Wei, Xiaodong (2018) *How suitable are Chinese "migratory bird" destinations for the development of real estate for older people? A case study of Hainan Province.* [MSc]

Copyright © 2018 The Author

Copyright and moral rights for this work are retained by the author(s)

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge

This work cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author(s)

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author

When referring to this work, full bibliographic details including the author, title, institution and date must be given

http://endeavour.gla.ac.uk/345/

Deposited: 13 December 2018

Enlighten Dissertations
http://endeavour.gla.ac.uk/
research-enlighten@glasgow.ac.uk

University of Glasgow

School of Social and Political Sciences

Urban Studies

How suitable are Chinese “migratory bird” destinations for the development of real estate for older people? A case study of Hainan Province.

Presented in partial fulfilment of the requirements for the degree of

M.Sc. in [International Real Estate]

August 2018

Word Count 13,552

Abstract

China is getting old. According to the United Nations, China's ageing population is growing faster than almost all other countries in the world in recent history. The increasing older population will need to provide more potential markets to develop real estate aimed at meeting the needs of this group. In this context, the old-age real estate development has emerged with advances in the "migratory bird" tourism.

The main purpose of this dissertation is to use secondary analysis to explore the suitability of real estate development for older people in "migratory bird" destinations in China, focusing on Hainan Province as a single case study. This will be achieved by employing a qualitative approach with the entropy evaluation model to establish a suitability evaluation index system. The characteristics and existing problems of the old-age real estate in Hainan are identified to help with the establishment of the index system. The results of system show that the overall suitability level of old-age real estate development in Hainan Province has been increasing in the recent five years. Accordingly, related factors affecting the suitability results are investigated. Additionally, it identifies the specific potential risks that might limit the further development of old-age real estate. On this basis, it is recommended that government, enterprise as well as consumer could take steps to promote the old-age real estate development in Hainan Province.

Contents

Abstract i

Acknowledgements v

Chapter 1: Introduction 1

1.1 Research Background 1

1.11 Current Situation of Ageing Population in China 1

1.12 The Fusion of “Migratory Bird” Tourism, Elderly Care and Old-age Real Estate 2

1.2 Research Objectives 4

1.3 Theoretical and Practical Significance 5

1.4 Research Outline 6

Chapter 2: Literature Review 8

2.1 Introduction 8

2.2 Policy Background 8

2.21 National Policies of Elderly Care Industry and Tourism 9

2.22 Policies of Elderly Care Industry in Hainan Province 10

2.23 Additional Preferential Policies 10

2.24 Policy Gaps Analysis 11

2.3 The Concept of Old-age Real Estate 13

2.4 The Types and Business Model of Old-age Real Estate 14

2.41 Types of Old-age Real Estate 14

2.42 Business Model of Old-age Real Estate 15

2.5 The Development of the Migratory Bird Destinations for Old-age Real Estate 17

2.6 Summary 19

Chapter 3: Methodology 20

3.1 Introduction 20

3.2 Research Strategy 20

3.3 Analysis of the Case Study Area: Hainan Province 21

3.4 Data Collection and Analysis 23

3.5 Research Approach 23

3.6 The Establishment of the Suitability Evaluation Index System 24
3.7 Entropy Evaluation Model 25
3.8 Limitations 27
3.9 Summary 28

Chapter 4: Current Situation of Old-age Real Estate Development in Hainan Province 29

4.1 Introduction 29
4.2 Fundamental Characteristics 29
4.3 Existing Problems 32
4.4 Development Models 33
4.5 Successful Old-age Real Estate Development Cases 35
  1) Sun City Center- Florida 35
  2) Yuimarl Fuku, Osaka, Japan 38
4.6 Summary 40

Chapter 5: Findings and Discussion 41

5.1 Introduction 41
5.2 The Evaluation of Old-age Real Estate Suitability in Hainan Province 41
  5.21 Specific Indicators Analysis 41
  5.22 Data Analysis 45
  5.23 Influential Factors Analysis 48
5.3 Potential Risks 51
5.4 Suggestions for Old-age Real Estate Development in Hainan Province 54
5.5 Summary 56

Chapter 6: Conclusion 58

6.1 Summary 58
6.2 Limitations 60
6.3 Further Research 60

References 62

List of Figures

Figure 1 Master Plan of Sun City Center, Florida 36
Figure 2 Six Blocks of Sun City Center, Florida 37
Figure 3 Master Plan of Central Campus.. 37
Figure 4 The Neighbourhood of Yuimarl Fuku... 38
Figure 5 Three Blocks of Yuimarl Fuku.. 39
Figure 6 Changing Trend of Suitability Evaluation Results.................................... 47
Figure 7 GDP of Hainan (2007-2017) 49
Figure 8 The Amount of Housing Sales in Hainan (2010-2017)............................. 50
Figure 9 The Total Sale Area of Senior Housing (10 thousand ㎡) 51

List of Tables

Table 1 Numbers of Snowbirds Residing at Secondary Residence, by Month 31
Table 2 Suitability of Old-age Real Estate Evaluation Index System 42
Table 3 Suitability Evaluation Index Weight... 45
Table 4 Comprehensive Suitability Evaluation Results... 47

Acknowledgement

I would like to express my deepest gratitude to my supervisor, Dr Charlotte Pearson, for providing her invaluable support, suggestions and comments throughout the dissertation.

I would also like to thank my friend Jamie for keeping me motivated.

Chapter 1. Introduction

1.1Research Background

1.11 Current Situation of Ageing Population in China

China is an ageing society. The National Bureau of Statistics of China (2017) shows the number of the elderly people aged 60 and over is 240.9 million, accounting for more than 17.30% of the total population. The population in the age group of 65 and over accounted for 11.4%, up by 0.9% compared with the 2015 national population census. According to projections, people aged 65 and over will account for 20.2% of the population by 2030 and soar to 27.2% by 2055. This puts China into the bracket of 'ageing society' by any internationally recognized standard. An ageing society is one in which the population over the age of 60 accounts for 10% of the total population or in which the population over the age of 65 accounts for 7% of the total population (Zhou and Salvendy, 2018). China is therefore faced with the problem of an unbalanced population structure, particularly in terms of age (Sun, Yao and Dong, 2018).

All countries have their own features of an ageing population, which governments much respond to. However, what sets China apart from other developed countries is that its ageing population is growing faster than almost all other countries in the world (Johnston et al., 2016). Therefore, national and regional governments need to pay more and more attention to the ageing problem in the process of current economic transition.

1.12 The Fusion of “Migratory Bird” Tourism, Elderly Care and Old-age Real Estate

“Migratory bird” tourism is a term translated from Chinese. It is a new concept of tourism which mainly serves elderly people who temporarily migrate from the colder northeast regions of China to the hot southern tourist cities in order to escape cold the winters. These tourist cities can be called “migratory bird destinations” and the places where the tourists come from are “migratory bird origins”. These older people, or “migratory birds”, tend to purchase houses in in the tourist cities where they will live for a portion of the year during their retired life (Wu, 2017). Even though this move is seasonal and temporary, the impact of it on destination areas can be considerable. For instance, temporary migration influences public transportation, housing prices, elderly care services and many other various facilities as well as services (Smith and House, 2006). However, this dissertation will focus on the interactions of migratory bird tourism and elder care as well as real estate.

Firstly, the increasing older population will need to provide more potential markets to develop the migratory bird tourism in certain areas. According to the research (WaBird, 2018), 40% of consumers in the tourism market are elderly people who are willing to travel to migratory bird destinations for a healthier life, promoting the development of tourism in these Chinese tourist cities. In addition, more and more older people are staying there for longer periods of time and this has increased the demand of local elderly care services (South China Morning Post, 2017).

The Ministry of Civil Affairs of the People's Republic of China started interacting with local authorities in migratory bird destinations to develop a pilot scheme focusing on elderly care for non-permanent residents in 2004. This scheme encouraged older people to leave their hometown without having to worry about having access to the elderly services they were accustomed to. The idea being that they would bring investment to different cities around the country. However, this tended to move at a slow pace. As a result, the local medical and healthcare services have remained inadequate for those elderly temporary migrants and the houses and apartments are also unsuitable. To provide more suitable housing for them, many property development companies have spotted a gap in the market and focused on real estate projects that are specifically aimed at the elderly (Zhang and Meng, 2017). This new type of real estate can be called "old-age real estate" including senior housing and service facilities. It has developed specially for elderly people who need to stay in migratory bird destinations, and also provides elderly care, education and recreational services at the same time. This new fusion of migratory bird tourism, elderly care and old-age real estate is therefore becoming a new trend and growing rapidly and is being explored by different organizations (Kazer and Fung, 2013). The first complete old-age real estate in China was developed in 2008, hence the development of it is still in its initial phase and immature (Wu, 2017). According to the China Real Time report (2013), over eighty real estate firms have involved in the old-age real estate development, yet still some problems exist. For instance, some property companies developed single residential apartments in the name of old-age real estate. Moreover, there is a lack of mature development management and operating model, leading to varying quality in the properties. This makes it hard to meet the needs of elderly people. Nevertheless, the fusion of the three industries has a good prospect and business opportunity. It is believed that the old-age real estate in migratory bird destinations will become more and more popular with older people in the near future. In terms of the current situation discussed above, in order to achieve a healthy and sustainable development of the old-age real estate in migratory bird destinations, the discussion of how to evaluate its suitability and what development risks might exist will be the main focus of this research.

1.2 Research Objectives

More and more elderly people in China are choosing the migratory bird mode as their lifestyle and therefore, it holds the potential to be a huge market for property development in these tourist cities (Zhang and Meng, 2017).

For example, Hainan province, a famous tourist destination, is the only tropical island situated at the southern end of China. The warm weather all year round and beautiful island views make it become the most popular holiday resort for elderly retired people. According to the report of South China Morning Post (2017), more than one million people come to Hainan Province to spend holiday every year, and the number of older people accounts for 40% of the total tourists. In addition, many property companies have attempted to develop old-age real estate in Hainan Province. Furthermore, since the government policies of tourism, real estate as well as old-age care are distinct in different areas of China, therefore, this research will take Hainan Province as a typical example to explore the suitability of the old-age real estate. However, in the light of the current condition of Hainan old-age real estate market, development is still in the exploration stage, and the imbalance between supply and demand is thought to have negative impact on the whole real estate market in Hainan (Liu, 2018). Although at present there are many financial investments on this new type of real estate, a lack of research will mislead the new development and cause a lot of problems. Given the absence of research, this dissertation aims to take Hainan Province as a case study, to use secondary analysis to explore how suitable are Chinese migratory bird destinations for the development of real estate for older people. The questions will be answered from two main perspectives:

1) By investigating existing literatures combined with the establishment of evaluation index system to evaluate the suitability of development for old-age real estate in Hainan Province.
2) By analyzing the potential risks and provide instructive suggestions to increase the suitability level of the future old-age real estate development.

1.3 Theoretical and Practical Significance

Although there are a number of studies on real estate for elderly people and tourism, which inform development, there are still many property development companies that operate projects based only on their previous experience, rather than drawing on broader theoretical research (Wu, 2017). Besides, the impact of migratory bird tourism, elderly care and real estate is more scarce. Some research and theories are not suitable for old-age real estate development (Xia, 2012). Therefore, research on the main gathering place for retired people——Hainan, aims to contribute to an analysis of the development of Hainan regional tourism as well as old-age real estate.

Moreover, the finished old-age real estate development projects in Hainan Province are not mature and unsuitable for older people to live. There are still some issues of them (Wang and Zhou, 2016). It is expected that this research will focus on the Hainan Province in Southern China as a case study to support an evidence based discussion on the suitability of tourist cities for the development of old-age real estate.

1.4 Research Outline

The research question is “How suitable are Chinese ‘migratory bird’ destinations for the development of real estate for older people? A case study of Hainan Province.”

To answer this question, this study will review the wider literature and will include a secondary data analysis of the government policy documents, market reports as well as newspaper articles. This dissertation will cover 6 chapters.

Chapter 1 presents the introduction which includes research background, objectives, theoretical and practical significance of the research as well as the outline in order to clarify the question.

Chapter 2 provides the literature review which firstly outlines the policy background about the old-age care and tourism service in China. This includes key policy documents such as the current old-age real estate policy from the report on the 19th National Congress of the Communist Party of China. Secondly, it critically reviews the previous research covering the evaluation, findings and existing gaps related to the topic from the national and international perspectives.

Chapter 3 outlines the methodology used in this research. It will use qualitative methods which focuses on the literature reviews and discourse analysis as well as documentary evidence to analyze the research data in depth. In addition, the Entropy evaluation model will be applied to assess the suitability index system. Then it will be followed by a discussion of the limitations of the methods.

Chapter 4 investigates the overview of the old-age real estate development in Hainan Province. It discusses the current situation of it including the fundamental characteristics and existing problems. Moreover, it introduces the different development modes and outlines two successful development cases.

Chapter 5 presents the findings and discussion to answer the research questions. It examines the assessment index system of suitability in Hainan Province and analyzes its potential development risks from different aspects. And then followed by the discussion of the feasible suggestions from the perspectives of government, enterprise and consumer.

Chapter 6 concludes the dissertation, providing existing limitations and recommends future directions of the research.

Chapter 2. Literature Review

2.1 Introduction

This chapter will present a critical review of the existing policies and previous studies in order to indicate what concepts or ideas associated with the research question are already known. Currently, the Chinese government has not established a specific and systematic policy regarding old-age real estate. Therefore, this chapter will first demonstrate the current policies which mainly focus on the existing elderly care industry, tourism as well as some related plans from the national and regional (Hainan Province) perspectives. It will then critically review the gaps in these policies that will influence the operation of the old-age real estate.

In addition, it will explore a general concept of the old-age real estate. Following this, it will estimate the basic categories and business model of the old-age real estate which has been argued by different researchers. Next, a synthesizes of the previous studies on the development of the tourist cities for the old-age real estate will be discussed. Finally, it will conclude the limitations of the previous research, and also outline the relationship between the review and the dissertation.

2.2 Policy Background

Real estate markets are not independent, particularly not when it comes to old-age real estate combined with the migratory bird tourism industry. The dynamics of this fusion of multiple industries are influenced by movement in economic activity as well as government intervention, such as public policy (Dipasquale and Wheaton, 1996). Specifically, the development of old-age real estate is significantly influenced by government regulations.

Compared with other countries with rich experience of elderly care such as Japan, China is falling behind in public policy as well as in private capital participation in the industry. Nevertheless, in order to cope with the growing ageing population, the Chinese government has set a series of supporting policies regarding elderly care industry in recent years. There are more than 40 items and include aspects of land supply, insurance, taxation as well as medical service etc (Chinese Index Academy, 2016).

2.21 National Policies of Elderly Care Industry and Tourism

For instance, in 2013, the State Council issued the document of the Several Opinions of the State Council on Accelerating the Development of Elderly Care Service Industry (State Council, 2013). It sets out a number of preferential policies with regards to the investment by private investors in the for-profit as well as not-for- profit elderly care institutions. Meanwhile, it expects to encourage more social financial capital in elderly care facilities, and also improve the policies of land supply, tax incentives as well as subsidy in order to promote the sustainable and healthy development of elderly care service (State Council, 2013).

In particular, according to the document of the Several Opinions of the State Council on Promoting the Development of Tourism, the State Council argues that the development of the tourism should be incorporated in the elderly care industry and multiple vocation products should be provided so as to develop the migratory bird tourism (State Council, 2015).

2.22 Policies of Elderly Care Industry in Hainan Province

In addition, the regional government in Hainan Province also announced related policies in accordance with the aims of the national framework. For example, the “13th Five-Year” Plan for Elderly Care Service Development of Hainan Province lays out the construction plans of the elderly care institutions over the next five years. It aims to rebuild 50 nursing homes for older people in remote villages, and also plans to develop over 150 Continuing Care Retirement Communities around the cities (Hainan Province Government, 2016). This plan will attract more real estate developers to get involved in the old-age real estate development, moreover, provide various housing options for older people who are from the different areas.

2.23 Additional Preferential Policies

Laws and policies on elderly care have also become more open to foreign investors. For instance, according to the Administrative Measures on Granting Permission for the Establishment of Elder Care Institutions and the Administrative Measures on Elder Care Institutions, foreign investors are permitted to establish elder care institutions in the Chinese market in the form of wholly-owned subsidiaries, joint ventures or cooperative operations; In addition, foreign enterprises are allowed to establish medial institutions in the form of wholly-owned subsidiaries within Shanghai Pilot Free Trade Zone (China

National Committee, 2013). This policy has reduced restraints on investment from overseas and would provide access for investors to the China's elder care service industry.

Furthermore, according to the latest report on the 19th National Congress of the Communist Party of China, the major future tasks in the next few years focus on government support for the development of new service models and cross-sectoral integration, in particular, encourage to combine medical and elderly care services, cultural and creative services, and other emerging forms of consumption (State Council, 2017).

2.24 Policy Gaps Analysis

In general, both national and regional governments have introduced a series of preferential policies in support of the development of old-age real estate in migratory bird destinations. There is no doubt that these public policies will present more opportunities for real estate investors in the industry, however, there are also many gaps in these policies that will influence the operation of the old-age real estate (Dai, 2016). For instance, independent and sufficient land supply has an important impact on the development of real estate (Liu and WQ, 2018). In other words, specific land supply for elderly care industry is the foundation for the development of the old-age real estate. Unfortunately, the lack of the land supply for elderly care industry in China has been restricted its development. The current land category for elderly care property is roughly classified into the "Medical and Charity" land, there is no specific land supply category for the development of elderly care property. But the government will supply the land by the different land categories and increase more complicated process. As a result, it is more difficult for real estate developers to acquire suitable and adequate land. More developers have to rebuild the current vacant properties such as warehouses, schools or community buildings, or choose to rent land which will cause a higher cost and more complexity. (Chinese Index Academy, 2016).

In addition, preferential fiscal policy might play an important role to draw more attention from different capital investments into this industry (Tibaijuka, 2008). However, it is obvious that the real estate developers can not benefit greatly from current fiscal and subsidy policies. A high-cost land development and design fees as well as long cycle of return will increase capital pressure of the company. In terms of the operation and management, the current government subsidy is mainly limited to the non-profit institutions which have to charge lower fees as the requirements of the Ministry of Civil Affairs. In contrast, the for-profit institutions do not have charge requirements but acquire rare subsidy from the government. Therefore, the fact is nearly all the elderly care institutions struggle to make a profit, which make it reduces the attraction from more capital into the old-age real estate market (Deloitte, 2014).

Furthermore, the regulation and supervision of the elderly care industry in China is insufficient. The relevant government departments have not served their purpose in regulating the market and establishing unified standards and this has meant destabilized the industry as a whole (Dai, 2016). In the meantime, the inconsistency of policy in different areas at different levels in China is still a big problem. The relevant preferential policies among government departments such as land, healthcare, tax as well as medical insurance, etc, are mainly beneficial to the middle to low-rent eldercare markets and hardly ever benefit the high-rent market (Deloitte, 2014).

2.3 The Concept of Old-age Real Estate

Due to the different development stages of the ageing, the concept and effect of the old-age real estate varies between time periods as well as countries. According to the study by Ohara in Japan (2004), he claimed that the real estate for the elderly could be defined as any objects such as a specific place, a house or a service facility which could meet the fundamental needs of them. He found that the initial development of housing for the elderly can be dated back to the 1970s. At that time in Japan, senior housing mainly focused on the public sector. Only elderly people living with their children were eligible to apply for public housing. More recent studies on the fundamental theory of old-age real estate have formed two different viewpoints of the concept. On the one hand, Sun (2011) indicated that real estate for the elderly should be regarded as a single residential product with the purpose of providing older people with a basic living space rather than providing other associated services such as healthcare. Alternatively, as demonstrated in Yu’s (2010) study, old-age real estate can be seen as a type of residential product which is particularly built for older people who need specific healthcare or entertainment services. The product can be a house, apartment, community or nursing home. In contrast to this single product definition, Shang, Lu and Zhang (2012) defined old-age real estate as an integrated industry, which would provide not only housing space, but also related facilities and services of healthcare, education as well as recreation etc. Also, they found that this integrated industry should coordinate all the different activities from the other industries so as to work effectively. Similarly, old-age real estate could be considered as a service industry which serves the older people in multiple aspects (Feng, 2015). Thus, it is obvious that the concepts and definitions of the old-age real estate are changing in the different periods. From single house to diverse communities, simple facility to multiple services, these differences reflect its continuous evolution.

2.4 The Types and Business Model of Old-age Real Estate

2.4.1 Types of Old-age Real Estate

According to the study of Holzhey (2017), the current elderly care industry mainly provides the retired old people (generally aged 75 or above) with service of housing and care. Due to the different levels of care and facilities, it is classified into three types which are "independent living facilities (ILF), assisted living facilities (ALF), and skilled nursing facilities (SNF)." ILF is similar to multi-family apartments, the residents are usually healthy and could afford costs independently. ALF serves the residents aged over 80 who need to be looked after all the time. SNF has the highest entry barriers, which provides service for not only the long-stay clients but some short-stay clients who are coming for physical rehabilitation. However, in general, the distinctions between these classifications are not very clear. For example, some residents who stay in ALF with serious illness will usually be sent to SNF. Kernisan (2018) pointed out that it has become more and more accepted that these facilities provide care service through a centre, which covers house cleaning, transportation, meals as well as some other services such as rehabilitation, private daycare. This hub enables the seniors to choose care types as needed. Besides, Murty (2017) in his study stated there are more integrated facilities such as specialized “memory care facilities” as well as “continuing care retirement communities” (CCRC), which would provide comprehensive care services to meet the multiple needs of the seniors. Additionally, the current old-age real estate in China can be classified into permanent and short-stay housing based on the duration of stay. Also, based on the different functions for the elderly they can be divided into the five types, including elderly-adapted housing, housing for all-round living, continuing care retirement housing and stand-alone apartment as well as vacation-type elder care housing (Wu and Ho, 2014).

2.4.2 Business Model of Old-age Real Estate

The business model of the old-age real estate includes its development type, finance, operating as well as the profit model. According to the CCRC Task Force (2010), the development type of a community such as continuing care retirement communities (CCRC) are becoming more popular with the elderly. A CCRC "is a type of retirement community where older people live independently and where additional services, including home care, assisted living, and skilled nursing care, are provided in a campus setting." Tetlow (2011) argued that compared with most of the other countries, the construction scale of the CCRC in the UK is relatively smaller. The significant characteristic of it however is that it places more importance on the fusion of housing with external relevant institutions. These could include adjacent schools, in which residents can partake in evening classes and other recreational activities. Similarly, Murty (2017) illustrated the community is much more than a group of people gathering in a location. The housing and grounds can contribute in significant ways to building a community. Also, providing different kinds of activities is essential to encourage interaction among people. On the other hand, through the analysis of the current development situation of Chinese old-age real estate market, Kong and Yu (2013) claimed that the senior apartment would be an innovative type for the older people who are willing to stay at their own home rather than go to the community.

In terms of the financial model, Martin L, Anthony and P. Brett (2010) pointed out that many financial institutions or personal investors would pay more attention to the long-term profitability of the old-age real estate. Therefore, the investment mode and the asset allocation would be diverse. However, according to Sun (2011), the financial model could be specific in the different context of the countries. She investigated a new model of finance could be used in China for the contemporary development of the old-age real estate, which is the model of self-financing combined with cooperation as well as the Build–Operate–Transfer (BOT) form.

Bethfranklin (2009) found that the operating mode of the reverse mortgage could improve the life quality for the elderly, and also provide new profitability for the bank. According to Kearns (2018), a reverse mortgage is a type of loan for older homeowners that allows borrowers to access a portion of the home’s equity and use the home as collateral. It has become an effective retirement planning tool for the senior homeowners. Nevertheless, this mode has exposed its disadvantages since the outbreak of the financial crisis. Additionally, Liu (2015) has summarized the development experience of the old-age real estate in America, Japan as well as Singapore and found that the model of rent combined with sale would be more suitable for the development of the Chinese old-age real estate. However, Jiang and Su (2016) identify four major profit models which have been widely used in China's old-age real estate market. These are Sale of senior housing, Sale and Buyback, Rent and Sale, and Rent to members. Meanwhile, they demonstrated that it would be necessary to concentrate more on the service, facility as well as environment of the senior property instead of a sole purpose of profit in order to achieve its healthy and sustainable development.

2.5 The Development of the Migratory Bird Destinations for Old-age Real Estate

There have been many studies concerned with the temporary migration of the elderly in the migratory bird tourism over the past several decades, including the issues such as the features of migrants, migration types and the economic influence of migratory bird tourism (Smith and House, 2006).

Hanna, Levi and Petit (2015) examined the migratory bird destinations available to the elderly and argue that the more favored destinations are most likely those that are culturally and naturally dissimilar to tourist's origins. For example, the length of time of old people travel in Spain would be affected by the local climate, the condition of the accommodation as well as activities there. Similarly, Nimrod (2008) investigated a group of retired people who are living in the middle west of the US. He found more old people would take local leisure activities, social network as well as constraints into consideration before they decide to migrate to the tourist city on vacation.

Smith and House (2006) pointed out that the influence of elderly temporary migrants on the migratory bird destinations can be considerable. For instance, an increasing number of elderly consumers would contribute to promoting the local economic growth (Warnes and Williams, 2006). Meanwhile, it is helpful to increase employment opportunities. Also, the migratory bird tourism would drive the development of economic diversification, industrial restructuring and raise tax revenue of the cities (Haas and Serow, 2002). Besides, Parra (2008) found the older people with the lifestyle of “migratory birds” have the healthier life and more regular habits than ordinary old people who live in origins. It is evident that this type of old people has a higher quality of life.

While some studies above have concentrated on the advantages of the migratory bird tourism, more previous studies have investigated some relative disadvantages. For instance, according to the study of Ono (2008), the old people who migrate to the tourist cities might have a negative impact on the environment, local culture and public facilities. Also, the house prices would be pushed up rapidly due to the increasing demand, which might lead to the housing market in the state of disorder (Chen, Liu and Chang, 2013).

2.6 Summary

All countries have their different degrees of the intervention of government in the real estate sector (Tibaijuka, 2008). In China, both regional and national governments have issued some policies regarding the old-age real estate as well as tourism in recent years. However, the current policies still have problems of limited land supply, limited fiscal and subsidy policies as well as insufficient supervision. Hence the next research stage of this dissertation will mainly focus on the Hainan Province to develop the study of the regional policies regarding the suitability of real estate for older people.

While previous literature has mostly addressed the different business models of old-age real estate in tourist cities, the potential risks of these new business models have not been examined by the majority of the researchers. In addition, previous literature has been limited in their methods of measuring the suitability of migratory bird destinations for the development of old age real estate. With this in mind, I will attempt to fill in some of these gaps in the following chapters.

Chapter 3. Methodology

3.1 Introduction

Having reviewed the public policies and literatures regarding old age real estate in migratory bird destinations and found some gaps, this chapter presents the methodology that will be used to analyze the suitability of old-age real estate in Hainan Province. It will begin by describing my research strategy and then will analyze the case study of Hainan Province. In addition, it will present how data was collected and how a mixed method approach was adopted in my research. Finally, I will explain why I have chosen to use an evaluation index system combined with an entropy evaluation model as my primary research methods.

3.2 Research Strategy

This dissertation aims to explore the suitability of old-age real estate development in the Chinese migratory bird destinations and to investigate the potential risks of their development. In order to achieve this aim, the study takes Hainan Province as a case study and applies a mixed method approach by examining a range of secondary data sources.

Yin (2013) points out that a case study is an essential and sufficient method for investigators to examine certain research tasks in the context of real-life with multiple evident sources. While it is believed that the generalization of a particular case study is not very objective, the study of the development of the old-age real estate in Hainan

Province could be extended to provide evidence discussion for more general application. Besides, a collective case or example would be useful to learn more about the research question or phenomenon (Stake, 1994). Chapter 4 will present several successful development projects in Japan and America as examples, in order to help learn from these experiences by comparison.

3.3 Analysis of the Case Study Area: Hainan Province

Hainan is a famous international island because of its excellent location, climate, and abundant natural resources. Facilities of the island have been improved to attract more and more tourists especially seniors from around the world. Compared with the other tourist cities in China, Hainan Province has more advantages to be a representative example.

Firstly, Hainan is the southernmost province of China, consisting of many different islands in the South China Sea. Sunny weather and higher air quality have helped it become the most popular tropical seaside resort in China (Hong Kong Tourism Board, 2018). Also, it can be regarded as a "paradise on earth, a bright pearl in the South China Sea" (TCT, 2018). The advantageous geographical location is the major reason that attracts old people to come and spend their time during retirement. In addition, Hainan has abundant tourism resources, including natural and cultural resources. In December 2009, the government stated that it plans to establish Hainan as an "international tourist destination" by 2020 (Hainan Province Government, 2011). Therefore, tourism has played an essential role in Hainan's economy, driving social development in the aspects of employment, culture as well as the environment (South China Morning Post, 2017). As an island, it is usually divided into eight regions based on tourism purposes: "Haikou area (Haikou, Qiongshan, Ding'an); the Northeast (Wenchang); the Central East Coast (Qionghai, Ding'an); the South East Coast; the South (Sanya); the West Coast also called the Chinese Riviera (Ledong, Dongfang, Xianghsui, Changjiang); the North West (Danzhou, Lingao, Chengmai); and the Central Highlands (Baisha, Qiongzhong, and Wuzhishan/Tongzha)" (TCT, 2018). These different tourist areas provide multiple options for the seniors, and also show a large real estate market.

Moreover, various preferential policies regarding the elderly care industry encourage domestic property investment as well as foreign investment, promoting a positive interaction of the multiple industries. In respect of the Hainan real estate market, the values of commercial and residential property sectors in some areas have slowed down since March 2010 due to the market bubble (Yan, 2017). However, property prices of the tourist resort in Sanya remain strong, with selling prices of up to 80,000 RMB (9,000 £) per square meter (Anon, 2017). Furthermore, nearly eighteen of China's leading property development companies have invested in Hainan old-age real estate in recent years. These include Vanke, Greenland as well as Poly. Nevertheless, there is a mismatch between the rapid development of old-age real estate and related core facilities such as medical service and transportation. Hence it is necessary to assess its suitability in order to further develop the old-age real estate in similar areas.

3.4 Data Collection and Analysis

Data regarding the old age real estate situation in China could not be collected from interviews, surveys or other primary data sources in any meaningful way due to the high cost and limited time that these methods require. Therefore, this dissertation utilizes a mixed method to analyze secondary data and attempts to address the research questions with the analysis. Secondary data or existing data is the data used freely by researchers who were not involved in the original data collection. This has a long and rich tradition in the social sciences (Goes and Simon, 2013).

The secondary data in this research were mainly acquired from the government websites such as the National Bureau of Statistics of China, organization databases, market reports as well as academic literature for the analysis of the policy background and real estate market condition. Besides, the other secondary data used in the suitability assessment and index system establishment were mainly collected from Hainan Statistical Yearbook 2013-2017 and Hainan Province Government websites.

3.5 Research Approach

This research uses a mixed method approach to address the questions raised. According to Creswell (2014), a mixed method approach involves philosophical assumptions and the combination of qualitative and quantitative data analysis so that the overall advantage of the research is greater than either qualitative or quantitative methods. In this study, both qualitative and quantitative data research were utilized to evaluate the suitability of old-age real estate in Hainan Province. The qualitative method was mainly employed to confirm the indictors of the index system, and the quantitative method was mainly used to apply the entropy evaluation model and analyze the evaluation results.

3.6 The Establishment of the Suitability Evaluation Index System

To evaluate the suitability of old-age real estate in Hainan Province, it is necessary to establish an evaluation index system. “An evaluate index system should consider various factors used to characterize the system and status of the main factors and related variables” (Liu et al., 2011). The variables (indictors) are used to compare and assess. To establish an evaluation system, the indictors must be feasible and reliable. However, the indicator data collected are complex and multiple (Wu, 2017). Hence the option and application of the data in the evaluation index system should be based on some certain principles. Three basic principles are summarized below:

1) The Principle of Comprehensive System

The suitability evaluation of the old-age real estate in migratory bird destinations involves various disciplines and fields. When selecting indicators, all different factors and the interrelationship between all factors and their independence should be comprehensively considered and analyzed. Meanwhile, the regional characteristics and industrial characteristics cannot be ignored. Therefore, the indicator system should be complete, taking into account the overall elements and their coordination, avoiding the results are one-sided (Jackson, Hitchins and Eisner, 2010).

2) The Principle of Feasibility

Feasibility is one of the necessary principles for the establishment of an index system. Whether the choice of indicators is viable will to a large extent decide the results of the assessment. Moreover, it is essential to make sure that the sources are real, and the indicators are easy to acquire and measure (Driesen, 2004).

3) The Principle of Time and Space Consistency

The study area has different conditions at different times and spaces. These conditions include location, resources, environment as well as economy and many other aspects. Therefore, indicators should be consistent in both time and space, in order to achieve a reasonable integration of regional resources (United Nations Statistics Division, 2015).

3.7 Entropy Evaluation Model

The entropy evaluation model was employed to analyze the data and acquire the results in the evaluation index system. At present, there are two steps mainly applied to the index assessment methods. One is to establish and optimize scientific index systems. The other one is to identify index weights and examine proper evaluation models (Guo, 1994, Li, 1991).

The identification of the weight is the core of the various index evaluation approaches. Most of the methods to set the index weights are primarily based on subjective factors, such as Delphi Method, or Neighboring Comparative Method. However, these subjective factors might result in deviations in the evaluation results. Hence the results might lack objectivity and accuracy (Xu, 2006). In order to decrease the possibility of the deviations in the subjective empowering methods, this study employs the entropy-weight to set the index weights. The entropy-weight method is one of the objective empowering methods. Its notable advantages make it become a new standard field for index evaluation (Guo and Chen, 2002).

Generally speaking, in the entropy evaluation model, the number and quality of the information are essential factors that determine the accuracy as well as reliability. For one indicator, more information entropy will provide less information, which shows the smaller variation extent of value, and the less role-playing in the evaluation. As a result, the entropy weight of the index will be less (Jun and Qi, 2006).

When assessing the suitability of old-age real estate in the index system, assume "*i*" is the target number, "*j*" is specific index. According to Jun and Qi (2006), following the "principle of combining qualitative and quantitative", an original multi-target evaluation matrix about multi-index is shown below:

$$R^{'} = \begin{bmatrix} r'_{11} & r'_{12} & \Lambda & r'_{1n} \\ r'_{21} & r'_{22} & \Lambda & r'_{2n} \\ \mathrm{M} & \mathrm{M} & & \mathrm{M} \\ r'_{m1} & r'_{m2} & \Lambda & r'_{mn} \end{bmatrix}$$

Because of the different qualities of the indicators, all indexes would be distinct. Therefore, it is necessary to eliminate the impact of the dimensions in order to use reliable indexes, in other words, all evaluation indexes need to be standardized. The formulas are the following:

$$r_{ij} = \frac{r'_{ij} - \min_{j}\{r'_{ij}\}}{\max_{j}\{r'_{ij}\} - \min_{j}\{r'_{ij}\}}$$

$$r_{ij} \in [0,1]$$

And then calculating the entropy of the *j* index:

$$H_j = -k\sum_{i=1}^{m} f_{ij} \ln f_{ij}$$

Where

$$f_{ij} = \frac{r_{ij}}{\sum_{i=1}^{m} r_{ij}}$$

$f_{ij} = 0, f_{ij} \ln f_{ij} = 0$

The entropy weight of the *j* index is shown:

$$\omega_j = \frac{1 - H_j}{n - \sum_{j=1}^{n} H_j}$$

$0 \leq \omega_j \leq 1$

Finally, after getting all weights of the indexes, the comprehensive assessment could be calculated as follows:

$$V = \sum_{j=1}^{n} w_j f_{ij}$$

V is the comprehensive result of suitability evaluation.

3.8 Limitations

There are several limitations for the single case study approach. According to Yin (2003), a multiple case study design has more advantages than a single case study design. The dissertation chose Hainan Province as a single case study due to the notable features of the case area. Also, since the conditions are somewhat distinctive in different areas of China, it would be challenging to use a multiple case study to analyze the research question.

Regarding the data collection, the study adopted a large number of secondary data from government websites, academic articles as well as other public sources. They were open and convenient to access (López, 2018). Nevertheless, data related to the national or regional policy documents might not be up to date, which might limit the results. Also, the accuracy and quality of the data cannot make sure to be appropriate.

3.9 Summary

A mixed method approach, including secondary data analysis, was used to explore the suitability of old-age real estate in Hainan Province. The suitability evaluation index system was applied and combined with the entropy evaluation model to obtain the results. The specific indicators applied to this system will be analyzed and confirmed in the next chapters.

Chapter 4. Current Situation of Old-age Real Estate Development in Hainan Province

4.1 Introduction

As discussed in the methodology chapter, evaluation of old-age real estate suitability in Hainan Province is based on the evaluation index system. Accordingly, the indictors in the system should be considered widely and cover the overall situation of old-age real estate in Hainan Province. Therefore, to provide a complete understanding, several aspects will be discussed in this chapter to help come up with the suitable indicators, these will include the fundamental characteristics, existing problems and current development models. Aside from these, two successful projects from the US and Japan will be introduced to help confirm the indictors for the evaluation index system in the following chapter.

4.2 Fundamental Characteristics

1) Site Selection

Site selection is the process of investigating multiple possibilities and evaluating their relative criteria. (Elston and Draper, 2012). Therefore, site selection should consider various factors. Developing the old-age real estate in the tourist city is not a single process and should combine leisure activities with elderly care at the same time. In this case, many different factors should be taken into account when building the old-age properties in Hainan, such as environment, natural landscape, climate as well as cultural resources (Goldson, 2016). Besides, it is apparent that most older people might spend a long time living in migratory bird destination, the regional folk costume and traditional culture could also be considered for the elderly to blend in the environment easily.

2) Special Consumer Group.

Although there is a minority of young or middle-aged people who are purchasing senior housing in Hainan. The dominant consumer group is undoubtedly older people. According to WaBird (2018), 40% of consumers in the tourism market are elderly people who are willing to travel to the migratory bird destinations when they are retired. Senior consumers are usually classified into three types based on their health and living conditions. The first type refers to the healthy couples who concentrate on regular health check-ups, entertainment, sports, tourism and other leisure activities. The second type of consumers are those who are healthy but have lost his/her spouse, hence need more spiritual comfort and support. The last type of consumer includes the disabled elderly who require professional medical care. Therefore, different kinds of properties including communities, apartments or professional elderly care facilities should be built for these specific groups (Fu, 2014).

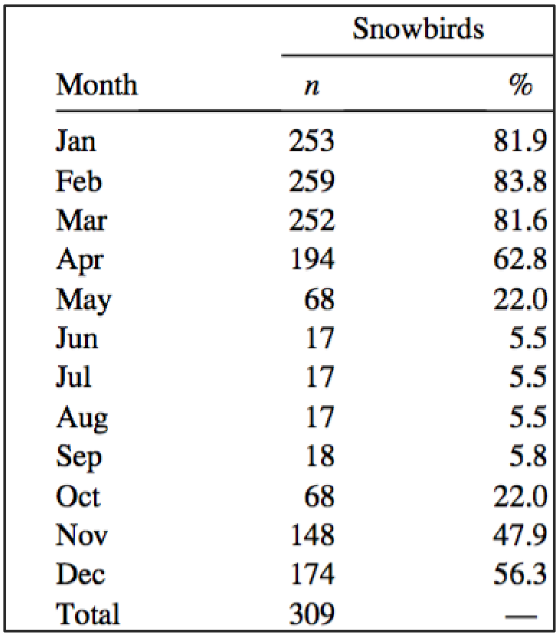
3) The Fusion of Industries

The development of the old-age real estate encourages interactions among different industries. The fusion of migratory bird tourism, elderly care and the old-age real estate has driven the development of diverse sectors. For instance, increasing augmented product and related service facilities can promote economic growth (Zhang and Meng, 2017). Moreover, public transportation, land condition, environment as well as other aspects of the society will also be influenced by the fusion of industries, attracting more investors and improving the regional environment (Smith and House, 2006).

4) Obvious Seasonal Feature

According to Table 1, it is notable that old people (also called snowbirds) would like to flock to Hainan during the winter time. It shows they have highly seasonal nature and can be regarded as seasonal migrants as well as temporary migrants (Smith and House, 2006). However, the downside of this feature is it could cause a large number of public facilities in an idle state during the off season. On the other hand, inadequate service facilities are hard to meet the needs of the rapidly rising people during the peak season. Therefore, it is necessary to improve the situation for long-term development.

Table 1. Numbers of snowbirds Residing at Secondary Residence, by Month



	Snowbirds	
Month	*n*	%
Jan	253	81.9
Feb	259	83.8
Mar	252	81.6
Apr	194	62.8
May	68	22.0
Jun	17	5.5
Jul	17	5.5
Aug	17	5.5
Sep	18	5.8
Oct	68	22.0
Nov	148	47.9
Dec	174	56.3
Total	309	—

(Source: adapted from Smith and House, 2006)

4.3 Existing Problems

Developing old-age real estate should not only focus on the sales or profit making, but also the service and facilities provided. However, the major problem of old-age real estate facing now is the mismatch between the supply of elderly care service facilities and market demand (Fu, 2014). Firstly, most of the current senior properties are designed for people who have a higher income or quality of life. Many low-income families could not afford to live in the mid to high-rent facilities. As a result, a large of mid to high-rent senior properties have a rather low occupancy rate of less than 50%. In addition, both the elderly and their families living in the city desire to live closer and take care of each other. Therefore, the demand of facilities and services in the cities is much higher than those in the suburbs or remote areas. However, most of the new properties are situated in remote locations which are not accessible in the light of lower investment cost. Hence the supplies in Hainan are unbalanced in the different regions. Furthermore, although old-age real estate has developed rapidly in recent years, the care services and facilities provided are still basic and low-quality. The growing living standard of the elderly makes them have more requirements of life such as education, sports, and entertainment as well as specific medical care, nursing even a particular senior-focused medial service network (Wu and Ho, 2014). However, the lack of professional and high-quality service staff makes it more difficult to meet the needs of the elderly. Moreover, compared with the other developed countries, the implementation of the policy is a bit slower. Also, the distinctions in the policies of different areas in Hainan Province have restricted the opportunities for further development of the old-age real estate (Fu, 2014).

4.4 Development Models

As mentioned in the literature review, the category of old-age real estate varies between countries and depends on the development model. In the most tourist cities of China, while the various and multi-level old-age real estate products have been developed, the construction of the infrastructure as well as core services have fallen behind due to the lack of developing experience. Therefore, several development models of old-age real estate with typical successful examples are summarized below.

1) Embedded Development Model

This type of development model is where the elderly care housing is located in the existing ordinary residential communities. Most of the older people are not willing to live in an unfamiliar community or the elder care institution which is so far away from cities. Therefore, some property developers have invested and designed in the existing residential communities. They renew the facilities and living environment, add new services to meet the needs of the elderly. Some other developers might build independent elderly care centers to provide services of meal, housekeeping and healthcare as well as entertainment activities. The embedded development model is natural for older people to adapt to the retirement life and have a sense of belonging (Wu, 2017).

2) Composite Development Model

In general, the composite community is a large-scale and multifunctional area, which is situated outside the inner city. Hence the land cost is much lower. The residents can be both young people and older people. The facilities in the community include residential areas, hospital, leisure center and educational institution for older people. All service staff are professional and cover the all-around services. Besides, the community is usually divided into different blocks for the independence of the elderly.

Meanwhile, while the development model is complex and challenging, the characteristic of the rapid return of capital drives developers to reinvest in the other service facilities for the consistent and healthy operation (Smith and House, 2006).

3) Continuing Care Retirement Community Model

Typically, the community is built to mainly meet the needs of the elderly who stay there until the end of life. Therefore, they would like to purchase houses or apartments in the community as their secondary property. Moreover, older people who move to a CCRC are still living independently, with few health problems or health care needs. As the age changes, the medical needs and level of care service may increase in response (CCRC Task Force, 2010).

4) Vacation-type Development Model

This type of housing mainly focuses on the leisure and vacation services. They can be a large community, independent buildings or a chain of housing developed by a large property developer. Additionally, they are usually located in cities with accessible facilities, or outside the inner city with beautiful natural scenery. Although most of the clients are healthy seniors, medical service, treatment, or other health care services would also be provided. However, the downside of this type of model is apparent. The absence of specialist health and social care support and the operation of the hotel model make it difficult to serve the elderly for a long time (Wu and Ho, 2014).

5) Stand-alone Apartment Development model

This model is developed to provide a professional assisted living for the elderly with medical care service and facility. Due to the high dependence of the medical resources of the city, it is usually located within the city. However, compared to the community, the scale and quantity of the apartments are relatively small. They usually serve the people who are very old with chronic disease, or have a level of disability. In the light of fewer medical resources available in the market, they are designed to be high-rent projects for the customers with higher income (Hong, 2017).

4.5 Successful Old-age Real Estate Development Cases

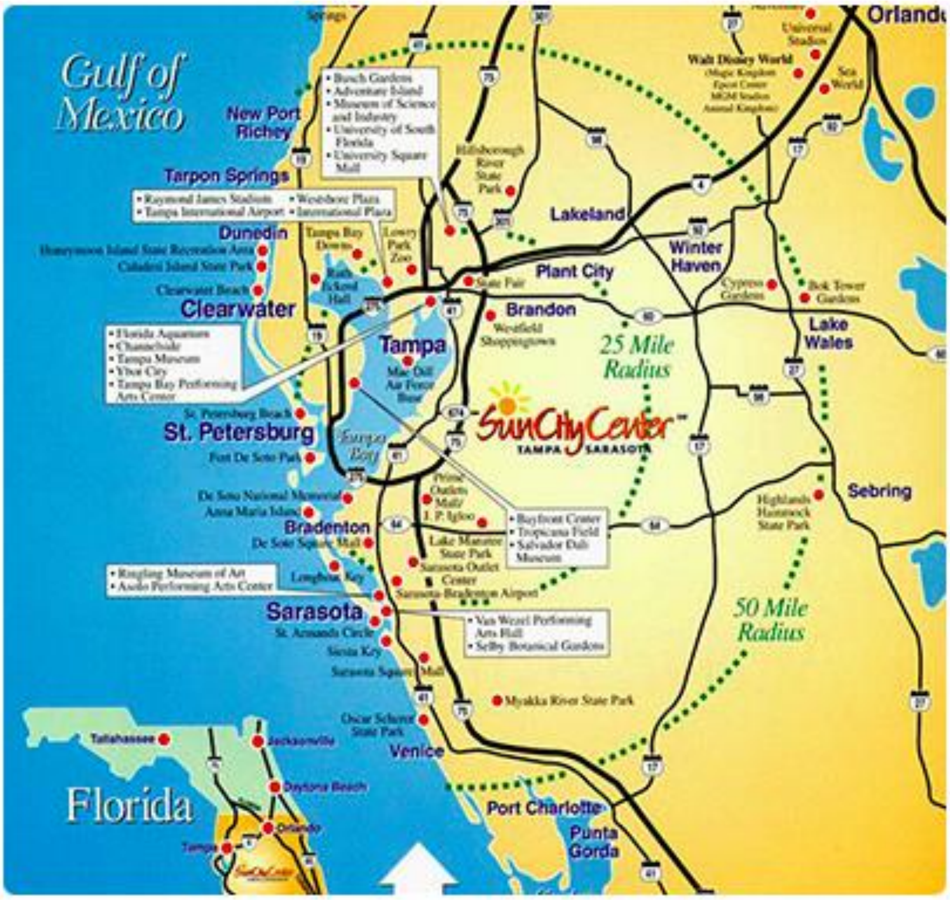
1) Sun City Center, Florida — Composite Development Model

Sun City Center is one of the most affordable active senior living communities in Florida. The community is located near Tampa, the Gulf of Mexico and other notable attractions, making trips readily accessible. The area has the benefit of nearly 300 days of sunshine a year, and an extraordinary range of recreational and social amenities are offered to make the community popular with retirees and young adults. So far, over 16,000 residents have lived there to enjoy their retirement life (Fromm, 2017).

The whole community includes two main campuses, the central (north) campus and the south campus. Both campuses are divided into six blocks, including Sun City Center, Freedom Plaza, Sun Towers, Aston Gardens, Courtyards and Kings Point to meet the different demands of the elderly (Sun City Center, 2018). (See Figure 2).

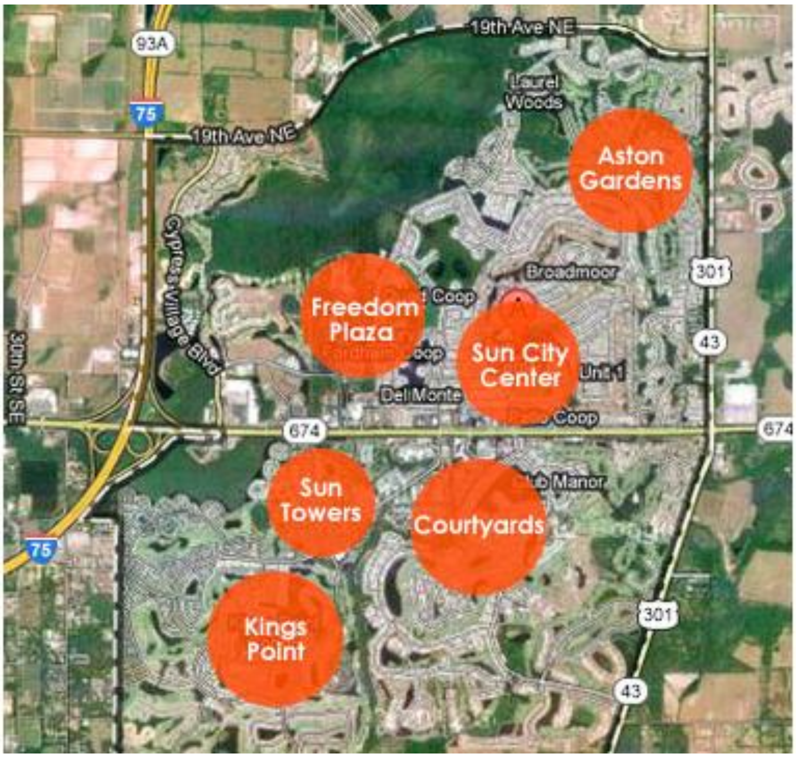
Lower land cost and house price of the community make it affordable for the elderly with various levels of income. In addition, SCC is operated by a self-governed and self-supported association. This operating model is valid to increase the sense of social identity and responsibility of the elderly (KChance, 2018).

Figure 1. Master Plan of Sun City Center, Florida


Gulf of Mexico
New Port Richey
Tarpon Springs
Dunedin
Clearwater
Clearwater Beach
Tampa
Tampa Bay
St. Petersburg
St. Petersburg Beach
Fort De Soto Park
De Soto National Memorial
Anna Maria Island
Bradenton
De Soto Square Mall
Longboat Key
Sarasota
St. Armands Circle
Siesta Key
Sarasota Square Mall
Oscar Scherer State Park
Venice
Port Charlotte
Punta Gorda
Orlando
Universal Studios
Walt Disney World
(Magic Kingdom
Epcot Center
MGM Studios
Animal Kingdom)
Sea World
Lakeland
Winter Haven
Plant City
State Fair
Brandon
Westfield Shoppingtown
Cypress Gardens
Bok Tower Gardens
Lake Wales
Sebring
Highlands Hammock State Park
Hillsborough River State Park
Tampa Bay Downs
Lowry Park Zoo
Ruth Eckerd Hall
Mac Dill Air Force Base
Prime Outlets Mall/ J. P. Igloo
Lake Manatee State Park
Sarasota Outlet Center
Sarasota-Bradenton Airport
Myakka River State Park
• Busch Gardens
• Adventure Island
• Museum of Science and Industry
• University of South Florida
• University Square Mall
• Raymond James Stadium
• Tampa International Airport
• Westshore Plaza
• International Plaza
• Florida Aquarium
• Channelside
• Tampa Museum
• Ybor City
• Tampa Bay Performing Arts Center
• Bayfront Center
• Tropicana Field
• Salvador Dali Museum
• Ringling Museum of Art
• Asolo Performing Arts Center
• Van Wezel Performing Arts Hall
• Selby Botanical Gardens
25 Mile Radius
50 Mile Radius
SunCityCenter
TAMPA SARASOTA
Florida
Tallahassee
Jacksonville
Daytona Beach
Orlando
Tampa

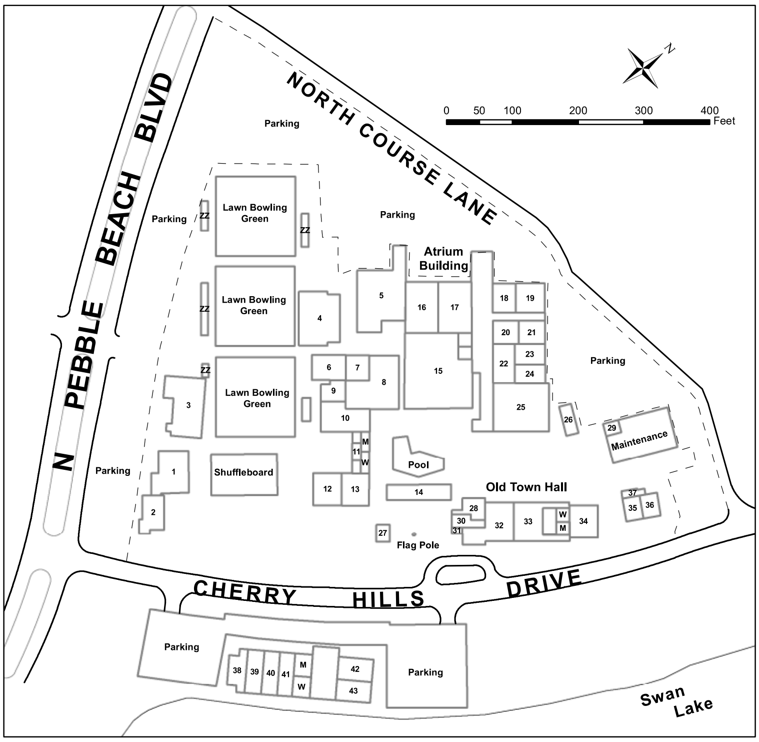
(Source: KChance, 2018)

Figure 2. Six Blocks of Sun City Center, Florida


19th Ave NE
93A
75
Laurel Woods
19th Ave NE
Aston Gardens
Cypress Village Blvd
Broadmoor
301
Freedom Plaza
Coop
Sun City Center
43
Fordham Coop
Unit 1
30th St SE
Del Monte
Coop
674
674
Club Manor
Sun Towers
Courtyards
75
301
Kings Point
43

(Source: KChance, 2018)

Figure 3. Master Plan of Central Campus


N PEBBLE BEACH BLVD
NORTH COURSE LANE
N
0 50 100 200 300 400
Feet
Parking
Parking
Lawn Bowling Green
ZZ
ZZ
Parking
Atrium Building
Lawn Bowling Green
ZZ
4
5
16
17
18
19
20
21
22
23
24
Parking
6
7
8
15
ZZ
Lawn Bowling Green
3
9
10
25
26
29
Maintenance
Parking
1
Shuffleboard
M
11
W
Pool
2
12
13
14
Old Town Hall
37
35
36
28
30
31
32
33
W
M
34
27
Flag Pole
CHERRY HILLS DRIVE
Parking
38
39
40
41
M
W
42
43
Parking
Swan Lake

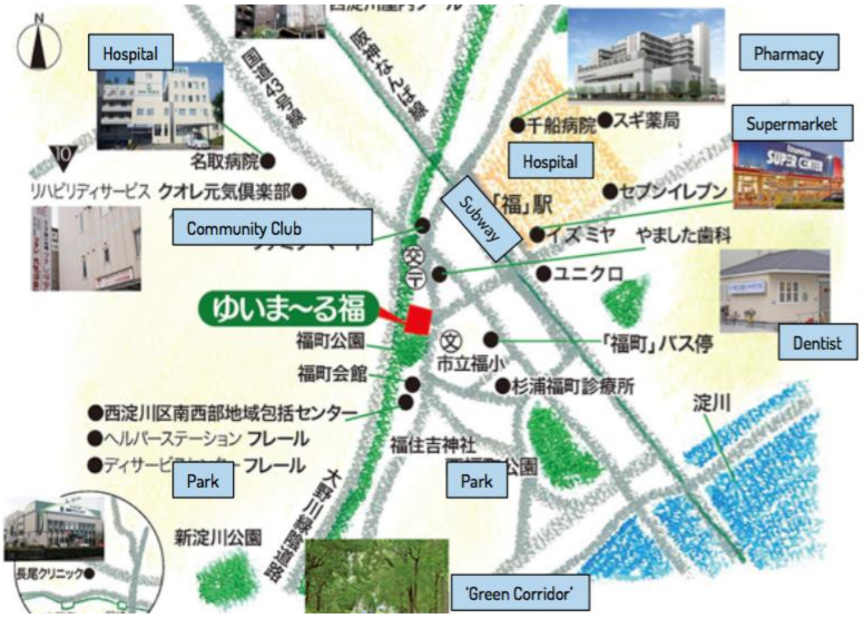
(Source: Sun City Center, 2018)

2) Yuimarl Fuku, Osaka, Japan— Stand-alone Apartment Development Model

Yuimarl Fuku was built in 1998 by a private company called CommunityNET, which started to run facilities which provide assisted living and services. Yuimarl Fuku is situated at Fukumachi, Nishiyodagawa- Ku in Osaka, a fairly central location in the city, which makes it convenient and accessible to the public facilities nearby. (See Figure 4). The apartments consist of three blocks, each block is three-levels high, and the facility has 53 units in total. (See Figure 5). Yuimarl Fuku encourages their residents to write down their life plans before moving to the apartments so the staff can try to prepare and arrange in advance to meet their demands.

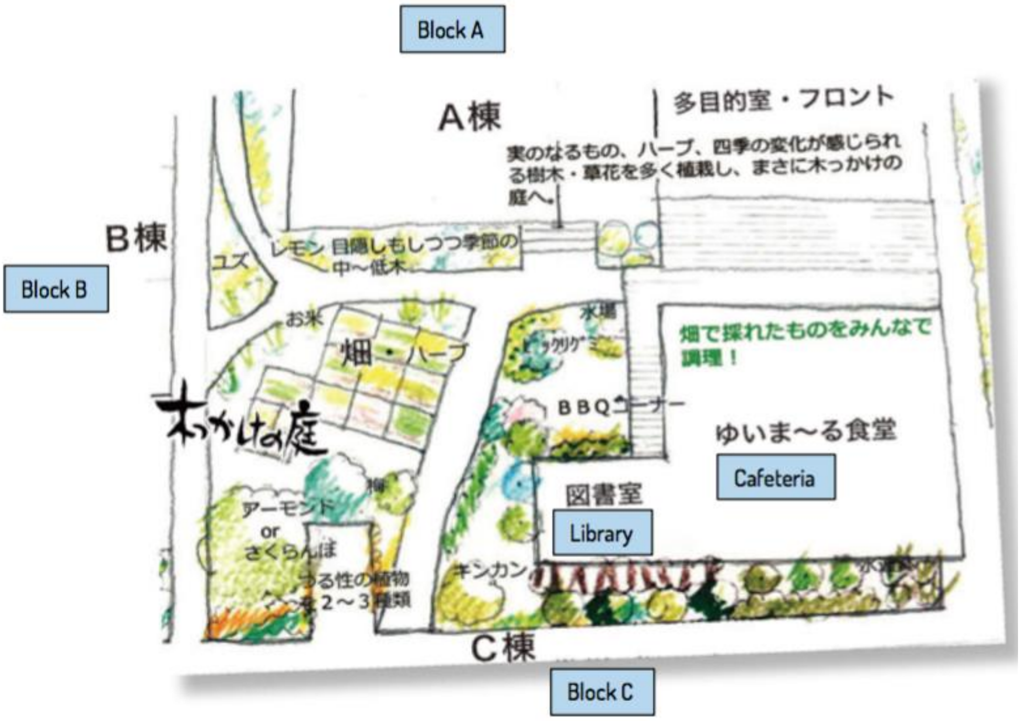
The apartments are owned and operated by the private company, also, could receive subsidies from the government. Moreover, seniors could choose either rent or purchase the flats when they live there (Hong, 2017).

Figure 4. The Neighbourhood of Yuimarl Fuku


N
Hospital
国道43号線
阪神なんば線
Pharmacy
千船病院
スギ薬局
Supermarket
Hospital
名取病院
10
リハビリティサービス
クオレ元気倶楽部
「福」駅
セブンイレブン
Subway
Community Club
イズミヤ
やました歯科
ユニクロ
ゆいま〜る福
福町公園
市立福小
「福町」バス停
Dentist
福町会館
杉浦福町診療所
淀川
西淀川区南西部地域包括センター
ヘルパーステーション フレール
フレール
福住吉神社
公園
Park
Park
大野川緑陰道路
新淀川公園
長尾クリニック
'Green Corridor'

(Source: Centre for Liveable Cities, 2017)

Figure 5. Three Blocks of Yuimarl Fuku


Block A
A棟
多目的室・フロント
実のなるもの、ハーブ、四季の変化が感じられる樹木・草花を多く植栽し、まさに木っかけの庭へ。
B棟
Block B
ユズ
レモン
目隠しもしつつ季節の中～低木
お米
畑・ハーブ
木っかけの庭
水場
ナワシログミ
畑で採れたものをみんなで調理！
BBQコーナー
ゆいま～る食堂
Cafeteria
図書室
Library
梅
アーモンド
or
さくらんぼ
つる性の植物
2～3種類
キンカン
水場
C棟
Block C

(Source: Centre for Liveable Cities, 2017)

In conclusion, there is much to learn for Hainan Province from the two successful cases above. First of all, building different blocks is an effective way to manage the whole community. Additionally, multiple services and facilities can adequately cater for the needs of the elderly. In particular, Yuimarl Fuku encouraged seniors to share plans or ideas with staff and work with them. This enables the apartment to establish an environment with a sense of belonging. Also, this way of management could be employed by the other development models. The developers of old-age real estate in Hainan province should make full use of the location advantages and preferential policies.

4.6 Summary

By investigating the overall situation of old-age real estate development in Hainan province, it is clear that there are many suitable factors which can be used as indictors in the suitability evaluation index system. For example, location, visitors, natural environment or development models. According to the analysis of the two successful cases above, the factors of design and management can be used to assess the suitability of the old-age real estate in Hainan Province. Overall, the indicators employed in the index system should cover various aspects and the explicit indictors chosen for my own study are examined in the next chapter to demonstrate they cover these points.

Chapter 5. Findings and Discussion

5.1 Introduction

As mentioned earlier, the research questions will be set out from two main perspectives. First, an evaluation index system will be established to evaluate the suitability of development for old-age real estate in Hainan Province. Second, the potential risks in the process of old-age real estate development will be investigated and several instructive suggestions will be provided to further explore the suitability condition and increase the suitability level of old-age real estate. This chapter will present the findings and discussion to answer the questions above.

5.2 The Evaluation of Old-age Real Estate Suitability in Hainan Province

This section will present the overall process of how to evaluate old-age real estate suitability in Hainan Province. This includes the specific indicators used in the evaluation index system, data analysis and related influential factors considered.

5.21 Specific Indicators Analysis

Assessing the suitability of the old-age real estate in Hainan Province is based on the establishment of the suitability evaluation index system, which requires suitable indicators to analyze and measure (Jun and Qi, 2006). Previous studies have examined the relevant index system to evaluate the suitability. For instance, Yuan (2013) has analyzed the factors of the economic development, population, consumption expenditure as well as the level of the service sector to build the system. Liu and Zhang (2016) have identified that elderly care, natural environment, and tourism development would be important indicators to analyze and assess the suitability. It is apparent that more than two or three factors should be considered.

According to the experience in the previous studies, mainly combined with the analysis of the current situation of the old-age real estate in Hainan province from the last chapter, the index system will be established based on three main layers which are tourism, elderly care as well as the real estate market. Aside from the first index layer above, fifteen index layers will be built as the second index layer. The detailed index system is shown in Table 2.

Table 2. Suitability of Old-age Real Estate Evaluation Index System

Target Layer	First index layer	Second index layer	Unit
	Tourism	The number of overnight visitors	Ten thousand
		The number of A-Class tourist attractions	/
		The number of restaurants	/
		Transportation convenience	km

Suitability of old-age real estate development in Hainan Province	Elderly care	The days of air quality (excellent or good)	Days
		Ratio of green space	%
		Green area of the park per person	㎡
		The number of permanent residents	Ten thousand
		The number of medical institutions	/
		the number of service staff	/
	Real estate market	Regional GDP	Ten thousand
		The proportion of the service sector in the GDP	%
		The area of the completed housing	Square meter
		Amount of real estate development investment	￥
		Amount of housing sales	￥

(Source: produced by the author, data collected from Hainan Statistical Yearbook, 2017)

In the suitability index system, it can be seen fifteen indicators have been established as the second index layer. In order to make clear that how these indictors will evaluate the suitability, the intentions and effects of these indicators will be illustrated.

First, the indicators of the number of overnight visitors, A-Class tourist attractions and restaurants, transportation convenience are used to evaluate the condition of regional tourism development. Specifically speaking, the number of overnight visitors reflects the popularity of the travel destinations. A-Class tourist attractions and restaurants represent the tourism resources and the supply ability of facility as well as service. More convenient transportation means the destinations are more accessible, which could attract more tourists (Luo, 2018).

Additionally, the indicators of the days of air quality, ratio of green space, green area of the park per person, number of permanent residents, the number of medical institutions, the number of medical staff are the measurement of the condition of elderly care. The higher level of air quality and the ratio of green space could provide a more suitable environment. The number of permanent residents measures the population density. In other words, areas of high population density tend to increase the pressure on the supply of public service and facilities and have a negative impact on the local transportation as well as natural environment. Conversely, areas of lower population density imply it is more acceptable for older people to live. Besides, the number of medical institutions and professional service staff represent the medical condition of the areas (Gobtop and Memken, 2005).

As well, the indicators of regional GDP, the proportions of the service sector in the GDP, the area of the completed housing, amount of real estate development investment, amount of housing sales measure the condition of the regional real estate market. More economically developed regions tend to provide more employment opportunities for these older people who are healthy and capable. Competitiveness of old-age real estate in migratory bird destinations mainly reflects the level of service. To some extent, the proportions of the service sector in the GDP could indicate the potential of old-age real estate development. Furthermore, more projects developed and sold indicate a stronger real estate market condition, which is potential to attract more investment (MAI, 2015).

5.22 Data Analysis

According to the index system established in Table 1, based on the analysis of the secondary data collected from Hainan Statistical Yearbook 2013-2017 as well as Hainan Province Government websites, and combined with the entropy evaluation model, the index weights can be obtained. The specific results are shown in Table 3.

Table 3. Suitability Evaluation Index Weight

Target Layer	First index layer	Second index layer	Weight
	Tourism	The number of overnight visitors	0.070
		The number of A-Class tourist attractions	0.090

Suitability of old-age real estate development In Hainan Province		The number of restaurants	0.058
		Transportation convenience	0.061
	Elderly care	The days of air quality (excellent or good)	0.052
		Ratio of green space	0.047
		Green area of the park per person	0.051
		The number of permanent residents	0.070
		The number of medical institutions	0.050
		the number of service staff	0.080
	Real estate market	Regional GDP	0.061
		The proportion of the service sector in the GDP	0.115
		The area of the completed housing	0.070
		Amount of real estate development investment	0.068
		Amount of housing sales	0.054

(Source: produced by the author. Data collected from Hainan Statistical Yearbook, 2013-2017).

By applying the formula, the comprehensive evaluation results of suitability could be identified, as shown in Table 4.

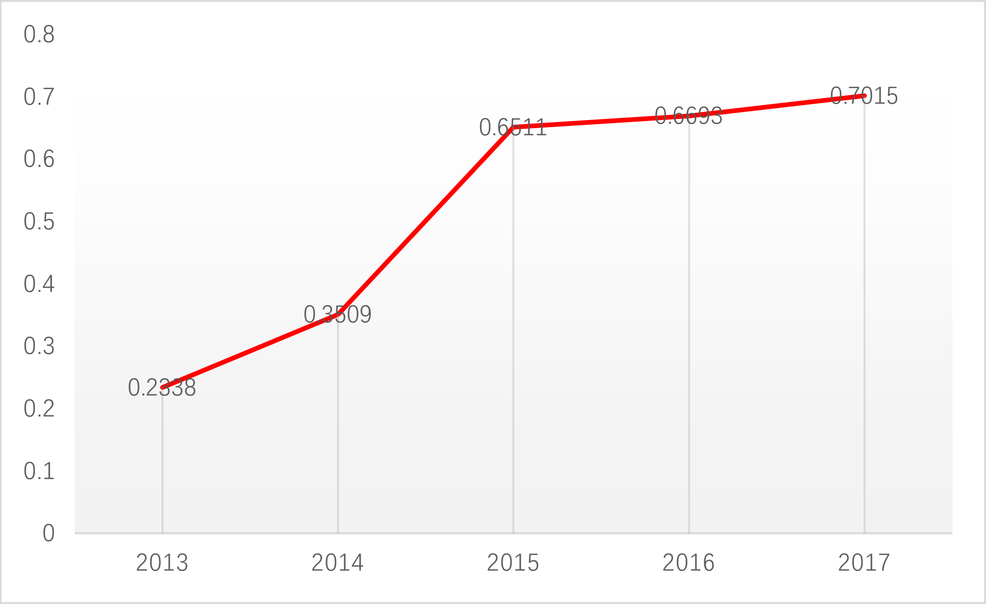
Table 4. Comprehensive Suitability Evaluation Results

Year	2013	2014	2015	2016	2017
Results	0.2338	0.3509	0.6511	0.6693	0.7015
Grade	poor	fair	good	good	good

(Source: produced by the author, data collected from Hainan Statistical Yearbook, 2013-2017) Note: the evaluation result was divided into four grade level: “excellent-0.76-1”, “good-0.51-0.75”, “fair-0.26-0.50”, and “poor-0-0.25”.

According to the results, the changing trend from 2013 to 2017 is shown in Figure 6.

Figure 6. Changing Trend of Suitability Evaluation Results (2013-2017)



(Source: produced by the author, data collected from Hainan Statistical Yearbook, 2013-2017)

From the weight results above, it can be seen the indicators of the proportion of the service sector in the GDP, the number of A-Class tourist attractions, the number of service staff and the number of permanent residents, as well as the area of the completed housing, have higher weights than the rest. It indicates the influence of these indicators with higher weights would be greater to the suitability of old-age real estate and should be paid more attention.

Based on the assessment results, the overall suitability level of old-age real estate development in Hainan Province has been increasing from 2013 to 2017. First, from 2013 to 2015, the level of suitability has grown rapidly from "poor" grade (value of 0.2338) to "fair" grade (value of 0.3509), and then up to "good" grade with the value of 0.6511. Following this, the level of suitability has increased steadily and stayed at the "good" grade (value of 0.6693 and 0.7015, respectively) from 2015 to 2017.

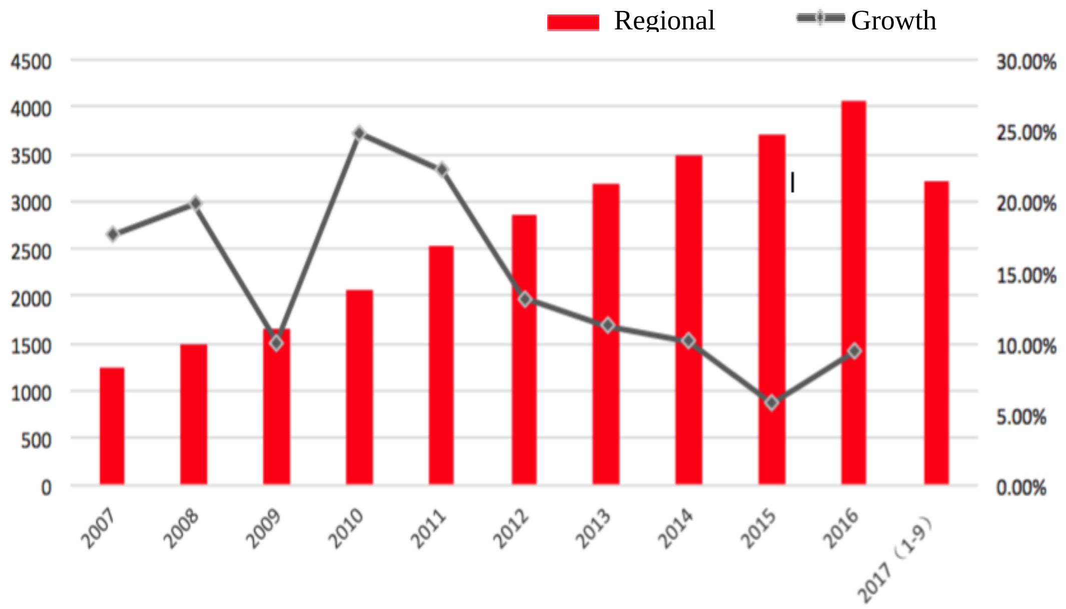
5.23 Influential Factors Analysis

Understanding the influential factors of the changing suitability level from 2013 to 2017 is fundamental for making improvements. The following is the analysis of factors affecting the suitability level above.

The first influential factor is government policy. As discussed in the policy background. Preferential policies will support the development of old-age real estate. For instance, in 2013, the State Council issued the document of the Several Opinions of the State Council on Promoting the Construction and Development of the Hainan International Tourism Island. It has set out a series of preferential policies and laws to support the sustainable development of tourism over the next ten years (State Council, 2013). Therefore, the great policy condition is beneficial to the increasing suitability level.

In terms of economy factor, the regional GDP in Hainan Province has increased dramatically in recent ten years. (See Figure 7). Economic growth has stimulated the consumption, especially reflected on the real estate market. It is the key factor to increase the suitability level of old-age real estate development.

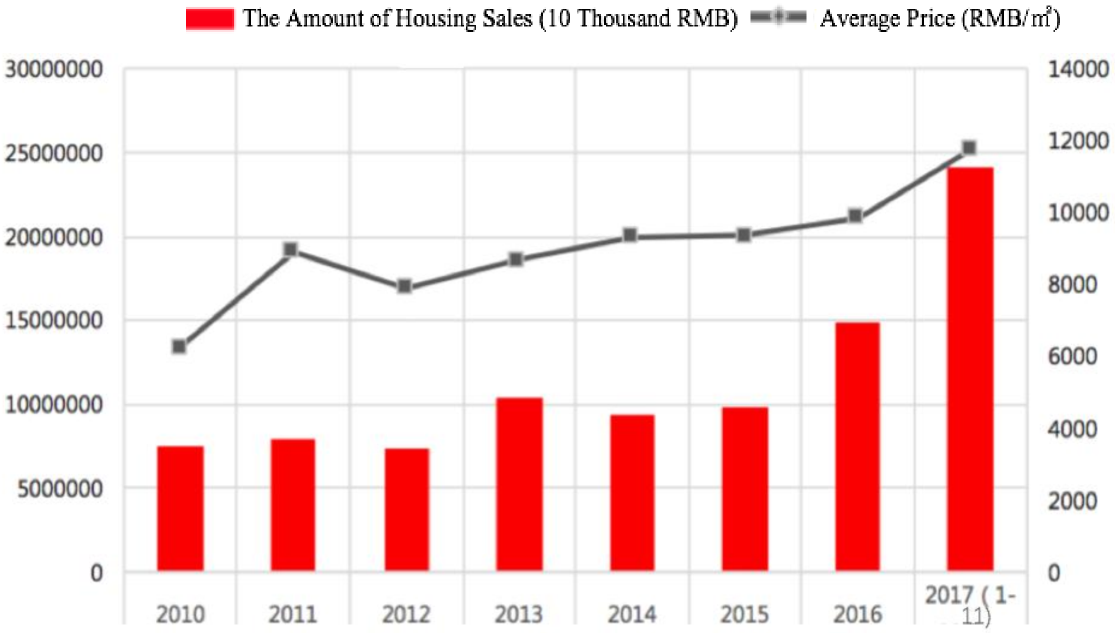
Figure 7. GDP of Hainan (2007-2017)



(Source: adapted from The National Bureau of Statistics of China, 2017)

Accordingly, due to the preferential policies and economic growth, the overall performance of the real estate market especially the old-age real estate in Hainan has also shown robust growth (Huace, 2017). As shown in Figure 8, the amount of housing sales has been rising aside from a slight decrease in the year 2014 and 2015. The average house price has risen by 19.2% up to 12,000 RMB (1,400 £) per square meter since 2014.

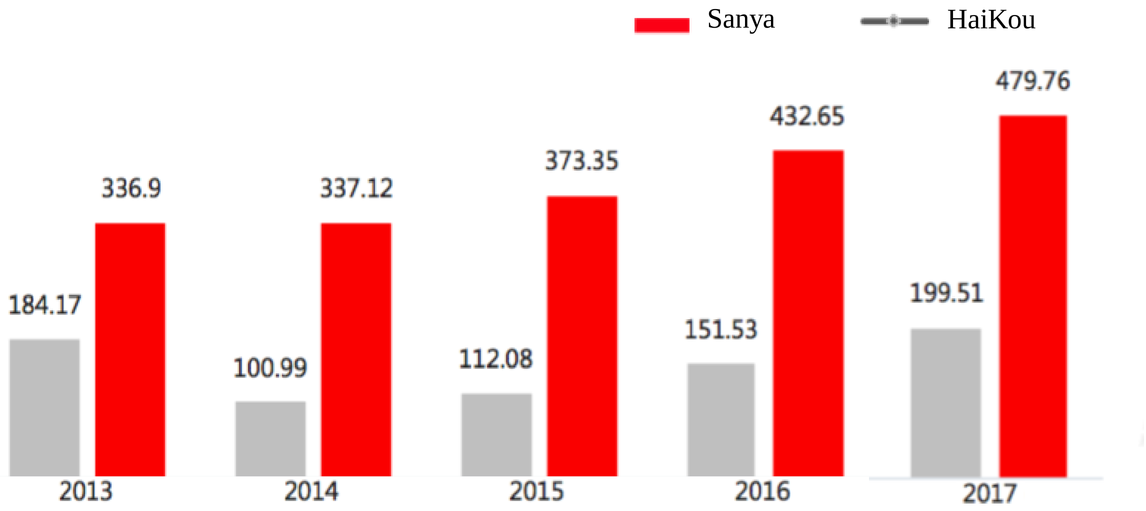
Figure 8. The Amount of Housing Sales in Hainan (2010-2017)



(Source: adapted from The National Bureau of Statistics of China, 2017)

Moreover, Haikou and Sanya, as the top two most famous cities in Hainan Province, have more advantages to develop old-age real estate (Platinum Broking, 2013). It can be seen in Figure 9, the total sale area of the senior housing in the two cities, on the whole, have been going up since 2013. Especially in 2017, the total sale area of housing in Haikou was up to 4,797,6 00 ㎡ and was 1,995,100 ㎡ in Sanya, above the average in Province. Overall, the economic growth and active real estate market have reflected its increasing suitability level in recent years.

Figure 9. The Total Sale Area of Senior Housing (10 Thousand ㎡)



(Source: adapted from The National Bureau of Statistics of China, 2017)

5.3 Potential Risks

Developing real estate is a highly complicated, dynamic and multi-disciplinary process, which usually covers different stages of initiation, evaluation, acquisition, design, permissions, commitment, implementation, let and dispose (Adams and Tiesdell, 2013). Graaskamp (1992, p. 639) indicates regarding the fundamental significance of the real estate development process: “The development process is our most challenging manufacturing process because its sub-systems are complex and because it is the instrument of change which affects all of a community and a society.” Therefore, risks are inevitable in the process of real estate development. Typically, developers take notable risks at the various phases of the development process (Robson, 2009).

While the old-age real estate in Hainan Province tends to have prospects of development, the potential risks facing the current situation could not be ignored. Finding out the risks is crucial to explore whether it is suitable or how suitable to develop old-age real estate in Hainan Province. However, it is unlikely to list all these possible risks. To further investigate the suitability of old-age real estate, several major risks are discussed below.

1) Natural Environment and Social Culture Risks

According to the suitability evaluation results above, the natural resources and environment are vital factors to develop old age real estate. For instance, hot weather all year round, as well as higher air quality in Hainan Province, are the significant reasons attracting older people to visit. However, in the process of development, it is potential to have negative impacts on the natural environment such as air pollution, land damages or deforestation (Gehner, 2012). Additionally, the conflict between a new concept of elderly care and the traditional culture has become more and more noticeable. Families in China have been playing a significant role in the culture of elder care (Wu and Ho, 2014). According to the research of Institute on Ageing of the Renmin University of China (2017), there are 40.7% of the elderly relying on their family members after retirement, 24.1% of those who live themselves with the help of pension fund. Even though more seniors have become willing to purchase commercial facilities or services, yet the ingrained traditional concept of living with children still limit the development of old-age real estate (Wu and Ho, 2014). Moreover, older people migrating to Hainan might bring them into conflict with the local people who might worry that the local resources are overused (Wu, 2017).

2) Industry Policy Risks

The development of old-age real estate is subject to the policy support. The developer should consider all related policy risks to the project, including policies of land, tax as well as medical care, etc. In general, the land is usually difficult to acquire. If the Land cost or conditions are inappropriate, then the project might not begin (Gehner, 2012). Also, the planned proposal needs to be in line with official plans or strategy and then permitted by the local related public sectors. However, the approval process may take a long time due to the objective factors, leading to delays in the development process (Wiegelmann, 2012). Moreover, the medical insurance policy for the migratory people living in Hainan now is unclear and immature. This means it would be challenging for the elderly to pay for their medical care, accordingly, decreasing the market demand of the old-age real estate in Hainan Province (Wu and Ho, 2014).

3) Financing Risks

Developers need to have proper financing schemes which would cover the whole period of the development. Therefore, it is crucial to seek suitable financing partners and financing conditions (Wiljinson and Reed, 2008). Compared with other usual real estate sectors such as residential or commercial, old-age real estate requires more investment in light of the particular needs of older people. Also, the feature of a long cycle of financial return might increase more capital pressure of project. Moreover, the old-age real estate project is usually highly sensitive to interest rates. For instance, delays in the process of development may increase the risk. Since interest rates may grow during the period of delay, causing more additional time and interest cost spend on the project (Wiegelmann, 2012).

5.4 Suggestions for Old-age Real Estate Development in Hainan Province

To cope with the situation of the ageing population, many property developers in Hainan Province has taken steps to develop real estate aimed at the elderly. It is believed the old-age real estate in migratory bird destinations have great potential to attract many types of participants. However, the current market is still in a preliminary stage and is facing challenges such as the mismatch between the supply of elderly care facilities and market demand, unclear and immature public policies and various potential risks. Therefore, it is also significant to provide instructive suggestions to help increase the suitability of old-age real estate development in Hainan Province.

1) From the Perspective of Government.

The policies and direction for government should be clear to set out. Firstly, the development of old-age real estate market cannot be successful without strong support from the government. According to the report from Fu (2014), both national and regional governments should establish strict standards on the qualification of participants of the old-age real estate so that all participants can acquire full and effective support. At the same time, all related government departments, including the Ministry of Civil Affairs, Land and Resources Bureau, Ministry of Finance, and the Ministry of Health should cooperate with each other to conduct the direction of development. However, the distinctions of different areas should not be neglected. Also, the government should set clear guidelines to govern and supervise the market. It is necessary to provide proper intervention in the policies of land, tax and financial as well as related subsidies. Besides, it is expected that the policy would encourage more private investment especially foreign direct investment in this industry. The government should also work with enterprises to promote the fusion of migratory bird tourism, elderly care and old-age real estate, to achieve a thriving diversified industry. Furthermore, it is anticipated that the government would encourage to lower the threshold of entry fees to make sure all people can afford the services and facilities (Chen, Wang and Yan, 2017).

2) From the Perspective of Enterprise

Various private enterprises have been playing the leading role in the old-age real estate market. However, confirming a suitable development model is very important. According to Wu and Ho (2014), Chinese real estate developers will continue to test different business models and to explore a competitive advantage through the differentiated performance. As significant players, property developers and related institutions should seek to compete with each other in order to activate the market. For instance, some insurance institutions in Hainan are perceived to have focused on the CCRC model in recent years. They have made full use of the location advantage of Hainan and integrated long-term capital combined with elder care and medical insurance products in order to meet the needs of customers. Also, they have attempted to operate the properties in the form of rental instead of the sale to generate stable cash flow. This could be an instructive attempt for other enterprises to learn. In addition, developers are encouraged to cooperate with each other and public sectors as well. Meanwhile, they are also encouraged to learn strengths from successful development cases from all over the world. Accordingly, the financial market is expected to be diverse. Many foreign investments such as UK, Singapore have taken part in the old-age real estate market in Hainan or other popular tourist cities (Luo, 2018).

3) From the Perspective of Consumer

There is no doubt the older people are the dominant consumer group in the old-age real estate. Even though there are still a few constraints such as the traditional concept of elderly care that might impede the development. Nevertheless, it is predicted that the traditional concept of Chinese older people will change rapidly in light of the rising pressure from the modern family structure in the next 10 to 15 years (Mai, 2015). Hence the seniors are supposed to accept multiple types of elderly care rather than just stay at home alone. Trying to adapt to the new retired life in migratory bird destinations would be a better option for them. Moreover, deciding which type of property to live should be based on the individual conditions of the elderly. Their families should also support them to have a new lifestyle.

5.5 Summary

Overall, the suitability level of real estate for older people, or “migratory birds”, in Hainan Province has increased in recent years. Increasingly favorable conditions of tourism, elderly care facilities and real estate markets have promoted the development of old-age real estate. However, potential risks still exist and these could hinder the further development of the real estate market. It is important that developers bare these significant risks in mind if they are to avoid failure. The instructive suggestions stated above should be taken into account in order to provide a more appropriate environment for old-age real estate development in Hainan Province.

Chapter 6. Conclusion

6.1 Summary

Utilizing Hainan Province as a single case study, this study set out to explore how suitable are Chinese migratory bird destinations for the development of real estate for older people. The research questions were answered from two main perspectives:

1) By investigating existing literatures combined with the establishment of evaluation index system to evaluate the suitability of development for old-age real estate in Hainan Province.
2) By analyzing the potential risks and provide instructive suggestions to increase the suitability level of the future old-age real estate development.

Through collecting secondary data, applying a mixed method approach with the entropy evaluation model to establish a suitability evaluation index system, this research has discovered several findings with regard to the research questions set out.

Conclusively, the most obvious finding to emerge from this study is the suitability evaluation results. It was identified that the overall suitability level of old-age real estate development in Hainan Province has increased in the recent five years according to the changing trend of the suitability. This has reflected the development of old-age real estate in Hainan Province is suitable. Fifteen indexes were used and combined with the entropy evaluation model to obtain the evaluation results. The validity and feasibility of the collected data were confirmed by the analysis of the fundamental characteristics, and existing problems as well as various development models. In addition, it was identified that the indexes with higher weights should be considered more when developing old-age real estate in Hainan Province, such as the proportion of the service sector in the GDP, the number of A-Class tourist attractions and service staff as well as the number of permanent residents.

Furthermore, it was found that the policy, economy and real estate market might be key factors that affect the suitability. Combined with the policy background in the literature review, it was investigated that both national and regional governments have issued a series of preferential policies and laws to support the old-age real estate development in Hainan Province. Related public facilities and services have been improved to promote the fusion of tourism, elderly care and real estate. Also, economic growth was reflected by the growing regional GDP as well as the growth rate, which provided a favorable context to encourage the development of old-age real estate. Accordingly, the strong market performance of the real estate was uncovered to increase the suitability level.

In respect of the potential risks, natural environment and social culture risks were identified that might limit the further development of old-age real estate, such as environmental damages and ingrained traditional concept. Also, immature policy system might also impact the land, tax or medical insurance which are the significant factors for the fusion of industries. With regard to financing risks, more proper and cautious financing schemes and partners were essential to seek due to the features of a long cycle of financial return as well as highly sensitive to interest rates. In addition to the suitability evaluation and potential risks, several possible suggestions were identified to cope with the current situation of old-age real estate development in Hainan Province from the perspectives of government and enterprise as well as consumer.

In general, while potential risks have been identified, the current conditions of policy, real estate market and economy all show that Hainan Province is a very good place for developers to invest their resources in old-age real estate.

6.2 Limitations

Overall, these findings employ and expand upon earlier studies to enhance our understanding of the suitability of migratory bird destinations for the development of real estate for older people. However, a number of significant limitations need to be considered. First, given this research is a single example, the results of the evaluation process are limited to the area of Hainan Province and findings cannot be generalized. Moreover, this study assessed fifteen indexes as the data evidence, the accuracy and quality of which may need to increase as the data might not be up-to-date. Besides, the evaluation process was based on the entropy evaluation model to analyze the suitability, the related theories were scarcely provided in support of the study.

6.3 Further Research

Finally, it is recommended that further research could be undertaken in the following areas. It would be interesting to evaluate the viability of old-age real estate in the places of origin. Also, it would be good to explore various specific cities in Hainan Province, to compare the different conditions of old-age real estate. For instance, compare the situation in Sanya city with those in Haikou city. Moreover, the risk assessment of old-age real estate in tourist cites based on the effective mathematical model would be interesting to undertake.

References

Adams, D. and Tiesdell, S. (2013). *Shaping places: Urban Planning, Design and Development,* London: Routledge.

Chen, S., Wang, D. and Yan, P. (2017). Study on the Suitability of Senior Housing Real Estate in Cities—Taking the Urban Agglomeration of Henan Province as an Example. *Advances in Social Sciences*, 06(06), pp.694-703.

CCRC Task Force (J. E. Zarem, Ed.). (2010). Today’s continuing care retirement community (CCRC). Washington, DC: American Seniors Housing Association. Retrieved from https://www.seniorshousing.org/filephotos/research/CCRC_whitepaper.pdf.

DiPasquale, D. and Wheaton, W. (1996). *Urban economics and real estate markets*. Englewood Cliffs, NJ: Prentice Hall.

Driesen, D. (2004). *The Feasibility Principle*. New York: The Center for Progressive Regulation.

Dai, W. (2016). Research of elderly care service industry in Hainan Province. *Modern commercial industry.*

Discoverhongkong.com. (2018). *Hainan Province | Hong Kong Tourism Board*. [online] Available at: http://www.discoverhongkong.com/eng/beyond-hk/pan-pearl-river-delta/hainan.jsp [Accessed 17 Aug. 2018].

Data.stats.gov.cn. (2018). National database. [online] Available at: http://data.stats.gov.cn/easyquery.htm?cn=C01&zb=A0301&sj=2016 [Accessed 9 Jul. 2018].

Elston, K. and Draper, J. (2012). A Review of Meeting Planner Site Selection Criteria Research. *Journal of Convention & Event Tourism*, 13(3), pp.203-220.

Ecns.cn. (2018). *Favorable climate in Hainan attracting holiday investors*. [online] Available at: http://www.ecns.cn/business/2017/02-07/244258.shtml [Accessed 7 Aug. 2018].

Feng, L. (2015). *Research on Suitability of Old Real Estate*. Wuhan: Central China Normal University.

Gehner, E. (2018). *Real Estate Development Strategies and Their Impact on the Risk Profile of a Project.* Delft University of Technology, pp.853-863.

Guo, X. (1994). Entropy Method and Application to the Comprehensive Evaluation. *Study of Finance and Economics,* (6), pp. 22-24.

Goes, J. and Simon, M. (2016). *Using Secondary Data in Doctoral Research.* [online] Available at: http://www.dissertationrecipes.com [Accessed 21 Aug. 2018].

Guo, C. and Chen, H. (2002). Study on the Entropy-weight Methods in Evaluating the Risks of Security Investment. *Journal of Quantitative & Technical Economics,* (5), pp.41-44.

Graaskamp, J. A. (1992). Fundamentals of real estate development. *Journal of Property Valuation & Investment.* pp. 619-639.

Gobtop, S. and Memken, J. (2005). Housing the Elderly: Investigating Solutions to Help Seniors Age in Place. *Housing and Society,* 32(1), pp.71-84.

Holzhey, M. (2017). *Retirement Homes.* CIO WM Research.

Hainan Real Estate Market Report. (2017). HUACE.

Hainan Property Guide. (2013). Hong Kong: Platinum Broking Company Limited.

JM Goldson, J. (2016). Brookline Community Workshop #2: Site Selection Criteria Summary of Results. Housing Production Plan.

Jiang, R. and Su, Z. (2016). *Research on Development Model of Real Estate.* pp.38-42.

Jun, X. and Qi, Z. (2006). Entropy Evaluation Model of Enterprises Performance Based on Supply Chain Management Theory.

Jackson, S., Hitchins, D. and Eisner, H. (2010). What is the Systems Approach? Insight, 13(1), pp.41-43.

Johnston, L., Liu, X., Yang, M. and Zhang, X. (2016). *Hina's New Sources of Economic Growth: Reform, resources and climate change.* Canberra: ANU Press.

Kazer, W. and Fung, E. (2013). *China Property Firms See New Market in Old Age Homes.* The Wall Street Journal.

Kearns, D. (2018). Reverse mortgage: What is it and how does it work. [Blog] Bankrate.

Leslie Kernisan, M. (2018). *Financial Exploitation in Aging: What to Know & What to Do*. [online] Better Health While Aging. Available at:

https://betterhealthwhileaging.net/financial-abuse-what-to-know/ [Accessed 3 Aug. 2018].

Liu and WQ (2018). Land Supply and its Impact on Real Estate Market Prices. *Journal of Advanced Oxidation Technologies.* 21(2), p.6.

Liu, C. (2018). *In China's Hawaii, hot property proves hard to cool*. [online] South China Morning Post. Available at: https://www.scmp.com/week-asia/politics/article/2143733/hainan-chinas-hawaii-hot-property-market-proves-hard-cool [Accessed 13 Jul. 2018].

Luo, W. (2018). Evaluating Tourist Destination Performance: Expanding the Sustainability Concept. *Sustainability*, 10(2), p.516.

Li, Y. (2017). Tips on buying property. [Blog] *ECNS*. Available at: http://www.ecns.cn/business/2017/02-07/244342.shtml [Accessed 7 Aug. 2018].

Luo, W. (2018). Evaluating Tourist Destination Performance: Expanding the Sustainability Concept. *Sustainability,* 10(2), p.516.

Liu, S., Xie, N., Yuan, C. and Fang, Z. (n.d.). *Systems evaluation.*

Li, W. (1991). On the Relationship Between Complexity and Entropy for Markov Chains and Regular Languages. *Complex Systems,* 5(4), pp.381-399.

Mai, Z. (2015). *Valuation of Seniors Housing Properties. CBRE.*

Ohara, K. (2006). *Current Trends of Housing for the Elderly in Japan*. Yokohama National University.

Punch, K. (2014). *Introduction to social research*. Los Angeles, Calif: SAGE.

Robson, S. (2009). The use of judgement by commercial property developers. University of Cape Town.

Rapoza, K. (2017). China's Aging Population Becoming More of a Problem. [Blog] Forbes.

Ryan, A. (2018). What is a Systems Approach?

South China Morning Post. (2018). *Chinese pensioners flocking south for winter strain Hainan services.* [online] Available at: https://www.scmp.com/news/china/society/article/2078650/chinas-migratory-bird-pensioners-flocking-south-hainan-winter-put [Accessed 12 Jul. 2018].

State Council (2013). *Several Opinions of the State Council on Accelerating the Development of Elderly Care Service Industry.*

Sun, X. (2011). *Research on Development Model of Old Real Estate in China*. Beijing Jiaotong University.

Smith, S. and House, M. (2006). s. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 61(5), pp.232-239.

Sun City Center, FL Retirement Community | Over 55 Community in FL. (2018). *Sun City Center, FL Retirement Community* | Over 55 Community in FL. [online] Available at: https://www.55places.com/florida/communities/sun-city-center [Accessed 12 Aug. 2018].

Sun, B., Yao, Y. and Dong, K. (2018). *Annual Report on The Development of China's Ageing Finance*. [online] Chinese Social Sciences Net. Available at:

http://ex.cssn.cn/zk/zk_zkbg/201611/t20161130_3296727.shtml [Accessed 9 Jul. 2018].

Topchinatravel.com. (2018). *Hainan Tourism, Tourism in Hainan China, Hainan Tourist Information.* [online] Available at: https://www.topchinatravel.com/hainan/hainan-tourism.htm [Accessed 7 Aug. 2018].

The Role of Government in the Housing Market: The Experiences from Asia. (2008). Nairobi: United Nations Human Settlements Programme.

United Nations Statistics Division (2015). *Discussion paper on Principles of Using Quantification to Operationalize the SDGs and Criteria for Indicator Selection.* New York.

Wiegelmann, T. (2018). *Risk Management in the Real Estate Development Industry Investigations into the application of risk management concepts in leading European real estate development organizations.* Doctor of Philosophy. Bond University.

Wu, Y. and Ho, R. (2014). *China's Senior Housing – Now and the Future*. Deloitte.

Wu, J. (2017). *Research on Suitability and Risks Aversion For "Migratory Bird" Tourists Destination Endowment Real Estate Development-A Case of Hainan.* University of Guangxi.

WaBird. (2018). *Chinese older tourists.* [online] Henan.china.com.cn. Available at: http://henan.china.com.cn/travel/2017/0228/4315449.shtml [Accessed 10 Jul. 2018].

Wilkinson, S and Reed, R. (2008). Property Development, Routledge.

Xu, J. (2018). Entropy Assessment of Coal Enterprises Sustainable Development. *Coal*, (No.3), pp.4-6.

Xaquín S. Pérez-Sindín López. (2018). *Advantages and disadvantages of secondary data collection nowadays.* [online] Available at: https://xaperezsindin.com/2013/12/11/advantages-and-disadvantages-of-secondary-data-collection/ [Accessed 8 Aug. 2018].

Xia, M. (2012). A research on the Sports Tourism Special Project in Hainan International Tourism Island. *Open Journal of Applied Sciences,* 02(04), pp.143-147.

Yu, N. (2010). *Research on Old Real Estate in China*. Shanghai, pp.105-115.

Zhang, X. and Meng, G. (2017). Study on the Development of "Migratory birds" tourism ecological pension in Heilongjiang Province. *Atlantis Press,* 135.

Zhou, J. and Salvendy, G. (2018). *Human Aspects of IT for the Aged Population. Design for Aging*. Cham: Springer International Publishing.

Zhang, X. and Gui, R. (2017). Study on the Development of "Migratory birds" tourism ecological pension in Heilongjiang Province. *Advances in Engineering Research*, 135, pp.666-669.