

What affects the “house-for-pension” scheme consumption behavior of land-lost farmers in China?

Haijun Bao^{a,b}, Lu Han^{a,c,*}, Hao Wu^b, Xin Zeng^b

^a School of Spatial Planning and Design, Zhejiang University City College, Hangzhou, 310015, China

^b College of Public Administration, Zhejiang University of Finance & Economics, Hangzhou, 310018, China

^c Institute of Land and Urban-Rural Development, Zhejiang University of Finance & Economics, China

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ABSTRACT

Rapid industrialization and urbanization have resulted in a significant number of land-lost farmers in China. With the intensification of land expropriation and demolition, the problems of the “house-for-pension” scheme for land-lost farmers and housing security are also becoming increasingly serious. Based on the theory of planned behaviour, this study builds the consumption behaviour model of the “house-for-pension” scheme for land-lost farmers via questionnaire and survey methodology to deeply explore the key factors of lost-land farmers' expense intention on housing, and the hypotheses are verified by a structural equation modelling. The results show that the variables of attitude toward behaviour and subjective norms have a significant positive correlation with consumer intentions. At the same time, perceived price values, location preferences, perceived living environment, supporting service perception and perceived current house arrangement exist separately from attitude toward behaviour for individual behaviours. However, there is no positive correlation between perceptual behaviour control and consumer intentions, which contradicts the initial hypothesis of the study. This article explains that housing is the carrier of human life and maintains a heavy weight in daily life. Decisions cannot be made by individuals alone but by the entire family. The results reveal suggestions for enterprises, governmental and nongovernmental organizations, including improving the overall evaluation of consumers from the multiattribute dimension of products, using norms to tap potential customers, and actively developing the industrial chain of retirement. The findings of this study can provide references for enterprises, governmental and nongovernmental organizations to formulate suitable housing products and public policies for elderly land-lost farmers.

1. Introduction

In 1999, by accounting for one-fifth of the elderly population in the world, China entered an ageing society and became the country with the largest ageing population in the world (Chen & Liu, 2009; Jiao, 2011). According to the Statistical Yearbook of China compiled by the National Bureau of Statistics of China, by the end of 2018, the number of elderly people over the age of 65 in China reached 1583.1 million, accounting for 11.4% of the total population. As calculated by the international ageing index, China's ageing population degree is 52.34% and increases by 1.9% annually. The problems that come with a large population are clear, such as rapid growth, ageing, disability and empty nesting (Lee & Mason, 2014). Moreover, coupled with the facts that China is growing old before it is getting rich and that the structure of the family is

diminishing, the needs of elderly people, such as life care, rehabilitation and care, healthcare, and spiritual culture, are gradually expanding, and the problem of providing for elderly people is becoming increasingly serious (Jenkins, 2016).

With the emergence of the ageing wave, the problem of pensions for land-lost farmers in the process of urbanization and industrialization is becoming greater (Gao & Han, 2016; Tsuburai, 1998). On the one hand, with accelerated urban-rural population migration, young land-lost farmers have opted for alternative urbanization (such as migrant workers) or local urbanization (such as returning home or starting businesses back home), and under pressure from their daily life, they have little time to accompany their parents who are living in rural areas. At the same time, some young people pay more attention to the education and growth of their children while ignoring their elderly parents,

* Corresponding author.

E-mail addresses: baohaijun@zucc.edu.cn (H. Bao), hanlu@zufe.edu.cn (L. Han), nanawuh@163.com (H. Wu), 308436187@qq.com (X. Zeng).

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which has led to the phenomenon of making children more important than the ageing population (Horioka et al., 2018). On the other hand, most land-lost farmers who stay in the village are limited by various restrictions, such as age, education level and social security, because they are middle-aged. This group not only lacks social security for urban residents but also lacks land security in rural areas. It is hard for them to find a job or start a business. Therefore, more conflicts may occur in our society for this special group because of “No Country for Old Men” (Gleibs et al., 2011). The serious imbalance between supply and demand for social pension insurance affects the lives of land-lost farmers, and they are facing the pressures of living expenses, employment and pension during the process of urbanization (Bloom & Roddy, 2010; Hevenstone, 2015); furthermore, the problem of “house-for-pension” for land-lost farmers is inevitable under the new type of urbanization that centres people as its core task. With the development of the economy and society, the growing demands of land-lost farmers in the process of urbanization, especially those of elderly land-lost farmers, such as life care, health care and spiritual civilization, will directly lead to the “effective demand” of old-age housing exceeding the “effective supply”. Pension resettlement will become a major social problem that strongly influences farmers’ daily lives and national economic development (Liang, 2014). In recent years, the old-age resettlement of land-lost farmers has attracted great attention from the international community and has had a profound influence on all aspects of human life. In 1982, the First World Assembly on Ageing adopted the programmatic document of the 1982 Vienna International Plan of Action on Ageing. In 1991, the United Nations General Assembly passed the United Nations Principles on Senior Citizens. In 2002, the United Nations adopted the Madrid Declaration on Ageing and the International Plan of Action on Ageing. China has the largest number of elderly people in the world, according to the World Bank’s 2019 global ageing population statistics, and the UN population report shows that the vast majority of older people still live in rural areas.

The Chinese government has always attached great importance to the pension resettlement of land-lost farmers (Cai, 2016). In 2015, educational opportunities for elderly slogans were added on the basis of “a sense of security, a sense of support, a sense of worthiness, a sense of learning, a sense of happiness”, which has become the guide for national ageing work. Housing for elderly people is the carrier of “pension security”. There are three basic components of elderly people’s long-term care: economic support, life care and spiritual comfort. The discrepancies between the world view and outlook on life of elderly people and those of their children are becoming increasingly prominent, with the weakening of the family pension function in China and the continuous development of family miniaturization becoming core oriented. Moreover, the traditional family-care model is undergoing change, showing that elderly people have less interest in living with their children. At the same time, the living environment of most residential houses in China has a hard time meeting the needs of old age groups in the bottom-level groups. According to a survey conducted in 2006 by the China Center for Ageing Science, urban seniors are only 48.32% satisfied with their living situation, indicating that over 50% of elderly people in cities feel the need to improve their living environment. In 2010, the China Committee on Ageing Proposals proposed vigorously raising the level of aged care service facilities and meeting the material and cultural needs of grassroots groups through the construction of a large number of pension services, such as the construction of a large number of elderly residential buildings, elderly recreational facilities, elderly apartments and the development of liveable communities for the elderly population. In terms of the timely development of the pension housing industry in China, in addition to government-funded investment in the development of nursing homes, a market also appeared for the investment and construction of the “senior apartment.” However, consumers have mixed feelings about these “senior apartments”, and some “senior apartments” have not received any attention, which hinders developers’ enthusiasm in building them. These issues make it difficult to meet the market

demand for “senior apartments”; additionally, because the government’s investment in nursing homes is in short supply, there are general price increases and advance bookings that worsen the “hard to find” phenomenon (Delfani et al., 2015). To alleviate this phenomenon, first, the government must invest in building more nursing homes, and second, it must introduce market mechanisms to provide more effective “elderly apartment” products under financial constraints (Fry, 1999). Therefore, to effectively supply the product of “elderly apartments”, we must probe the demand characteristics, factors influencing purchase behaviour, and the individual decision-making mechanisms of the land-lost farmers from a microscopic point of view to provide a basis and reference point for the government to introduce a development policy for the elderly housing industry and for developers to improve housing for the elderly (Han, 2006).

This paper makes several contributions and innovations, as follows: (1) Based on the theory of planned behaviour (TPB), this paper builds a theoretical model of the “house-for-pension” scheme consumption behaviour for land-lost farmers. First, this paper not only further explores the reasons behind the formation of behavioural intention in planned behaviour but also broadens the applications of the TPB model in the research sphere in terms of housing security. Second, through application of the model and empirical testing, this paper clarifies the impact mechanism behind the willingness to purchase dedicated housing. (2) In this paper, the main subject is land-lost farmers, whose residential needs differ from those of ordinary residents, and who have special needs characteristics. The demand of ordinary residents for residential products is often related to traditional factors such as price, quality, and location, while research on land-lost farmers needs to explore hidden emotional factors. This paper mainly studies the deep-seated demand of land-lost farmers for housing pensions to formulate residential products suitable for the needs of the elderly for the market and deepen the extensive participation of society in pensions. (3) By understanding the influencing factors and mechanism of land-lost farmers’ purchase intention toward pension housing, this paper can provide a basis for effectively meeting the needs of consumers’ pension housing and provide a reference for the government to formulate relevant ageing policies and urban planning. At the same time, it is necessary to further develop research on the influencing factors and formation mechanism of the purchase intention explanation model, which has important academic value.

This paper is organized as follows. First, we introduce the research methods and construct a theoretical framework based on the theory of planned behaviour (TPB). Then, we describe the data and survey background information. Third, structural models are used to verify the theoretical assumptions and analyse the key influencing factors. Finally, the conclusions and discussion of the study are presented to explore the findings, research value and the need for further improvement.

2. Literature review

2.1. Research on the “house-for-pension” scheme

In research on pension housing, ageing problems in developed countries such as the United States and Europe appear earlier, and the economic, legal and welfare security mechanisms in these countries are relatively sound. Therefore, they are ahead of other countries in the fields of theory and practice of pension real estate. However, because each country and region’s culture and subculture have their own characteristics, the choice of pension methods varies. Take the United States and a handful of Western countries as an example (David Jinkins, 2016). People love freedom and are unwilling to be restrained. Their individualism is strong, and grassroots groups are willing to stay away from their children and enjoy private space. Large-scale institutional care communities are more popular with bottom-level groups. In Asia, countries and regions mainly use Japan and Singapore as examples. Due to the large differences in culture and values between Japan and

Singapore and developed countries such the United States and other European countries, traditional thinking has a profound impact on filial piety and family ethics, and sending elderly people to pension institutions would be regarded as unfilial and having no family morality (Doling & Ronald, 2010; Meng & Ke, 2014). Therefore, more choices are offered for home-based care, and these countries have a deeper understanding of how to improve the environment for home-end care and home-based care services (Andersen & Skjoldt, 2010; Kpessa, 2012). In terms of the basic characteristics of pension housing, Jung hye Shin (2014) made a detailed field observation of the home employment of the elderly in the United States and South Korea and proposed that family is a dynamic process of continuous integration of one's residence and society. Edward (2014) proposed a conceptual model of high-rise housing, which involves elderly people living in urban high-rise housing. In research on the housing preferences of elderly individuals, Eddie (2014) adopts prospect theory to analyse the housing expectations of elderly individuals, analyse the factors affecting their housing preferences, and then determine how these factors affect their expected housing.

At present, the main problems of this research are two-fold. First, the current research pays more attention to the explicit aspects of old-age residential demands and seldom pays attention to the deeper-level demands suitable for old-age housing for land-lost farmers. In fact, the needs of elderly consumers for residential products have been transformed from the traditional elements of tangible products, such as housing quality, location and price, to knowledge-based and emotional-type elements. Compared with the residential demands of ordinary residents, the demands of elderly consumers, and the focus on land-lost farmers' pension homes, have their own special needs features, such as security, accessibility, privacy and continuity, simplicity of hardware operations, and scalability. Therefore, the continuous excavation of knowledge-based, emotional and other hidden needs is still one of the areas of focus for studies on pension-related housing for land-lost farmers in the future. Second, the factors influencing elderly housing purchasing behaviour, which are still very vague, and the mechanisms of individual decision-making are also priorities of this research. Existing research shows that the living arrangements of land-lost farmers and housing for elderly people are generally affected by demographic composition (Wolf, 1990; Crimmins et al., 1990), sociocultural and cultural impact (Soldo et al., 1984), and the effects of changes in family patterns. Specifically, these factors mainly include the price of old-age housing, family income, living styles or living habits, the number of family members, work experience and family reproduction patterns. However, how these factors affect the purchasing behaviour of the underlying groups and the paths and mechanisms of the various dimensions of purchase behaviour are not clear. In other words, the factors influencing the purchase of end-of-life housing for land-lost farmers and the mechanisms of their individual decision-making are still a "black box."

2.2. Consumer behaviour under the "house-for-pension" scheme based on the theory of planned behaviour (TPB)

In 1985, Ajzen proposed the famous theory of planned behaviour, which was used to explain the intrinsic mechanisms of attitude affecting behaviour (Ajzen, 1991). Since the theory of planned behaviour was introduced, it has received extensive attention and has been effectively applied to related research on the behaviour of old-age housing. Many scholars have used the theory of planned behaviour to conduct in-depth research on the purchasing behaviour of elderly people (De Cannière et al., 2009) and social networks (Al-Debei et al., 2013; Baker & White, 2010). Baldini et al. (2002) note that people of different ages have typical intergenerational differences because they differ not only in size but also in attitudes towards consumption. Weinrobe's research on RAM project participants found that the main factors affecting the willingness to consume old-age housing are age and income, and they are positively and negatively correlated with willingness to engage in the

"house-for-pension" scheme.

The evidence-based theory of planned behaviour has successfully been applied in the field of old-age housing and aims to significantly improve the explanatory power and predictive power of research behaviour; however, there are few studies and cases in China, especially for land-lost farmers. As a special product of China's economic development, land-lost farmers as old-age securities have more complex consumption behaviours and influencing factors than those of the general population. Therefore, this research attempts to explore the factors affecting the consumption behaviour of land-lost farmers' pension housing by using the theory of planned behaviour. At the same time, in this study, the original model was extended and revised in terms of both the product and society based on the classification of stimulus factors by the Howard and Schels models. Regarding beliefs impacting the formation of product stimulus factors, this study intends to adopt four beliefs: price perception (Dodds et al., 1991; Monroe, 1990), location perception (Ridker & Henning, 1967; Harrell, 1968), residential environment perception (Babin, 1994) and supporting services perception (Litwak, 1985). Regarding beliefs impacting the formation of social stimuli, this study intends to use the perception of current house arrangements (Merrill, 1994).

2.3. The impact indicators of consumer behaviour under the "house-for-pension" scheme for land-lost farmers

Many scholars have studied the demand for residential products from different perspectives, including the types of influencing factors. Scholars' research on the factors influencing housing demand mainly includes family income level, housing price level, population structure change and preference for living conditions. Some scholars believe that the demand for residential products is affected by family characteristics, including family income, price of other goods and services, sex ratio, housing price and family life cycle (Muth, 1960; Olsen, 1969). Henderson held that the demand factors of residential products are affected by the maximization of cross timeliness in different stages and proposed that opportunity costs will affect the choice of self-use and rent (Henderson, 1983). In 1988, Raudall and Johnsto pointed out that the sale price, residents' housing income, savings, finance, population and household number, as well as the government's housing policy, will affect the purchase of residential products (Pozdena, 1988). Tomas took the real estate market of Hong Kong as the research object and studied the factors influencing housing demand with examples. The study concluded that the overall economic level, population size, residents' disposable income, real estate development investment scale and bank interest rate are the main factors affecting housing demand (Tomas, 2008). Malmberg pointed out that the age structure of the population is one of the important factors affecting housing demand (Malmberg, 2010). JA Sweet (2016) found that in addition to the above economic, social, policy and other factors, family labour costs are key to determining housing demand. From the perspective of dimensions and levels of residential product demand, Menchik C (1972) divides the consumer's residential demand into four levels: housing and plot characteristics, housing accessibility, natural environment, and man-made and unnatural environment. Hu studied the impact of transaction costs on individual housing choices (Hu, 2005). Zhou divides the demand for residential products into improving demand and rigid demand (Zhu & Zhang, 2019). Dynarski proposed a housing demand behaviour model, under which the demand level is divided into monetary and nonmonetary (Dynarski, 2014).

There are many factors influencing the adaptability of elderly housing. After retirement, the living arrangement of the elderly is generally affected by the population composition (Wolf, 1990). In addition, the influence of the change in family form is discussed. The number of family members, family reproduction mode, work experience, gender and living habits or lifestyles also influence the housing choice of the elderly (Lisa & Judith, 2003). In addition, some scholars

believe that the key factors affecting the living arrangements of the elderly are the major events in the life cycle, such as widowhood or retirement. Sarma and Simpson studied the influencing factors of the living style of the elderly in Manitoba and found that all kinds of social and demographic factors, including age, marital status, immigration status and education, will affect the living style of the elderly (Sarma & Simpson, 2007).

In research on the consumption behaviour of old-age housing of land-lost farmers, the housing problem of land-lost farmers in new urban areas has attracted the attention of society. The study of self-occupied residential areas in Western countries shows that there are many forms of self-occupied residential areas, but they have something in common with the nature of the resettlement areas for land-lost farmers in China. The housing construction, public facilities and management of the areas are provided by the residents themselves, and the government invests and manages them in terms of capital and policy (Zhang L et al., 2003). The government's expropriation of farmers' land and the very low compensation for land-lost farmers will inevitably lead to many land-lost farmers' lacking land for farming and becoming poor (Kironde, 2002). Some scholars also analysed the resettlement communities of land-lost farmers according to villagers' living habits, cultural traditions, regional culture, sustainable livelihood and other issues.

3. Materials and methodology

3.1. Study area

According to the China Statistical Yearbook (2020), from a national perspective, the ageing population is mainly concentrated in Zhejiang, Shanghai and Liaoning, where the proportions of people over 65 years old are 17.4%, 16.3% and 13.3%, respectively. Hangzhou, the capital city of Zhejiang Province, is rapidly ageing, with one senior citizen for every 5 people. As of the end of 2020, Hangzhou had a population of 2.133 million aged 60 or above, accounting for 16.87 percent of the total population. Compared with the sixth national census in 2010, the proportion of people aged 60 and above increased by 3.47 percentage points, and the proportion of people aged 65 and above increased by 2.64 percentage points. According to the main data bulletin of the seventh census of Hangzhou in 2020, released by the Hangzhou Statistic Bureau, in recent years, Hangzhou has carried out a large number of land expropriations and demolitions. In 2016, Hangzhou put forward the "five-year tough action of urban village reconstruction in the main urban area" and planned to complete the reconstruction of 178 urban villages in the main urban area within 5 years starting in 2016. During this process, a large number of land-lost farmers were created. In the process of compensation and resettlement of land-lost farmers, Hangzhou has increased the monetary resettlement policy. In 2015, with the low tide of the real estate market for several consecutive years, the pressure of a high inventory of new houses appeared in the national real estate market, which started the "war of destocking". Hangzhou is no exception. At that time, the inventory was as high as 100000 sets. In April 2015, Hangzhou issued guidance on vigorously promoting the monetization of housing security, which increased the monetization of resettlement and realized the transformation from physical resettlement to monetary resettlement. On the one hand, for the state-owned land and housing expropriation project, if the expropriated choose monetary compensation, the maximum range of subsidies and rewards was increased from 22% to 42% of the assessed value of the original house, which improves the ability of the expropriated to purchase houses through the market after they choose monetary resettlement. On the other hand, the preferential policies of physical resettlement are strictly controlled, that is, the maximum building area of the preferential settlement part of physical resettlement in state-owned land acquisition and relocation shall not exceed 30 square metres, and the preferential price shall not be too low. After the introduction of this policy, the resettlement concept of the expropriated changed fundamentally. In

2016, the proportion of expropriated who chose monetary compensation for the state-owned land and housing expropriation project in Hangzhou exceeded 50%. In 2017, with the increase in land expropriation and relocation in Hangzhou, the proportion of monetized resettlement was still the absolute mainstream. In Hangzhou (including 10 urban areas and Tonglu, Lin'an and Chun'an) in 2017, 3665 households chose monetary compensation, and 2991 households chose physical compensation. At the same time, driven by land acquisition and monetary resettlement policies, a large number of land-lost farmers in Hangzhou have strong purchase intentions, especially elderly land-lost farmers, and the demand for purchasing pension housing is also increasing. For the real estate industry, catering to the needs of elderly housing will be an important direction for development. Therefore, it is representative and typical to select Hangzhou as the survey sample (Fig. 1).

This paper chooses the five old districts of Changsheng District, Xicheng District, Jiangnan District, Gongshu District and Xihu District in Hangzhou City, Zhejiang Province, China, as the research areas. Other regions do not serve as the study area for this article. The main reason is that the other three districts were included in the administrative area of Hangzhou after 1996, and the market was not yet mature. The other five counties and traditional old property differences are too large and can be classified in different markets. Therefore, for sample selection, in July and August 2017, we chose five old city areas in Hangzhou, and each area included 45 (N/n) elderly and middle-aged land-lost farmers over the age of 50, in accordance with the randomness principle to conduct a questionnaire survey.

3.2. Description of methodology

There are three steps in this study. The first step is to construct the theoretical model and hypothesis according to the theory of planned behaviour. The theory of planned behaviour can help us understand how people change their behaviour patterns. The TPB believes that people's behaviour is the result of deliberate planning. The second step is to process and analyse the data according to the results of the questionnaire by SPSS 15.0. This step mainly serves to analyse the reliability and validity of the data, and reliability and validity analysis is one of the criteria to test whether the questionnaire is qualified. Reliability analysis is used to measure whether the sample answers are reliable or not, that is, whether the sample has real answers to the scale items, while validity analysis is used to measure whether the item design is reasonable or not. The third step is to use the structural aspect model to verify the theoretical model and analyse the key influencing factors. AMOS software is applied to conduct the data analysis (Fig. 2).

3.2.1. The structural equation model (SEM)

The structural equation model (SEM) is a statistical method used to describe the linear relationship between observed variables and latent variables or between latent variables. Based on the covariance matrix, SEM is a powerful statistical tool for studying the linear relationships among relatively complex multivariate variables in the social sciences. According to Anderson, and Gerbing, (1988), the basic principle of SEM is shown in Fig. 3.

This study uses structural equation modelling to analyse variables based on the following considerations. First, consumer willingness is difficult to measure by conventional means but can be quantified by structural equation modelling. Then, the structural equation model can conveniently verify the causal hypothesis between the latent variables and optimize the model by influencing path adjustment, which meets the demand of this study. Finally, the structural equation model can process the measurement error in the analysis process, which makes the research results more reliable.

3.2.2. Construction of the consumption behaviour model of the "house-for-pension" scheme for land-lost farmers

There is a large income gap between land-lost farmers and residents

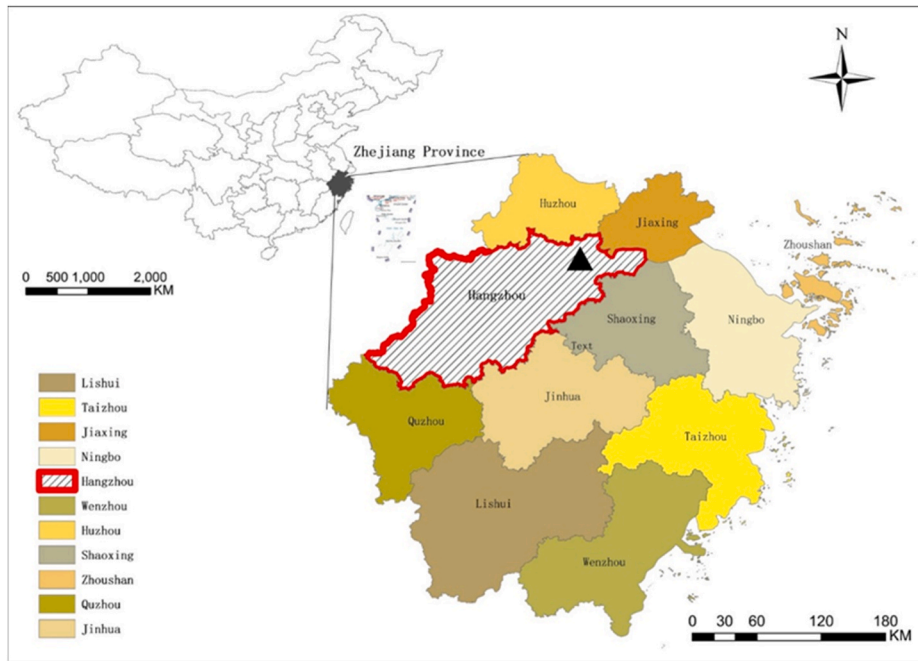


Fig. 1. Location of the study area.

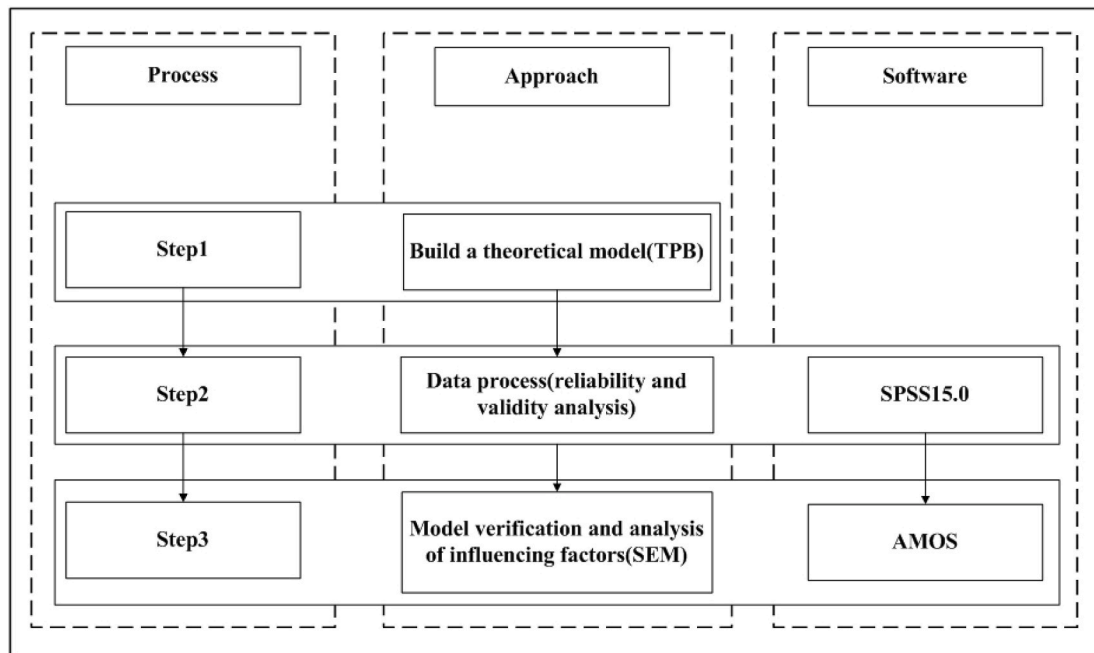


Fig. 2. The framework of research design.

(urban residents and land-lost farmers). Farmers' psychological security is reduced after losing their land (Bao, & Peng, 2016), and their consumption behaviour tends to be conservative compared to those who have not lost their land. This study is based on the theory of planned behaviour (TPB), the literature research on consumer behaviour and the survey results of the consumption behaviour of land-lost farmers. The influencing factors of the behaviour of elderly farmers who have lost their land are perceptual behaviour control, attitude towards behaviour (AB), subjective norms, price perception value, supporting service perception, location preference, living environment perception and current residential treatment perception. The definitions of the variables are as follows:

- (1) Consumer behaviour (CB) refers to the behaviour of consumers purchasing pension products (Dodds, Grewal & Monroe, 1991). Most of the land-lost farmers used to rely on land as an old-age security. After losing their land, they might replace this security by purchasing commercial insurance and pension housing.
- (2) Perceived behavioural control (PBC) reflects the ease with which individuals perceive their purchases (Ajzen & Fishbein, 1980). That is, the extent to which the land-lost farmers feel they have control over the purchase behaviour of old-age housing; in other words, the size of the role that their willingness plays in fulfilling this consumption behaviour.

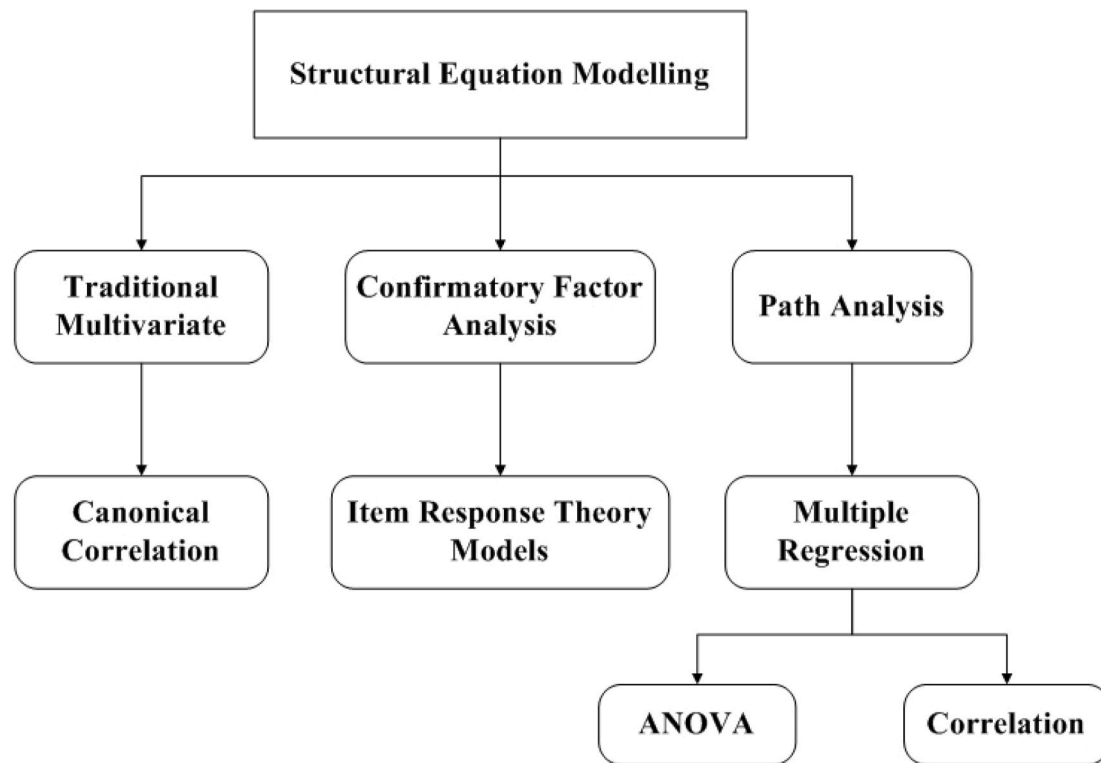


Fig. 3. Structural equation modelling Diagram.

ANOVA: Analysis of variance.

- (3) Attitude towards behaviour (AB): represents an overall evaluation of a multi-attribute dimension of an object; that is, a perceptual result based on subjective value judgement (Ajzen, 1992). The structure of attitudes includes the three components of affective, cognitive, and behaviour (Eagly & Chaiken, 1993). This study suggests that attitude towards behaviour indicators can be used to measure the overall pros and cons of land-lost farmers in the purchase of pension homes.
- (4) Subjective norms (SN): refers to the individual's perception of a particular reference group's opinion on individual behaviour and the individual's intention to comply (Ajzen, 1985; Ajzen & Fishbein, 1980). The decision of land-lost farmers to purchase pension homes may be influenced by other members of the family or by people in their social network. This study used subjective norms to measure the extent to which decision makers are influenced by others.
- (5) Perceived price (PP): consumers measure product quality through price information and determine the cost associated with the purchase (Dodds, 1991; Mazumdar & Monroe, 1990; Zeithaml, 1988). In this study, perceived price includes two aspects: first, whether the overall perception of the price of old-age housing by land-lost farmers is within the acceptable range; and second, whether the price of old-age housing matches the quality of the product.
- (6) Perceived supporting services (PSSs): the perception of life care, health services and social activities provided by the pension house for elderly people (Litwak, 1985; Sussman, 1977). This study considered that perceived supporting services reflect the importance of the group of land-lost farmers to the prosperity of residential services.
- (7) Location preference (LP): Housing is made up of various attributes of the place of residence (Ridker & Henning, 1967; Harrell,

1968), where location preferences reflect the factors influencing the choice of place by land-lost farmers.

- (8) Perceived living environment (PLE): the consumer's recognition of the living environment of the pension house (Lancaster, 1966). This indicator is used to measure the importance attached by land-lost farmers to the living environment of pension housing.
- (9) Perceived current house arrangement (PCHA): This study considers that perceived residential mobility is the consumer's perception of whether to choose housing for the elderly (Merrill, 1994)

By analysing and screening the above factors, this paper constructs an interpretation model for analysing the consumption behaviour of elderly housing. See Fig. 4.

The model shows the formation of consumer spending intentions. Consumer spending on pension housing is subject to various factors. Price perception, supporting service perception, location preferences, perceived living environment and perception of living residence affect behaviour attitude, and consumer intentions are a function of behaviour attitude. At the same time, the perception of behaviour control and subjective norms also directly affect consumer spending intentions.

3.2.3. Establishment of the research hypothesis

Based on the above conceptual model, this paper proposes the following research hypotheses:

H1. Attitude towards behaviour (AB) has a significant positive impact on the spending habits of pension homes.

Behavioural intentions reflect the consumer's willingness to pay for the purchase of pension homes. In previous studies, researchers have demonstrated that behavioural intention is a reliable observational variable, that there is a direct correlation between the user's behavioural intentions and actual usage behaviour and that behavioural intentions are good predictors of user behaviour (Taylor & Todd, 1995).

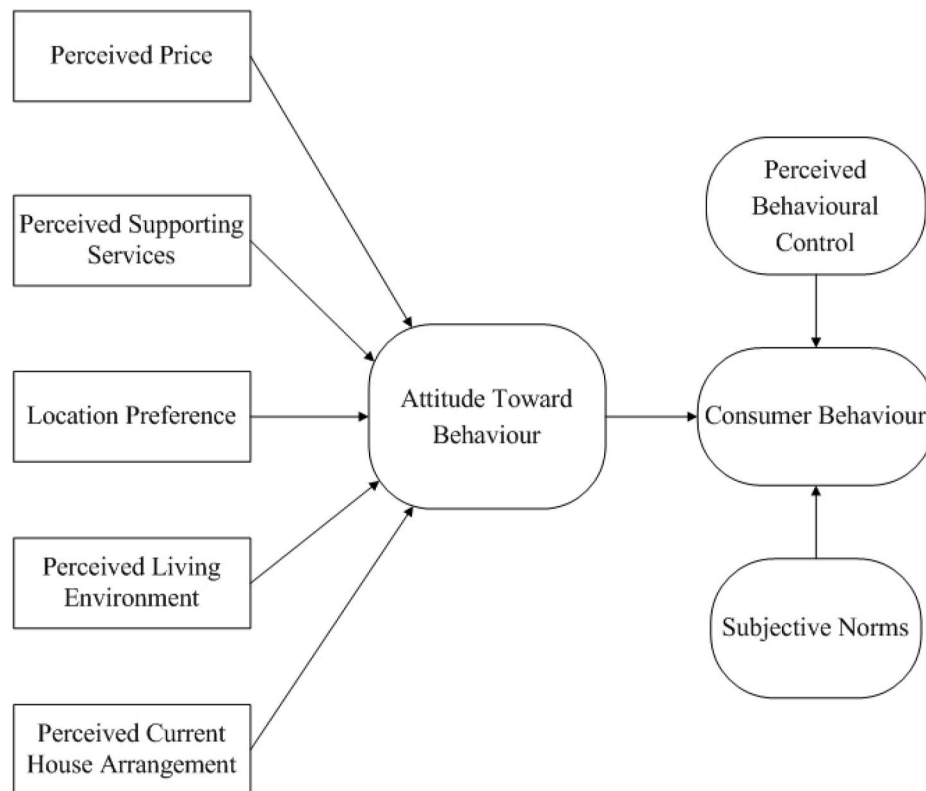


Fig. 4. The conceptual model of the “house-for-pension” scheme for land-lost farmers.

Simultaneous attitudes towards behaviour regarding the interpretation of intentional behaviour have been verified by many scholars. [Ajzen \(1991\)](#) argues that the more active consumers are in terms of their product and service behaviour, the stronger the consumer’s intentions. [Karahanna \(1999\)](#) found that attitude towards behaviour has a positive effect on the intention of continuous use of information systems.

H2. Subjective norms (SNs) have a significant positive impact on the intention to spend on aged housing.

Subjective norms are the views of others on consumer behaviour, consumers’ residential property decisions to buy, and whether they will seek out advice from family, friends or experts. Other consumer behaviours also affect consumers’ decision-making. The results show that there is a significant correlation between subjective norms and behavioural intentions ([Ajzen, 1991](#); [Sparks & Shepherd, 2002](#)).

H3. Perceived behavioural control (PBC) has a significant positive effect on spending intention regarding pension homes.

Perceived behavioural control reflects the degree to which personally perceived ease of buying behaviour is determined by the individual’s skills, resources, and opportunities. The more consumers themselves feel that they can control their own behaviour, the higher the consumer’s intention ([Ajzen, 1991](#)).

H4. Location preference (LP) has a significant positive impact on consumer attitudes towards buying behaviour in pension homes.

Housing consists of various characteristics of the place of residence, and the combination of these characteristics is an important factor affecting residential choices ([Ridker & Henning, 1967](#); [Harrell, 1986](#)). According to certain characteristics of elderly people, they are more interested in choosing an elegant place with fresh air for retirement. In terms of living arrangements, elderly people who are in good health and have a high standard of living intend to choose to live alone but do not want to live too far from their children to be able to look after each other. There is an old saying in China: to revert to one’s origin. This saying reflects the elderly person’s desire to be familiar with their

environment and dependence. After retirement, elderly people also need their relatives, neighbours, and friends, and they choose to live in a more concentrated place with convenient transportation. [Roger Clough \(2005\)](#) obtained data via questionnaires showing that 46% of respondents had the intention to live close to special people, while 18% of respondents had the idea of returning to their place of birth when choosing retirement homes.

H5. Perceived supporting services (PSSs) have a significant positive impact on consumer attitudes towards purchasing behaviours for aged homes.

Perception evaluation of residential product attributes is the most direct factor influencing consumers’ intention to spend ([Lee et al., 2013](#)). The elderly population has special needs for their residences and living environment, including the needs of the natural environment, living environment and human environment. After entering old age, the physiological function of elderly people changes due to structural deterioration, creating obstacles between their own needs and the environment, which are reflected in the special requirements for residential properties such as accessibility, safety, and convenience. In addition, through the residential transformation of elderly individuals, privacy is a more realistic and operational factor for many consumers, as people also have privacy needs and many older homes do not focus on privacy needs, particularly with regard to bedrooms ([Angelo Costaa et al., 2017](#)).

H6. Perceived service satisfaction has a significant positive impact on consumer attitudes toward purchasing behaviour for pension homes.

The residential needs of older people are inseparable from those of life care, health services and the need to participate in social activities. According to the perspective of geriatrics, as people grow older, their independence diminishes gradually, and their dependence gradually increases. Therefore, residential care is inseparable from family care. When the family does not have the time to provide care, it relies instead on institutions for care. Most elderly people’s retirement activities are

limited to residential areas, so supporting services are very important. As you age, declining or compromising body function can lead to multiple demands on life care. Roger Clough (2005) found in a survey that 28% of respondents strongly agreed that they would choose to live in a place with special services. It is concluded that elderly individuals have an urgent need for daily life care and medical treatment based on the investigation of elderly people in cities (Angelo Costaa et al., 2017). The most noteworthy community care pension is not its hardware configuration but its software, such as pension services (Tine Buffel, 2018). Leung claims that one of the outstanding features of elderly people who retire is that they have more spare time and that their demand for entertainment is very strong (Leung, Famakin, & Kwok, 2017).

H7. The value of perceived price has a significant positive impact on consumer attitudes towards the purchasing behaviour for pension homes.

The residential market is an information asymmetric market. For consumers, residential products are new, highly specialized and complex, and it is difficult to make accurate, objective judgements of product quality (Pechmann et al., 1991). Pension homes are more complex than average domestic products, so consumers will infer product quality based on price (Leavitt, 1954).

H8. The liquidity of perceived current house arrangements has a significant positive impact on attitudes towards consumer behaviour.

In essence, a homeowner's property is an asset to the homeowner. "Housing for the aged" enables the elderly population to realize their own real estate and increase choices for the aged. According to survey data on the urban-rural elderly population in 2010, at present, the percentage of elderly people in urban areas who own their own property in China is 79.2%, indicating that the condition of property rights for housing for the elderly should be further matured.

4. Data

This paper collects data through the questionnaire method and adopts a structural equation model to verify the proposed research model. To ensure the reliability and validity of the variables, the items of the questionnaire are referenced and borrowed from the measurement indexes used in the theoretical documents of the planned behaviours and are appropriately expanded and adjusted according to the characteristics of the aged housing market. A 5-point Likert scale was adopted for all of the items, and the respondents were required to show their behavioural attitude towards the proposition of the statement. The meanings of the rankings of 1–5 were highly disagree, disagree, uncertain, agree and strongly agree, respectively. Before the official questionnaire was published, 50 presurveyed consumers over the age of 50 were asked to review the questionnaire based on the presurvey results. According to the reliability and validity analysis of the presurvey, all measurement items performed well and reached an acceptable level (Cronbach's $\alpha > 0.8$, KMO > 0.75). The entire questionnaire was mainly divided into two parts: the first part was the demographic characteristics, and the second part was the 30 measurement items composed of 9 potential variables, as shown in Table 1 and Table 2.

The presurvey mainly targeted middle-aged and elderly land-lost farmers aged 50 and over and obtained first-hand information in the form of questionnaires. A total of 50 copies were issued, 43 valid questionnaires were returned, and the effective questionnaire rate was 86%. The formal questionnaire was mainly distributed through a paper questionnaire. The main target group of the survey was the group of land-lost farmers during either middle age or over 50 years of age. For data collection, the "one-on-one" approach was adopted, in which every investigator was responsible for an explanation of the process of completing each survey. However, this approach does not affect the personal opinions of the elderly. Additionally, this approach will not only ensure that the questionnaire is completed by the elderly themselves instead of their children or other people but will also ensure the

Table 1
Demographic characteristics of sample statistics.

Variables		Number	Proportion (%)
Gender	Male	115	58.1
	Female	83	41.9
Age	50–60	48	24.2
	61–65	57	28.8
	66–70	42	21.2
	71–75	27	13.6
	75 above	24	12.1
Education	Junior high school	81	40.9
	High school	49	24.7
	Junior college	26	13.1
	Undergraduate	38	19.2
	Master's degree or above	4	2.0
Annual income 10,000 yuan	30,000 or less	45	22.7
	30,000 ~ 50,000	50	25.3
	51,000 ~ 100,000	55	26.8
	100,000 or above	50	25.3
Self-care ability	Independent	135	68.2
	Middle dependence	44	22.2
	Moderate dependence	14	7.1
	Severe dependence	5	2.5

questionnaire recovery rate and improve the data reliability. The survey collected 225 questionnaires, excluded 27 invalid questionnaires, and a total of 198 valid questionnaires were obtained.

5. Research findings

In the data processing, questionnaires with the same missed choices and options were excluded. There were 198 valid questionnaires obtained, and 88% of the questionnaires were valid. The data in each group were basically in line with the normal distribution. Table 1 shows the sample statistical characteristics of the surveyed population. From the perspective of gender distribution, both men and women share half the mean value, the eigenvalue is 0.42, and the standard deviation is 0.495; from the age distribution point of view, the main focus is on the age of 65, the sample mean value is 65.96, and the standard deviation is 7.441; most of the respondents have independent or mild dependence on their own ability, the sample mean value is 1.44, and the standard deviation is 0.736; from the family income distribution point of view, the income distribution of each interval appears evenly, the sample mean value is 2.55, and the standard deviation is 1.102; regarding the distribution of marital status, most of the respondents are married, the sample mean value is 1.39, and the standard deviation is 0.764; from the perspective of way of living, the majority live with their spouses, followed by those who live with their children, the mean value of the sample eigenvalues is 2.06, and the standard deviation is 0.618. At the academic level, there are fewer postgraduates, the mean value of the sample eigenvalues is 2.17, and the standard deviation is 1.212.

5.1. Reliability and validity analysis

Reliability is an estimate of the consistency of the questionnaire. The greater the reliability of the scale, the smaller the standard error of the measurement. In this paper, the Cronbach's alpha value was used for the reliability test analysis. Cronbach's alpha values are fairly good between 0.70 and 0.80 and very good between 0.80 and 0.90 (Haraldstad et al., 2011). Table 3 shows the reliability test results of the scale. The comprehensive reliability of each potential variable is above 0.70, indicating that the data collected by the scale are reliable and real and can be analysed in the next step.

The validity analysis is an exploratory factor analysis by the principal component analysis method of maximum variance rotation. Kaiser (1974) believes that a KMO index above 0.80 is suitable for factor

Table 2
Latent variables and measurement items.

Latent variable	Measured result
Purchase Intention (PI)	PI1 I have a strong idea of buying an endowment residence at present. PI2 Maybe I will buy a pension house in the future. PI3 I am sure to buy a pension residence .
Attitude Toward Behaviour (AB)	AB1 I am happy to buy a pension house. AB2 I am looking forward to staying in the endowment residence .
Subjective Norms (SN)	AB3 It is a great deal to buy a pension house. SN1 My family supports me buying a pension house. SN2 Both my relatives and friends are supporting me in purchasing a pension house. SN3 The endowment residence represents class and grade.
Perceived Behavioural Control (PBC)	PBC1 I can make the decision if I want to buy a pension house. PBC2 If there is a retirement home I need, I am sure to buy it. PBC3 You have absolute control over whether you will eventually buy a house for pension.
Location Preferences (LP)	LP1 I am going to live very close to my children's home (or grandson's school). LP2 It is certain that I would not live in an inconvenient area from shopping and seeing a doctor. LP3 I would like to live in places with specific social attributes (such as a specific culture, identity, etc.). LP4 I will consider living in the suburbs or in the peripheral regions of Hangzhou.
Perceived Living Environment (PLE)	PLE1 Whether there is a barrier-free design in the residence or residential areas is an important factor in my choice of residence. PLE2 It is very important for me to carry out a transformative design of residences (for example, to reserve space for needs). PLE3 Humanized design of house (such as rooms for when the children visit and low floors) is very important to me.
Perceived Supporting Services (PSSs)	PSSs1 Daily life care services and quality are important to me. PSSs2 Basic medical care services and quality are important to me. PSSs3 Mental support services (education, culture, entertainment, reception, etc.) are very important to me. PSSs4 Personalized services (such as financial management, travel, etc.) are very important to me. PSSs5 The special services (such as long-term care services, imparting health knowledge, etc.) and qualities are very important to me.
Perceived Price (PP)	PP1 The price of a pension house is acceptable if I want to buy it now. PP2 I intend to buy a pension house that has a price that is similar with the community. PP3 I prefer to buy a house with property rights.
Perceived Current House Arrangement (PCHA)	PCHA1 I am quite satisfied with my present house to have a pension. PCHA2 The pattern of the house-for-pension scheme is easy to accept. PCHA3 The idea of leaving my existing house for my children is very strong.

Table 3
Scale reliability test.

Factor	Item Number	Cronbach's Alpha Value	Factor	Item Number	Cronbach's Alpha Value
Consumer Behaviour (AB)	3	0.787	Location Preferences (LP)	4	0.904
Perceived Behavioural Control (PBC)	3	0.843	Perceived Price (PP)	3	0.861
Perceived Current House Arrangement (PCHA)	3	0.870	Purchase Intention (PI)	3	0.851
Perceived Supporting Services (PSSs)	5	0.806	Subjective Norms (SN)	3	0.902
Perceived Living Environment (PLE)	4	0.909			

analysis and that the applicability of factor analysis is good. The KMO statistic value of the sample data is 0.911, indicating that the collected sample data are suitable for principal component analysis. The results of the rotation principal component analysis are shown in [Table 4](#). The principal component analysis shows that 9 factors with eigenvalues greater than 1 have a variance interpretation rate of 83.284%. The factor structure is clear. The factor load value of each measure item in a single conceptual dimension is greater than 0.50, and the individual items are not multiplied. The factor load between the dimensions is more than 0.50, indicating that the scale has good aggregation validity and discriminant validity.

5.2. Structural equation analysis process

Structural equation modelling (SEM) is a research method based on statistical analysis technology. It is suitable for the exploration and analysis of complex multivariate data and is therefore widely used in the fields of economics, sociology, and behavioural science. It consists of measurement models and structural models.

First, we test the overall fitness of the model. The results are shown in [Table 5](#). From [Table 5](#), we can see that the ratio of chi-square degrees of freedom in the fitted statistics is less than 3, indicating the degree of fitness between the model and the sample data. It is acceptable that the RMSEA of the residual square root and square root is 0.079, which means that the difference between the variance covariance matrix obtained from the sample data and the variance covariance matrix implied by the theoretical model is small; the NFI, IFI, RLI and PCFI indicators are all above 0.9, but the GFI is less than 0.9, which does not reach the recommended level. However, [Bentler and Chou \(1987\)](#) noted that with a multivariate model, it is very difficult for all indicators to fully meet the generally accepted goodness of fit. In summary, the overall goodness of fit of the research model is acceptable.

χ^2/df : Chi-square DOF ratio, GFI: goodness-of-fit, NFI: normed fit index, IFI: incremental fit index, RFI: relative fit index, CFI: comparative fit index, PCFI: parsimony adjusted measures, RMSEA: root mean square error of approximation.

Second, this study uses AOMS software to analyse the path relationship of the model through SEM analysis, and the hypothetical variable relationship is verified based on the results. The model standardization path is shown in [Fig. 5](#). The hypothesis test results are shown in [Table 6](#).

It can be seen from [Table 6](#) that hypothesis 3 in the theoretical model is proposed, and the parameter estimation value does not reach a significant level of $P < 0.05$; that is, hypothesis 3 is not supported by the sample data. However, the parameter estimates of the other hypotheses in the theoretical model reach a significance level of $P < 0.01$, which means that they are supported by the sample data.

We examined the path coefficients between the various latent variables and combined the size of the P value to determine whether the research hypothesis was established. The results are shown in [Table 7](#).

5.3. Analysis of key factors

To analyse the key factors influencing the purchase of elderly housing by elderly land-lost farmers, this paper has established a new theoretical model through the application and expansion of the TPB, as

Table 4
Maximal variance rotated factor matrix.

Measure-d result	Factor								
	1	2	3	4	5	6	7	8	9
PSSs1	0.811	0.204	0.1	0.038	0.221	0.074	0.256	0.001	0.083
PSSs3	0.762	0.132	0.08	0.106	-0.014	0.107	0.08	0.013	0.014
PSSs2	0.793	0.173	0.078	0.008	0.188	0.097	0.128	0.201	-0.027
PSSs4	0.695	0.116	0.107	0.096	0.028	0.284	0.049	0.149	-0.116
PSSs5	0.788	0.097	0.128	0.037	-0.027	0.001	0.096	0.147	0.029
LP4	0.037	0.772	0.075	0.215	0.071	0.078	0.181	0.278	0.172
LP3	0.061	0.763	0.103	0.072	0.049	0.064	0.097	-0.036	0.18
LP2	0.015	0.734	0.103	0.065	0.102	0.16	0.095	0.068	0.204
LP1	0.149	0.699	0.008	0.066	0.024	-0.005	0.11	0.069	0.132
PLE2	0.086	0.055	0.932	0.05	0.037	0.117	0.118	0.076	0.173
PLE1	0.257	0.069	0.898	-0.023	-0.037	0.109	0.246	0.212	0.116
PLE3	0.094	0.102	0.895	0.127	-0.044	0.04	0.073	0.159	0.078
PLE4	0.083	0.106	0.902	0.025	0.02	-0.011	0.144	0.252	0.12
AB3	0.13	0.035	0.149	0.856	0.046	0.137	0.043	0.095	0.106
AB1	0.142	0.129	-0.03	0.822	0.13	0.091	0.141	0.058	0.083
AB2	0.1	0.222	0.036	0.802	0.104	0.085	0.189	0.133	0.025
PBC3	0.08	0.092	0.035	0.027	0.858	-0.026	0.068	0.137	0.02
PBC1	0.078	0.067	-0.057	0.13	0.812	0.115	0.077	0.361	-0.011
PBC2	0.107	0.029	-0.022	0.092	0.848	0.075	0.059	0.258	0.144
PCHA2	0.012	0.025	0.169	0.117	0.056	0.711	0.19	0.106	0.252
PCHA3	0.042	0.138	0.083	0.109	0.064	0.719	0.184	0.112	0.12
PCHA1	0.154	0.015	0.168	0.04	0.108	0.698	0.124	0.219	0.123
PP2	0.18	0.064	0.188	0.137	0.113	0.207	0.871	0.183	0.047
PP1	-0.02	0.04	0.161	0.091	0.111	0.16	0.877	0.317	0.07
PP3	0.078	0.12	0.106	0.083	0.025	0.02	0.869	0.144	0.252
SN2	0.102	0.037	0.142	0.085	0.107	0.039	0.213	0.822	0.063
SN1	0.171	0.081	0.115	-0.026	0.11	0.152	0.151	0.838	0.051
SN3	0.118	0.246	0.073	0.144	0.043	0.141	0.189	0.868	0.077
PI1	0.185	0.002	0.124	0.115	0.124	0.186	0.059	0.012	0.739
PI3	0.222	0.092	0.067	0.029	0.025	0.138	0.015	0.064	0.704
PI2	0.139	0.006	0.134	0.075	0.049	0.316	0.078	0.133	0.671

PSSs: Perceived Supporting Services, LP: Location Preferences, PLE: Perceived Living Environment, AB: Consumer Behaviour, PBC: Perceived Behavioural Control, PCHA: Perceived Current House Arrangement, PP: Perceived Price, SN: Subjective Norms, PI: Purchase Intention.

Table 5
Overall model fitting analysis and measurement index.

Statistic Test	The Standard of Fitting or Critical Value	Result
χ^2/df	<3.0	2.871
GFI	>0.9	0.863
NFI	>0.9	0.918
IFI	>0.9	0.945
RFI	>0.9	0.901
CFI	>0.9	0.945
PCFI	>0.5	0.781
RMSEA	<0.08	0.079

shown in Fig. 6.

(1) Attitude towards behaviour ($\beta = 0.604|P < 0.01$) has a significant impact on consumers' purchasing intentions for pension housing. Purchase intention reflects the consumer's willingness to pay for retirement housing in rural areas. In previous studies, researchers have demonstrated that behavioural intention is a reliable observational variable, that there is a direct correlation between the user's behavioural intentions and actual usage behaviour and that purchase intentions are good predictors of user behaviour (Taylor & Todd, 1995). Simultaneous attitudes towards behaviour and the interpretation of intentional behaviour have been verified by many scholars. Ajzen (1991) argues that the more active consumers are towards their product and service behaviour, the stronger the consumer's intentions. Karahanna (1999) found that attitude towards behaviour has a positive effect on the intention of continuous use of information systems. Therefore, if Chinese consumers want to purchase old-age housing, they must first allow consumers to positively

affirm their attitude towards retirement housing. This finding can guide consumers' attitudes from an emotional perspective, cognitive perspective, and behavioural perspective. For example, developers can personally experience endowment through media marketing channels and real-world sample showrooms and allow potential consumers to pay for their own care for free or at no cost. The strong pension function of housing allows consumers to feel the superiority of the product.

- (2) Subjective norms ($\beta = 0.287|P < 0.01$) have a significant impact on consumers' purchase intentions for retirement homes. Many studies have shown that when consumers consider consumption, people's sensitivity will increase with increasing perceived risk. A significant difference between Chinese consumer behaviour and that in the West is the rate at which people are influenced greatly by others or by groups (David Jinkins, 2016). According to the characteristics of Chinese residents' consumption, some special marketing measures are taken, such as the use of the "word-of-mouth effect", so that potential customers' relatives, friends, and colleagues can recommend them for use.
- (3) Location preferences ($\beta = 0.484|P < 0.01$) significantly influence consumer attitudes towards behaviour (AB). According to the results of the survey, 45% of the senior citizens chose "I will live in retirement places where children live close to me" for the choice of location; 42.5% chose "a place with specific social attributes (such as specific culture, identity, etc.) is very attractive to me", and 90% chose "shopping, hospitals and transportation are convenient places". This outcome also verifies the research of some scholars, i.e., after entering the elderly phase, the needs of consumers are better reflected in the level of family care and spiritual comfort. After retiring, with a relative reduction in the degree of participation in society, elderly people place more emphasis on the family and their own interests. Therefore,

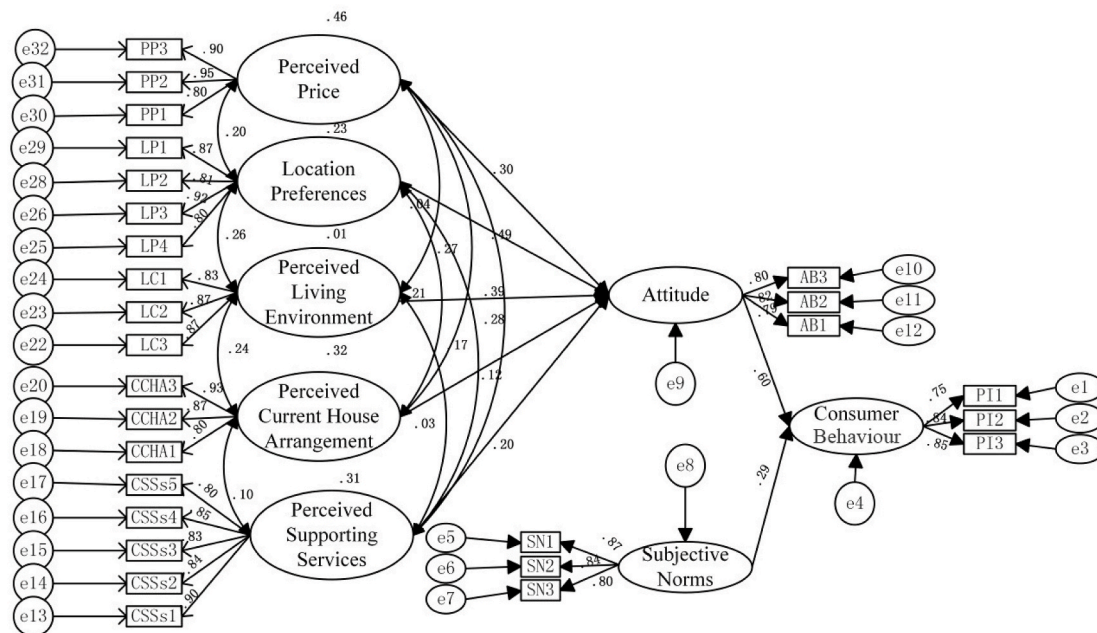


Fig. 5. Standardized model path diagram.

Table 6
Hypotheses testing of the research model.

Hypothes	Path	β	C.R.	Test Results
H 1	Consumer Behaviour ← Attitude Toward Behaviour	0.604***	4.989	Support
H 2	Consumer Behaviour ← Subjective Norms	0.288***	3.737	Support
H 3	Consumer Behaviour ← Perceived Behavioural Control	0.043	1.336	Refuse
H 4	Attitude Toward Behaviour ← Location Preferences	0.486***	3.479	Support
H 5	Attitude Toward Behaviour ← Perceived Living Environment	0.386***	4.320	Support
H 6	Attitude Toward Behaviour ← Perceived Supporting Services	0.192***	3.081	Support
H 7	Attitude Toward Behaviour ← Perceived Price	0.298***	3.374	Support
H 8	Attitude Toward Behaviour ← Perceived Current House Arrangement	0.122***	3.298	Support

Note: *** represent $P < 0.01$.

β : Path Coefficient in Structural Equation Model.

C.R: Critical Value in Structural Equation Model.

Table 7
Summary of hypotheses test results.

Hypothesis	Path	β	C.R.	Test Results
H 1	Consumer Behaviour ← Attitude Toward Behaviour	0.604***	4.989	Support
H 2	Consumer Behaviour ← Subjective Norms	0.287***	3.737	Support
H 3	Consumer Behaviour ← Perceived Behavioural Control	0.046	1.336	Refuse
H 4	Attitude Toward Behaviour ← Location Preferences	0.484***	3.479	Support
H 5	Attitude Toward Behaviour ← Perceived Living Environment	0.389***	4.320	Support
H 6	Attitude Toward Behaviour ← Perceived Supporting Services	0.193***	3.081	Support
H 7	Attitude Toward Behaviour ← Perceived Price	0.294***	3.374	Support
H 8	Attitude Toward Behaviour ← Perceived Current House Arrangement	0.12***	3.298	Support

Note: *** represent $P < 0.01$.

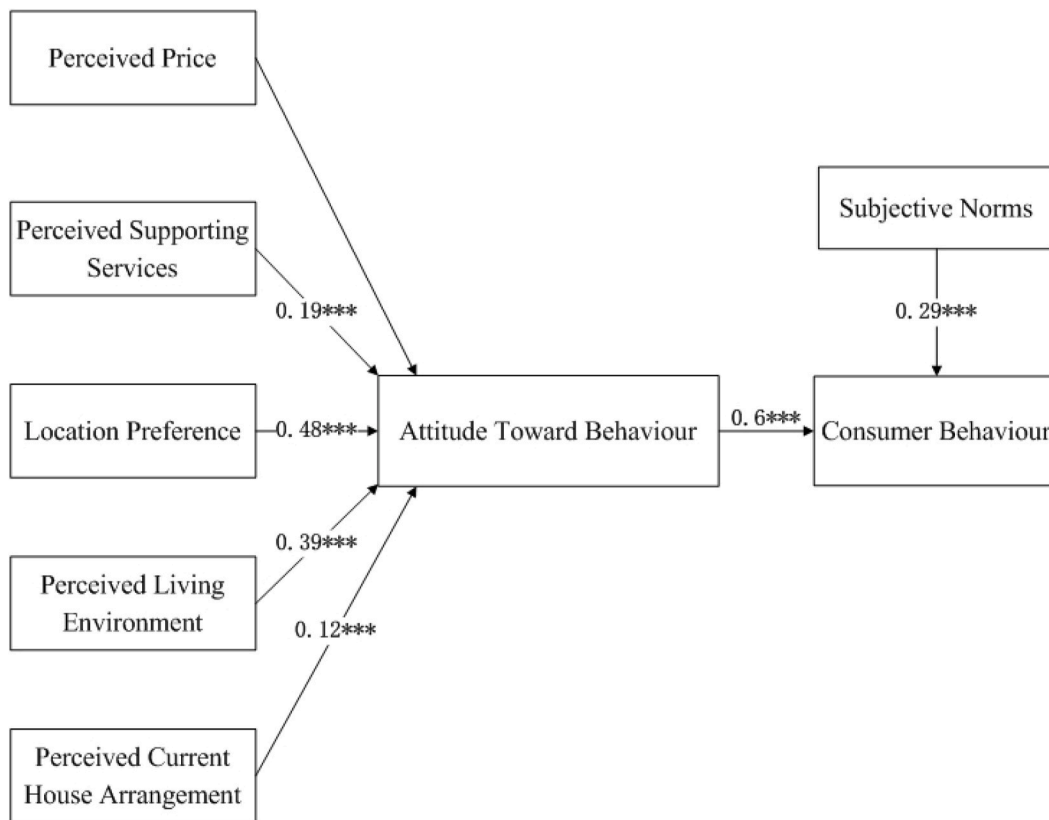
β : Path Coefficient in Structural Equation Model.

C.R: Critical Value in Structural Equation Model.

compared with a traditional residential area containing various elements, knowledge-based locations and emotional locations will represent development trends. A sense of environmental identity, emotional identity, and social identity are important.

- (4) Perceived living environment ($\beta = 0.389|P < 0.01$) is the second most important factor that influences the attitude of consumers. The consumer's utility preference for an item is based on the need for that item's attributes. The development of old-age housing needs to be based on the special needs of the elderly population

for the home itself and the external environment of the home, including security and accessibility needs, growth needs, accessibility needs, and harmonious demand. Developers need to explore the concept of the physical carrier: Decomposition of the concept of the representation of requirements, the transformation of product technical requirements, and the formation of the customer as the core value of the physical product system. Similar to the privacy needs of the elderly, it is necessary to determine



Note: *** represent $P < 0.01$

Fig. 6. Structural model of pension intentions. Note *** represent $P < 0.01$.

which areas have privacy needs and how to design elderly housing products to meet these needs.

- (5) Perception of support services ($\beta = 0.193 | P < 0.01$) has a significant impact on attitude towards behaviour (AB), which shows that the residential needs of the elderly are inseparable from the needs of life care, health services and participation in social activities. In addition to focusing on the hardware of retirement housing, developers should also pay attention to the software of old-age housing. Old-age housing should be able to meet the needs of the elderly population, including daily life, food and medical care, spiritual comfort services (culture, entertainment, reception, etc.), activities), personalized services (escort, financial management, etc.), and special services (long-term care, teaching health knowledge, etc.).
- (6) Perceived price ($\beta = 0.294 | P < 0.01$) has a significant effect on attitude towards behaviour (AB). This shows that against the background of information asymmetry in the housing market for the elderly, consumers are less concerned about the true price of the product than their perception of price, and high prices convey high-quality information to consumers. As a result, developers can adopt pricing strategies that increase consumer awareness of cost-effectiveness, such as adding intelligent furniture and Internet of Things capabilities to retirement homes without significantly raising prices; at the same time, developers can take special measures in marketing. Marketing measures are needed to enhance consumer perceived usefulness and weaken the potential negative effects of price. In addition, there is a need to increase price-awareness fairness and price diversity within the consumer reference system. For example, the sales model of pension

housing can explore cross-integrated price presentation forms, including rent, sales, mortgages, and insurance.

- (7) Perceived current house arrangement ($\beta = 0.12 | P < 0.01$) has a significant impact on attitude towards behaviour (AB). This article narrowly indicates that “real estate” pension refers to consumers not relying on existing homes to replace funds to provide for the elderly population; “current assets” pension refers to consumers relying on an existing house through rentals, mortgages or sales and other means to replace funds for pensions. Whether “real estate” can be incorporated into “current assets”, with the implementation of practical actions, profoundly affects consumer income and pension choices.
- (8) Perceived behavioural control has no significant effect on the consumer’s intention to consume housing, which is different from the traditional TPB. With the modernization of the family structure and the weakening of traditional old-age care functions, the elderly population’s concept of supporting the elderly population and the model of supporting the elderly population are undergoing profound changes. For example, the concept of old-age pensions has gradually changed from passive old-age support to active old-age care. Diversified forms of old-age pensions include district pensions, social pensions, and tourism pensions. In spite of this, the core of the modern pension concept, which is based on the support of the old culture and modern behaviour, is centred on the family (Cui, 2012). Housing is the carrier of people’s lives. It has a relatively large weight in life. Decision-making by elderly individuals is diluted by family members. The purchase decision for old-age housing is based on the input of the family. In this regard, developers should adopt the family as the background

and use the special needs of the elderly population as the starting point, taking into account the needs of the unit's elderly individuals.

6. Discussion

- (1) From the perspective of enterprise, developers should improve the overall evaluation of consumers in terms of the multi-attribute dimension of products. Therefore, based on the above findings, developers are advised to promote product awareness by promoting product knowledge. Against the background of the extremely asymmetric information on elderly housing products, developers can transfer knowledge to consumers, which is conducive to reducing consumers' perceived risks to products, improving the perceived value and enhancing the trust of consumers in developers. The developer invites guests to enter the project site and other activities for knowledge explanation and popularization through lectures, media and other channels. In terms of emotional identity, environmental identity, and social identity, developers should reinforce the consumer's position recognition for retirement housing, demonstrate the physical carrier of living environment perception, develop old-age housing that meets deep-seated needs, seek cross-domain cooperation, explore a more group-linked co-benefit model, increase consumer cognition value, strengthen the fair price of pension housing, subdivide the pension market, design a specific marketing mix, strengthen brand management by word-of-mouth marketing, excavate regional cultural characteristics, and guide consumer choice behaviours for aged housing.
- (2) From the perspective of governmental public policies, it is necessary to establish and improve policies to accelerate the healthy development of the ageing industry. The primary task is to promote the socialization and marketization of the ageing industry under the guidance of indirect government regulation and market regulation as the main means of resource allocation. The research results show that the elderly who prefer to buy and sell existing houses have a stronger demand for old-age housing. At present, in China, the anti-mortgage loan market and the housing mortgage market for the elderly are extremely immature and need government planning and policy support. China can actively learn from more mature foreign financial and insurance policies on the basis of the existing policies and establish a set of policy systems in line with China's national conditions. On the other hand, as the only welfare housing provident fund loan, the current system is close to retired residents. How to improve the policy and pursue maximum welfare is the direction of reform. With the weakening of family pension function and the continuous development of family miniaturization and coreization, the concept of raising children and protecting old age is gradually declining, and the socialized old age model has also gradually been accepted and developed by the elderly. The government should publish corresponding policies and mobilize the entire society, including individuals, companies, and other organizations, to contribute to the endowment industry, such as supporting enterprises (including private enterprises) in finance, taxation, and cultural propaganda to develop retirement housing. In 2012, the central government allocated 529.9 billion yuan in social security spending, accounting for only 9.4% of fiscal revenue. Therefore, there is an urgent need to optimize the structure of financial expenditure, accelerate the transformation of central finance, improve the level of social security, and standardize financial appropriation. At the same time, the government should increase the welfare of elderly housing, use tax support for enterprises, create an independent financing platform, explore the long-term benefits of land leasing, and define the boundary of public welfare for the elderly.
- (3) From the point of view of nonprofit government organizations, the introduction of volunteer service systems into pension services is both necessary and feasible. At present, Ningbo, Shandong and other places are exploring a "system for the accumulation of old-age volunteers" to encourage individuals to become early volunteers and enjoy the same amount of volunteer services as they enter old age. Volunteers can participate and withdraw freely. The District Retirement Association will record the service time and the service quality of volunteers individually and integrate them into a file. Several years later, when the volunteers themselves need services, they can apply, and the volunteers will be able to provide them with the appropriate pension services. Only in this way can the development of old-age housing break through the status quo and explore and implement a new model of old-age housing that suits the national conditions.

7. Conclusions

Based on the theory of planned behaviour, this paper builds a theoretical framework around the perspective of consumer psychology to discuss the key factors impacting land-lost farmers' consumer intention regarding pension housing and uses structural equations to carry out path analysis and verification. Moreover, policy recommendations for guiding specific corporate, governmental, and nongovernmental organizations are proposed in this paper.

- (1) Attitude towards behaviour (AB) has a significant impact on consumers' purchase intentions for retirement housing. Developers should increase the overall evaluation of consumers from the multi-attribute dimension of products. According to the conclusion of this paper, location preference is the most important factor influencing consumers' attitudes towards behaviour. The dissemination of information based on emotions, cognition, and behaviour promotes consumers to develop positive attitudes. In addition, retirement housing is an emerging product, and repeated presentations of new and different stimuli will increase consumer preferences for those stimuli, especially when the subjects are unaware of having been exposed to these stimuli.
- (2) Subjective norms have a significant impact on consumers' purchase intentions for retirement housing. A significant difference between Chinese consumer behaviour and that of the West is that it is greatly influenced by others or groups. At this time, consumers tend to obey the guidance of subjective norms. Chinese consumers have a strong psychology of following others. In the face of new things, their decision-making behaviour is easily affected by other people's words or behaviours. The social pressure of subjective norms is particularly significant in the Chinese cultural context. In addition, with the development of network media, consumers are surrounded by a large amount of information and public opinion and are more vulnerable to the impact of their environment. Developers can take some special marketing measures based on the characteristics of Chinese residents' consumption so that potential customers' relatives, friends, and colleagues can recommend retirement housing to them.
- (3) Perceived behavioural control has no significant effect on consumer purchase intentions of pension housing, which is different from the results obtained by traditional TPB. With the nucleation of modern family structures and the weakening of traditional old-age care functions, the old-age farmers' conception of retirement and the corresponding old-age care model are undergoing profound changes. For example, the concept of old-age care has gradually changed from passive old-age support to active old-age care. The old-age form is diversified to include cohabitation, pension, the same district pension, social pension, and tourism pension, while the core of the modern pension concept, which is based on the support of the old culture and modern behaviour, is

still centred on the family. Housing is the carrier of people's life. It has a relatively large weight in life. Individual decision-making by old-aged land-lost farmers is diluted by family members. Decisions on the purchase of old-age housing are made with the input of family. In this regard, developers should take the family into consideration as the background, use the special needs of elderly land-lost farmers as the entry point, and comprehensively consider the pension needs of the main unit.

With the development of ageing and the miniaturization of households, the needs of the elderly population in retirement housing have attracted the attention of all sectors of society. At present, consumer demand for residential products has shifted from traditional tangible product elements such as housing quality, location, and prices to knowledge-based and emotional-based factors. The traditional understanding of consumer demand has not been able to solve the inconsistent practical issues between effective supply and effective demand. In this context, only the in-depth exploration of the special needs of the elderly and a deepening of the understanding of the elderly can solve the problem of old-age housing. The attitude towards behaviour (AB) and the behavioural intentions of consumers regarding residential issues have a profound impact on stakeholders' behaviour choices. Clarifying the influencing factors of the consumption intention of elderly housing can provide a basis for the market to make suitable housing products for the elderly population and provide references for the government to formulate relevant policies for ageing and development. At present, research on pension housing is in the exploratory stage and needs to be deepened gradually, such as analysing the influencing factors of the consumption intention of elderly housing and discussing the theoretical framework and the formation mechanism. Based on domestic and foreign research findings and in-depth interviews, this paper identifies eight key factors that influence consumer sentiment: attitude towards behaviour (AB), subjective norms, perceptual behaviour control, price-awareness values, location preferences, perceptions of the living environment, perceptions of supporting services, and current residence residential perception of liquidity. Then, based on the perspective of consumer psychology and based on the theory of planned behaviour, the consumer intention model for pension housing is constructed, and the structural equation model is used to make a parameter estimation and path analysis of the eight factors that affect consumer intention. Enterprise, governmental, and nongovernmental organizations provide ideas for housing products and public policies that are suitable for elderly land-lost farmers. Two limitations of the study should be acknowledged. The sample of this study is limited to middle- and old-aged land-lost farmers in Hangzhou. Although the sample provides a certain representation of the ageing society ahead of the national average by 11 years, considering the generalization of the research conclusions, the volume of the sample population could be expanded to improve the randomness of the sample in the future. Second, there may be other potential factors that are not in sight, such as marketing factors (media advertising, brand, etc.). Future research can conduct further investigation. The research team is continuing the investigation on the influence of these potential factors by examining more cases.

CRedit authorship contribution statement

Haijun Bao: Conceptualization, Formal analysis, Funding acquisition, Methodology, Project administration, Supervision, Validation, Writing – original draft. **Lu Han:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Resources, Methodology, Software, Validation, Writing – original draft, Writing – review & editing. **Hao Wu:** Writing – review & editing, Visualization, Methodology, Software. **Xin Zeng:** Investigation, Writing – original draft, Visualization, Software.

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