abundant reserved asset implies higher affordability for senior housing, the stronger ability to encounter difficulties, and more freedom in choosing senior life, thus resulting in stronger perception behavioral control. Meanwhile, seniors having abundant reserved assets or higher retirement pension are inclined to have more expectations towards a better life with pleasures. They will have more faith in affording a more expensive while higher-quality life. Therefore, increasing the efficiency of supply of senior housing and decreasing the cost of joining will improve seniors' perceived reserved assets and intention towards joining.

III. Perceived social insurance

The research proclaims that when seniors perceive a higher level of social insurance, they tend to have a stronger perception behavioral control. This finding supports H3c. As

seniors perceive a good social insurance, they will have more desire in consuming and will be apt to join senior housing. That is, a comprehensive social insurance system and long-term nursing insurance will not only make up for the deficiency of socialized senior housing but also increase seniors intention towards joining.

7.2.4 Perceived behavioral control and intention towards joining senior housing

According to the research, seniors with stronger perception behavioral control have more intense intention towards joining senior housing, which is in accordance with H4a. When seniors perceive that living in senior housing is under their control with less uncontrollable factors, then there will be fewer difficulties in joining. That is, the stronger their perceived behavioral control are, the stronger their intention towards joining senior housing.

7.2.5 Perceived behavioral control and behavior of joining senior housing

The research demonstrates that there is a larger possibility for seniors with stronger perception behavioral control to implement the behavior of joining senior housing, which also supports H4b. If seniors have stronger perception behavioral control, they are more likely to join senior housing. Meanwhile, when seniors believe in their own perception behavioral control, perceived behavioral control will have a positive impact on their behavior of joining senior housing and thus impel seniors to fulfill actual behavior, even when subjective norms or their attitude towards joining senior housing is down.

7.2.6 Intention of joining senior housing and behavior of joining senior housing

The research reveals that a higher intention towards joining senior housing leads to a larger probability of the implementation of the actual behavior of joining senior housing, which accords with H5. In other words, seniors having a stronger intention towards joining are more likely to fulfill actual behavior of joining senior housing. Therefore, exploring seniors' motivation and intention towards joining senior housing will increase behavior of joining senior housing.

7.3 Theoretical and managerial implications

Senior Housing Estate, a significant part of the Chinese system of social insurance, is a “quasi-public goods” being both “public” and “private”. The needs of a senior housing estate

are affected by such factors as seniors' own expectations, propensity, perception, views, affordability, old-supporting policies, social insurance system, and senior service. The senior housing estate is required to provide diverse measures, channels, methods, and ways from the supplier to increase the needs, so as to lead to and coordinate actual transfer behaviors, which in the end stimulates the development and innovation of the whole industry. On the basis of this research on the affecting factors, some suggestions are proposed in the following part.

7.3.1 Define the market position of senior housing estate

Regarding the attitude towards joining senior housing, recommendations can be derived from the perspectives of transfer expectations, propensity to senior housing facilities, and appraisal of services in the senior housing community.

I. Define target group and market positioning

According to the empirical analysis, empty nest families who are urban citizens used to work in the government or other public institutions, having bachelor's degree or even higher, and medium or higher income, constitute the main demand body. Those people usually do not only care about their health and medical care, but also have a higher expectation towards a better life with high quality. Therefore, senior housing community ought to satisfy seniors' diversified demands in terms of feelings and other personalized services, when guaranteeing their safety and medical care. Only in that way, can their expectations be maximized, and also their intention towards joining increased.

II. Provide diversified senior housing

Senior housing estate should provide multi-layered infrastructure to meet seniors' particular propensity in the location of the community, living environment, living model, and certain types of facilities. When establishing the infrastructure, seniors' needs in convenience, feelings, environment and social attribute should all be taken into consideration, besides, their appeal for a safe and comfortable living environment, a diversified living space, a humanized social space, and a reachable medical care center. With all those, seniors will have a stronger intention towards joining.

III. Build a comprehensive service in senior housing

Since most seniors' knowledge about senior housing service remains to be traditional, it is of great necessity to lead and encourage social forces to participate in the operation and management of senior service infrastructure, so as to build a diversified service system of the

senior housing community. The senior service market will be subdivided, under which circumstance, diversified services will be provided to different seniors based on their own health condition, mental condition, and their multi-layered demands. At the same time, a professional and normalized service team will be built with regular training and assessment, for the sake of a higher level of service in the senior housing community.

7.3.2 Establish a social support system of senior housing

In terms of subjective norms, suggestions are given concerning changing cultural values and consumption views and improving policies.

I. Advocating modern value of endowment

Fidelity forms the root of Chinese traditional culture, we should advocate a fashion of “respecting the old, esteeming the old and loving the old”, and make sure fidelity plays a positive role in social senior housing. When social senior housing can bring spiritual consolation and financial support to seniors, the negative impact of traditional cultural values on their intention of joining may be weakened. In addition to that, the government should actively advocate healthy and active aging in order to transform people’s traditional view of becoming aged. With an attitude towards healthy aging and active aging, seniors are expected to have more intention towards transfer to senior housing.

II. Change conventional consumption value and proactively face aging

An overall and comprehensive “active aging” is the way China copes with the problem of “aging of population”. Government, society, and seniors themselves all ought to shoulder the responsibility and make full use of their own potential, to meet seniors’ both material and spiritual demands. The government should lead the transformation of conservative consumption views long held by seniors, and involve them into forming an idea of “self-support”. Changing seniors’ conservative consumption views may help increase their intention towards joining.

III. Formulate policies of supporting senior housing

Due to the fact that policies of senior housing community are far from perfect, the government ought to institutionalize care service in the community, and establish a sound system of senior housing consisting of government, community, cooperation and other profit and non-profit organizations. Meanwhile, the government should involve the medical care in those communities into the whole official system of medical insurance when it improves the

system in rural and urban areas. And it is supposed to build a more effective compensation mechanism, which will reduce the cost of medical care in those communities. Apart from that, the government should enact policies to give more support and more financial propensity to senior housing community, for instance, support the operating and the initiating companies. With those policies, services in senior housing community will be more efficient and better, and infrastructure will be of higher quality, which directly leads to a stronger intention towards joining in by seniors.

7.3.3 Increase the efficiency of senior housing supply and promote institutionalization of senior housing Estate

Seniors' affordability suggests the need for reducing the cost, increasing senior housing asset storage, and improving the system of social insurance.

I. Increase the supply of senior housing and drive demand

“Aging before getting rich and a shortage of resources” constitutes the most severe challenge in Chinese aging tendency of the population. Facing the problem of “aging before getting rich”, China should insist on the development strategy “led by government, supported by society, involved with companies, and motivated by market”, in such way that combines the development of senior housing estate with regional economic development, urbanization, and community construction in an organic and systemic way. The government should implement a series of policies to support the development of senior housing estate, ranging from land, credit and loan, finance and tax. And resources from the society ought to be actively utilized in the development and operation of a senior housing estate, so as to reduce its cost and to increase its effective supply. That is, private capital is also encouraged to pour into it in order to optimize its industrial structure. All those forces will push forward the industrialization, professionalization, scale expansion, and branding, which further raises the supply efficiency of senior housing service, and finally brings about the growth of transfer demands.

II. Advocate commercial pension and re-employment

The shortage of reserved assets for endowment is the main reason for low effective demands. In China, individuals' senior housing assets mainly depend on endowment pension given by the government. In order to solve the problem, government should, on the one hand, raise the proportion of fiscal transfers to increase the income of seniors; and on the other hand, promote reasonably designed personal plan for senior housing, improve commercial insurance

systems such as “commercial pension” and “provide senior housing with houses”, which can be the best methods to enlarge the senior housing asset storage. In particular, the government must call for a platform of re-employment among all parts of society, on which seniors are able to be productive even in their aging days. Being allowed and able to both create social wealth and realize personal value, seniors may gain spiritual consolation, and also increase their senior housing asset.

III. Improve social insurance systems

Whether a society has a sound system of social insurance or not and a high prevalence of social insurance or not constitutes the foundations of the needs of a senior housing estate. Currently, there are such problems in Chinese social insurance system resulting from the lack of social senior housing capital, unsystematic policies of social assistance, and an unsound medical care insurance system. Facing all these constraints, the government should establish a social insurance system which can provide basic senior housing, basic medical care, and basic cost of living allowances and is supplemented by charity and commercial insurance. Methods such as community care and long-term care should be particularly emphasized to solve the problem that some seniors do not have enough money to pay for senior housing. That will further boost seniors’ faith in active senior housing. With the improvement of social insurance, seniors are apt to have more desire in consuming. That will have a positive effect on seniors’ transfer behavior, and also to some extent relieve the pressure posed by such social problems as aging before getting rich and the severe shortage of senior housing resources.

Chapter 8 Conclusions

8.1 Results

This thesis explores the determinants of joining senior housing from the perspective of demand and supply, aiming at explaining and predicting the elderly's behavior of joining senior housing. Considering the relations between the demand and supply of senior housing, it is proposed that comprehensive social security, improvement of pricing of service cost and facility of senior community, training professional employees in senior housing field are absolutely significant for enhancing the development of senior housing, which may be an important input for decision-makers of Chinese government. Based on existing relevant research and theories, a conceptual model is developed for analyzing the demand for senior housing. Moreover, external factors influencing the behavior of joining senior housing are included, namely the attitude towards joining senior housing, subjective norms, perceived behavioral control, and payment capacity. The conceptual model includes 12 constructs that are operationalized by 60 indicators.

After the questionnaire development, data gathering covers respondents' propensity and external factors influencing their behavior of joining senior housing. Using SPSS 22 and AMOS 24, the structural model is estimated and hypotheses tested. Results show that:

I. Expectation towards senior housing, the propensity of facilities, services of senior community have a positive impact on joining senior housing. The emotional awareness and cognition overweight social factors (consumption value and policies of the senior community). The requirement of service of senior community is much more important than other determinants. This research shows that the elderly need customized service and emotional comfort. Thus, pursuing a high-quality life during the rest of life is a major engine for the elderly to join a senior community. However, few of the elderly have clear cognition of service in a senior community.

II. Consumption and cultural values have a negative impact on the intention and behavior of joining senior housing. It is found that the younger respondents are less influenced by consumption and cultural values exerted. Besides, cultural value's negative impact on intention and behavior of joining senior housing is less important in the empty-nest family (no

matter live with a spouse or not) than others.

III. Social security policies issued by the government have an extremely positive impact on joining senior housing. Through the survey, it is concluded that social security becomes a first consideration when the elderly decide to join the senior housing. Currently, the Chinese government is enhancing the social security and is supporting the development of the senior community sector. Thus, now the elderly are more likely to join senior community than in the past. Meanwhile, it is confirmed that senior housing is born for ordinary people and shall be supported by the government.

IV. Cost of joining senior housing far outweighs other determinants. The more the elderly consider the cost of joining senior housing, the less likely they join senior housing.

V. Preserved assets have a negative impact on intention and behavior of joining senior housing. The payment capacity of the elderly is closely related to their preserved assets. If they own more preserved assets, they will have stronger perceived control and intention towards joining senior housing. Besides, preserved asset, cost of joining senior housing and social security bear more influence than other determinants.

VI. According to descriptive statistics, target customer of senior housing is a middle class which aged 50 to 70, well-educated (bachelor degree and higher) and enjoy stable income (such as state-owned employees and senior managers in companies). Their payment capacity and perceived control for relevant high cost of joining senior housing and most of them are local citizens who live with a spouse or live alone in Guangzhou.

8.2 Theoretical contribution

This thesis conducts a comprehensive and systematic theoretical study of the determinants of demand for joining senior housing from the perspective of demand and supply. Its recommendations and outcomes will be the reference and empirical foundation for decision-makers in the Chinese government. Theoretical innovation and contribution of this research are:

I. A theoretical framework is proposed from the perspective of demand and supply of senior housing.

In the context of increasing aging of the Chinese population, the research explores factors influencing the behavior of joining senior housing from the perspective of attitude towards joining senior housing, subjective norms, and perceived behavioral control to

payment capacity. Consequently, a theoretical framework is developed that covers both demand and supply sides, which will define the foundations for further research in this field.

II. Building a model reflecting the relationship between the determinants of demand for senior housing and behavior of senior housing.

This is seminal research on demand for joining senior housing for the elderly in China. Besides, this research analyzes the relation between the determinants of demand for senior housing and behavior of senior housing and is tested using structural equation models. All empirical results show the relation between the determinants of demand for senior housing and behavior of senior housing, which shows that structural equation models can be applied in senior housing research.

III. The causal framework that explains the determinants of joining senior housing is proposed.

According to the empirical study in this thesis, results show that higher cost of joining senior housing will impede the demand for joining senior housing; supporting the development of senior community from Chinese government and enhancement of social security will weaken the negative impact of shortage of preserved assets and will largely promote intention towards joining senior housing; cultural and consumption values have a weak negative impact on joining senior housing. These results are a first attempt to improve the understanding of the field of senior housing in China.

Though studying determinants of demand for senior housing, this thesis contributes to the theoretical field and may provide guidelines to improve the policies for senior housing field and the development of senior housing market in China.

8.3 Research limitations

The literature review shows the determinants of demand for senior housing are numerous and complex. Therefore, limitations of this thesis are:

I. Regional limitation. The sample pool of this research is limited to aged group in Guangzhou. Although Guangzhou is a well-developed Chinese city, which to some degree reflects the accurate and true situation of the aging Chinese population, Guangzhou situation cannot represent the whole China.

II. In this thesis, determinants are explored from four aspects (attitude towards joining,

subjective norms, payment capacity and perceived control behavior) and data are collected from various channels, but no official statistics are available to contextualize these dimensions. Besides, decision-making of joining senior housing is complex and some other determinants could not be included in the conceptual model.

8.4 Future developments

Further research on the determinants of joining senior housing shall cover:

I. The range of research can be widened and the number of variables can be larger in the further research;

II. The coverage of all regions of China will define a representative sample to test the model for the Chinese population;

III. The interaction between individuals who join senior housing and the senior community needs further research. External factors such as company reputation, efficiency, and advertisement should be included in future research;

IV. Chinese One-child policy did not end during the research process from the year of 2014 to 2015 and it started at the end of 2015. Though the impact of the new policy is considered and added to this research, implications are still not comprehensive and need further research.

Bibliography

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In: J. Kuhl, & J. Beckman (Eds.), *Action Control: From Cognition to Behavior*. Heidelberg: Springer, pp. 11-39.
- Ajzen, I. (1991). The theories of cognitive self-regulation. *Organizational Behavior and Human Decision Processes*, 50(2): 197-209.
- Ayalon, L. & Green, V. (2013). Social ties in the context of the continuing care retirement. *Qualitative Health Research*, 23(3): 396-406.
- Baker, T. (2002). *An Evaluation of an Extra Care Scheme: Runnymede Court*, Plymouth: Estover.
- Bernard, M., Bartlam, B., Sim, J., & Biggs, S. (2007). Housing and care for older people: Life in an English purpose built retirement village. *Ageing and Society*, 27: 555-578.
- Biggs, M., Bernard, M., Kingston, P., & Nettleton, H. (2000). Lifestyles of belief: narrative and culture in a retirement community. *Ageing and Society*, 6: 649-672.
- Bowblis, J. R., & McHone, H. S. (2013). An Instrumental variables approach to post-acute care nursing home quality: is there a dime's worth of evidence that continuing care retirement communities provide higher quality? *Journal of Health Economics*, 32(5): 980-996.
- Cao, D., Gu, S. & Fang, L. (2015). The research on the pension gap in China under the aging background, *Statistics and Decision-making*, 10: 63-65 (in Chinese).
- Cao, Q., Zhang, Y., & Yu, W. (2014). The study of affecting factors of pension scheme: based on twenty cities in China, *Journal of Beijing University of Posts and Telecommunications*, 6: 71-80 (in Chinese).
- Chai, X. (2013). Situation and trend of reverse mortgage in China, *Economics*, 22: 348 (in Chinese).
- Chen, B. (2014). *Taikang Life Development Pension Real Estate Model and Marketing Research*, Xiamen University (in Chinese).
- Chen, J. (2009). Investigation and analysis of the living conditions of the empty nest elderly in the urban areas in China. *Social Sciences*, 4: 1-45 (in Chinese).
- Chen, J. & Shi, Ch. (2013). Case studies of American and Japanese pension estate. *Wealth*, 9: 54-57 (in Chinese).
- Chen J. (2011). *The Risk and Pricing Model of Reverse Mortgage*. Zhejiang: Zhejiang University (in Chinese).
- Chen, Y., Xie, J., & Liu, Bo. (2010). A case study of systematic elderly caring services for urban communities. *Journal of Chongqing Industrial and Commercial University*, 3: 72-78 (in Chinese).
- Chen, Zh. (2010). *Research on Social Security System in China*. Beijing: China Finance Press, 2-11 (in Chinese).
- Cheng, C., Wang, J., & Zhang, H. (2015). Current situation of overseas community nursing and its revelation. *Chinese Nursing Research*, 7: 2314-2315 (in Chinese).

- China Youth Daily*. (2014). A Senior Housing with Occupancy rate of 70% is doubted: http://news.xinhuanet.com/fortune/2014-05/15/c_126502873.html (in Chinese).
- Chu, W., Hu, D., & Song, G. (2007). An analysis of the elderly's needs of daily lives and corresponding reasons. *China Health Service Management*, 20: 12 (in Chinese).
- Clough, R., Leamy, M., Vince Miller, V., & Bright, L. (2005). *Housing Decisions in Later Life*. New York: Palgrave Macmillan.
- Cohen, M. A., Tell, E. J., Batten, H. L., & Larson, M. J. (1998). Attitudes toward joining continuing care retirement communities. *The Gerontologist*, 5, 637-643.
- Crimmins, E. M., & Ingegneri, D. G. (1990). Interaction and living arrangement of older parents and their children: Past trends, present determinants, future implication. *Research on Aging*, 12(1), 3-35.
- Cric Research. (2015). <http://www.cricchina.com/Research/Details/5021>
- Croucher, K. (2006). *Making the Case for Retirement Villages*. York: Joseph Rowntree Foundation.
- Croucher, K., Hicks, L., & Jackson, K. (2006). *Housing with Care for Later Life: A Literature Review*. York: Joseph Rowntree Foundation.
- Davidoff, T., & Welke, G. (2007). Selection and Moral Hazard in the Reverse Mortgage. Mimeo: University of British Columbia.
- Ding, F., Zhai, X., & He, L. (2014). Introduction of patterns of supporting the elderly in China. *Chinese Market*, 51: 101-103 (in Chinese).
- Ding, H. (2014). Operation modes of Chinese senior housing and suggestions. *China Business Guide*, 1: 32-34 (in Chinese).
- Dodds, W. B., Grewal, D., & Monroe, K. B. (1991). Effects of price, brand and store information on buyers' product evaluation. *Journal of Marketing Research*, 8: 307-309.
- Dong, F. (2011). *An Empirical Research on the Income Gap among Elderly*. Shandong: Shandong University (in Chinese).
- Duan, Sh. & Zhang, L. (2007). Analysis of endowment risk in one-child family in rural China. *Northwest Population*, 3: 108-111 (in Chinese).
- Eagly, A. H. & Chaiken, S. (1993). *The Psychology of Attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Escalas, J. E. (2004). Yourself in the product. *Journal of Advertising*, 33(2): 7-48.
- Feldstein, M. & Samwick, A. A. (1996). The transition path in privatizing social security. *NBER Working Paper*, 11: 57-61.
- Feldstein, M. (1999). Social security pension reform in China. *China Economic Review*, 10(2): 99-107.
- Feng, Z. & Guo, Y. (2014). Exploration of the development of senior housing in Yangtze River Delta. *Journal of Lanzhou University*, 9: 122-128 (in Chinese).
- Feinstein, A. R., & Spitzer, W. O. (1989). Response from the editors. *Journal of Clinical Epidemiology*, 5: 480.
- Fujiwara, A. (2006). Spotlights on LPSH business: Kobe Steel, Sekomu, and others enter the business. *Fujisankei Business*.

- Gai, G., Ding, L. & Deng, X. (2013). Research on the profit-making patterns of Chinese senior housing. *Journal of Jilin Institute of Industry and Commerce*, 4: 35-37 (in Chinese).
- Gao, R., Guo, J., Shen, Y. & Zhuang, L. (2015). Subjective well-being of the elderly in Shandong urban communities and analysis of its factors. *Research on Aging*, 5: 71-75 (in Chinese).
- Giber, K. M., Moschis, G. P., & Lee, E. (1998). Planning to move to retirement housing. *Financial Services Review*, 4: 291-301.
- Groger, L., & Kinney, J. (2007). CCRC Here we come! Reasons for moving to a continuing care retirement community. *Journal of Housing for the Elderly*, 4: 79-101.
- Gu, Sh. (2012). Limitation of reverse mortgage for the elderly. *Jianghai Academic Journal*, 5: 84-89 (in Chinese).
- Guo, A. & Zhang, X. (2011). *The Study of Living Condition and Social Security of Empty-nest Elderly in China*. Guangzhou: Sun Yat-sen University Press (in Chinese).
- Guo, P. & Chen, G. (2009). *Survey on the Status of the Aging Population in China in 2006*. Beijing: China Social Press (in Chinese).
- Hao, J. (2013). *A Study of Endowment Insurance in Rural China: Based on Regional Difference*. Beijing: Economic Science Press (in Chinese).
- Harrington, C., & Swan, J. H. (1987). The impact of state Medicaid nursing home policies on utilization and expenditures. *Inquiry*, 8: 157-172.
- Harris-Kojetin, L., Sengupta, M., Park-Lee, E., & Valverde, R. (2013). *Long-term Care Services in the United States: 2013 Overview*. Hyattsville, MD: National Center for Health Statistics.
- Hu, D. & Xing, K. (2013). The construction of social security system for the elderly losing the only child. *Sanxia Forum*, 1: 76-79 (in Chinese).
- Hu, Y. (2010). Discussion of Chinese economy in post-crisis era based on Keynes effective demand. *Theoretical Study*, 5: 33-34 (in Chinese).
- Hua, H. (2013). *Comprehensive and Innovative Exploration of Caring for the Elderly*. Shanghai: Fudan University Press (in Chinese).
- Huang, X., Pei, H. & Yu, G. (2015). Constructing medical security system for the elderly. *Health and Economic Research*, 6: 33-35 (in Chinese).
- Jacquelyn, S. (1997). *Continuing Care Retirement Communities: A Background and Summary of Current Issues*. Prepared for Office of the Assistant Secretary for Planning and Evaluation U.S. Department of Health and Human Services.
- Jenkins, K. R., Pienta, A. M. & Horgas, A. L. (2002). Activity and health-related quality of life in continuing care retirement communities. *Research on Aging*, 24(1): 124-149.
- Jensen, G. A. (1992). The dynamics of health insurance among the near elderly. *Medical Care*, 30(7): 598-614.
- Ji, X. & Ji, Zh. (2012). Development patterns of senior housing in China: based on cases studies of Shanghai and Hangzhou. *China Economic Guide*, 11: 8-11 (in Chinese).
- Jiang, X. & Du, P. (2013). *Report on Chinese Aging Population and the Development of Aging Industry*. Beijing: Renmin University Press (in Chinese).

- Jones, A. L., Dwyor, L. L., Bereovitz, A. R., & Strahan, G. W. (2009). The national nursing home survey. *National Center for Health Statistics*, 167, 1-10.
- Joseph Rowntree Foundation (2009). *Do Retirement Communities Work? Hartrigg Oaks: The First Ten Years*. York: Joseph Rowntree Foundation.
- Kang, Q. & Zhang, H. (2013). Analyses of intention towards purchasing senior housing and its influencing factors. *Research on Financial Issues*, 12: 41 – 45 (in Chinese).
- Keynes, J. M. (2009). *The General Theory of Employment, Interest, and Money*. Beijing: Commercial Press (in Chinese).
- Kichen, J., & Roche, J. (1990). Life care resident preferences: A survey of the decision-making process to enter a CCRS. In R. D. Challis & P. J. Grayson (Eds.) *Life Care: A Long-term Solution?* Lexington: Lexington.
- Kingston, P., Bernard, M., Biggs, S., & Nettleton, H. (2001). Assessing the health impact of age specific housing. *Health and Social Care in the Community*, 9(4): 228-234.
- Klein, L. S., & Sirmans, C.F. (1993). Financial innovation and the development of reverse mortgage programs. *Benefits Quarterly*, 9(1): 86-90.
- Laing & Buisson (2013). *Care of Elderly People UK Market Survey, 2012/13*, London: Laing & Buisson.
- Lancaster, K. J. (1966). New approach to consumer theory. *Journal of Political Economy*, 74(2): 132-156.
- Lawrence, A. R., & Schigelone, A. S. (2002). Reciprocity beyond dyadic relationships-age related communal coping. *Research on Ageing*, 24(6): 684-704.
- Li, B. (2007). *Forecast of China's Aging Population and Trend*. Beijing: Hualing Press (in Chinese).
- Li, D., Chen, T., & Li, G. (2003). Study on mental health status of empty-nest elderly. *Chinese Gerontology Journal*, 7: 405-407 (in Chinese).
- Li, D. & Ban, X. (2015). Analysis of demands for community services among empty nesters in urban China. *Business Economy*, 4: 21 – 54 (in Chinese).
- Li, F. (2012). The market demand for senior housing and suggestions for its predicament. *City*, 11: 30-32 (in Chinese).
- Li, W. (2013). Twenty real estate companies starting investing senior housing. *China Social Work*, 8: 23-28 (in Chinese).
- Liu, D. & Zuo, Q. (2011). Feasibility analysis of implement of reverse mortgage in Guangzhou and discussion of the risks of endowment insurance. *Social Security Studies*, 5: 92-100 (in Chinese).
- Liu, D. (2015). Research on the development and operation model of Chinese retirement community. *Economic Forum*, 7: 79-84 (in Chinese).
- Liu, H. (2014). Analysis of Chinese senior housing: from the perspective of social welfare diversification. *Social Welfare*, 4: 23-27 (in Chinese).
- Liu, M. (2010). Retirement community: a promising pattern for aging empty nesters in rural China. *Administration and Law*, 1: 49-53 (in Chinese).
- Liu, J. (2011). *Putting Chinese Traditional Filial Piety Culture in the Center of Supporting the Elderly*. Henan: Henan University Press (in Chinese).

- Liu, L., Qi, L., & Chen, G. (2014). Social endowment insurance and empty nesters: taking Beijing as illustration. *Population and Development*, 1: 90-98 (in Chinese).
- Liu, Q. & Zhou, W. (2012). Senior housing: market demand and countermeasures. *Jiangxi Social Sciences*, 5: 63-68 (in Chinese).
- Liu, X. & Xu, H. (2013). A study of the development of industrialized community services for the elderly. *Journal of Hebei Normal University*, 5: 123-125 (in Chinese).
- Long, Sh. & Feng, X. (2007). Choices of endowment among elderly in urban areas and its influence factors: based on investigation of elderly's living condition in four cities in Jiangsu province. *Social Studies*, 1: 97-105 (in Chinese).
- Lou, J. (2013). Research on models of urban community services. *Productivity Studies*, 3: 111-113 (in Chinese).
- Luo, F. & Han, Y. (2012). Research on the development of senior housing in China. *Business Studies*, 10: 138-142 (in Chinese).
- Lynn, D. & Wang, T. (2008). The U.S. senior housing opportunity: Investment strategies. *Real Estate Issues*, 33(2), 33-51.
- Ma, F. (2010). *Opportunities and Challenges in Chinese Senior Housing Industry*. Beijing: China Social Press (in Chinese).
- Ma, J., Zhang, X., & Li, Zh. (2012). Resolving the long-term risks of national assets and liabilities. *Finance*, 15: 101-109 (in Chinese).
- Ma, M., & Wei, Y. (2013). Research on the development of business model of senior housing in China. *National Power*, 5: 35-37 (in Chinese).
- Ma, S., Chen, Ch., & Li, Sh. (2014). Investigation of the purchase of medical insurance for the elderly among urban and rural China and its influence on family pension. *Journal of Hebei United University*, 3: 13-17 (in Chinese).
- Ma, Zh. & Wang, X. (2013). Analysis of operation model of senior housing applying REITS. *Wuhan Finance*, 9: 34-36 (in Chinese).
- Mao, W., & Chi, I. (2011). Filial piety of children as perceived by aging parents in China. *International Journal of Social Welfare*. 20: 99-108 (in Chinese).
- Martin, J. F. (2013). Postoperative cognitive dysfunction after cardiac surgery. *Continuing Education in Anaesthesia Critical Care and Pain*, 13(6): 245-255.
- Marx, K. A., Burke, K. L., Gaines, J. M., Resnick, B., & Parrish, J. M. (2011). Satisfaction with your new home: advantages and disadvantages to living in a CCRC. *Seniors Housing and Care Journal*, 19(1): 83-96.
- Maslow, A. H. (1943). A theory of human motivation, *Psychological Review*, 50, 370-396.
- Mei, D., Wang, Yu., & Li, B. (2013). The accountability of government for family accidental losing only child: taking Hangzhou as an example. *Business*, 6: 168-169 (in Chinese).
- Meng, X., & Luo, C. (2004). What Determines Living Arrangements of the Elderly in Urban China. *Working Journal*, 5: 16-17 (in Chinese).
- Ministry of Human Resources and Social Security of the People's Republic of China. (2006). *Report of Working Force and Population Aging in China*: [http:// www.mohrss.gov.cn/SYrlzyhshbzb/zwgk/szrs/tjgb/200603/t20060301_69895.html](http://www.mohrss.gov.cn/SYrlzyhshbzb/zwgk/szrs/tjgb/200603/t20060301_69895.html) (in Chinese).

- Minnix, Jr., & William, L. (2013). The new eternal truths about senior communities. *Generations*, 37(4): 43-47.
- Moschis, G. P. (1996). Targeting the mature consumer market. *Health Services Management Research*, 2: 7-90.
- Mu, G. (2009). Rights protection and risk avoidance of the only child family. *Southern Forum*, 3: 14-21 (in Chinese).
- Mu, R. & Zhang, T. (2011). A study of the development of Chinese aging population and corresponding solutions. *Journal of Huazhong Normal University*, 6: 95-99 (in Chinese).
- Murata, H. (2013). *Strategies for Senior Housing Industry in Super-aged Society: Lessons from Japan*, HKHS International Conference.
- National Bureau of Statistics of the People's Republic of China. (2012). *The Sixth Census Data in China in the Year of 2010*. Beijing: China Statistics Press (in Chinese).
- National Bureau of Statistics of the People's Republic of China. (2015). *National Real Estate Development Investment and Sales Situation*. http://www.security.gov.cn/tjsj_zxfb_201601t20160119_1306094.html/ (in Chinese)
- National Bureau of Statistics of the People's Republic of China. (2016). *Report on the Sample Survey of 1% the whole of China Population*. http://www.stats.gov.cn/tjsj/zxfb/201604/t20160420_1346151.html (in Chinese)
- Newcomer, R., & Preston, S. (1994). Relationships between acute-care and nursing unit use in two continuing care retirement communities. *Research on Aging*, 16(3): 280-300.
- Niu, R. & Zhang, D. (2015). Endowment choices of empty nesters elderly and its influence factors. *Chinese Gerontology Journal*, 11: 3103-3104 (in Chinese).
- Ouyang, B. & He, J. (2015). The influence of different types of endowment insurance choices on household consumption. *Consumer Economy*, 6: 33-387 (in Chinese).
- Pan, J. (2009). *A Study of Pension Risk for Family with Only Child*. Beijing: China Social Press (in Chinese).
- Pechmann, C., & Ratneshwar, S. (1992). Consumer covariation judgments: Theory or data driven? *Journal of Consumer Research*, 19(3): 373-386.
- Pestoff, V. A. (1992). Third sector and cooperative services: an alternative to privatization. *Journal of Consumer Policy*, 15: 21-45.
- Phillips, M. D. (1996). Anticipating the future: the role of consumption visions in consumer behavior. *Advances in Consumer Research*, 23: 70-75.
- Qian, X. (2011). The difference of income source between urban and rural residents and its corresponding economic impact. *Journal of South China Agricultural University*, 1: 101-113 (in Chinese).
- Qiu, G. (2013). The status quo and profit-making model of senior housing in China. *China Real Estate News*, 15th August (in Chinese).
- Qiu, Y. (2015). The status quo and prospect of senior housing in China. *Architecture Engineering Technology and Design*, 2: 583 (in Chinese).
- Ren, H. & Gao, Q. (2012). The bottleneck and demand release of senior housing in China. *Wuhan Construction*, 8: 22-24 (in Chinese).

- Ruchlin, H. S., Morris, S., & Morris, J. (1993). Resident medical care utilization patterns in continuing care retirement communities. *Health Care Financing Review*, 14(4): 151.
- Scanlon, W., & Layton, B. D. (1997). *Report to Congressional Requesters: How Continuous Care Retirement Communities Manage Services for the Elderly*. Washington DC: U.S. General Accounting Office.
- Schulz, J. H. (2010). *Old-age Economics*. Beijing: Social Science Press.
- Sheehan, N. & Karasik, R. (1995). The decision to move a continuing care retirement community. *Journal of Housing for the Elderly*, 11, 107-122.
- Sherman, S., Soules, M. R., Parrott, E. (2001). Executive summary: stages of reproductive aging workshop. *The North American Menopause Society*, 8: 402-407.
- Shi, Y. (2012). Analysis of mental status and influencing factors of elderly empty nesters in urban areas: taking Jianye District of Nanjing City as illustration. *Theory and Modernization*, 5: 58-64 (in Chinese).
- Sina Property. (2016). Top 100 real estate companies in senior housing industry in China: <http://ly.house.sina.com.cn/news/2016-01-01/08596088493413614033> (in Chinese)
- Soldo, B. J., Sharma, M., & Campbell, R. T. (1984). Determinants of the community living arrangements of older unmarried women. *Journal of Gerontology*, 39: 492-498.
- Soldo, B. J., Wolf, D. A., & Agree, E. M. (1990). Family, household and care arrangements of frail older women: A structural analysis. *Journal of Gerontology*, 45(6): 238-249.
- Song, J. (2013). Economic situations and pension risk for Chinese nuclear families. *Journal of Remin University of China*, 5: 94-102 (in Chinese).
- Sohu Focus. (2015). Sino-ocean land senior housing offering decent services for elderly: <http://news.focus.cn/bj/2015-08-18/10337347.html> (in Chinese)
- Stone, R. (2013). What are the realistic options for aging in community. *Generations*, 37(4): 65-71.
- State Council and National Population Census Department. (1993). *National Population Census of People's Republic of China in 1990*. Beijing: China Statistics Press.
- Su, Ch. & Li, X. (2012). The influence of endowment insurance on the consumption of urban residents in China: taking Shandong province as an example. *Journal of Shandong University*, 6: 81-86 (in Chinese).
- Su, X. (2013). Hundreds of millions investment rushing towards senior housing. *Securities Daily*, 29th Aug (in Chinese).
- Sun, L. & Zhang, Y. (2015). Driving forces of senior housing in China. *Business*, 6: 97 (in Chinese).
- Tan, H., Chen, F. & Wang, Z. (2015). The demand of home-based doctor services for elderly and influence factors. *China Health Care*, 2: 155-157 (in Chinese).
- Tang, C. (2005). Changes of social family structure and functions in urban and rural areas of China. *Zhejiang Academic Journal*, 4: 202 (in Chinese).
- Tao, R. (2013). *Study of the Demand and Supply of Community Services for Elderly: A Case Study in Jinan City*. Shandong: Shandong University of Finance and Economics (in Chinese).
- Titmuss, R. M. (1976). *Essays on the Welfare State*. London: Routledge.

- Wang, F. (2010). Negative growth crisis. *China Reform*, 1: 88-89 (in Chinese).
- Wang, F. (2015). An empirical study of consumption behavior of urban elderly in China. *Population and Development*, 3: 102-112 (in Chinese).
- Wang, F., Wang, Q. & Zhuang, H. (2010). Subjective sense of happiness of elderly and its influence factors. *Medicine and Society*, 12: 9-12 (in Chinese).
- Wang, J. & Guo, Q. (2013). The pension problems of rural families: from the view of traditional filial piety culture. *Learning Theories*. 17: 60-61 (in Chinese).
- Wang, L., Cun, D. & Xie, H (2015). Study of influence factors of subjective sense of happiness of elderly. *Journal of Nursing Management*, 4: 237-239 (in Chinese).
- Wang, L. & Shi, Y. (2008). The mental health of urban empty-nest elderly. *Chinese Journal of Gerontology*, 7: 704 (in Chinese).
- Wang, X. (2013). Case studies of overseas ways of supporting the elderly. *Labor Security World*, 14: 18 – 19 (in Chinese).
- Wang, Y. & Chai, X. (2006). Discussions of selling senior housing. *Theoretical Guide*, 5: 18-20 (in Chinese).
- Wei, D. & Luo, P. (2015). Architecture design for entertainment places in retirement communities: based on U.K. day-care experience. *Urban Architecture*, 1: 77-81 (in Chinese).
- Wei, H. & Jin, J. (2014). *The Future of Senior Housing in China*. Beijing: China Citic Press (in Chinese).
- Williams, G. D., & Ramamoorthy, C. (2007). Brain monitoring and protection during pediatric cardiac surgery, *Seminars in Cardiothoracic and Vascular Anesthesia*, 11(1): 23-33.
- Wolf, D. A. (1990). Household patterns of older women: Some international comparisons, *Research on Aging*, 12(4): 463-486.
- Wolf, R. S. (1978). A social systems model of nursing home use. *Health Services Research*, 8: 111-127.
- World Bank (1994). *Advertising the Old Crisis: Policies to Protect the Old and Promote Growth*. Oxford: Oxford University Press.
- Wu, M. (2011). *A Research on the Situations and Development of Endowment Institutions*. Beijing: Economy and Science Press (in Chinese).
- Wu, Y. & Dang, J. (2014). *Report on the Development of Senior Housing in China*. Beijing: Social Science Press (in Chinese).
- Wu, X. (2008). Income gap among elderly in different regions in China. *Population Journal*, 1: 54-58 (in Chinese).
- Xi, X., Wang, X. & Wang, F. (2013). Planning and design of elderly care facilities in retirement communities. *Planners*, 1: 54-59 (in Chinese).
- Xiao, Y., Lyu, Q. & Qi, M. (2012). Willingness of joining senior housing in Jiucheng District in Chongqing City. *Northwest Population*, 2: 27-30 (in Chinese).
- Xinhua News. (2015). L'amour apartment is the pilot in the senior housing market: http://news.xinhuanet.com/gongyi/yanglao/2015-06/19/c_127928925.htm (in Chinese)
- Xiong, X. (2014). The importance of mental care and economic support for the elderly. *Social Welfare*, 1: 48-50 (in Chinese).

- Xu, H. (2015). Study of the supply and demand of services for disabled elderly in China. *Economic Management Research*, 3: 68-75 (in Chinese).
- Xu, J. & Li, Y. (2011). Why reverse mortgage do not work in Chinese market. *Knowledge Economy*, 7: 68 (in Chinese).
- Xu, J. (2011). *A Study of China Life Insurance Group's Investment in Senior Housing Market*. Tianjin: Tianjin University (in Chinese).
- Xu, Zh. (2013). *The Empirical Study of Purchase Intention of Senior Housing: based on Planned Behavior Theory*. Zhejiang: Zhejiang University of Finance and Economics (in Chinese).
- Yan, P. (2013). *Comparative Analysis of Chinese and Overseas Senior Housing*. Hebei: Hebei University of Technology (in Chinese).
- Yang, J. & Xue, X. (2014). Research on the transition of Chinese commercial real estates. *Economic Review*, 12: 120-124 (in Chinese).
- Yang, J. (2014). Comparative analysis of the development of humanistic care. *Research World*, 1: 10 – 13 (in Chinese).
- Yang, X. & Li, Y. (2013). Influence factors of the intention towards joining senior housing for elderly in urban areas. *Economic Society*, 2: 160-165 (in Chinese).
- Yang, Y. (2014). *Report on Chinese Aging Society and Pension Support*. Beijing: Tsinghua University Press (in Chinese).
- Yu, J. (2013). Increasing aging population triggers hundreds of millions newly build senior housing. *Evening News*, 31st July (in Chinese).
- Yuan, J. (2011). Difficulties and solutions for reverse mortgage in China. *The People's Forum*, 20: 182-183 (in Chinese).
- Zhang, D. (2011). *Research on Chinese Ethical Philosophies*. Beijing: Renmin University Press (in Chinese).
- Zhang, H. & Li, Sh. (2014). An empirical analysis of intention towards choosing reverse mortgage and influence factors: based on survey among Lanzhou residents in Gansu Province. *Research World*, 12: 26-20 (in Chinese).
- Zhang, J. (2014). Empty senior housing: it was the best senior housing in China: <http://news.dichan.sina.com.cn/2014/07/06/1149799.html> (in Chinese).
- Zhang, J. (2013). Problems of Chinese senior housing and suggestions on the development of Chinese senior housing. *Journal of Huazhong Normal University*, 1: 141-145 (in Chinese).
- Zhang, K. & Sun, L. (2011). A research on the status of disabled elderly in Chinese urban and rural areas. *Disability Studies*, 2: 11-16 (in Chinese).
- Zhang, L. (2014). The development of reverse mortgage in China. *Commercial Times*, 28: 106-107 (in Chinese).
- Zhang, M. (2011). Discussions on reverse mortgage in China. *China Market*, 1: 139-140 (in Chinese).
- Zhang, M. & Zheng, X. (2014). Research on the development of Chinese real estate for elderly. *Journal of Neijiang University*, 8: 88-91 (in Chinese).
- Zhang, P. & Wang, H. (2011). Feasibility analysis and countermeasures of reverse mortgage in China. *Reform and Strategy*, 6: 76-78 (in Chinese).

- Zhao, M., Hoeffler, S., & Dahl, D. W. (2009). The role of imagination-focused visualization on new product evaluation. *Journal of Marketing Research*, 46: 46-55.
- Zhao, Y. & Wang, D. (2007). The elderly's attitude towards non-family-based endowment. *China Public Health*, 3: 261-262 (in Chinese).
- Zhou-Richter, T., Browne, M., & Gründl, H. (2010). Don't they care? Or, are they just unaware? Risk perception and the demand for long-term care insurance. *The Journal of Risk and Insurance*, 77(12): 715-747.
- Zhou, Q. (2013). Pixian Garden costing RMB eight billions: a high-end senior community in Chengdu: [http:// www. cdrx.net/cdrx/news/2013/4/2/20659_1.shtml](http://www.cdrx.net/cdrx/news/2013/4/2/20659_1.shtml) (in Chinese).
- Zhou, Y. & Li, J. (2013). Exploring the demands of senior apartments. *Communities*, 3: 56-61 (in Chinese).
- Zhu, J. (2011). An empirical analysis of the influence factors of reverse mortgage in China. *Northeast University of Finance and Economics*, 3: 78-82 (in Chinese).
- Zhu, X. (2012). Discussions of the differences of consumption habits between female and male elderly: a case study in Zhejiang province. *Zhejiang Social Sciences*, 2: 136-145 (in Chinese).
- Zhu, Y. (2013). The elderly losing only child and solutions. *Chongqing Social Sciences*, 8: 34-41 (in Chinese).
- Zou, J. (2015). *Research on the Improvement of Senior Housing Industry*. Beijing: Nova Press (in Chinese).

Appendix 1 Interview Outline

1. Please briefly introduce your job and your understanding of senior housing.
2. What do you think are the barriers to the development of senior housing? (Traditional culture/getting old before getting rich/ social support/ governmental support/ others)
3. What are the factors do you think currently influencing the elderly people's living in retirement communities?
4. What are the factors that lead to the low occupancy rate of senior housing projects?
5. How to raise the occupancy rate of retirement communities? For instance, the quality of services, the education background of the medical staff, the location of retirement communities, social activities, superior environment, and views...
6. Which aspect of Chinese social security system should be improved?
7. What role does senior housing play in the "positive retirement planning" of the aged? What else should the government do in the "positive retirement planning" of the aged?
8. How is the prospect and development of senior housing? Do you agree that "positive retirement planning" can promote its development?
9. Do you have any experience in developing or running senior housing? What are the purpose and planning when a retirement community initially founded? How to decide the business model of senior housing? How to create your own core values and competitiveness?

Appendix 2. Questionnaire on the Factors Affecting the Demand of Senior Housing in China

District:

ID: _____

Community/Apartment Name:

Ref No.:

Dear Madam/ Sir:

Thank you for your participation of our questionnaire. It is conducted by an ISCTE Business School student and will be applied in a research on the influence factors of the demand for joining senior housing in China. This questionnaire may take you 10 minutes to complete.

Respondents of this questionnaire are the elderly in Guangzhou urban areas. The purpose of this questionnaire is to know your demand for senior housing and intention towards joining senior housing. All the data collected will be used to study influence factors of the demand for joining senior housing and how those factors affect the intention towards joining, providing a theoretical foundation and lightening future research on Chinese senior housing industry.

This questionnaire is anonymous. There is no right or wrong answer. Please tick corresponding answer. Please choose the item according to your actual situation.

Collection of your opinions will be used only for academic purposes. Your privacy shall be fully protected. Please answer the questions according to your true feelings and condition. Your participation is the key to the success of our study. Thank you again for your cooperation and support.

Notes: Items in the first section should be answered with “ ” under the corresponding number based on your own judgment. If you are answering the electronic version of this questionnaire, please simply click your option and it will turn red. Items in the second section should be answered with “ ” based on your individual reality.

Section 1 Influence Factors of Demands of Senior Housing in China

Senior housing is an essential part of pensions industry. Represented by retirement community, senior housing provides the elderly with comfortable houses and facilities, as

well as services of daily life, medical care, and nursing, which prolong the lives of the elderly. Please choose the answers corresponding to your knowledge. The numbers “1, 2...7” scale totally disagree to totally agree.

1. Attitude of joining senior housing

1.1 Expectations of joining senior housing

Item		Rating Scale Totally disagree----totally agree						
LA 1	Joining senior housing will provide you with better medical care and nursing services.	1	2	3	4	5	6	7
LA 2	Joining senior housing will ensure better safety for you.	1	2	3	4	5	6	7
LA 3	Joining senior housing will provide you with a more relaxing social circle.	1	2	3	4	5	6	7
LA 4	Joining senior housing will offer you lots of meaningful activities which will enhance your sense of self-fulfillment.	1	2	3	4	5	6	7
LA 5	Joining senior housing will make you receive more social respect.	1	2	3	4	5	6	7

1.2 Propensity of elderly caring facilities

Item		Rating Scale Totally disagree----totally agree						
PT 1	You will choose a community convenient for shopping and near the hospital.	1	2	3	4	5	6	7
PT 2	You will choose a community neighboring my children or relatives.	1	2	3	4	5	6	7
PT 3	You will choose a community with various physical facilities.	1	2	3	4	5	6	7
PT 4	You will choose a community where environment fits your personal tastes.	1	2	3	4	5	6	7
PT 5	You will choose a community which is mixed apartment for the elderly and for your family members.	1	2	3	4	5	6	7

1.3 Perception of elderly caring services

Item		Rating Scale Totally disagree----totally agree						
RC 1	A community built and operated by well-known company/companies provides better service.	1	2	3	4	5	6	7
RC 2	Communities for the elderly provide you with better caring service comparing with traditional institutions for the elderly.	1	2	3	4	5	6	7
RC 3	The more medical staff for the elderly communities own, the better caring and medical service offered.	1	2	3	4	5	6	7
RC 4	Communities for the elderly provide you with more spiritual consolation (education/entertainment/listening and etc.) comparing with traditional institutions for the elderly.	1	2	3	4	5	6	7
RC 5	Communities for the elderly offer a wider range of customized services (such as long-term escorting and traveling).	1	2	3	4	5	6	7

2. Subjective Norms

2.1 Social Values

Item		Rating Scale Totally disagree-----totally agree						
TC 1	It embarrasses you to join and stay in a retirement community.	1	2	3	4	5	6	7
TC 2	If you live with children and/or grandchildren, others will consider you are happy.	1	2	3	4	5	6	7
TC 3	If you join and stay in a retirement community, others will consider your children are not filial.	1	2	3	4	5	6	7
TC 4	If you join and stay in a retirement community, your children will pay less attention on you.	1	2	3	4	5	6	7
TC 5	Your family members and/or friends disagree with your joining and staying in a retirement community.	1	2	3	4	5	6	7

2.2 Consumption Values

Item		Rating Scale Totally disagree-----totally agree						
SC 1	Joining and staying in a retirement community is a high-consumption for you.	1	2	3	4	5	6	7
SC 2	You consider that joining and staying in a retirement community is risky	1	2	3	4	5	6	7
SC 3	Living with your children instead of joining and staying in a retirement community will save a lot of money for your children.	1	2	3	4	5	6	7
SC 4	If your old friends or colleagues do not choose to stay in a retirement community, you will not either.	1	2	3	4	5	6	7
SC 5	After experiencing the life living in a retirement community, you will consider to joining it.	1	2	3	4	5	6	7

2.3 Social policies for supporting senior housing

Item		Rating Scale Totally disagree-----totally agree						
PS 1	If the government encourages the elderly to join and stay in a retirement community, you will join community.	1	2	3	4	5	6	7
PS 2	If the medical cost you spend in a community is covered by social medical security, you will join a community.	1	2	3	4	5	6	7
PS 3	If existing public facilities provided by the government cannot meet your needs, you will join a community.	1	2	3	4	5	6	7
PS 4	If existing medical services proved by a public hospital cannot meet your needs, you will join a community.	1	2	3	4	5	6	7
PS 5	If the government gives subsidies to companies operating a retirement community, you will join a community.	1	2	3	4	5	6	7

3. Payment Capacity

3.1 Perceived cost of joining senior housing

Item		Rating Scale						
		Totally disagree-----totally agree						
ST 1	You will refuse a large amount of charge before joining a retirement community.	1	2	3	4	5	6	7
ST 2	The cost of purchasing property of a retirement community cannot higher than standard commercial housing.	1	2	3	4	5	6	7
ST 3	Monthly or annual fees cannot exceed the amount of your endowment pension.	1	2	3	4	5	6	7
ST 4	You will refuse reverse mortgage for joining a retirement community.	1	2	3	4	5	6	7
ST 5	The cost of joining a retirement community must lower than my reserved assets.	1	2	3	4	5	6	7

3.2. Reserved Assets

Item		Rating Scale						
		Totally disagree-----totally agree						
RA1	You can afford to join and stay in a retirement community with your own pension.	1	2	3	4	5	6	7
RA2	You can afford to join and stay in a retirement community with my savings if your pension is not enough.	1	2	3	4	5	6	7
RA3	You can afford to join and stay in a retirement community with the aid of financial support from my family members or relatives.	1	2	3	4	5	6	7
RA4	You have other income (rental, assets, labor income and etc.) to support your stay in a retirement community.	1	2	3	4	5	6	7
RA5	You accept house-for-pension scheme to support your stay in a retirement community.	1	2	3	4	5	6	7

3.3 Perceived social security

Item		Rating Scale						
		Totally disagree-----totally agree						
SS 1	Your social pension insurance will be a great help for covering the cost of your stay in a retirement community.	1	2	3	4	5	6	7
SS 2	Commercial medical insurance you purchased will be a great help for covering the cost of your stay in a retirement community.	1	2	3	4	5	6	7
SS 3	Purchasing commercial pension insurance will be a great help for your stay in a retirement community.	1	2	3	4	5	6	7
SS 4	Purchasing commercial medical insurance will be a great help for your stay in a retirement community.	1	2	3	4	5	6	7
SS 5	Long-term caring insurance will be a great help for covering the cost of your stay in a retirement community.	1	2	3	4	5	6	7

4. Perceived Behavior Control

Item		Rating Scale						
		Totally disagree-----totally agree						
PBC1	You can decide to join and stay in a retirement community or not by yourself.	1	2	3	4	5	6	7
PBC2	You can afford to join and stay in a retirement community you like with your own pension.	1	2	3	4	5	6	7
PBC3	Your family members and society support my decision to join and stay in a retirement community.	1	2	3	4	5	6	7
PBC4	Joining and staying in a retirement community is not a financial burden for you.	1	2	3	4	5	6	7
PBC5	You believe it is not difficult to find a suitable and comfortable community for you.	1	2	3	4	5	6	7

5. Intention of Joining Senior Housing

Item		Rating Scale						
		Totally disagree-----totally agree						
SW1	You would like to know more information on senior housing.	1	2	3	4	5	6	7
SW2	You will consider joining and staying in a retirement community if it matches your needs.	1	2	3	4	5	6	7
SW3	You will absolutely join and stay in a retirement community.	1	2	3	4	5	6	7
SW4	You accept higher cost to stay in a retirement community comparing with a traditional way of supporting the elderly.	1	2	3	4	5	6	7
SW5	You will recommend your family members or friends to join and stay in a retirement community.	1	2	3	4	5	6	7

6. Behavior of Joining Senior Housing

Item		Rating Scale						
		Totally disagree-----totally agree						
SB 1	Stay in a retirement community is your priority.	1	2	3	4	5	6	7
SB 2	You have decided to join a certain type of retirement community to spend the rest of my life.	1	2	3	4	5	6	7
SB 3	You have prepared a lot for joining and staying in a retirement community in the near future.	1	2	3	4	5	6	7
SB 4	You have decided to join and stay in a retirement community at a certain age.	1	2	3	4	5	6	7
SB 5	Joining and staying in a retirement community is/will be absolutely a right choice for you.	1	2	3	4	5	6	7

Section 2 Personal Information

1. Gender: Male Female
2. Age: 50-60 60-69 70-80 over 80
3. Education:
 High School and below Junior College
 Undergraduate Postgraduate Doctoral degree or beyond
4. Occupation before retirement:
 Enterprise Public Institution Public Servant
 Self-employed Others (peasant or unemployed)
5. Marital Status:
 Single Married and have children
 Married and childless Widowed/Divorced
6. Living pattern:
 Alone With spouse With Children or relatives
7. Income of family (RMB yuan):
 under 3,000 3,001 - 5,000 5,001 - 10,000
 10,001 - 20,000 over 20,000
8. Daily life independency:
 Autonomous Semi-autonomous Non-autonomous

Appendix 3 Estimate of path coefficients in the model

Regression Weights			Estimate	S.E.	C.R.	P-value	Label
PBC	<---	ST	-0.328	0.054	-6.072	***	H3a
PBC	<---	RA	0.248	0.046	5.339	***	H3b
PBC	<---	SS	0.218	0.05	4.377	***	H3c
SW	<---	SC	-0.065	0.028	-2.308	0.021	H2b
SW	<---	TC	-0.065	0.028	-2.308	0.021	H2b
SW	<---	RC	0.171	0.048	3.575	***	H1c
SW	<---	PT	0.113	0.048	2.372	0.018	H1b
SW	<---	LA	0.156	0.052	3.014	0.003	H1a
SW	<---	PS	0.179	0.052	3.467	***	H2c
SW	<---	PBC	0.097	0.043	2.253	0.024	H4a
SB	<---	PBC	0.494	0.056	8.793	***	H4b
SB	<---	SW	0.200	0.048	4.205	***	H5
SC5	<---	SC	1				
SC4	<---	SC	1.100	0.087	12.662	***	par_12
SC3	<---	SC	1.141	0.09	12.727	***	par_13
SC2	<---	SC	1.274	0.097	13.080	***	par_14
SC1	<---	SC	1.065	0.085	12.519	***	par_15
TC5	<---	TC	1				
TC4	<---	TC	1.206	0.103	11.655	***	par_16
TC3	<---	TC	1.184	0.103	11.457	***	par_17
TC2	<---	TC	1.177	0.106	11.147	***	par_18
TC1	<---	TC	1.060	0.097	10.974	***	par_19
RC5	<---	RC	1				
RC4	<---	RC	1.118	0.096	11.647	***	par_20
RC3	<---	RC	1.153	0.107	10.801	***	par_21
RC2	<---	RC	1.434	0.112	12.780	***	par_22
RC1	<---	RC	1.316	0.108	12.165	***	par_23
PT5	<---	PT	1				
PT4	<---	PT	1.157	0.111	10.423	***	par_24
PT3	<---	PT	1.603	0.139	11.548	***	par_25
PT2	<---	PT	1.229	0.115	10.717	***	par_26
PT1	<---	PT	1.449	0.129	11.229	***	par_27
LA5	<---	LA	1				
LA4	<---	LA	1.268	0.119	10.660	***	par_28

(cont.)			Estimate	S.E.	C.R.	P-value	Label
LA3	<---	LA	1.354	0.125	10.791	***	par_29
LA1	<---	LA	1.270	0.121	10.528	***	par_31
SW5	<---	SW	1				
SW4	<---	SW	1.359	0.114	11.918	***	par_32
SW3	<---	SW	1.531	0.128	11.953	***	par_33
SW2	<---	SW	1.246	0.112	11.172	***	par_34
SW1	<---	SW	1.039	0.108	9.631	***	par_35
SB5	<---	SB	1				
SB4	<---	SB	1.513	0.112	13.553	***	par_36
SB3	<---	SB	1.518	0.116	13.055	***	par_37
SB2	<---	SB	1.420	0.111	12.742	***	par_38
SB1	<---	SB	1.506	0.115	13.062	***	par_39
SS5	<---	SS	1				
SS4	<---	SS	1.287	0.095	13.506	***	par_40
SS3	<---	SS	1.186	0.095	12.498	***	par_41
SS2	<---	SS	1.340	0.099	13.562	***	par_42
SS1	<---	SS	1.281	0.095	13.500	***	par_43
RA5	<---	RA	1				
RA4	<---	RA	1.218	0.08	15.174	***	par_44
RA3	<---	RA	1.358	0.087	15.657	***	par_45
RA2	<---	RA	1.251	0.083	15.163	***	par_46
RA1	<---	RA	1.292	0.085	15.258	***	par_47
ST5	<---	ST	1				
ST4	<---	ST	1.272	0.109	11.689	***	par_48
ST3	<---	ST	1.091	0.100	10.883	***	par_49
ST2	<---	ST	1.094	0.100	10.918	***	par_50
ST1	<---	ST	1.103	0.096	11.495	***	par_51
pbc5	<---	PBC	1				
pbc4	<---	PBC	1.136	0.083	13.685	***	par_52
pbc3	<---	PBC	1.334	0.091	14.671	***	par_53
pbc2	<---	PBC	1.164	0.084	13.774	***	par_54
pbc1	<---	PBC	0.787	0.074	10.631	***	par_55
PS5	<---	PS	1				
PS4	<---	PS	1.494	0.123	12.136	***	par_56
PS3	<---	PS	1.668	0.137	12.170	***	par_57
PS2	<---	PS	1.577	0.131	12.023	***	par_58
PS1	<---	PS	1.570	0.132	11.911	***	par_59

Note: “***” means it is significant at the 0.001 level

LA (expectation towards joining senior housing); PT (propensity of senior housing);

RC (perception of elderly care services); TC (cultural values of supporting the elderly);
PS (policies of senior housing); SC (consumption values); ST (cost of joining senior housing);
RA (reserved assets); SS (social security); SW (intention towards joining); SB (behavior of staying senior
housing); PBC (perceived behavior control).

Appendix 4 Variance estimate for the model

Variances

	Estimate	S.E.	C.R.	P-value	Label
z8	0.317	0.041	7.802	***	par_61
z9	0.270	0.039	7.019	***	par_62
z10	0.205	0.028	7.380	***	par_63
z2	0.232	0.039	5.895	***	par_64
z3	0.245	0.037	6.625	***	par_65
z4	0.261	0.039	6.666	***	par_66
z5	0.304	0.042	7.213	***	par_67
z6	0.205	0.033	6.121	***	par_68
z1	0.219	0.036	6.029	***	par_69
z12	0.172	0.028	6.154	***	par_70
z11	0.127	0.020	6.492	***	par_71
e25	0.490	0.035	14.127	***	par_72
e24	0.336	0.027	12.598	***	par_73
e23	0.347	0.028	12.458	***	par_74
e22	0.352	0.030	11.618	***	par_75
e21	0.352	0.027	12.962	***	par_76
e20	0.482	0.035	13.922	***	par_77
e19	0.363	0.031	11.854	***	par_78
e18	0.372	0.031	12.116	***	par_79
e17	0.435	0.034	12.759	***	par_80
e16	0.389	0.030	13.073	***	par_81
e15	0.493	0.034	14.602	***	par_82
e14	0.349	0.026	13.383	***	par_83
e13	0.510	0.036	14.191	***	par_84
e12	0.225	0.024	9.393	***	par_85
e11	0.308	0.026	11.927	***	par_86
e10	0.627	0.042	15.060	***	par_87
e9	0.421	0.030	14.015	***	par_88
e8	0.247	0.026	9.444	***	par_89
e7	0.367	0.027	13.497	***	par_90
e6	0.287	0.025	11.335	***	par_91
e5	0.525	0.036	14.498	***	par_92

	Estimate	S.E.	C.R.	P-value	Label
e4	0.375	0.030	12.440	***	par_93
e3	0.358	0.031	11.709	***	par_94
e2	0.394	0.032	12.291	***	par_95
e1	0.393	0.031	12.614	***	par_96
e60	0.481	0.032	14.803	***	par_97
e59	0.267	0.023	11.749	***	par_98
e58	0.212	0.023	9.370	***	par_99
e57	0.324	0.025	13.188	***	par_100
e56	0.478	0.032	14.751	***	par_101
e55	0.416	0.028	14.978	***	par_102
e54	0.242	0.020	11.825	***	par_103
e53	0.252	0.021	12.050	***	par_104
e52	0.314	0.024	13.293	***	par_105
e51	0.261	0.021	12.299	***	par_106
e45	0.494	0.033	14.818	***	par_107
e44	0.249	0.021	11.711	***	par_108
e43	0.366	0.027	13.607	***	par_109
e42	0.248	0.022	11.463	***	par_110
e41	0.249	0.021	11.858	***	par_111
e40	0.456	0.031	14.813	***	par_112
e39	0.260	0.020	12.731	***	par_113
e38	0.222	0.020	11.273	***	par_114
e37	0.265	0.021	12.581	***	par_115
e36	0.244	0.020	12.084	***	par_116
e35	0.531	0.039	13.749	***	par_117
e34	0.424	0.037	11.361	***	par_118
e33	0.528	0.040	13.314	***	par_119
e32	0.544	0.041	13.343	***	par_120
e31	0.415	0.033	12.472	***	par_121
e50	0.407	0.028	14.398	***	par_122
e49	0.273	0.021	12.740	***	par_123
e48	0.217	0.021	10.483	***	par_124
e47	0.286	0.022	12.776	***	par_125
e46	0.392	0.026	14.957	***	par_126
e30	0.535	0.035	15.335	***	par_127
e29	0.227	0.019	12.082	***	par_128
e28	0.245	0.021	11.519	***	par_129
e27	0.251	0.021	12.036	***	par_130
e26	0.272	0.022	12.394	***	par_131

Note: “****” means it is significant at the 0.001 level.