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Article

The Small Property Rights Housing Institution in Mainland China: The Perspective of Substitutability of Institutional Functions

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Abstract: Despite its informal nature, small property rights housing (SPRH) proliferates in many Chinese cities. Given the institutional functions of the SPRH institution, it may not be desirable for the state to intervene in the SPRH sector. However, the institutional credibility and the institutional functions of SPRH are not completely endogenous, which contradicts the assumption of the credibility thesis. Based on the framework of the credibility thesis, this paper proposes the concept of the substitutability of institutional functions and develops a framework integrating the concepts of substitutability and credibility to examine the influence of functional substitutability on institutional credibility. Research hypotheses were tested with the data collected through a questionnaire survey on SPRH residents in Shenzhen and Chenzhou ($n = 458$). The analysis results of the combined model suggest that the supportive perceptions of actors for SPRH and the credibility of SPRH are significantly related to the substitutability of SPRH's functions. The effect of the substitutability of social housing on credibility is found insignificant, while the impact of the substitutability of commercial housing on credibility is significant. However, the analysis results are city-specific. A significant negative correlation is found between the substitutability of formal housing institutions and the credibility of SPRH in Chenzhou but not in Shenzhen. This study attempted to refine the credibility thesis by clarifying the relationship between institutional functions and institutional credibility and examining the endogeneity of credibility.

Keywords: substitutability of institutional functions; credibility thesis; institutional credibility; small property rights housing (SPRH)



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1. Introduction

With the continuous heating up of China's real estate market, the reform of urban housing commercialization promotes local economic development. Commercial housing's economic function operates through transactions and financialization, but its housing security function is suffering gradual losses [1]. Meanwhile, social housing cannot realize the housing security function for all urban residents due to its limited access, large funding gap, and insufficient supply [2]. Small property rights housing (SPRH) works as an endogenous process of adaptation to fill this gap, providing housing security for low-income groups and improving the utilization efficiency of rural land resources or other private self-built houses for farmers in urban villages [3]. On the other side, due to its informal or incomplete property rights, the development and the sales of SPRH are outside the supervision of the state. Due to the lack of corresponding restrictions and management, there are also some disadvantages of SPRH, such as security risks, poor public facilities, extra-legal transactions, and damage to the order of the housing market [4]. However, under the government's strict prohibition and compulsory demolition measures, SPRH still exists in various urban villages, which takes significant time to redevelop [5]. The credibility thesis, which argues that form follows function, offers an explanatory framework for the

persistence of SPRH. Existing studies have shown that, as an informal institution, the existence of SPRH has rationality and credibility and can provide housing security and urban public services for low-income groups and the floating population [3]. Forced demolition leads to conflicts and unnecessary waste, which contributes to greenhouse gas emissions in China [6,7]. The bottom-up reconstruction of urban villages has lower transaction costs, but the process of formalization also increases the housing price and damages the housing security functions. Thus, the interventions, including both the government intervention and the bottom-up formalization of SPRH, should consider the functions of institutions.

Based on the credibility thesis, this study focused on the impact of the corresponding institutional environment on the institutional functions and credibility, in which there may be substitutes for the SPRH institution. The existing research on institutional credibility focused on static functions and credibility of a single institution in a specific time and space. From the perspective of the substitutability of institutional functions, this study considers the dynamic interaction between institutions and is structured around three questions:

- (1) What is the level of credibility achieved by SPRH?
- (2) Is the institutional credibility of SPRH related to the substitutability of its functions?
- (3) Do any other factors affect the credibility of SPRH?

By answering these questions, this study hopes to enrich the credibility thesis and provide insights into SPRH and housing institutions in China from the perspective of the substitutability of institutional functions. The research attempts to contribute to both theoretical and practical aspects. Theoretically, it explores the relationship between institutional functions' substitutability and institutional credibility, providing a clearer analysis of the fuzzy relationship between institutional functions and credibility in the credibility thesis. In addition, the substitutability of functions involves the dynamic relationship between institutions rather than only the clarification or the description of static functions of a single institution, providing a more specific explanation for the dynamic disequilibrium in the credibility thesis and the process of institutional change. Furthermore, based on the theoretical framework of the credibility thesis, this study explains the impact of the institutional environment on the existence of SPRH, testing and supplementing the hypothesis about endogeneity in the credibility thesis and providing more empirical material for the development of the theory.

Practically, this research provides some policy implications indicating whether the government should intervene in the SPRH institution, under which conditions, and how. Basically, an intervention in SPRH should not be a unified prohibition or formalization measure across the whole country but should be adjusted by local governments according to the local institutional environment. Strict top-down prohibition and violent demolition are not as valuable as seeking a suitable substitute institution according to functions in terms of conflict, cost, and effectiveness. Hence, solving the function deficiency problem in the formal institution and improving the credibility of a substitute institution with similar functions may be a more effective way to reduce incrementally the credibility of SPRH, which is related to the uniqueness and the substitutability of the institutional function.

The structure of this article is as follows. The next section consists of a review of the literature on the credibility thesis and a reflection on the thesis. The existing research on SPRH is also reviewed, indicating that the emergence and the development of SPRH conform to the process of individuals seeking maximum interests under the institutional constraints in rational choice institutionalism. In the third section, the research methodology is described, including the analytic framework, the measurements of variables, the data collection, and the sample features. The results concerning respondents' perceptions of SPRH and the impacts of substitutability are then presented in the fourth section. Finally, the study concludes, and implications for future research are offered.

2. Literature Review

2.1. Credibility Thesis

According to the credibility thesis, “institution” refers to “a set of rules that endogenously shapes and is shaped by actors” [8] (p. 1129). Institutional credibility is defined as the collective performance of institutional functions, reflecting the actors’ cumulative perception of endogenous institutions as common arrangements, and it is assumed that credibility is always secured endogenously instead of exogenously [8]. Therefore, the institution with high credibility should not be intervened or changed intentionally; otherwise, the disruption to endogenous processes of institutional credibility may lead to conflicts, and the ineffective institution can emerge repeatedly [8]. The credibility thesis offers an important explanatory framework for understanding institution persistence and change. The assumptions about the endogeneity of credibility follow the evolutionary theories of institutional change [9]. Evolutionism holds that the formation of an institution is a naturally evolving process and that only a naturally evolved institution is a good institution [10]. The evolutionary theories propose that institutional change is a process whereby institutions that are more adaptable to the socio-economic environment replace ones that are not. Institutional change is the accumulation of many small changes, not accidental large changes, and informal institutions play a key role in institutional change and cannot be intervened in deliberately [11].

On the contrary, design-based theories of institutional change posit that institutional change is a kind of subjective rational design in which collective political entities explicitly stipulate the rules [12,13]. Institutional change occurs when the expected costs and benefits are collectively calculated [14]. Alston et al. [15] believed that stakeholder games were fundamental drives for institutional changes. Additionally, the equilibrium perspective contends that the institutional change is determined by long-term changes in “quasi-parameters” such as income distribution or player information [16]. The three schools explain why institutions change, but they ignore the process of change or how one institution evolves into another. The importance of institutional function in understanding institutional change has grown in the literature in recent years [17–20]. This study argues that understanding institutional change requires studying both static functions and dynamic functional interactions between institutions. To change an institution without causing major social or economic disruption, we must first understand its functions. If a new institution can reliably perform the former institution’s functions, incremental change with minimal negative impacts is deemed viable. Considering the substitutability of an institution’s functions helps us understand the dynamic disequilibrium processes between institutions in change.

“Functions” are an important concept in structural functionalism. Structural functionalism sees society as a multi-component system with multiple functions. These elements work together to promote social and economic stability. Socialization and social control are important balancing mechanisms [21]. However, structural functionalism is less concerned with conflicts and changes than social integration and static balance. The collapse and the reorganization of the entire social system are often explained by structural functionalism with external force destruction and dysfunction [22]. In this light, structural functionalism was criticized for ignoring social conflicts [23]. Contrarily, the conflict theory holds that social conflicts can be beneficial to social consolidation and development. Conflict theorists believe that, despite being prone to conflicts, a flexible social structure is not destructive because it can enhance group contact and communication, centralization, and democracy in decision-making and social control [23]. The struggle for power causes social change, and the cycle of conflict and harmony is the social reality [24]. On the theoretical basis, credibility thesis attempts to reconcile functionalism and conflict theory by integrating institutional functions with dynamic disequilibrium to illustrate institutional persistence and change, offering suggestions for policy intervention [8].

Empirically, the credibility thesis describes and analyzes the internal function and the credibility of informal institutions such as slums, SPRH, extra-legal land use, and nat-

ural resource exploitation [25–27]. It also explains why mandatory prohibition fails so often and has negative social and economic consequences. The credibility thesis illustrates the functions and the credibility of the informal housing institution in states where land property rights are publicly owned and argues that the institutional form is subordinate to the function [28]. The SPRH serves as an informal housing institution for rural communities, urban middle- and low-income residents, and rural migrants. The local government's mandatory prohibition and demolition have failed, and it is not suitable for formalization [3,25]. Its institutional arrangement can improve rural land income for rural collectives that build it [29]. Given that SPRH is generally cheaper and more affordable than urban commercial housing, urban middle- and low-income groups and migrants prefer informal settlements over commercial housing [3,30]. Small property rights houses cost 58% less than commercial housing in Beijing [9]. In Tianjin, a SPRH costs 48% of commercial housing, while in Guangzhou, it costs 30%. In Shenzhen, SPRH are 52.8% cheaper than commercial houses [31]. The informality makes it cheap [32], and it solves the housing problem for marriage in Chinese culture [3]. Psychologically, most buyers believe that the SPRH is theirs and that they have the right to live there or rent it to others.

However, there are several reflections on the credibility thesis in this study, including the cognition of institutional credibility with the reference, the relationship between institutional function and credibility, and the role of credibility in the study of institutional dynamic interaction and change. We believe that an institution's function and credibility should be discussed in relation to its environment. According to the credibility thesis, an institution's function and credibility are defined by its space and time [8]. More accurately, credibility should be discussed in a specific context, which includes diverse conditions and institutional structures. Thus, the function of a given institution must be examined in relation to other institutions or the institutional environment in which they exist. Furthermore, credibility is defined as the quality of being trusted and believed in, which includes both objective and subjective components. A person's ability to learn facts depends on their chosen frame of reference and reference group, according to physics and social psychology. Thus, perception of institutional function and credibility may be influenced by the reference institution. In fact, the existing literature also describes an institution's credibility and its role within its institutional environment, but it is viewed as a background introduction rather than an influencing factor. Thus, this study examines whether an institution's function and credibility change in line with the reference institution's functions.

The credibility thesis also lacks clarity on the relationship between institutional function and institutional credibility. It regards the credibility equal to the institution's positive functions or a proxy variable for positive functions. However, which institutional function characteristics affect credibility, number of functional types, strength of functions, uniqueness, and substitutability? The institutional function determines an institution's credibility, which can change based on other institutions' functions. Examining how institutions interact in real time helps elucidate the relationship between institutional functions and credibility. Taking the religious institution as an example, religion was used to control society in medieval Europe and China. Religious institutions help to maintain social order by restricting cultural customs, economic activities, and political behavior. Although religion still plays a role in providing spiritual support, resolving psychological conflicts, and providing identity, people rely on science more than religious rules to understand the world and guide their daily lives. This paper proposes and tests the corresponding hypothesis. Specifically, if an institution has unique characteristics, it has one or more functions that other institutions cannot easily possess and replace, thus its credibility should be more stable and last longer. If the institution's function can be replaced by another institution, the institution's credibility reduces as the substitutability of other institutions increase.

Moreover, existing research on informal institutions and the credibility thesis examined how actors perceive institutional functions and how high credibility is generated [3,25,26]. Nonetheless, the dynamic analysis of the interaction between function and credibility of institutions, which is closely related to the mechanism of institutional change,

is ignored. Therefore, if the above hypotheses are true, can we gradually improve other institutions to replace informal institutions' social and economic functions? Will the SPRH institution's function and credibility change as the institutional environment changes, such as rural land, commercial housing, and social housing? The substitutability of institutional functions may help us understand this impact and the dynamic movement of institutions. This study seeks to answer these questions. The research on substitutability of institutional functions also supports the credibility thesis' dynamic disequilibrium process. Given these considerations, the institutional environment for SPRH in China warrants further discussion.

2.2. *The Institutional Environment for Housing in Urban China*

SPRH is generally defined as housing developed on rural collective land and then sold to external buyers, such as non-indigenous villagers [31]. For non-local villager buyers, the property rights are not protected by law because they receive only the property rights certificate issued by the township or the village committee and no legal property rights certificate issued by the Commission of Housing and Urban-Rural Development. In 2007, the total construction area of SPRH accounted for more than 17% of the total housing stock in the whole country [33]. In Beijing, SPRH accounted for 30% of the total housing stock [34]. The SPRH in Shenzhen was estimated to cover 50% of its total housing stock [26,35]. The SPRH in Xian accounts for 25–30% of its total housing stock [36]. The emergence and the development of SPRH should be understood within the macro-institutional context, along with the defects of meso-level housing institutions and micro behaviors.

According to the Land Administration Law of the People's Republic of China, the right of land transfer is arranged to the state instead of to rural households [37]. The unique urban–rural dual land institution in China indicates the incomplete rural land property rights. The huge benefits generated by the land transfer attract the rural group to build, rent, and sell SPRH [29]. Moreover, the tax-sharing institution makes the fiscal relationship that of a strong center and weak local areas. According to the National Bureau of Statistics, the proportion of central government revenue in the total fiscal revenue increased from 22% in 1993 to 55.7% in 1994 [38]. Although this proportion has decreased since then, it has also stabilized at about 46%. In contrast, the proportion of local official tax revenue decreased from 75% to 49% between 1994 and 1999. The proportion of local official tax revenue has increased, varying between 52% and 54.5% (see Figure 1). Local finance has been greatly tightened and linked with land transactions [39]. With the land transfer right, the urban local government can use public power to requisition rural land forcibly. To decrease the loss, rural collectives tend to rent and sell SPRH. For low-income households, the high transaction cost of urban commercial housing leads to house prices being unaffordable. SPRH becomes the affordable choice. The household registration system, or hukou system, offers a corresponding huge subsidy resource allocation for urban residents, especially in employment, housing, and education [40,41]. It attracts large amounts of migrants without local hukou who cannot apply for social housing. This group plays an important role in the SPRH institution.

At the meso level, the functional deficiency in the housing market in China has also contributed to the development of SPRH. The lack of real estate tax and the close link between primary education and housing lead commercial housing to be unaffordable. According to official data, from 2008 to 2018, the price of commercial housing in China increased from 3800 CNY/m² to 8736.9 CNY/m², rising about 130% in nearly 10 years [38]. The price of commercial housing in Beijing rose from 12,418 CNY/m² to 34,143 CNY/m², an increase of about 170%. The price of commercial housing in Shanghai rose from 8195 CNY/m² to 26,890 CNY/m², an increase of about 230%. The price of commercial housing in Guangzhou increased by 120% from 9123 CNY/m² in 2008 to 20,013.6 CNY/m² in 2018, and the price of commercial housing in Shenzhen increased from 12,665 CNY/m² in 2008 to 54,132 CNY/m² in 2018, growing about 4.3 times. For most low-income groups, their low wealth accumulation does not allow them to buy houses in

the formal market, but SPRH, in the informal market, plays a positive role in matching the supply and the demand of low-cost housing by offering the society more housing substitutes [42]. Moreover, the financial pressure of public expenditure and the strict application procedure mean that social housing is unable to meet the housing needs of middle- and low-income groups [43]. As such, SPRH takes on the housing security function and gains popularity.

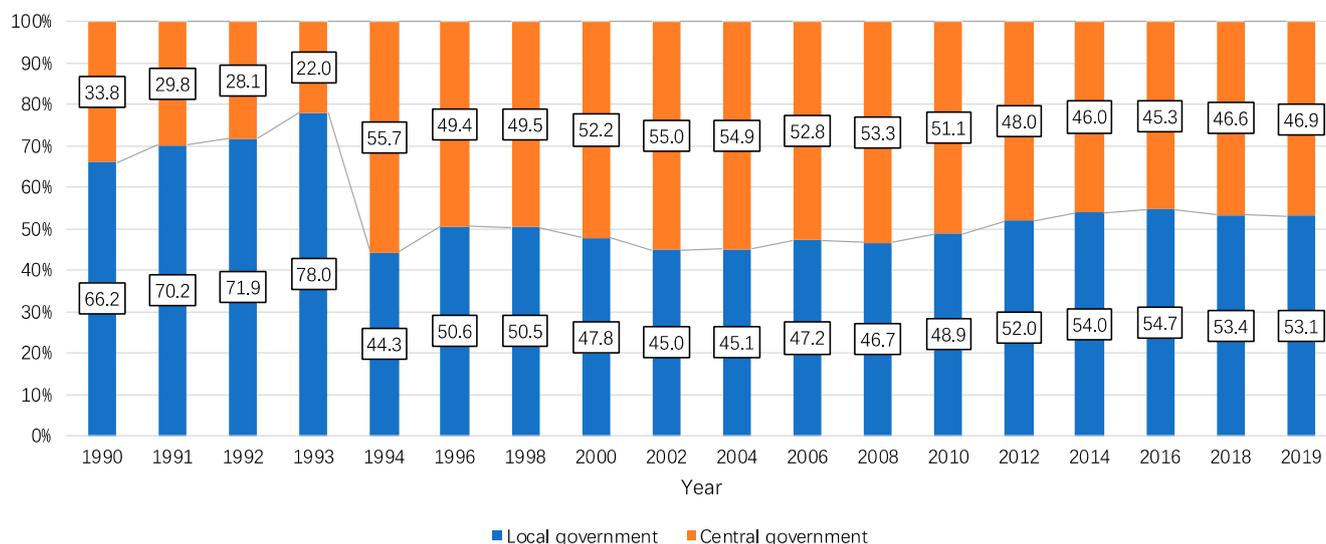


Figure 1. Proportions of central and local fiscal revenue (by the first author).

The emergence and the development of SPRH are also related to the rational choice of individual actors. For the public administrative agency, confirmation, demolition, and reconstruction of SPRH involve high transaction costs [25,43]. It is rational for it not to intervene in the informal settlement institution. For rural collectives, against the background of the weak agricultural economy, it is a rational choice to redevelop rural land functions to expand their own benefits [29]. For low-income households in cities, it is a rational choice to buy SPRH to enjoy the urban public services when they cannot afford commercial housing or apply for social housing [3].

To sum up, the emergence and the development of SPRH can be related to the rational choice made by individuals within the restrictions of the macro-institution and the meso-housing institution. Therefore, this study aims to examine the impact of the substitutability of institutional functions on credibility in the case of the SPRH institution.

3. Materials and Methods

3.1. Analytic Framework

To explore the research topics mentioned in the introduction, this study tests the following hypotheses:

Hypothesis 1. *With other factors being unchanged, the substitutability of the commercial housing institution for the SPRH institution is negatively related to the credibility of SPRH.*

Hypothesis 2. *With other factors being unchanged, the substitutability of the social housing institution for the SPRH institution is negatively related to the credibility of SPRH.*

Thus, an analytic framework was developed, as depicted in Figure 2. In the framework, the foundation of credibility, or the actors' supportive perception of SPRH, is assumed to be dependent on two sets of factors. The first set comprises the substitutability of institutional functions, including the substitutability of the commercial housing institution for SPRH (CH) and the substitutability of the social housing institution for SPRH (SH),

as the institutional credibility can be affected by both the external environment and the internal features of the institution. The other set of possible factors is the control variables, which consist of the features of actors (such as age, gender, education level, and annual income of buyers) and the attributes of SPRH (such as the geographic location of SPRH and whether a third-party agency is involved as a guarantor in the SPRH transfer).

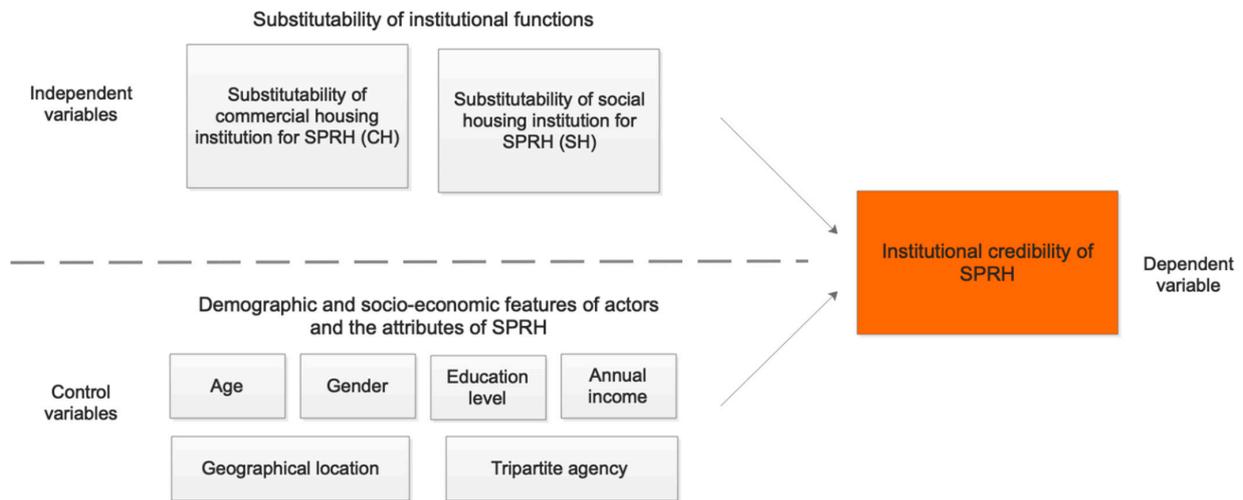


Figure 2. The analytic framework (by the first author).

3.2. Measurements of the Variables

As introduced earlier, the dependent variable of this research is the credibility of the SPRH institution. The measurement of the credibility of SPRH consists of three main components, namely the perception of the institution (POI), the perception of conflict (POC), and the institutional change (IC) [8]. In this research, the three components are measured separately using a series of items, and each item is rated with a score according to the corresponding answer from a questionnaire survey. The analytic hierarchy process (AHP) decision analysis method is used to determine the weights of the three components. First, three officials from the Housing and Urban-Rural Development bureau were invited to form an expert panel and discuss their views on the impacts of these three elements on the credibility of SPRH. After they completed the judgement matrix tables for the indexes following the scale shown in Table A1 (Appendix A), three judgement matrices were gained. Finally, by inputting the matrices into yaahp, software that helps to construct a hierarchical model, enter judgement matrix data, and compute the weights of indicators, the weight value of each indicator was obtained, as presented in Figure 3.

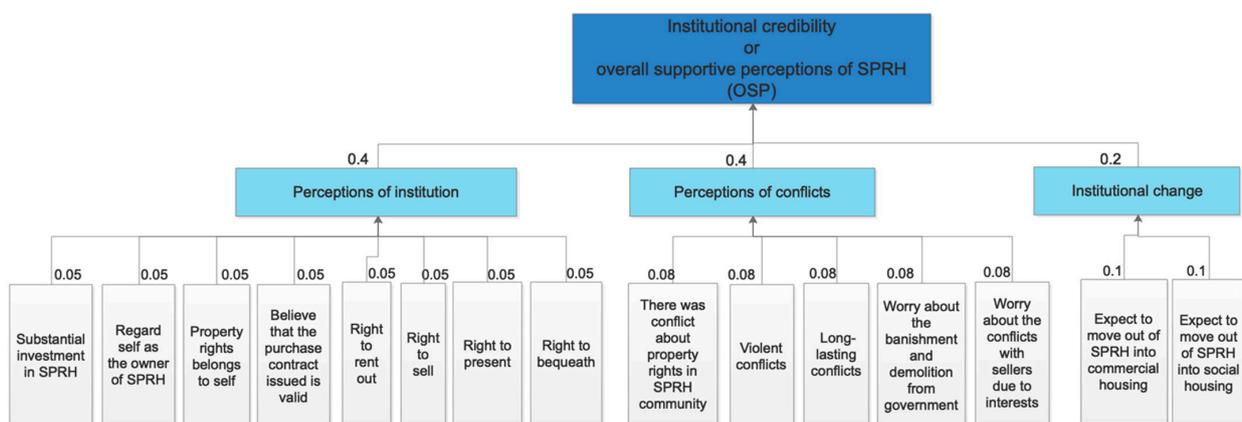


Figure 3. The weightings of indicators contributing to OSP determined by AHP (by the first author).

The credibility index constructed on the basis of Peter Ho's theory may be challenged due to its potential subjectivity, but the existing research on the feasibility of a credibility index constructed using the transaction cost structure proved that the objective measurement of credibility with the transaction cost structure is statistically the same as the result of the measurement based on Peter Ho's theory [44]. Therefore, the credibility index constructed based on Peter Ho's theory is reliable. To minimize the information lost, the overall individual-level supportive perception (OSP), which is the fundamental element of the aggregate perception, is applied as the proxy variable for institutional credibility. According to the AHP results and nature of the indicators, the OSP is then calculated using the following formula:

$$\text{OSP} = 0.4 \times \text{POI} - 0.4 \times \text{POC} - 0.2 \times \text{IC} \quad (1)$$

The independent variable of this study is the substitutability of institutional functions. According to the existing research, the functions of SPRH include: (1) improving the efficiency of rural land use for rural collective organizations [29]; (2) providing affordable housing for urban middle- and low-income groups and undertaking the function of housing security; (3) providing an opportunity for urban low-income groups to enjoy urban public services and solving the problem of housing requirements in Chinese marriage culture for them [3]; and (4) providing an investment function for wealthy people with a high-risk preference [42]. In fact, the housing function, the investment function, and the urban public service function of SPRH are similar to those of formal urban housing institutions, such as commercial housing and social housing. Thus, this study examines the impacts of CH and SH. CH can be measured using the compatible degree of the commercial housing price and the income of urban residents, namely the house price-to-income ratio (HPIR). The lower is the ratio, the higher is the compatibility degree, indicating stronger substitutability of the functions. In addition, the price ratio between SPRH and commercial housing, or the SPRH-price-to-commercial-housing-price ratio (SCR), is measured as an element of the substitutability of commercial housing for SPRH because most SPRH buyers responded that affordability is the main reason for purchasing an informal settlement [3]. Hence, a comparison between the affordability of SPRH and that of commercial housing should also be involved as a measurement of substitutability. SH is measured according to the degree to which it meets the housing security demand. Specifically, the degree of matching can be measured using the availability of social housing (ASH), which is evaluated on a five-point Likert scale, as the matching degree of the supply of social housing and the demand of middle- and low-income groups as well as the restrictions on the access standards of social housing institution can be reflected in the degree of difficulty of obtaining a successful application.

As a control variable, the geographical location of the SPRH is measured using the distance to the central business district (CBD). SPRH has developed into a mature real estate market in China. In addition to real estate agents, the market players include various types of developers and informal institutions to eliminate different uncertainties [32]. Therefore, whether a third-party security agency is involved as a guarantor may also influence the credibility of SPRH. Additionally, age, gender, income, and education level of house buyers may influence their supportive perception of SPRH or the institutional credibility of SPRH, thus they are also adopted as control variables in this study. The measurement of the variables is summarized and presented in Table 1.

Table 1. Components and measurements of the variables.

| Category | Variable(s) | Measurement(s) |
|-----------------------|-----------------------------|--|
| Dependent variable | Credibility of SPRH or OSP | (1) Score from buyer's perception of the SPRH institution (2) Score from buyer's perception of conflict (3) Score from buyer's perception of changing SPRH |
| Independent variables | CH | (1) Price-to-income ratio of commercial housing surrounding SPRH or the housing-price-to-income ratio (HPIR) (2) Price ratio between a small property rights house and a commercial house or the SPRH-price-to-commercial-housing-price ratio (SCR) |
| | SH | Availability of social housing (ASH): 1 = very difficult, 2 = difficult, 3 = neither easy nor difficult, 4 = easy, 5 = very easy |
| Control variables | Geographical location | Distance to the CBD (measured in km) |
| | Third-party security agency | 0 = no, 1 = yes |
| | Income of buyer | Annual income of the buyer in the SPRH community |
| | Education level of buyer | 1 = junior middle school degree, 2 = high school degree, 3 = technical school degree, 4 = college or university degree, 5 = master's degree and above |
| | Age of buyer | 1 = 18–30, 2 = 31–40, 3 = 41–50, 4 = 51–60, 5 = above 60 |
| | Gender of buyer | 0 = male, 1 = female |

3.3. Collection of Data

To examine the relationship between the functional substitutability and the credibility of SPRH, a survey was conducted with urban residents in Shenzhen and Chenzhou to collect data concerning the variables. These two cities were chosen as the research fields because of their divergence in formal and informal housing institutions. Both cities are in the south of China. In 2020, the average commercial housing price in Chenzhou was about 6173 CNY/m², and the average annual income was 36,989 CNY, with the housing-price-to-income ratio at about 17 [45], while the HPIR in Shenzhen in 2019 was over 87 (where average commercial housing price was 54,714 CNY/m² and average annual personal income was 62,522.4 CNY), indicating the unaffordable price level of commercial housing [46]. As the price of commercial housing increases, public housing becomes a method to attract talents to Shenzhen. In 2019, around 35,000 public housing units were built in Shenzhen, including 22,700 units for talents and 12,300 units for low-income groups [47]. The number of arranged social housing units in Chenzhou was about 495 in 2019 [48]. However, the specific data in 2021 about the number of successful applications and the overall applications for social housing in both cities are not available, thus it is difficult to determine whether the supply and the demand of social housing match. Thus, this research uses the actors' evaluation to measure the substitutability of social housing for SPRH. Due to the fast urbanization process, there are a large number of urban villages where SPRH exists in Shenzhen, but the number of urban villages in Chenzhou is limited. Considering their institutional differences, which help in answering the research questions, they were selected as the research sites.

First, the survey employed stratified sampling according to the population proportions of Chenzhou and Shenzhen. The snowball sampling method was then conducted because people who meet the specifications of the targeted sample, buyers of SPRH, are rare and difficult to access. Some respondents were randomly selected and interviewed first, and then they helped to provide other respondents belonging to the objective population of this research. Finally, 486 questionnaires in total were collected from the urban residents with a valid sample size of 458, including 108 questionnaires on the credibility of SPRH in 8 SPRH communities in Chenzhou and 350 questionnaires from 58 SPRH communities in Shenzhen. The features of sample are presented in Table 2. Five stratified age groups, specifically 18–30, 31–40, 41–50, 51–60, and 60 and above, accounted for 30.1%, 41.1%, 21.8%, 5.7%, and 1.3% of the sample, respectively. Male and female respondents comprised 48.2% and 51.8%.

Most of the respondents (62.0%) had a high level of education. The annual income of the respondents ranged from 11,000 CNY to 2,000,000 CNY, with a mean of 214,233.38 CNY.

Table 2. Sample characteristics.

| Variable | | Total | Chenzhou | Shenzhen |
|-----------------|----------------------|----------------|--------------|---------------|
| N | | 458 | 23.60% | 76.40% |
| Age | 18–30 | 30.10% | 24.10% | 32.00% |
| | 31–40 | 41.10% | 24.30% | 43.10% |
| | 41–50 | 21.80% | 25.00% | 20.90% |
| | 51–60 | 5.70% | 12.00% | 3.70% |
| | >60 | 1.30% | 4.60% | 0.30% |
| Gender | Male | 48.20% | 44.40% | 49.40% |
| | Female | 51.80% | 55.60% | 50.60% |
| Education level | Junior middle school | 3.50% | 13.90% | 0.30% |
| | High school | 5.90% | 20.40% | 1.40% |
| | Technical school | 19.20% | 45.30% | 11.20% |
| | College/university | 62.00% | 17.60% | 75.70% |
| | Master's or above | 9.40% | 2.80% | 11.40% |
| Annual income | Min. | CNY 11,000 | CNY 11,000 | CNY 14,500 |
| | Max. | CNY 2,000,000 | CNY 210,000 | CNY 2,000,000 |
| | Mean | CNY 214,233.38 | CNY 46,466.7 | CNY 266,001.4 |

It can be also seen from Table 2 that the respondents under the age of 50 accounted for the majority in the samples in the two cities compared with the sample in Chenzhou (48.4%) and the proportion of SPRH buyers under the age of 40 in Shenzhen (75.1%). Additionally, more respondents in Shenzhen had at least a college degree (20.4% in Chenzhou while 87.1% in Shenzhen). The average annual personal incomes of the respondents in Chenzhou and Shenzhen were about 46,466.7 CNY and 266,001.4 CNY, respectively. The average personal income of the respondents in Chenzhou was a bit higher than the average personal income of the city's overall population (36,310.0 CNY). On the other hand, the average personal income of the respondents in Shenzhen was much higher than the city's overall average (62,522.4 CNY).

4. Results

To reiterate, this study examined the credibility of SPRH and its determinants. The results are respectively presented in this section.

4.1. The Credibility of SPRH and the Substitutability of Institutional Functions

To measure the credibility of SPRH, the respondents answered a series of questions on topics including their perceptions of SPRH, conflicts about SPRH, and whether they expected to move away from the informal housing institution into formal housing (see Figure 4). Of the respondents, 41.9% indicated that they were willing to or had made a substantial investment in their house, such as decoration and purchases of large furniture; 55.7% of the actors thought that they and their family were the owners of SPRH; and 48.5% of them believed that the property rights of the housing belonged to them. Only 34.9% of the respondents thought that the house purchase contract was valid, and 77.9%, 60.3%, 39.5%, and 43.4% of the respondents believed that they had the right to rent out, sell, present, and bequeath their SPRH, respectively.

In the measurement of actors' perception of conflicts, only 17.7% of the respondents said that there were conflicts related to property rights in their SRPH community, with a few violent conflicts (5.0%) and long-lasting conflicts (8.3%). On the psychological level, 41.9% and 47.6% of the respondents worried about conflicts relating to expulsion and demolition by the government and conflicts of interests with the sellers, respectively. Regarding the analysis of whether actors intended to change their SPRH into formal housing, about 48.0% and 50.7% of buyers expressed their expectation or consideration of moving from their small property rights houses to commercial housing and social housing, respectively, indicating that about half of the respondents wanted to exchange SPRH for formal institutions.

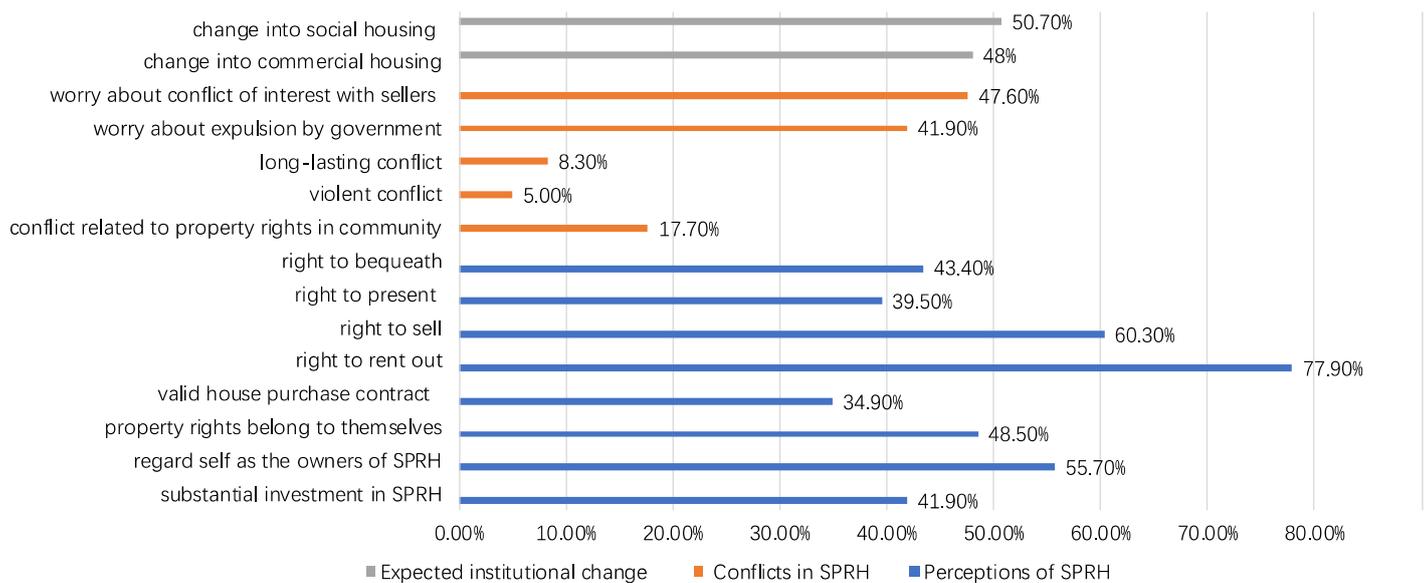


Figure 4. SPRH buyers’ perception of the intuition, the conflicts, and the change of SPRH.

Moreover, according to Figure 5, the responses from Chenzhou and Shenzhen show some similarities and differences with regard to the respondents’ perceptions of the intuition, the conflicts, and the change of SPRH. In both cities, less than half of the respondents invested or wanted to invest substantially in housing decoration, thought that their house purchase contracts were valid, and believed that they had the right to present or bequeath SPRH. At the same time, nonetheless, more than half of the respondents believed that they were the owners of their SPRH and that they had the right to rent or sell the houses. In both cities, only less than 20% of the respondents stated that there had been conflicts due to property right and that the conflicts involved violent conflicts or lasted for a long time. However, more than 40% of the respondents were worried about the demolition initiated by the government. Over 30% of the respondents in Chenzhou and more than 50% of the respondents in Shenzhen worried about the conflict of interest with sellers.

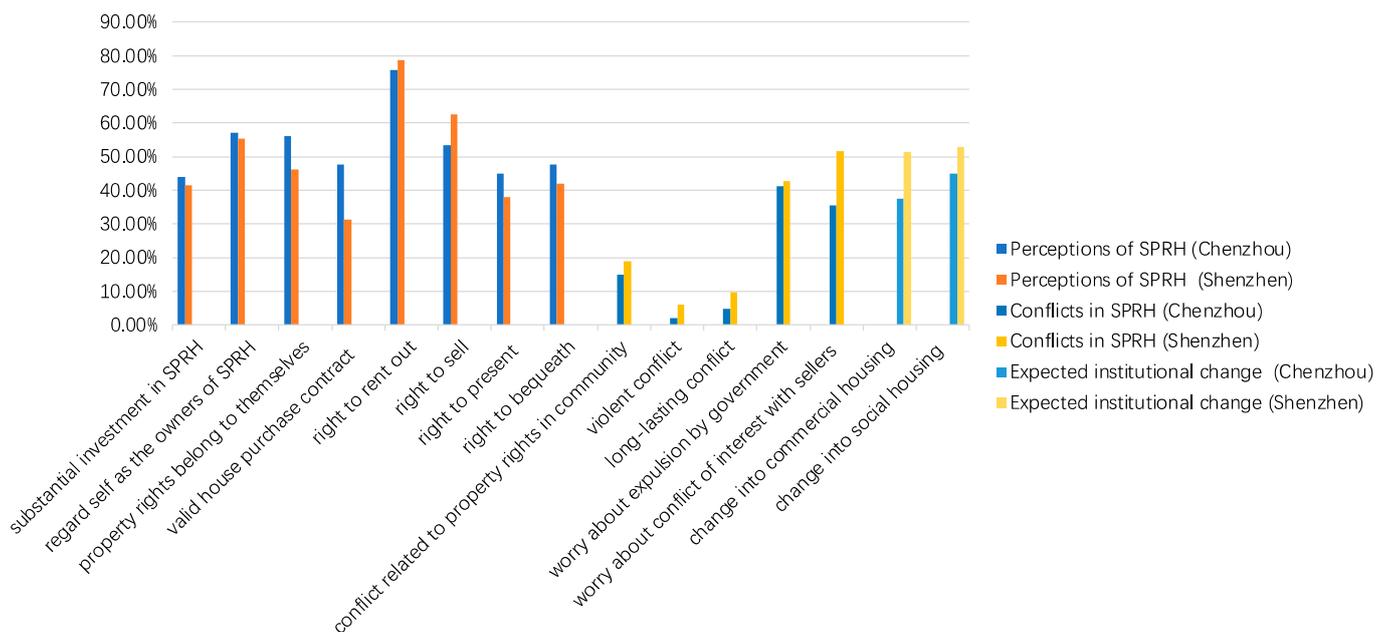


Figure 5. SPRH buyers’ perceptions of the intuition, the conflicts, and the change of SPRH in Chenzhou and Shenzhen.

Meanwhile, divergent perceptions about the credibility of SPRH were returned by the respondents from the two cities. Compared with Chenzhou, a larger proportion of respondents in Shenzhen perceived conflicts and expected the change of SPRH into formal housing. The respondents in Chenzhou seemed to be more supportive of SPRH than their Shenzhen counterpart. Overall, the credibility of SPRH in Chenzhou looked higher than that in Shenzhen. However, the proportion of respondents in Shenzhen believing that they had the right to rent and sell SPRH was higher than that in Chenzhou. Both lease and sale are related to the usufruct of property. Combined with the fact that the respondents' average income in Shenzhen was much higher than the city's overall average, the findings suggest that not all the people who bought the informal housing in Shenzhen were low-incomeers who saw SPRH as their passive choices. Some of them did not apply for social housing and could actually afford commercial housing. The buyers of SPRH may also come from the high-income group who actively choose SPRH for investment. This circumstance reflects the investment function of SPRH in Shenzhen for risk-loving investors.

The descriptive statistics of the three components of SPRH credibility, resultant OSP, and various independent variables are shown in Table 3. Overall, the average score for buyers' perceptions about SPRH was 4.02 (out of 8). The average score for conflicts was 1.21 (out of 5), implying a low level of conflicts perceived by the respondents. Less than half of the respondents showed willingness to move from SPRH to formal housing institutions, thus the mean score of expected institutional change was less than 1 (out of 2). Considering the commercial housing price and the respondents' annual income, it will take residents of SPRH an average of 30 years to save money for purchasing a commercial housing unit of 100 square meters. While few of them may need only 2 years to buy commercial housing, the longest time required can be 300 years. The ratio of the SPRH price to the commercial housing price ranged from 0.04 to 1.33, with an average of 0.306, indicating that the price of SPRH is significantly lower than that of commercial housing. On average, the price of SPRH is just about one-third of the price of commercial housing only. The average score of the availability of social housing was 3.22 (out of 5), which means that social housing is perceived as being relatively easy for most people to obtain successfully.

Table 3. Descriptive statistics of actors' overall supportive perceptions of SPRH and the independent variables.

| Variable | | Overall | Chenzhou | Shenzhen |
|-------------------------------------|------|---------|----------|----------|
| Perception of SPRH | Min. | 0.00 | 0.00 | 0.00 |
| | Max. | 8.00 | 8.00 | 8.00 |
| | Mean | 4.02 | 4.25 | 3.96 |
| Perception of conflicts | Min. | 0.00 | 0.00 | 0.00 |
| | Max. | 5.00 | 5.00 | 5.00 |
| | Mean | 1.21 | 0.99 | 1.35 |
| Institutional change | Min. | 0.00 | 0.00 | 0.00 |
| | Max. | 2.00 | 2.00 | 2.00 |
| | Mean | 0.99 | 0.82 | 1.04 |
| Overall supportive perception (OSP) | Min. | −2.00 | −2.00 | −2.00 |
| | Max. | 3.20 | 3.20 | 3.20 |
| | Mean | 0.93 | 1.14 | 0.83 |
| HPIR | Min. | 2.75 | 2.75 | 3.60 |
| | Max. | 300.00 | 266.67 | 300.00 |
| | Mean | 29.85 | 44.52 | 25.27 |
| SCR | Min. | 0.04 | 0.04 | 0.09 |
| | Max. | 1.33 | 0.87 | 1.33 |
| | Mean | 0.31 | 0.25 | 0.33 |
| ASH | Min. | 1.00 | 1.00 | 1.00 |
| | Max. | 5.00 | 5.00 | 5.00 |
| | Mean | 3.22 | 2.56 | 3.43 |

Specifically, Chenzhou respondents scored higher on SPRH (4.25) than Shenzhen respondents (3.96). Yet, they scored lower on conflict and institutional change (0.99) and institutional change (0.82) than their Shenzhen counterpart (1.35 and 1.04, respectively). When all these components are taken into account, we can see that Chenzhou respondents had an overall supportive perception of SPRH (1.14) compared to Shenzhen respondents (0.83). In addition, although the minimum and the maximum HPIRs of Chenzhou SPRH buyers were lower than those of Shenzhen, the average HPIR of Chenzhou SPRH buyers (44.52) was much higher than that of Shenzhen (25.27). This differential indicates that, compared with the case in Shenzhen, commercial housing in Chenzhou is much more unaffordable for SPRH residents. Concerning SCR, the affordability of SPRH relative to commercial housing in Chenzhou (0.25) was higher than that in Shenzhen (0.33). The lowest and the highest SCRs in Chenzhou were 0.04 and 0.87 respectively. In Shenzhen, the price of SPRH can be even higher than that of commercial houses in the surrounding. This is reflected by the SCR of 1.33 at the high end. For the respondents in Shenzhen, social housing is not very difficult to obtain, while access to social housing in Chenzhou seems to be slightly more difficult.

4.2. The Impacts of Substitutability and Other Factors

The statistical analyses evaluated the effects of the substitutability of institutional functions on OSP, which is the fundamental element of institutional credibility. Firstly, the correlations between the independent variables and control variables were checked. The control variables included the respondents' demographic and socio-economical characteristics as well as the geographical locations of the SPRH and the third-party agency. As presented in Table 4, there was a significant problem of multicollinearity between variables. The HPIR was significantly correlated with the respondents' income and geographical location of SPRH as well as the SCR. Perhaps, it is because house price depends very much on the property's location and buyers' affordability to pay. The SCR was also significantly correlated with the ASH, the gender, and the education level of respondents and the property's location. The ASH was significantly related to the control variables.

Table 4. Correlation coefficient matrix of the independent variables and control variables.

| | HPIR | SCR | ASH | Age | Gender | Income | Education Level | Third-Party Agency | Geographical Location |
|-----------------------|-----------|-----------|-----------|-----------|--------|-----------|-----------------|--------------------|-----------------------|
| HPIR | 1 | - | - | - | - | - | - | - | - |
| SCR | -0.106 * | 1 | - | - | - | - | - | - | - |
| ASH | 0.055 | 0.16 ** | 1 | - | - | - | - | - | - |
| Age | -0.090 | -0.067 | -0.273 ** | 1 | - | - | - | - | - |
| Gender | -0.073 | 0.153 ** | 0.104 * | -0.046 | 1 | - | - | - | - |
| Income | -0.306 ** | 0.011 | 0.138 ** | -0.131 ** | -0.072 | 1 | - | - | - |
| Education level | 0.036 | 0.182 ** | 0.246 ** | -0.327 ** | 0.049 | 0.310 ** | 1 | - | - |
| Third-party agency | 0.008 | 0.07 | 0.225 ** | -0.201 ** | 0.07 | 0.187 ** | 0.219 ** | 1 | - |
| Geographical location | -0.199 ** | -0.174 ** | -0.251 ** | 0.109 * | -0.076 | -0.215 ** | -0.370 ** | -0.128 ** | 1 |

Notes: * and ** denote that the correlations are significant at 5% and 1% levels, respectively (two-tailed).

Therefore, three models were applied to test the relationship between the substitutability of institutional functions and the actors' supportive perceptions. Model 1 explored the effects of the two independent variables (HPIR and ASH) on actors' perceptions, which were not highly correlated with each other. Due to the multicollinearity between the independent and the control variables, Model 2 and Model 3 applied a stepwise linear regression analysis to exclude the variables with little explanatory power over OSP from the independent variables (HPIR, SCR, and ASH) and from all the explanatory variables (HPIR, SCR, ASH, age, gender, income, education level, geographical location, and third-party agency). The result is presented in Table 5. The returned adjusted R²s for Model 1, Model 2, and Model 3 were 0.021, 0.057, and 0.092, respectively, indicating that only around 2% and about 6% of the variation in the dependent variable can be explained by the differences in the independent variables in Model 1 and Model 2, respectively, and about 9% of the

variation in the dependent variable can be explained by the differences in the variables in Model 3. Model 3 has more explanatory power than Model 1 and Model 2 for the variation in the supportive perception of the SPRH institution.

Table 5. The impacts of various factors on actors' supportive perception.

| Variable | Model 1 | | Model 2 | | Model 3 | |
|--------------------|-------------|-----------|-------------|------------|-------------|------------|
| | Coefficient | <i>t</i> | Coefficient | <i>t</i> | Coefficient | <i>t</i> |
| HPIR | −0.039 | −2.599 ** | −0.048 | −3.249 ** | −0.045 | −3.083 ** |
| SCR | - | - | −1.422 | −4.661 *** | −1.184 | −3.881 *** |
| ASH | −0.082 | −2.107 ** | - | - | - | - |
| Education level | - | - | - | - | −0.183 | −3.242 ** |
| Third-party agency | - | - | - | - | −0.219 | −2.237 * |
| R^2 | | 0.025 | | 0.061 | | 0.110 |
| Adjusted R^2 | | 0.021 | | 0.057 | | 0.092 |
| N | | 458 | | 458 | | 458 |

Notes: (1) The dependent variable is the overall supportive perception of SPRH (OSP). (2) *, ** and *** denote that the coefficients are significant at 5%, 1%, and 0.1% levels, respectively.

In Model 1, without considering the control variables, both HPIR and ASP (at the 1% level at least) were negatively related to the OSP. When the other variables remained constant, if the HPIR or the ASH increased by one unit, the OSP was likely to decrease by 0.039 or 0.082 units, respectively. This shows that respondents who had greater difficulty purchasing commercial housing tended to perceive SPRH as having lower credibility, and those who were more likely to apply for social housing successfully tended to perceive a lower level of credibility.

Model 2 employed stepwise regression to examine the effect coefficient of HPIR, SCR, and ASH. It found that the impact of the ASH became insignificant, and this independent variable was excluded from the model, while the HPIR and the SCR showed significantly (at the 1% level at least and at the 0.1% level at least, respectively) negative effects on actors' overall supportive perceptions of SPRH. As the value of the HPIR increased by a unit, the OSP tended to decrease by 0.048 units, with other variables staying unchanged. In other words, if the time required to purchase commercial housing with the annual income increased by 1 year, the actors' supportive perception of SPRH decreased by 0.048 units, with other conditions being unchanged. Moreover, when other variables remained constant, if the SCR increased by one unit, the OSP tended to decrease by 1.422 units. On the contrary, when the SCR decreased, which meant that SPRH was much more affordable than commercial housing, the intuitional credibility of SPRH tended to be higher. Thus, when the HPIR was taken as the measurement of CH, it seemed that, when commercial housing was harder to afford or the substitutability of commercial housing for SRPH decreased, the credibility of SPRH was lower, thus Hypothesis 1 seemed to be rejected. However, when the SCR was taken as the measurement of CH, there was a negative correlation between the substitutability of commercial housing and the institutional credibility of SPRH. Hypothesis 1 should be supported. Considering that the HPIR represents the affordability of commercial housing and only examines the situation of the commercial housing environment, while the SCR can reflect the comparison between commercial housing and the informal housing institution, SPRH, the SCR can measure the substitutability better. Moreover, there was a correlation between the price of commercial housing and that of SPRH. When the affordability of commercial housing around SPRH decreased, the affordability of SPRH tended to decrease as well, which may have been the reason for the negative relationship between the HPIR and the OSP. Besides, both the coefficient and the p-value of the SCR showed a more significant impact of the SCR than the HPIR. Hence, Hypothesis 1 should be supported.

When the potential impacts of the control variables were also taken into consideration in Model 3, the variables with a significant impact on the dependent variable identified from the independent variables and the control variables were the HPIR (at the 1% level

at least), the SCR (at the 0.1% level at least), the actors' education level (at the 1% level at least), and the third-party agency (at the 5% level at least). Actors with a higher education level were likely to hold a less supportive view of SPRH, and, when the education level of actors rose by one level, their supportive perception of SPRH was inclined to decrease by 0.183 units, with other variables staying constant. Compared with SPRH without the third-party agency, SPRH with a third-party agency in the trade process was likely to be granted 0.219 units less credibility by the buyers. With the influence of the control variables, CH was still significantly related to the OSP.

The findings imply that, although the influence of the availability of social housing (ASH) on credibility was not as significant as that of actors' education level and the involvement of a third-party agency in the SPRH institution, the substitutability of commercial housing for SPRH had a statistically significant correlation with the OSP, even when the internal features of actors and the attributes of SPRH were taken into consideration. With a sample from two cities, it seems that the actors' overall supportive perception of the informal housing institution at the individual level can be influenced by the substitutability of institutional functions or the performance of its substitutes in the institutional environment. Therefore, Hypothesis 1 is supported while Hypothesis 2 is rejected.

Furthermore, we ran the stepwise regression analyses using separate datasets from Chenzhou (Models 4 and 5) and Shenzhen (Models 6 and 7). As shown in Tables 6 and 7, Model 4 (0.399) and Model 5 (0.426) returned much higher adjusted R^2 than Model 6 (0.015) and Model 7 (0.055). These results indicate that our analytic model in Figure 2 can better explain the SPRH institution of Chenzhou than that of Shenzhen. One possible reason for the difference is the prosperity of SPRH market in Shenzhen. The credibility of the informal housing in Shenzhen may depend partly on its investment (and speculation) functions due to the considerable compensation receivable by the owners during demolition and the housing market soar. If SPRH in Shenzhen performs its investment (and speculation) functions effectively, commercial housing and social housing may only have substitutability for SPRH in terms of the living function only. Yet, living function could be less valued by most SPRH buyers in Shenzhen.

Table 6. The impacts of various factors on actors' supportive perception in Chenzhou.

| Variable | Model 4 | | Model 5 | |
|-----------------------|-------------|------------|-------------|------------|
| | Coefficient | <i>t</i> | Coefficient | <i>t</i> |
| HPIR | −0.004 | −2.173 ** | −0.013 | −2.643 ** |
| SCR | −3.875 | −6.448 *** | −3.367 | −5.273 *** |
| ASH | −0.163 | −2.10 ** | - | - |
| Education level | - | - | −0.222 | −2.048 ** |
| Third-party agency | - | - | −0.547 | −2.441 * |
| Geographical location | - | - | −0.004 | 1.269 ** |
| R^2 | | 0.416 | | 0.448 |
| Adjusted R^2 | | 0.399 | | 0.426 |
| N | | 108 | | 108 |

Notes: (1) The dependent variable is the overall supportive perception of SPRH (OSP). (2) *, ** and *** denote that the coefficients are significant at 5%, 1%, and 0.1% levels, respectively.

In Model 4, all three independent variables showed a significant impact on credibility. In Chenzhou, HPIR ($p < 0.01$), SCR ($p < 0.001$), and ASH ($p < 0.01$) were negatively correlated with reliability. Such findings imply that, in Chenzhou, the credibility of SPRH tend to diminish when commercial housing is more unaffordable for the homebuyers, keeping other things equal. However, the more affordable SPRH is relative to commercial housing, the higher will be the credibility of SPRH, *ceteris paribus*. The easier it is for buyers of SPRH to access social housing resources, the lower will be the credibility of SPRH, *ceteris paribus*. However, in Model 5, where control variables were added, ASH was no longer a significant factor affecting the credibility of SPRH. The variation in OSP was explained by the variations of those control variables instead. The education level ($p < 0.01$), the

third-party agency ($p < 0.05$), and the geographic location ($p < 0.01$) were found to have significant negative correlations with OSP. In other words, buyers with higher education tend to perceive lower credibility of SPRH, keeping other variables constant. The credibility of the SPRH without the participation of third-party agency is more likely higher than that with a third-party agency. Besides, more primely located SPRH tends to have more credibility than one further away from the CBD.

Table 7. The impacts of various factors on actors' supportive perception in Shenzhen.

| Variable | Model 6 | | Model 7 | |
|--------------------|-------------|----------|------------------------|----------|
| | Coefficient | <i>t</i> | Coefficient | <i>t</i> |
| HPIR | - | - | - | - |
| SCR | - | - | - | - |
| ASH | 0.249 | 2.516 * | 0.224 | 2.311 * |
| Annual income | - | - | 1.217×10^{-6} | 2.142 * |
| Third-party agency | - | - | 0.769 | 3.311 ** |
| R^2 | | 0.018 | | 0.064 |
| Adjusted R^2 | | 0.015 | | 0.055 |
| N | | 350 | | 350 |

Notes: (1) The dependent variable is the overall supportive perception of SPRH (OSP). (2) * and ** denote that the coefficients are significant at 5% and 1% levels, respectively.

In Models 6 and 7, which were estimated using Shenzhen dataset only, HPIR and SCR had no significant effect on credibility. ASH was positively correlated with OSP ($p < 0.05$) in Model 6. This significant positive correlation still persisted even after adding the control variables to Model 7. SPRH buyer's annual income and third-party agency also had significant positive impacts on the credibility of SPRH. That means buyers who think it is easier to apply for social housing in Shenzhen successfully tend to perceive SPRH more credible, *ceteris paribus*. Buyers with higher annual incomes are more likely to hold supportive perceptions of SPRH. Moreover, the credibility of SPRH with the participation of third-party agency tends to be higher than that without involving any agency. Based on the analysis results in Tables 6 and 7, Hypothesis 1 is supported while Hypothesis 2 is rejected in Chenzhou. In Shenzhen, both Hypothesis 1 and Hypothesis 2 are rejected.

5. Discussion and Conclusions

Drawing upon the analyses of data collected through a survey conducted on 458 buyers of SPRH in Chenzhou and Shenzhen, the current study found that, in general, the actors' supportive perceptions of SPRH are significantly related to the substitutability of institutional functions. Additionally, the substitutability of commercial housing and social housing for SPRH is negatively related to SPRH's credibility. The analysis results also evidence that some of the buyers' characteristics (e.g., education level) and attributes of the SPRH institution itself (e.g., third-party agency) play significant roles in shaping the perceptions. With these factors being controlled in the analyses, the impact of the substitutability of social housing on OSP becomes insignificant while commercial housing is still a significant determinant of OSP. We hope that the findings of this study can serve as a starting point to initiate more research on whether social housing is substitutable to SPRH in the future.

Through separate city-based regression analyses on the influencing factors of the credibility of SPRH, we found that the explanatory power of the analytic model on SPRH's credibility posited in this study varies across cities. Compared with their Chenzhou counterparts, the SPRH buyers in Shenzhen seem to be younger, better educated, and with higher income. The level of credibility of SPRH in Chenzhou is higher than that in Shenzhen. Under different urban contexts, Chenzhou and Shenzhen have different sets of significant determinants of SPRH's credibility. Dissimilar land policies and sentiments in informal housing markets between the two cities are possible reasons for the differences.

According to the compensation and the resettlement measures for house demolition on collective land in Chenzhou, house demolition is mandatory, and the level of compensation for affected owners is lower than the price level of commercial housing. Many buyers of SPRH in Chenzhou are low-incomeers who cannot afford the commercial housing in the vicinity while being excluded from the public housing sector. In this regard, SPRH assumes the main living function for these actors. If the availability or the living function of commercial housing and public housing increases, the level of credibility of SPRH will be reduced accordingly. On the other hand, the landscape of Shenzhen's informal housing market is changing. At present, buyers of SPRH are no longer predominately low-income people, and some buyers even come from the top income groups. Unlike the case of SPRH buyers in Chenzhou who have no better option other than SPRH, actors in Shenzhen are probably driven by economic returns or capital gains to invest in SPRH. Therefore, the substitutability of commercial housing and public housing has little explanatory power for the credibility of SPRH in Shenzhen. Shenzhen's attractive demolition compensation, rapid house price appreciation, and high rent-to-sale ratio may cultivate a strong investment function for SPRH. Therefore, the investors with higher incomes and high-risk preference may regard SPRH with third-party agency involvement as highly credible.

The existing research on the credibility of SPRH identified the institutional functions and the credibility of this informal housing institution in certain SPRH communities and claims that the intervention of formalization may damage the endogenous process. However, the literature may have ignored the different features of other informal housing communities and the varying contexts across cities. The relationship between credibility and functions is vague, and the performance of institutional functions may change when the competitors of SPRH in the institutional environment change. Hence, this research contributes to refining the credibility thesis by proposing a quantification approach and undertaking a regression analysis of credibility, proposing the concept of substitutability of institutional functions and examining its effects on credibility, offering an insight into the dynamic interaction between institutions and enriching the concept of dynamic disequilibrium. The research findings also indicate that, whether it is endogenous or designed, the substitutability of institutional functions should be considered for institutional change. Practically, this study makes contributions by describing the overall characteristics of the SPRH buyers and the SPRH credibility in two Chinese cities and discovering various determinants of the credibility of the informal housing institution in these cities. These findings suggest that policies intervening in the informal housing institution should consider its functions and credibility carefully, and improving the substitutability of formal housing for SPRH should be a more effective way to make institutional change at a lower cost.

Meanwhile, future research on the credibility of SPRH can also take more consideration of sampling, actors, and analysis units. Firstly, due to the scarcity of the sample, the snowball sampling method was applied in this research. If future researchers can access the whole SPRH communities in cities, serious random sampling can ensure the research sample's representativeness of the population, offering greater validity of the results. Besides, the research only explored two cities, and the divergence of institutions may be not significant enough for analyzing the impacts of substitutes for SPRH. Including respondents from more cities with different arrangements of housing and land institutions would be helpful. Moreover, the existing studies on the credibility of SPRH only paid attention to the function for the buyers of SPRH, ignoring the rural collective's perception of SPRH and the interest conflicts between the sellers and the buyers. The credibility of SPRH could be represented more comprehensively if the sellers of SPRH were also involved as actors in future studies to provide triangulation. Furthermore, future qualitative research could offer richer information about the mechanism through which the substitutability influences the credibility of SPRH. It would be also helpful to explore more factors that hold more significant explanatory power for the variation of credibility in Shenzhen. Finally, as the definition of credibility is the aggregate perception of actors, individual-level data may provide rich information, but the measure of credibility could be the integration of

individual perceptions, which means community-level indicators. Expanding the sample size, the community-level analysis of credibility may offer more suitable implications for policy implementation. Credibility, as an important policy tool, bears the function of identifying functional institutions. It would be helpful for maintaining the sustainability of cities to recognize and respect the functions and the credibility of institutions.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the first author.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Scaling method of the judgement matrix.

| Scale Value | Statement |
|-------------|---|
| 1 | Two indicators are equally important |
| 3 | One indicator is slightly more important than the other |
| 5 | One indicator is moderately more important than the other |
| 7 | One factor is intensively more important than the other |
| 9 | One factor is definitely more important than the other |
| 2, 4, 6, 8 | Median of judgement |
| Reciprocal | $a_{ij} = 1/a_{ji}$ |

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