



Unraveling the determinants for private renting in metropolitan China: An application of the Theory of Planned Behavior

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ABSTRACT

After being neglected since the establishment of the housing market in the 1990s, China has recently shown great enthusiasm for developing the housing rental market. It is essential to understand why people choose private renting as it enables us to better identify the demands of tenants and develop policies accordingly to promote private renting. However, at the micro-level, the determinants for people's renting intention have rarely been studied in the Chinese context. This paper aims to examine what specific underlying beliefs, as well as background factors, influence people's private renting intention in China's metropolises. Using the Theory of Planned Behavior (TPB), we designed questionnaires and collected personal data from 476 private renters living in Shenzhen. We found people had generally favorable attitudes, supportive subjective norms, and high perceived behavioral control of private renting in Shenzhen. Results from a path analysis suggest that people's renting intention was most influenced by their attitudes toward renting, followed by subjective norms and perceived behavioral control. In addition, marital status and some underlying behavioral, normative, and control beliefs were also found to have significant influences on renting intention. Based on our findings, some recommendations were proposed to promote private renting, such as advertising the advantages of renting to the public, enhancing the sense of belonging of renters, and expanding the rental housing supply.

1. Introduction

Following World War II, homeownership has been promoted in many nations (van der Heijden & Boelhouwer, 1996) while private rental housing has been viewed as a residual tenure of last resort for low-income households (Yates, 1996), the bottom rung of the housing ladder (Tao et al., 2015), or a short-term and temporary solution (Rubašek & Rubio, 2020). However, many metropolises around the world have recently witnessed a growth in the private rented sector (PRS) (Coulter, 2017; Fields & Uffer, 2016; Forrest & Hirayama, 2015; Hulse et al., 2019; Pareja-Eastaway & Sanchez-Martinez, 2017). Power et al. (2018) attributed the growth of PRS to the rising housing prices, difficulty in getting loans, increased job mobility, and young people getting married and having children later. While some researchers maintained the revival of the PRS was driven by neoliberal housing policies that encourage privatization and limit government expenditures on social housing (Forrest & Hirayama, 2015; Murie & Williams, 2015). Although these reasons explain at a macro level why PRS has been growing, on individual levels why people choose to rent has rarely been

explored. Understanding the determinants of people's renting choices is vital for countries or cities that are seeking to promote private renting because it enables the policymakers to identify people's housing preferences and needs on the demand side and develop initiatives accordingly.

As with many other countries, China had been promoting homeownership as a means not only to boost economic growth but also to build up "asset-based security" to preserve self-sufficiency and reduce the citizens' demand for welfare before 2015 (Chen & Yang, 2017; Cui et al., 2021; Doling & Ronald, 2014; Li et al., 2021). However, due to declining housing affordability and increasing crowd of the population in metropolises as well as the shrinking public rental sector nationwide (Yan et al., 2021), housing policies have shifted to encourage private renting since 2015 when the Ministry of Housing and Urban-Rural Development (MOHURD) first proposed the idea of "accelerating the development of the rental housing market" (MOHURD, 2015). Promoting private renting is imperative for China's metropolises that have been struggling to accommodate the new citizens without incurring enormous public expenditure on social housing. In 2019 the central

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government announced to invest about 40 billion yuan (equivalent to 5.82 billion USD) over three years to support the development of the rental housing market in 16 pilot metropolises (Yang, 2019). Notably, this pilot project was mainly targeted at metropolises “with strong demand for rental housing and a large population inflow”. To promote the PRS, “inducing a portion of housing demand to shift from homeownership to private renting” is considered important by some scholars (Zhou, 2018). However, it remains unclear what drives people to rent. Both policymakers and researchers have attributed the decision to rent solely to “cannot afford homeownership” while very little consideration is given to other factors (Chen & Yang, 2017). This one-sided mindset has underestimated the complexity of human behavior and more importantly does not help promote the PRS. Therefore, there is a need to revisit people’s choice of private renting with a more in-depth perspective.

People’s renting behavior can be considered a residential migration process, which is further subdivided into two steps according to Kley and Mulder (2010). The first step is the formation of an intention to move and the second step is the realization of the move, or the actual moving behavior (Lennartz, 2013, p. 149). From this viewpoint, most current studies have focused on the second step. A variety of theoretical frameworks can be adopted to understand housing tenure choice, for example, Jansen, et al. (2011a) discuss nine theoretical frameworks that can be used for studying housing preference and housing choice. Frequently used and well-known frameworks in housing research are neo-classical economic analysis (Henderson & Ioannides, 1983; Koopman, 2011), family lifecycle theory (Chen et al., 2022; Mulder & Wagner, 1998; Rossi, 1955), and means-end theory (Collen & Hoekstra, 2001; Coolen et al., 2002). Neo-classical economic analysis is based on the expected utility theory, which posits that decision making under uncertainty is the maximization of subjective expected utility and consumers have perfect knowledge about the market (Marsh & Gibb, 2011). However, as pointed out by Boelhouwer (2011), the housing market is imperfect due to the lack of information, complexity of the product, long production time, high investment costs, site specificity, as well as government interventions. Furthermore, people with the same background variables may have totally different preferences and behavioral patterns on the housing market (Jansen, 2012). Studies using family lifecycle theory tend to explore the relationship between housing tenure choice and different family lifecycle stages (Chen et al., 2022). The shortcoming is obvious: by focusing primarily on the socio-demographic factors, the explanatory power of the model is usually not high (Chen et al., 2022). Therefore, an increasing number of housing researchers focuses on the psychological, behavioral and institutional perspectives to better understand housing tenure choice (Andersen, 2011; Coolen et al., 2002; Marsh & Gibb, 2011). Coolen et al. (2002) originally presented the extended means-end model based on the means-end theory to examine the role of people’s values and goals in determining housing tenure choice. Drawing on their survey in the Netherlands, they found that the motivational factors contributed 9% to the explained variance of intended tenure choice. Several other studies also confirmed the importance of values or lifestyles in explaining people’s housing choice (Ærø, 2006; Andersen, 2011; Jansen, 2012, 2014). Other researchers also found that psychological factors were important determinants for people’s tenure choice. For example, Ben-Shahar (2007) found values such as a sense of freedom and “peace of mind” are more meaningful and important than economic factors in explaining people’s tenure decisions. The more the individual associates the sense of freedom and “peace of mind” with homeownership, the more (s)he prefers to own a house. Other socio-psychological factors that have been found to influence housing tenure choice include beliefs and expectations (Drew, 2014), spending and saving behavior (Ab Majid et al., 2014), parental influences (Lux et al., 2018), and local norms and social capital (Aguda, 2018).

Although these studies have deepened our understanding on housing tenure choice, few studies have employed a comprehensive theoretical

framework that can incorporate different sets of psychological factors. For example, the means-end theory focuses primarily on the influence of values and goals in general such as esteem from others and self-actualization. However, the theory does not pay attention to the role of people’s beliefs towards a specific tenure, the influence of social contacts and people’s perceived difficulty in entering a tenure. To bridge the gap, this paper uses the Theory of Planned Behavior (TPB) as the theoretical framework to study what specific underlying beliefs, as well as social-demographic factors, influence people’s intention to rent in China’s metropolises. The TPB has been used in housing tenure choice research by a handful of researchers (Cohen, et al., 2009; Lennartz, 2013; Zheng, et al., 2019).

According to the TPB, behavioral intention is determined by attitude toward the behavior, social normative perceptions regarding the behavior, and perceived control over the performance of the behavior (Ajzen, 1991). The specific structure of the TPB suits our study very well and we expect these three components to be able to explain people’s intention to rent a private rental dwelling. With regard to attitude, rental accommodation can be associated with low quality, insecurity, and lack of regulation but also with the “virtues of renting” such as flexibility (Gilbert, 2016). This indicates that residents might have formed various beliefs, both positive and negative, that might influence their attitude. The second component is the social norm. The Chinese have a strong preference for homeownership, which has been documented by many researchers (Huang, 2004; Nie, 2016; Zheng et al., 2020). Chinese culture and traditions imply that the home has not only been treated as a place of living but as a sign of wealth, a symbol of well-being and social status (Huang, 2004; Yao et al., 2013). This social norm might prevent people from renting. The third component concerns perceived behavioral control. As the housing market is a market in which many factors are actually out of control (e.g., the availability of vacant dwellings and rent price), the perceptions that people have about these factors could also affect their renting intention and behavior. Thus, attitude, social norm, and perceived behavioral control seem important factors influencing the intention for (not) choosing a private rental dwelling. Therefore, it is theoretically reasonable to adopt the TPB in explaining people’s renting intention and behavior.

The remainder of the paper is organized as follows: in the subsequent section, we introduce the TPB in detail. Next, we describe the case city, Shenzhen, the data collection process, and the statistical methods. We then present the results and discussion. The paper concludes with the main findings and policy implications.

2. Theory of planned behavior

The Theory of Planned Behavior (TPB), proposed by Ajzen (1991) and based on the Theory of Reasoned Action (Fishbein & Ajzen, 1977), has been extensively applied and validated for the prediction and explanation of behavioral intentions and behavioral outcomes in a variety of domains, such as migration intention (Cui, et al., 2016; Jin, et al., 2022), pro-environmental behavior (Tonglet et al., 2004), and health-related behavior (Andrews et al., 2010).

According to the TPB, beliefs influence intentions indirectly by their effects on attitudes, subjective norms, and perceived behavioral control (see Fig. 1). In specific, attitude toward the behavior is determined by behavioral beliefs, which is the individual subjective probability that the behavior will produce a given outcome or experience (behavioral beliefs), weighted by evaluations of the outcomes or experience (Ajzen, 1991). By the same token, one’s subjective norm is determined by his or her normative beliefs, that is, whether important referent individuals approve or disapprove of the behavior, weighted by his or her motivation to comply with those referents. Perceived behavioral control is determined by control beliefs, which is one’s perceived presence of factors that may facilitate or impede the performance of the behavior, weighted by the perceived power or the impact of each control factor to facilitate or impede the behavior. These various beliefs and their

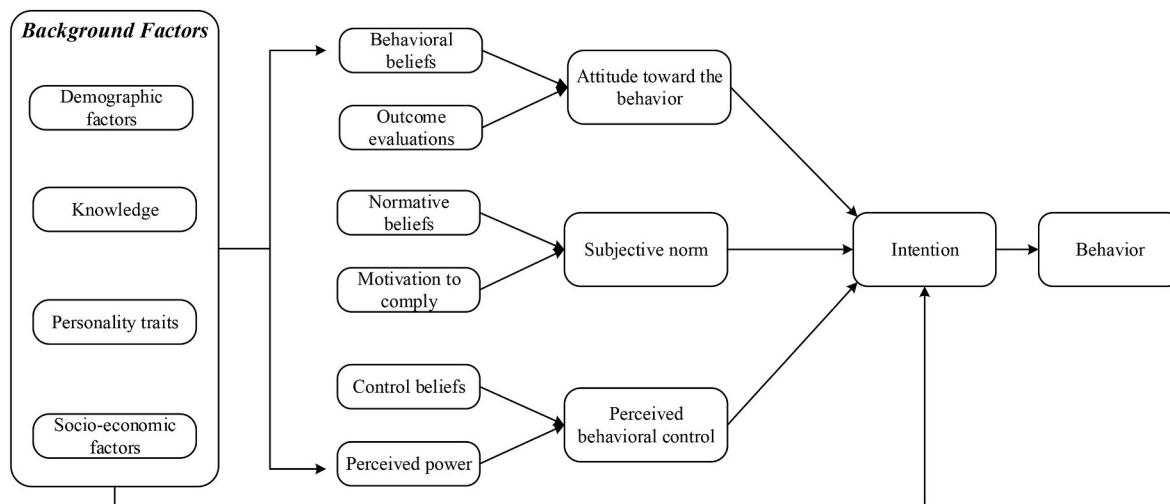


Fig. 1. Theory of planned behavior

Sources: Adapted from Ajzen (1991).

evaluations are termed “formative indicators” of attitude, subjective norm, and perceived behavioral control (Ajzen, 2020). In contrast, items that directly measure attitude, subjective norm, and perceived behavioral control (e.g., good or bad, approve or disapprove, easy or difficult) are called “reflective indicators”.

While the TPB assumes a causal relationship from behavioral beliefs, normative beliefs, and control beliefs to behavioral intentions and behaviors via attitudes, subjective norm, and perceived behavioral control, the background factors are assumed to operate through TPB components rather than directly influencing the behavioral intentions and behavior (Montaño & Kasprzyk, 2015). It is because “beliefs are not innate to an individual, but they are formed and changed through activities in the real world” (Lennartz, 2013, p. 152). However, more and more researchers have found that in empirical studies there is often a direct relationship between background factors and behavioral intention because empirical research is not always under “ideal conditions” (Billari et al., 2009; Cui et al., 2016). Therefore, in this study, we assume the background factors can, directly and indirectly, influence people’s intention to rent. Fig. 1 presents the theoretical framework of this paper. It should be noted that the present study only explores the determinants of people’s renting intention without examining the relationship between renting intention and renting behavior because only renters were involved in the survey. As a general rule, the stronger the intention to engage in a behavior, the more likely it should be to perform the behavior (Ajzen, 1991).

The TPB provides a comprehensive theoretical framework to investigate both objective and psychological factors influencing behavioral intentions. Therefore, it was recommended by a number of researchers to study the decision-making process of tenure choice (Aguda, 2018; Jansen et al., 2011b). However, the application of TPB is not common in the tenure choice domain because “decisions about housing choice usually encompass ample preparation and also require resources, mostly financial (Aguda, 2018, p. 25).” Nevertheless, a few researchers have successfully applied TPB to study the housing tenure choice (Cohen et al., 2009; Lindblad et al., 2017). Cohen et al. (2009) claimed to be the first to extend the TPB to the domain of tenure choice. They used a four-year longitudinal dataset collected from 919 low- and moderate-income tenants in the US to examine determinants of intention to buy a house and actual home purchases. Lindblad et al. (2017) updated this research by using 10-year panel data from the same database. They found that low-income renters’ homebuying intention and

behavior were influenced by their homebuying attitudes, norms, and perceived control, thus providing strong support for the application of the TPB in the tenure choice domain. However, both of the studies focused on the choice of homeownership instead of private renting. Only a few studies have explored why people choose to rent using the TPB (Lennartz, 2013; Zheng et al., 2019). However, Lennartz (2013) and Zheng et al. (2019) only examine the influence of people’s general attitudes (such as whether private renting is good or bad) on renting intention without looking into the specific beliefs toward private renting (such as “private renting can reduce financial pressure”). It is necessary to find out what specific beliefs drive or discourage people from renting because simply knowing people’s general attitudes about renting would not help develop concrete policies or initiatives to encourage people to rent privately. To identify specific beliefs that contribute to attitude, subjective norm, and perceived behavioral control, formative indicators of them need to be examined (Francis et al., 2004, p. 27). By including the behavioral, normative, and control beliefs, the present paper explores what specific beliefs, as well as background factors, contribute to people’s intention to rent in metropolises.

3. Methodology

3.1. Study city

As aforementioned, the central government aims to promote private renting in metropolises, or first and second-tier cities in China,¹ mainly because these cities have witnessed a large population inflow and deteriorating housing affordability. In less developed cities and rural areas, the demand for rental housing is generally low. Shenzhen was chosen as our case study due to its high demand for private rented housing and its enthusiasm for developing the private rented sector (Office of the Shenzhen Municipal People’s Government, 2017).

Shenzhen, known as China’s Silicon Valley, is one of the most developed cities in China, ranking third in terms of GDP in 2020, just behind Shanghai and Beijing. Meanwhile, Shenzhen is also known as a

¹ It is recognized and a common practice to classify China’s mainland cities into “tiers”. According to the National Bureau of Statistics, four first-tier cities are Beijing, Shanghai, Guangzhou, and Shenzhen. There are 31 second-tier cities, which are mostly provincial capital cities (e.g., Wuhan) or sub-provincial cities (e.g., Qingdao).

migrant city. Among the resident population of about 13 million,³ eight million are migrant workers (Shenzhen Bureau of Statistics, 2019). Therefore, how to accommodate the migrants, especially the low- and middle-income households is a long-standing challenge for the local administrators. In recent years housing prices in Shenzhen have risen to unaffordable levels. According to Everett-Alen (2016), housing prices in Shenzhen increased by 48 percent in 2015 alone, which is ranked first worldwide. The local government has realized the irreplaceable role of the private rented sector and has been leading the new migrants into private renting (Office of the Shenzhen Municipal People's Government, 2017). Against this background, understanding what factors influence people's renting intention is indispensable for developing concrete housing policies to promote private renting. Therefore, Shenzhen provides an ideal laboratory to study the determinants of people's renting intention.

3.2. Questionnaire development and data collection

As suggested by Ajzen (2002), the construction of a TPB questionnaire involves two steps. The first step is called elicitation study which aims to elicit the salient beliefs of private tenants. The results of the elicitation study are used to develop the TPB questionnaire. In the case of the current study, the aim is to quantitatively investigate the determinants of private renting.

3.2.1. Step 1: elicitation study

An elicitation study was conducted to identify the content of the important behavioral, normative, and control beliefs that determine the intention and are shared by the target population. In specific, we distributed online questionnaires to 30 private renters living in different sub-sectors in Shenzhen. The questionnaire consisted of nine open-ended questions such as "What do you believe are the (dis)advantages of private renting?", "Are there any individuals or groups who would (dis)approve of your choosing private renting?", and "What factors or circumstances facilitate/impede you choosing private renting?". The results showed that the most frequently mentioned benefits of private renting are: "feeling less pressure from down payment and mortgage", "being able to change my job easily", and "avoiding the risk of a house price fall". The perceived disadvantages are "unable to accumulate asset by housing price appreciation" and "not feeling a sense of belonging". The perceived important referents of the respondents are families and friends. The most commonly cited control beliefs are "a shortage of desirable private rented dwellings", "a lack of regulation in the private rented market", "anticipation that rent would rise fast", and "anticipation that housing prices would rise fast". The information obtained in this explorative study was used to develop the survey.

3.2.2. Step 2: questionnaire survey

a) Development of the TPB questionnaire

Following Ajzen (2002), three questions were asked to measure people's renting intention (see Appendix A). This is to ensure the accuracy and reliability of the measurement. We use the mean value of three items in the questionnaire as respondents' generalized intention. Similarly, to measure the attitude, subjective norm, and perceived behavioral control, a three-item semantic differential scale was used. For example, to measure attitude, the stem of the three questions is "Before the move to my current dwelling, I thought living in a private rented dwelling was ...". Respondents need to choose from "1-unpleasant" to

² Resident population refers to people live in Shenzhen for more than six months in one year. According to the deputy major of Shenzhen, the actual management and service population in Shenzhen has exceeded 22 million in 2020 (Sina, 2020).

Table 1
Reliability test of intention, attitude, SN, and PBC.

Component	No. of items	N	Cronbach's Alpha
Intention	3	476 ^a	0.927
Attitude	3	476	0.915
Subjective norm	3	476	0.853
Perceived behavioral control	3	476	0.782

^a According to the general rule, sample size should be 20 times or at least 10 times the number of the parameters in path analysis (Kline, 2015).

"7-pleasant", "1-bad" to "7-good", and "1-worthless" to "7-valuable". In this questionnaire, all questions related to TPB constructs started with the phrase "Before the move to my current dwelling ..."³. The questions to measure attitude, subjective norm, and perceived behavioral control, which are termed by Ajzen (2020) as reflective indicators, are shown in Appendix A. We use the mean value of the reflective indicators as people's attitude, subjective norm, and perceived behavioral control respectively. However, before averaging, a reliability analysis is necessary to test whether three items measuring one construct have internal consistency and can be averaged. In this research, the reliability statistic Cronbach's alpha was conducted. Table 1 shows the results of the reliability analysis. Usually, the value of alpha above 0.70 is considered to reflect a reliable scale (Nunnally, 1994). According to this criterion, all four components showed high internal consistency so their constituting items can be averaged.

Corresponding to reflective indicators, behavioral/normative/control beliefs and their evaluations are called formative indicators because they are assumed to lead to the formation of attitude, subjective norm, and perceived behavioral control, respectively (Ajzen, 2020). In Step 1, we have elicited the most frequently mentioned beliefs through a survey of 30 renters in Shenzhen. To quantitatively measure the formative indicators, these beliefs were converted into a set of statements. Respondents were asked to assess both the strength of the belief and the value of the belief (outcome evaluation, motivation to comply, or control power). For example, for the behavioral belief "If I live in a private rented dwelling, I will feel less pressure on down payment and mortgage", respondents need to first express to which extend they agree with this statement (-3 = strongly disagree; 3 = strongly agree). Then, the participants express a positive or negative evaluation of this potential consequence by completing the sentence "Feeling less pressure from down payment and mortgage is ...". Respondents can choose from -3 (extremely undesirable) to +3 (extremely desirable) so high scores reflect favorable attitudes toward private renting. The formative indicators and their results are shown in Fig. 4.

b) Field survey

The TPB survey is part of a comprehensive survey into private renters in Shenzhen conducted in August 2020. The field survey was administered in four districts of Shenzhen, namely Baoan, Longgang, Nanshan, and Futian (see Fig. 2). The four districts were chosen in order to cover renters living in both inner and outer Shenzhen. Additionally, the four districts are the most densely populated areas in Shenzhen, accounting for 67% of the city's whole population (Shenzhen Bureau of Statistics, 2019).

In each district, leaflets were circulated to the residents in different communities and passersby after confirming that they were private tenants. On the leaflet, there was a brief introduction to our research, inviting texts, and a two-dimensional code. Tenants could participate in

³ This is because we aim to examine why tenants have chosen to rent, and it would seem unreasonable to ask tenants about their intention to rent in the future since they have already been renting. While most homeowners would not intend to rent because they have already bought a home.

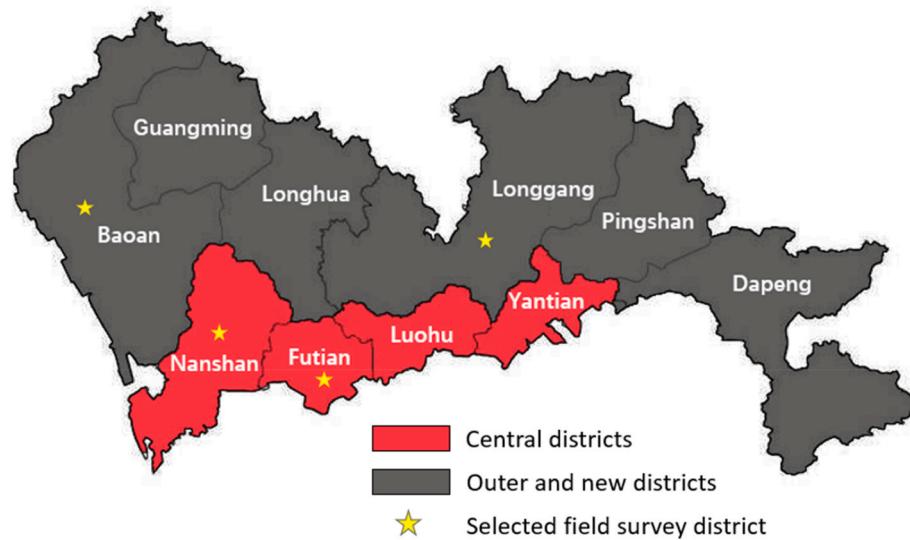


Fig. 2. Administrative districts of Shenzhen and survey sites.

the survey by scanning the QR code, although paper questionnaires were also available on request. Some managers of LTRA helped us to distribute the leaflets to the tenants. To facilitate participation, respondents could receive a small gift as a reward after completing the questionnaire.

The comprehensive questionnaire consists of three main sections. Section 1 is about the respondents' demographic characteristics and housing/neighborhood features. Section 2 asked respondents about their satisfaction in various aspects, such as housing satisfaction, life satisfaction, etc. Section 3 is the TPB questionnaire which aims to answer why people choose private renting. At first, respondents were asked to answer all the questions in the three sections. After we had 528 responses, we expected the sample size to be adequate for the TPB research⁴ and removed Section 3 for further survey. This was done to increase the response rate, as some respondents refused to answer the questionnaire or dropped out midway due to the questionnaire length. As the result, a total of 667 respondents took part in the comprehensive survey, but only 528 renters answered the TPB questionnaire. Furthermore, 52 responses of the 528 renters were invalid due to missing values or too short filling-in time (less than 5 min⁵). In the end, we have 476 valid questionnaires with a valid rate of 90%. Table 2 shows the demographic characteristics of the respondents.

Although the comprehensive survey included many demographic characteristics of the respondents, only seven were used in this research, i.e., gender, educational attainment, marriage status before the move, living with offspring, local hukou, personal income, and occupation. Note that living with offspring, personal income, and occupation are characteristics of the respondents when surveyed instead of before the move. Theoretically, these three variables should not be included in the analysis since we study renters renting intention and other subjective factors before they moved into their current housing. However, they have been found to be important explanatory variables of tenure choice (Liu, 2019; Chen et al., 2022). Therefore, we use the three variables as proxies for living with offspring, income, and occupation of the respondents before the move. Our sample was generally young, with a mean age of 31. Male and female respondents were roughly equal. Only 15% of the respondents were married before they moved into their current housing. In addition, our sample was overall highly educated.

Table 2
Demographic characteristics of the respondents.

Demographic variables	Percentage/mean
Age*	31.27
Male	51.6%
Married	15.2%
Live with offspring*	31.3%
Shenzhen hukou*	27.9%
Have a bachelor's degree & above*	42.6%
Individual income (per month)*	
low (<5000 RMB)	29%
low-middle (5000–10,000 RMB)	37%
middle-high (10,000–15,000 RMB)	18%
high (>15,000 RMB)	16%
Occupation *	
private enterprise	56%
public sector	13%
others (including unemployed, self-employed, and retired)	31%
Housing type*	
urban village housing	60%
commercial housing	29%
long-term rented apartment (LTRA)	12%

Notes: 1. Variables with * are the characteristics of respondents when surveyed;
2. Percentages may not add up due to rounding.

43% of the respondents had a bachelor's degree.⁶ Notably, 60% of the respondents lived in urban village housing when surveyed, which is consistent with the reality in Shenzhen (Li et al., 2021).

Since there is almost no official data about the characteristics of the private tenants in Shenzhen, the age structure of the whole resident population in Shenzhen was used for comparison because almost 80 percent of the whole population of Shenzhen are private renters (Dai, 2017). According to the Sixth Census, 49% of the resident population was between 15 and 29 years old, 48% between 30 and 59 years old, and 3% above 60 years old⁷ (Shenzhen Bureau of Statistics, 2010). In our sample, the three figures were 48%, 50%, and 2%, respectively. This indicates that in terms of age our sample seems reasonably representative for the population of Shenzhen. Regarding the gender ratio, our sample (male = 52%) is slightly underrepresented by men compared with the whole population (male = 54%) (Shenzhen Bureau of Statistics,

⁴ Information about the number of respondents is described in the following section "field survey".

⁵ The e-questionnaire can record the start and end time automatically.

⁶ Respondents' educational attainment is considered to be constant before and after moving because students were excluded from the survey.

⁷ Residents younger than 15 years old were excluded from the analysis.

2019).

3.3. Statistical methods

3.3.1. Hierarchical regression analysis

As recommended by Fishbein and Ajzen (1975, pp. 913–927), multiplicative terms (the specific belief multiplied by its accompanying outcome evaluation) should be used to examine the impact of each specific belief. However, the legitimacy of this approach has been questioned by more and more researchers (Bagozzi, 1984; Doll & Orth, 1993; Evans, 1991; Schmidt, 1973). One of the issues that yields the most concern is that findings based on the product of belief strength and outcome evaluation are difficult to interpret (Evans, 1991; French & Hankins, 2003). The multiplicative approach is also criticized for other reasons. For example, researchers criticized that the correlation between attitude and its underpinning multiplicative terms could vary depending upon which combination of unipolar and bipolar scaling was used (Gagné & Godin, 2000; Hewstone & Young, 1988; Newton et al., 2012; Sparks et al., 1991). Schmidt (1973) argued that the multiplication of two scales is theoretically not a meaningful operation because it lacks a rational zero point. Since the purpose of the current study is to identify what specific underlying beliefs and outcomes influence people's intention to rent, using the multiplicative terms seems less obvious.

Nevertheless, to check the appropriateness of including the multiplicative terms instead of the beliefs and outcomes, we performed a hierarchical regression analysis, following Evans (1991). This approach has been used, for example, by Chan et al. (2015) and Elliott et al. (2005). In this procedure, attitude is the dependent variable (the mean value of its reflective indicators) that is regressed first on behavioral beliefs (bb_i) and outcome evaluations (bbe_i) and then on the product term ($bb_i * bbe_i$) (Fishbein & Ajzen, 2011, p. 113). If the addition of the product terms in the second step explains a significant additional amount of the variance of the dependent variable, the multiplicative combination rule is supported. Appendix B shows the detailed procedure of the hierarchical regression analysis and the results.

The results from our analysis showed that the multiplicative rule is statistically disconfirmed in our study. Based on the aforementioned theoretical reasons and the statistical results, we decided to include only beliefs and outcomes in the analysis and not the multiplicative terms.

3.3.2. Path analysis

The TPB theoretical framework presents a clear path diagram in which the relationships between all variables and the causal direction between them are specifically laid out. As demonstrated in our theoretical framework (Fig. 1), the background factors influence the intention not only directly but also through their effects on beliefs, which in turn influence attitude, subjective norm, perceived behavioral control, and thereby renting intention. In other words, the TPB components act as mediators between background factors and renting intention. A large number of variables interact with each other and form a complex network, making simple regression analysis inapplicable. In this case, path analysis is an ideal choice. Path analysis is an extension of the regression model, used to test the fit of the correlation matrix against two or more causal models (Garson, 2013). It takes into account the relationship between the independent variables and calculates all paths simultaneously in one single analysis (Jin et al., 2021).

It should be noted that we screened out the significant beliefs and evaluations through multiple regression for model parsimony (see Appendix B for detailed regression results). For the same reason, an independent t-test was conducted to examine whether the binary background factors were related to these filtered beliefs and evaluations.

The following relationships were selected: gender and sense of belonging ($F = 1.583$, $df = 474$, $p = 0.013$), bachelor degree and facilitate job-changing ($F = 7.516$, $df = 465.373$, $p = 0.022$), bachelor degree and desire easy job-changing ($F = 8.063$, $df = 460.252$, $p = 0.029$), bachelor degree and desire sense of belonging ($F = 10.469$, $df = 465.011$, $p = 0.029$), bachelor degree and value families' opinions ($F = 0.065$, $df = 474$, $p = 0.045$), bachelor degree and value friends' opinions ($F = 0.986$, $df = 474$, $p = 0.031$), married and no sense of belonging ($F = 0.135$, $df = 474$, $p = 0.002$), married and value families' opinions ($F = 1.69$, $df = 474$, $p = 0.002$), live with offspring and facilitate job-changing ($F = 2.297$, $df = 474$, $p = 0.043$), Shenzhen hukou and avoid risk ($F = 0.161$, $df = 474$, $p = 0.014$). For occupation and individual income, a one-way ANOVA was conducted respectively to examine their relationship with formative indicators. These relationships will be included in the following path analysis (see Fig. 5). Note that the variable individual income was re-organized as a three-category variable (low-middle income and middle-high income were merged as middle income) for model parsimony. As with most studies, the maximum likelihood (ML) estimation method was chosen because it yields the most precise (smallest variance) estimates. To obtain the confidence interval and significance of indirect effects, bootstrap⁸ is also employed. The analysis was performed through AMOS 21 in SPSS.

4. Results

4.1. Descriptive analysis

The mean value and standard deviation of intention and reflective indicators of attitude, subjective norm, and perceived behavioral control are shown in Appendix A. As shown in Fig. 3, almost 70% of the respondents intended to rent before they moved into their current dwelling. This is understandable since all the respondents have chosen private renting. However, only 56% of the renters had positive attitudes toward private renting while 65% and 61% of the respondents had positive subjective norm and high perceived behavioral control respectively. Meanwhile, the means of intention (5.10), attitude (4.66), subjective norm (4.87), and perceived behavioral control (4.79) exceeded the median scale score of 4, indicating that our sample expressed a tendency toward an intention, a favorable attitude, encouraging subjective norms, and a high perceived behavioral control with respect to private renting.

Fig. 4 presents the mean value of each belief and its value (outcome evaluation, motivation to comply, or perceived power). The mean values of behavioral beliefs and control beliefs are all above zero, which is understandable because all the beliefs were elicited from our elicitation study and should present the salient beliefs of the population. Concerning the behavioral beliefs, the most commonly agreed beliefs were "cannot accumulate asset through housing price appreciation", followed by "change job easily", and "won't feel a sense of belonging". The most valued outcomes by the respondents include "feeling less financial pressure" and "being able to change job easily". "Being able to accumulate asset through housing price appreciation" is also highly valued by the respondents although most respondents believed renting cannot help accumulate asset. With respect to the normative beliefs, the means of both normative beliefs are below zero. 43% of the respondents believed their families disapproved of their renting while only 19% believed they were supported by their families to rent. Similarly, 40% of the respondents believed their friends did not recommend them to rent while only 20% believed their friends backed them in their choice of renting. Both families' and friends' opinions were considered to be important although family members played a more important role

⁸ Bootstrapping is a re-sampling technique that randomly draws several subsamples of the same size as the original sample to provide statistical test evidence on the variability of parameter estimates and fit indices (Byrne, 2010).

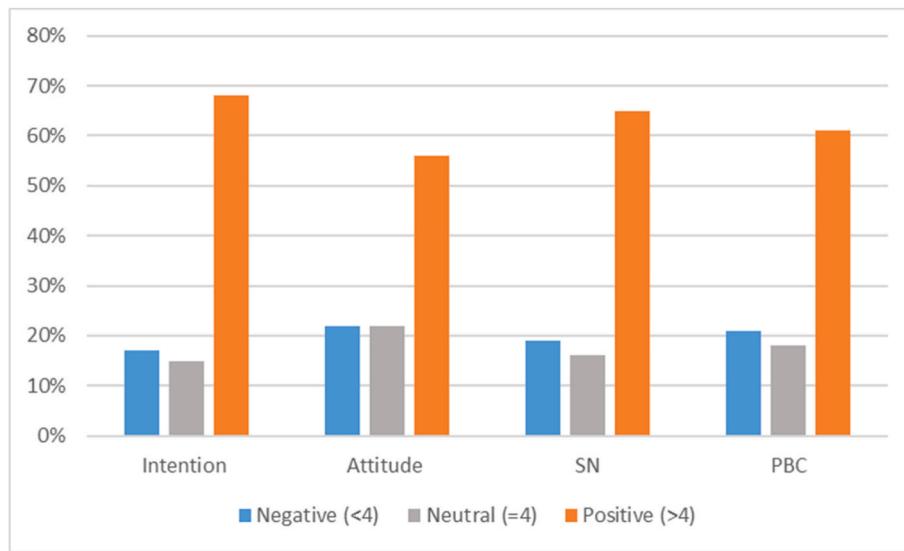


Fig. 3. Generalized intention, attitude, SN, and PBC of the respondents.

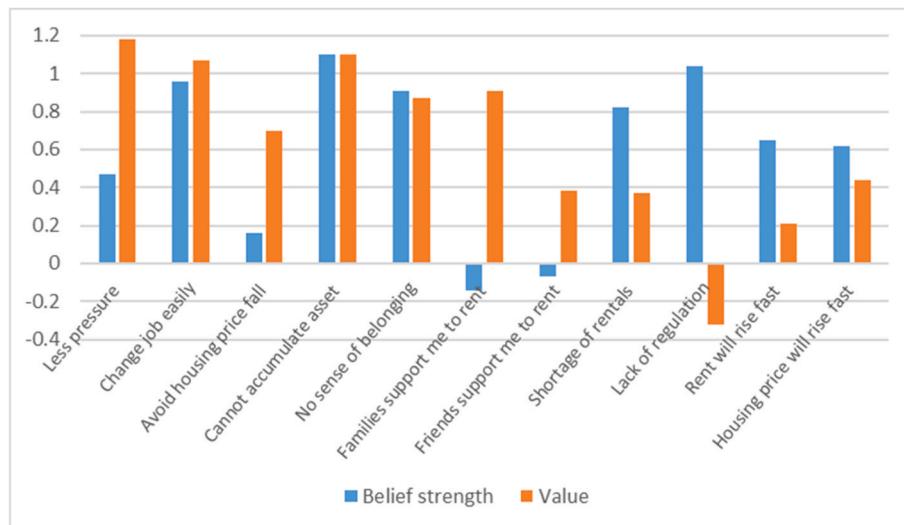


Fig. 4. The means of formative indicators of attitude, SN, and PBC

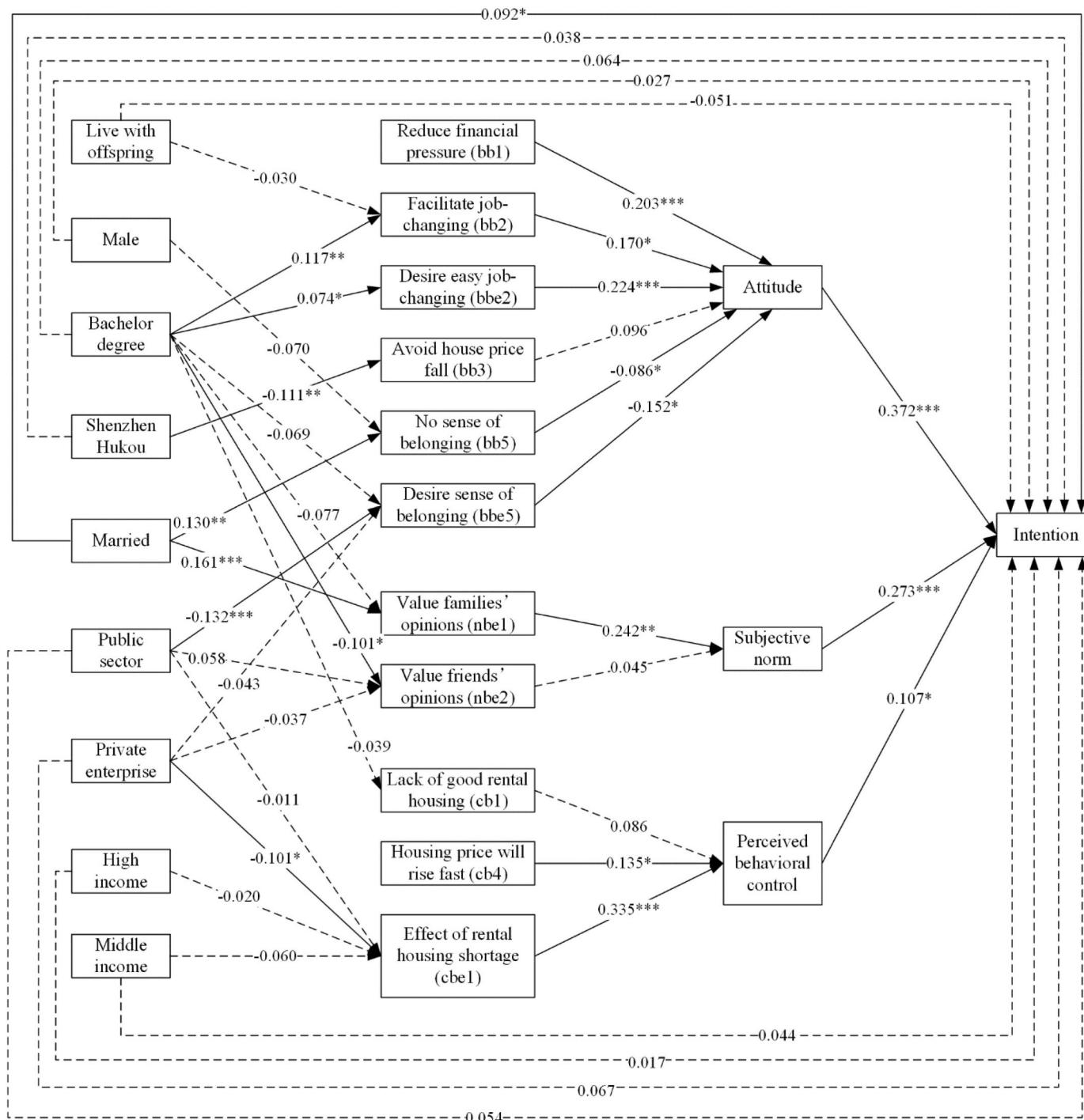
Note: All formative indicators are polarized ranging from -3 to $+3$.

compared to friends judging from the relative magnitude. The most shared control belief was “there was a lack of regulation in the private rented market”, followed by “there was a shortage of desirable private rented dwellings”, “rent would rise fast”, and “housing prices would rise fast”. Interestingly, judging from the mean values of perceived power, a lack of private rental dwellings and people’s predictions that rent or housing price will rise would facilitate them to renting while a lack of regulation in the private rented market would discourage them from renting.

4.2. Path analysis

As aforementioned, multiple regression analysis and independent t -test were used to screen out the significant beliefs and influential background variables. Non-significant beliefs and relationships (between background factors and formative indicators) were excluded for model parsimony. The results of the regression analysis and independent t -test were presented in Appendix B and Section 3.3.2, respectively. Fig. 5⁹ presents the estimation of the path model. The four model fit indices indicate that our study model fits well with the empirical data. The squared multiple correlation (R^2) of the independent variable

⁹ Model fit indices provide the most fundamental indication of how well the proposed theory fits the data. The chi-square to df ratio (CMIN/DF), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR) are most recommended indices to be reported by researchers (Hu & Bentler, 1999). Generally, CMIN/DF < 5 , CFI > 0.9 , RMSEA < 0.08 , and SRMR < 0.08 reflect a good model fit (Hooper et al., 2007).

**Fig. 5.** Path analysis results

Notes: 1. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; 2. Model fit indices⁹: CMIN/DF = 3.479, CFI = 0.901, RMSEA = 0.072, SRMR=0.127; 3. All coefficients are standardized; 4. All lines denote direct effects. Dotted lines denote insignificant relationships.

intention is 0.4, which means 40% of the variance in renting intention was explained by the predictors. This result is slightly above the average of 39%, which was found by Armitage and Conner (2001) in their meta-analysis of the efficacy of the TPB.

Table 3 presents the standardized effects of different variables on renting intention. It can be seen that one's renting intention is most influenced by their attitude toward renting, followed by the subjective norm and perceived behavioral control. In other words, the more positive one's attitude is, the more supportive the social norms are, and the higher the perceived behavioral control, the stronger his or her intention

to rent.

As shown in Fig. 5, most formative indicators were found to have a significant direct influence on attitude, subjective norm, or perceived behavioral control, except bb3, nbe2, and cb1. Among behavioral beliefs and outcome evaluations, "desire easy job-changing" (bbe2) and "reduce financial pressure" (bb1) were shown to have the largest positive direct influence on people's attitude, followed by "facilitate job-changing" (bb2). In contrast, both "no sense of belonging" (bb5) and "desire sense of belonging" (bbe5) were found to have significant negative effects on attitude, which means that respondents who believe

Table 3
Standardized direct, indirect, and total effect on renting intention.

Variable	Standardized direct effect on intention	Standardized indirect effect on intention	Standardized total effect on intention
Attitude	0.372***	–	0.372***
Reduce financial pressure (bb1)	–	0.076***	0.076***
Facilitate job-changing (bb2)	–	0.063*	0.063**
Avoid house price fall (bb3)	–	0.036*	0.036*
No sense of belonging (bb5)	–	-0.032	-0.032*
Desire easy job-changing (bbe2)	–	0.083***	0.083**
Desire sense of belonging (bbe5)	–	-0.057**	-0.057***
Subjective norm	0.273***	–	0.273***
Value families' opinions (nbe1)	–	0.066**	0.066**
Value friends' opinions (nbe2)	–	0.012	0.012
Perceived behavioral control	0.107*	–	0.107*
Lack of good rental housing (cb1)	–	0.009	0.009
Housing price will rise fast (cb4)	–	0.014	0.014*
Effect of housing shortage (cbe1)	–	0.036*	0.036*
Background factors			
Male (Ref. = female)	0.027	0.002*	0.03
Bachelor degree (Ref. = no bachelor degree)	0.087	0.012	0.074
Married (Ref. = unmarried)	0.092*	0.006	0.098*
Live with offspring (Ref. = do not live with offspring)	-0.051	-0.002	-0.053
Shenzhen hukou (Ref. = non-Shenzhen hukou)	0.038	-0.004*	0.034
Middle income (Ref. = low income)	0.044	-0.002	0.042
High income (Ref. = low income)	0.017	-0.001	0.016
Private enterprise (Ref. = others)	0.067	-0.002	0.065
Public sector (Ref. = others)	0.054	0.008*	0.062

*p < 0.05; **p < 0.01; ***p < 0.001.

renting does not give a sense of belonging and who place a high value on a sense of belonging had more negative attitudes toward renting. Appendix B has shown that both normative beliefs had no significant influence on the subjective norm. However, “value families’ opinions” (nbe1) was found to have a substantial influence on their subjective norm while “value friends’ opinions” (nbe2) was not significantly related to one’s subjective norm. That is, for subjective norm it did not matter whether or not respondents believed that their families and friends approved or disapproved of their intention to rent. However, the degree to which the respondents cared about their families’ opinions was indeed important to the subjective norm. The perceived behavioral control was significant influenced by the perceived power “effect of rental housing shortage” (cbe1), followed by “housing price will rise fast” (cb4).

From Table 3 we can see that all behavioral beliefs and outcome evaluations have significant effects on renting intention. “Desire easy job-changing” (bbe2) has the largest positive influence on renting intention, implying that the more people appreciate easy job-changing, the higher renting intention they have. The second important formative indicator is “reduce financial pressure” (bb1), suggesting that the more people believe private renting can reduce financial pressure, the greater intention they might have to rent. Furthermore, “facilitate job-changing” (bb2) and “avoid house price fall” (bb3) were also determinants for renting intention, implying that the more people believe renting can facilitate job-changing and avoid housing price fall, the higher renting intention they have. “No sense of belonging” (bb5) and “desire sense of belonging” (bbe5) were significantly negatively related to intention, which means that the more people believe renting does not give a sense of belonging and desire a sense of belonging, the lower renting intention they have. This is in line with our expectations. Among the formative indicators of subjective norm, only people’s motivation to comply with families’ opinions (nbe1) was shown to be significantly related to renting intention, which means the more people value their families’ opinions, the higher renting intention they have. As for the formative indicators of perceived behavioral control, control belief “housing prices will rise fast” and perceived power “effects of rental housing shortage” were both significantly associated with higher renting intention. Notably, the magnitudes of the effects of formative indicators on intention are much smaller compared with attitude, subjective norm, and perceived behavioral control. It is because the effects of formative indicators on intention were calculated by multiplying the path coefficient between formative indicators and attitude/subjective norm/perceived behavioral control and path coefficient between attitude/subjective norm/perceived behavioral control and intention (Baron & Kenny, 1986).

Background factors can influence renting intention both directly and indirectly through influencing formative indicators of attitude and subjective norm. Fig. 5 reveals that eight significant relations between background variables and formative indicators were identified. Respondents with a bachelor’s degree were more likely to believe “renting can facilitate job-changing” and to desire easy job-changing compared with respondents without a bachelor’s degree. In addition, respondents with a bachelor’s degree were less likely to value friends’ opinions than those without a bachelor’s degree. Tenants with local hukou were less likely to believe “renting can avoid housing price fall” than those without local hukou. Married respondents were more likely to believe “renting does not give a sense of belonging” and value families’ opinions than the unmarried. People who work in the public sector were less likely to desire a sense of belonging than those whose occupation is “others”. Furthermore, those who work in private enterprises perceived lower power of rental shortage compared with those whose occupation is “others”. Living with offspring, gender, and personal income were found to be insignificant in determining people’s formative indicators. Regarding the total effects of background factors on intention, only marital status was found to be significantly related to renting intention. As shown in Table 3, people who were married had higher intention to

Table 4
Standardized total effects of background factors on attitude, SN, and PBC.

Background factors	Attitude	SN	PBC
Male	0.006*	–	–
Bachelor degree	0.047**	-0.023*	-0.003
Married	-0.011*	0.039***	–
Live with offspring	-0.005	–	–
Shenzhen hukou	-0.011*	–	–
Public sector	0.02**	0.003	-0.004
Private enterprise	0.007	-0.002	-0.034*
Middle income	–	–	-0.02
High income	–	–	-0.007

*p < 0.05; **p < 0.01; ***p < 0.001.

rent than the unmarried.

Table 4 shows that male respondents had significantly more favorable attitude toward private renting than female respondents. Similarly, people with a bachelor's degree held more positive attitudes toward renting than those without a bachelor's degree. Interestingly, married respondents held more negative attitude toward private renting but were more socially supported to rent than single respondents. Furthermore, tenants with local hukou held more negative attitude toward private renting than those without local hukou. Respondents working in the public sector had significantly more positive attitude than those whose occupation was 'others' while respondents working in private enterprises had lower perceived behavioral control than whose occupation was 'others'. Finally, living with offspring and personal income were found to be insignificant in shaping people's attitude, subjective norm, and perceived behavioral control toward renting.

5. Discussion

The current promotion of private renting in China's metropolises highlights the need to better understand people's renting decisions. The present paper aims to explore what specific underlying beliefs, as well as background factors, influence people's intention to rent in China's metropolises by analyzing data obtained from 476 tenants in Shenzhen. Although some researchers have applied the TPB to predict renting intentions (Lennartz, 2013; Zheng et al., 2019), this study is the first to further explore what specific beliefs and background factors influence people's renting intention. It was found that favorable attitudes, encouraging subjective norms, and higher perceived behavioral control were all associated with greater renting intention.

5.1. The influence of attitude, subjective norm, and perceived behavioral control on renting intention

People's renting intention was most influenced by their attitudes toward private renting, followed by subjective norm and perceived behavioral control. This finding is slightly inconsistent with Zheng et al.'s (2019) who found young people's renting intention was most influenced by subjective norms, followed by attitudes and perceived behavioral control. This may be because Zheng et al. (2019) focused on young people who are more likely to conform to their important referents and social rules. Many researchers have found that the degree of conformity is age-dependent, with youngsters showing a higher susceptibility to social influence than older people (Costanzo & Shaw, 1966, pp. 967–975; Hoving et al., 1969; Knoll et al., 2017). Interestingly, our results also differ from Lennartz (2013), who found people's intention to rent privately in the Netherlands was most influenced by attitudes, followed by perceived behavioral control while the subject norm was insignificant. It may be because "perceived social norms may have a greater impact in collectivistic than in individualistic cultures (Fishbein & Ajzen, 2011, p. 309).

5.2. The influence of underlying formative indicators

People held generally favorable attitudes toward private renting, which shows a discrepancy with Nie (2016). According to his interviews with private tenants in China, many interviewees expressed their negative attitudes about private renting, including "low quality and inconvenience", "long-term financial loss", "instability and insecurity", and "a feeling of homelessness", etc. This contradiction may derive from the difference between qualitative and quantitative analysis. During interviews, respondents might tend to narrate their unhappy experiences and negative attitudes toward private renting. However, in this research, we used three different reflective indicators to measure people's attitudes, which is expected to be more accurate. Judging from the standardized coefficients, people's positive attitudes toward private renting were most shaped by their desire for easy job-changing. In

metropolises, job-hopping rates are quite high nowadays, especially for skilled employees (Fallick et al., 2006). For those who expect to change jobs in the future, homeownership is a constraint (Battu et al., 2008). "Reduce financial pressure" was found to be the second most influential behavioral belief shaping people's attitudes toward private renting, maybe because Shenzhen has the highest house price to income ratio among China's cities (Yiju Research Institute, 2021). A large amount of urban village housing has kept rents in Shenzhen at a relatively low level. Interestingly, "no sense of belonging" and "desire sense of belonging" were negatively related to the attitude. This might be explained by a lack of control and autonomy because their living situation was dependent on the decisions taken by their roommates or landlords (McKee & Soaita, 2018; Schapiro et al., 2021). Private tenants are often not allowed to "decorate, hang pictures, stuck with the landlord's choice of furniture, and often unable to keep pets" (McKee & Soaita, 2018).

People have generally high subjective norms toward private renting. However, only families' opinions were found to have a significant influence on shaping subjective norm and renting intention, while friends had insignificant effects. This can probably be attributed to China's deep-rooted Confucian familism that considers following parents' instructions as a "filial piety" (Yao & Yao, 2000). Another possible reason might be people believe their parents are more experienced than their friends on the housing choice issue.

People have generally high perceived behavioral control, implying that finding a rental accommodation in Shenzhen is not difficult. This is probably due to the relatively low rent level in Shenzhen and the presence of a large number of urban village housing, which serves as a "safety net" and substitute for public rental housing (Li et al., 2021). Interestingly, the belief "housing prices will rise fast" and the effect of rental housing shortage are positively associated with people's renting intention. This may be because both rental shortage and rising housing prices would stimulate people to rent when homeownership is not accessible for the vast majority of the citizens. This can be understood as panic consumption influenced by individuals' perception of the scarcity of products (rental accommodations) (Yuen et al., 2020). It can also be viewed as a coping behavior to prevent themselves from paying higher rents in the future (Yuen et al., 2020).

5.3. The influence of background factors

Seven background factors have been included in the analysis. However, only marital status was significantly associated with renting intention in terms of total effects. Married people were found to have higher renting intention than the unmarried, which is consistent with Chen et al. (2022). According to Chen et al. (2022), newly married couples have a higher tendency to rent because they do not decide to settle in Guangzhou permanently, and renting is a more flexible choice for them. However, in our study, we found that married respondents indeed held more negative attitudes toward private renting but were more socially supported to rent. According to Fig. 5, it is because married respondents were more likely to believe renting does not give a sense of belonging, which is consistent with Huang and Clark (2002). Interestingly, married people had higher subjective norms through the mediation effect of "value families' opinions". In other words, married people are more supported by their reference groups to rent. This may be because being married and having one's own family reinforce the influence of Confucian familism.

Although other background factors do not influence renting intention significantly, they do have significant effects on formative indicators, attitude, subjective norm, and perceived behavioral control. For example, respondents with a bachelor's degree were more likely to believe renting could facilitate job-changing, and they also desire easy job-changing. This finding echoes the findings from Fallick et al. (2006) that knowledgeable employees in metropolitan cities are more likely to change their jobs. Respondents with local hukou held more negative

attitude toward private renting than those without local hukou. According our path analysis, this is because respondents with local hukou were less likely to believe “renting can avoid housing prices fall”. Respondents working in the public sector are less likely to desire a sense of belonging than those whose occupation is “others”. While respondents working in private enterprises were less likely to be affected by the rental housing shortage, perhaps because respondents whose occupation is “others” include many unemployed and retired renters who are more vulnerable to market conditions. Finally, living with offspring and individual income were found to neither influence formative indicators nor renting intention. It is understandable since we have defined high income as “monthly income higher than 15,000 RMB”, which is, however, still not sufficient to buy a house in Shenzhen. According to the Shenzhen Statistical Yearbook 2021, the average selling price for commercial residential housing in Shenzhen was 54,000 RMB per square meter in 2020.

5.4. Limitations

A number of important limitations need to be considered in this study. First, since our field survey only included residents in the PRS, the results cannot be generalized to the whole population in Shenzhen. Theoretically, the survey should have been conducted before the acting of the behavior. However, because most people already live in a rental or owner-occupied dwelling, which would imply that we could only include graduating college students in our study, as they are living in school dorms or with their parents. However, such a sample would be rather limited with regard to age and type of education and the results would therefore not be generalizable to other groups. We have decided to omit owner-occupiers from our sample as the question of moving to a PRS is not relevant to them and we would probably not receive reliable responses. Our approach is therefore a compromise given the nature of housing tenure choice. However, both (potential) homeowners and (potential) social renters might report lower intention to rent and might show different attitude, subjective norm, and perceived behavioral control. Therefore, we suggest that future studies find a way to also include homeowners, graduate students, and other people who do not live in the PRS in the sample. This would not only improve the data representativeness but would also allow us to investigate the relationship between renting intention and actual behavior. In addition, it would also have been interesting to run the TPB model in the three different subsectors (urban housing, commercial housing, and long-term rented apartments) to analyze whether the importance of the different factors varies between the three types of renters. However, the number of respondents is relatively small in the commercial housing sub-sector ($n = 139$) and long-term rented apartments sub-sector ($n = 58$), and a reliable analysis can therefore not be performed in separate subsectors. Future studies could consider recruiting an adequate number of respondents in the different sub-sectors and examine the determinants of private renting in each sub-sector separately.

Another limitation concerns the accuracy of measurement. We asked the current tenants to recall their renting intention and various beliefs instead of inquiring about their renting intentions in the future. As aforementioned, asking either homeowners or renters about their intention to rent in the future might confuse the respondents. Most homeowners and renters may not have an intention to rent privately since they have already been in a tenure. However, we have to admit that this approach could introduce inaccuracy because the respondents might be overly positive toward private renting due to cognitive dissonance reduction (Festinger, 1962). If a person holds two cognitions that are inconsistent with one another, (s)he will experience the pressure of

an uncomfortable motivational state called cognitive dissonance, a pressure which (s)he will seek to remove, among other ways, by altering one of the two “dissonant” cognitions (Bem, 1967). In our case, some respondents might dislike renting, but they finally chose to rent for some reason. Therefore, they may alter their attitudes more positively to alleviate their aversive feelings, which thus results in their attitudes being measured overly positive.

Finally, the potential endogeneity problem in our path model should be noted as there might be reverse causalities (e.g., from intention to attitude, from attitude to beliefs), a problem that has also been discussed by, for example, Sussman and Gifford (2019). According to the findings of Sussman and Gifford (2019), one's intentions may affect the attitude and subjective norm in a reverse-causal direction, which might further lead to estimation bias of the coefficients in regression analysis. There are generally two methods to address endogeneity, i.e., using an ad hoc solution and using an instrumental variable estimation (Shepherd, 2010). However, the ad hoc solutions cannot test how serious the endogeneity problem is, and whether the solution is adequate to deal with it (Shepherd, 2010). Meanwhile, constructing instrumental variables for path analysis is impractical because 1) path analysis is an extension of multiple regression instead of a single one, which means that for each regression sufficient instrumental variables should be used (Streiner, 2005), and 2) finding an instrumental variable for psychological factors is extremely difficult and limited by the dataset (not to mention finding as many as the number of endogenous variables). We recommend that future researchers carry out a longitudinal study to address the reverse-causality problem in tenure choice research.

6. Conclusion and policy implications

In the field of tenure choice, most existing research has focused on the determinants of homeownership and considered renting as a result of budget constraints (Chen & Yang, 2017; Deng et al., 2016). This paper aims to explore what specific underlying beliefs, as well as background factors, influence people's intention to rent in China's metropolises. By adopting the Theory of Planned Behavior, this study has shown that people's intention toward private renting was most influenced by their attitudes, subjective norms, perceived behavioral control, and marital status. Furthermore, the more people believe private renting can “reduce financial pressure”, “facilitate job-changing”, “avoid house price fall”, the higher renting intention they have. In contrast, the more people desire sense of belonging, the lower renting intention they have. In addition, the more people value families' opinions, the higher renting intention they have. The higher power people perceive of rental shortage and the more people believe “housing prices will rise”, the higher renting intention they have. Other background factors such as gender, educational level, local hukou, individual income, and occupation are not determinants for renting intention.

Although people have generally favorable attitudes, supportive subjective norms, and high perceived control of private renting, the PRS in Shenzhen is still underdeveloped judging from the mean values of formative indicators (see Fig. 4). For example, 55% of the respondents believed there was a shortage of good private rented dwellings before they moved in. While 60% of the respondents believed the PRS was unregulated, even though this did not prevent them from renting. Therefore, the expansion of the rental housing supply and the enactment of regulations on the private rental market should be taken into consideration by the local government. On the other hand, our results have implied that people's perceived benefits of private renting (e.g., reducing financial pressure, facilitating job-changing, avoiding housing price fall) could facilitate their renting intention, thus deserving more

attention from scholars and policymakers. To promote private renting, policymakers in metropolises could consider advertising these advantages of renting to improve people's attitude toward private renting. Meanwhile, measures should be taken to enhance the sense of belonging of renters. Researchers have found people who experience positive social interaction are more likely to experience a sense of belonging while negative social interaction and ostracism make people feel unwelcome and lead to a low sense of belonging (Davidson et al., 1995; Steger & Kashdan, 2009). In the Chinese context, people might associate renting with a lack of a sense of belonging because renters cannot enjoy the same rights as homeowners. For example, the "attending nearby school" policy and the "school district system" have been implemented for a long time under the background of China's compulsory education system (Wen et al., 2017). If parents do not have Hukou where they reside or do not own housing in the area, their children can attend only ordinary public or private schools, but not quality public schools nearby (Feng & Lu, 2013). Besides, renters are excluded from Community Healthcare Service (Huang et al., 2017). These policies might make people believe renters are not accepted by society and thus believe renting does not give a sense of belonging. Therefore, the empowerment of tenants should be encouraged (Zhang, 2019). However, access to public services was not included in the analysis because it was not salient beliefs identified during the elicitation study. Future studies could further

explore what factors contribute to renters' sense of belonging.

Since families' opinions were found to be more important than friends' in the tenure choice model, advertisements for renting targeted at older generations could be considered. Given the TPB assumes social norms influence people's intention and behavior through the surrounding important referents, what specific social norms influence people's housing choice was not examined in this study. Future research may seek to further explore what social norms influence people's tenure choices and how the social norms were passed on between generations.

CRediT authorship contribution statement

Bo Li: Conceptualization, Software, Formal analysis, Writing – original draft, Writing – review & editing. **Sylvia J.T. Jansen:** Methodology, Writing – review & editing. **Harry van der Heijden:** Supervision, Writing – review & editing. **Chi Jin:** Validation, Writing – review & editing. **Peter Boelhouwer:** Supervision.

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Appendix A. Generalized intention and reflective indicators of attitude, SN, and PBC

Variables	Value	Mean (S.D.)
Intention		
Before the move to my current dwelling: I intended to live in a private rented dwelling	1 – low intention 7 – high intention 1 - strongly disagree 7 – strongly agree 1 - strongly disagree 7 – strongly agree 1 - strongly disagree 7 – strongly agree	5.10 (1.60) 5.15 (1.72) 4.95 (1.77) 5.20 (1.68)
I wanted to live in a private rented dwelling	1 – negative attitude 7 – positive attitude 1 – unpleasant 7 – pleasant 1 – bad 7 – good 1 – worthless 7 – valuable	4.66 (1.47) 4.58 (1.62) 4.70 (1.56) 4.71 (1.61)
I planned to live in a private rented dwelling	1 – weak SN 7 – strong SN 1 – I should not 7 – I should 1 – would not approve 7 – would approve 1 – strongly disagree 7 – strongly agree	4.87 (1.43) 4.74 (1.69) 4.65 (1.67) 5.22 (1.52)
Attitude		
Before the move to my current dwelling: I thought living in a private rented dwelling was ...	1 – negative attitude 7 – positive attitude 1 – unpleasant 7 – pleasant 1 – bad 7 – good 1 – worthless 7 – valuable	4.66 (1.47) 4.58 (1.62) 4.70 (1.56) 4.71 (1.61)
I thought living in a private rented dwelling was ...	1 – bad 7 – good 1 – worthless 7 – valuable	4.70 (1.56) 4.71 (1.61)
I thought living in a private rented dwelling was ...	1 – bad 7 – good 1 – worthless 7 – valuable	4.70 (1.56) 4.71 (1.61)
Subjective norm		
Before the move to my current dwelling: Most people who are important to me think that ... live in a private rental dwelling	1 – weak SN 7 – strong SN 1 – I should not 7 – I should 1 – would not approve 7 – would approve 1 – strongly disagree 7 – strongly agree	4.87 (1.43) 4.74 (1.69) 4.65 (1.67) 5.22 (1.52)
The people in my life whose opinions I value ... of me living in a private rental dwelling.	1 – low PBC 7 – high PBC 1 – strongly disagree 7 – strongly agree 1 – extremely difficult 7 – extremely easy	4.79 (1.37) 4.86 (1.58) 4.67 (1.55)
Many people like me live in a private rental dwelling	1 – low PBC 7 – high PBC 1 – strongly disagree 7 – strongly agree 1 – extremely difficult 7 – extremely easy	4.79 (1.37) 4.86 (1.58) 4.67 (1.55)
Perceived behavioral control		
Before the move to my current dwelling: I was confident that I could live in a private rented dwelling if I wanted to	1 – low PBC 7 – high PBC 1 – strongly disagree 7 – strongly agree 1 – extremely difficult 7 – extremely easy	4.79 (1.37) 4.86 (1.58) 4.67 (1.55)
I thought that finding a private rented dwelling would be ...	1 – low PBC 7 – high PBC 1 – strongly disagree 7 – strongly agree 1 – extremely difficult 7 – extremely easy	4.79 (1.37) 4.86 (1.58) 4.67 (1.55)
Whether I live in a private rented dwelling or not was entirely up to me	1 – low PBC 7 – high PBC 1 – strongly disagree 7 – strongly agree	4.83 (1.80)

Appendix B. Procedure of hierarchical regression analysis and results

Stage 1: Regress attitude, subjective norm, and perceived behavioral control separately on beliefs (bb_i ; nb_i ; cb_i), i.e., attitude is predicted by the behavioral beliefs, the subjective norm by the normative beliefs, and perceived behavioral control by the control beliefs.

Stage 2: Extend the three regression models from Stage 1 with the outcome evaluations (bbe_i), motivation to comply(nbe_i), and perceived power (cbe_i) respectively.

Stage 3: Extend the three regression models from stage 2 with the multiplication of beliefs and evaluations (i.e., $bb_i * bbe_i$, $nb_i * nbe_i$, $cb_i * cbe_i$) respectively.

Regression results of attitude on behavioral beliefs and outcome evaluations

Variables	Unstandardized Coefficients	Standardizedb Coefficients	R ² change from Stage 2-3	F change	Sig. F change
Constant	2.978				
bb1	0.171***	0.214			
bb2	0.139**	0.163			
bb3	0.084*	0.112			
bb4	0.024	0.029			
bb5	-0.116**	-0.139			
bbe1	0.006	0.007			
bbe2	0.136**	0.153			
bbe3	0.039	0.046			
bbe4	-0.065	-0.076			
bbe5	-0.088*	-0.107			

*p < 0.05; **p < 0.01; ***p < 0.001.

Regression results of SN on normative beliefs and motivation to comply

Variables	Unstandardized Coefficients	Standardized Coefficients	R ² change from Stage 2-3	F change	Sig. F change
Constant	2.644				
nb1	-0.082	-0.105			
nb2	0.008	0.010			
nbe1	0.327***	0.388			
nbe2	0.138**	0.160			

*p < 0.05; **p < 0.01; ***p < 0.001.

Regression results of PBC on control beliefs and perceived power

Variables	Unstandardized Coefficients	Standardized Coefficients	R ² change from Stage 2-3	F change	Sig. F change
Constant	3.007				
cb1	.119**	.142			
cb2	.092	.107			
cb3	.007	.008			
cb4	.136**	.160			
cbe1	.225***	.236			
cbe2	-.027	-.029			
cbe3	.094	.107			
cbe4	-.045	-.051			

*p < 0.05; **p < 0.01; ***p < 0.001.

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