Aspire, Adapt, Anchor: Young Talents' Migration and Housing Decisions in China's Metropolitan Cities

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Aspire, Adapt, Anchor

Young Talents' Migration and Housing Decisions in China's Metropolitan Cities

Dissertation

for the purpose of obtaining the degree of doctor
at Delft University of Technology
by the authority of the Rector Magnificus, prof.dr.ir. T.H.J.J. van der Hagen
chair of the Board for Doctorates
to be defended publicly on
Wednesday 9 April 2025 at 10:00 o'clock

by

Chi JIN
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This dissertation has been approved by the promotors.

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Acknowledgements

After completing my master's degree, filled with longing for the big city life, I chose to move to Shenzhen and started working at a real estate company. However, the monotony and repetitiveness of the job gradually made me miss the pure joy of exploring new knowledge and challenging myself that I experienced during my master's studies. This rekindled my deep-seated desire to pursue a PhD. A year later, I resigned from my job and began to prepare earnestly for my PhD application, finally heading to the Netherlands in September 2020 to embark on my doctoral journey.

My PhD research topic was inspired by my personal experience of relocating to Shenzhen after graduation and choosing to develop my career in a major city. This experience led me to ponder: What drives me and others like me to flock to major cities after graduation? And in cities where housing issues are severe and challenges are met with adaptation, what makes us ultimately decide to stay or leave? Such reflections formed the basis and inspiration for my research topic. I am comforted by the fact that as my PhD is nearing completion, my research findings from the perspectives of psychology and behavioral economics have effectively answered these initial questions.

Throughout this journey, I have received guidance, support, companionship, and encouragement from many, which have made my PhD experience fulfilling and complete. First and foremost, I must express my profound gratitude to my supervisory team, for no amount of lavish language could suffice to convey my appreciation. My three supervisors coordinated perfectly throughout the process: Peter directed the broad research themes, Sylvia focused on the details, and Harry balanced the two.

Regarding my promoter, Peter, I vividly remember the excitement I felt when I received his email reply on October 17, 2018, while still working in Shenzhen. He wrote, "Yes, your research interests align with my current research themes." Throughout my PhD, Peter has been incredibly supportive. His broad vision and experience have guided me forward, and he has never been absent at any critical juncture. He endorsed my research topic, steered its direction, and provided powerful encouragement. Peter also showed great care in personal aspects, even inviting us to his home to enjoy the Asian cuisine he had meticulously prepared.

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In our biweekly meetings, Harry not only acted as a guide, offering suggestions on data analysis and writing but also played the roles of communicator and coordinator. For instance, when I was unclear about the opinions of other supervisors, he would always attempt to summarize the key points from my perspective to ensure I fully understood. Moreover, he facilitated the progression of various PhD processes, from the PhD agreement three months after enrollment to the Go/No-Go meeting after one year, and the yearly progress meetings that followed. Harry taught me that a good supervisor also understands and assists students from their perspective.

Sylvia's passionate attitude towards academia deeply influenced me. I remember her saying that academia was her hobby, which made me believe that "the greatest motivation comes from love." Additionally, Sylvia's meticulous guidance on theory, data analysis, and the nuances of writing greatly enriched my understanding and enhanced the quality of my thesis. For example, in her early guidance, she was very strict about the logic and coherence of the writing. Often, her feedback would be a "Why?" question. This made me consider, during later writing stages, how Sylvia would write: Is this expression clear enough? Is the logic sound? Her impact on my academic writing will benefit me for life.

I would like to express my sincere gratitude to all members of my Doctoral Committee: Prof. Clapham, Prof. Cui, Prof. Elsinga, Prof. Gruis, Prof. Liu, and Dr. Bernt. Their thoughtful feedback and rigorous comments have not only significantly enhanced the quality of this thesis. I extend my appreciation to Véro Crickx for her expert assistance with the thesis layout and printing, and to Joke Burghardt-Hodes for her invaluable support with the administrative aspects of my doctorate. I am also deeply grateful to the China Scholarship Council (CSC) for providing the financial support that made this PhD. journey possible.

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Summary

Since Lucas (1988) proposed the endogenous growth model, the view that human capital is the primary driver of regional economic growth and social development has gained widespread recognition among scholars and practitioners (Gennaioli et al., 2013; Pelinescu, 2015). In the era of the knowledge economy, young talents, defined in this study as individuals aged 20 to 40 who either possess a bachelor's degree or higher, or hold national vocational qualification certificates (such as Zhuanye Jishu Renyuan in China), or work as professionals or managers in enterprises, has become the focal point of global competition (Florida, 2002a; Glaeser & Maré, 2001). In recent years, China has also witnessed a fervent battle for talent. Since 2017, some second-tier cities[1] such as Wuhan, Xi'an, Chengdu, and Changsha have ignited a domestic "war for talent." Subsequently, more cities, including first-tier cities like Beijing and Shanghai, have joined the competition. According to incomplete media statistics, more than 100 cities introduced talent policies between 2017 and 2018. These policies, offering settlement subsidies, housing allowances, living subsidies, and other incentives to attract and retain college graduates, represented an unprecedented level of governmental commitment (He et al., 2020; Q. Wang et al., 2023)

The other side of the coin is that cities are making efforts to attract young talents, but they are also losing them for some reasons, especially in metropolitan cities. In the past, due to abundant employment opportunities and higher wages, international metropolises have traditionally been magnets for young talent (Harvey, 2014). However, many metropolitan areas worldwide are currently losing their appeal to skilled talent, possibly driven by the continuous soaring housing prices and rents, the tight housing market, traffic congestion, intense job competition, air pollution, and high crime rates (J. Chen et al., 2019a; Osutei & Kim, 2023; Qin & Zhu, 2018). Examples of such metropolitan areas are Northern California in the United States (Krishan, 2021), New South Wales in Australia (Rabe, 2023), Vancouver Canada (The Canadian Press, 2019), and first-tier cities in China (J. Chen et al., 2019a). For example, Chen et al. (2019a) indicate that due to the soaring housing costs in

1 Definition of first-tier cities in China: 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).

China's first-tier cities, an increasing number of talents are considering relocating to second-tier cities and other cities with lower living costs, housing prices, and rents. According to a survey of 2000 respondents working or studying in first-tier cities or have previously done so, 71% of them have either left or are considering leaving these cities, with 64% attributing it to high housing prices (China Youth Daily, 2017).

The phenomenon of metropolitan areas losing their appeal to talent reflects two important social issues. From the perspective of metropolises, the loss of young talents has to some extent reduced the city's innovation and economic growth (Florida, 2002a; Wong & Yip, 1999). From the perspective of young talents, the unstable housing situation in big cities is also worrying. In recent years, housing shortages, rising housing prices and rents, increasing education costs, tight mortgage markets, unstable labor market conditions, and high risks in employment prospects have exacerbated housing difficulties for young people worldwide (Hochstenbach & Boterman, 2015; McKee, 2012).

Therefore, studying the migration and housing choices of young talents and their influencing factors is very important and timely. The results of the research can provide detailed references for formulating policies to attract and retain young talents in metropolitan cities, as well as for improving the housing conditions of young talents staying in metropolitan cities.

Numerous previous research has explored the migration and housing behavior of young people, providing us with important insights for our study. However, there still exist some research gaps.

Firstly, there is a knowledge gap. Currently, metropolitan cities in China, among other countries, are facing the challenge of losing appeal to talent, which is increasingly becoming a concern for local governments. Despite various measures being taken to attract and retain talent, their effectiveness is limited. This thesis argues that the root of this problem lies in policymakers' lack of understanding of the factors influencing young talent migration decisions, especially a limited understanding of subjective decision factors at the micro level. Additionally, there is a lack of comprehensive and nuanced understanding by the government of the housing situation of young talents, as well as the bidirectional relationship between housing and their migration decisions—whether housing affects migration plans and, conversely, whether migration plans influence housing choices. These knowledge gaps hinder the effective formulation of policies for talent attraction and retention, as well as improving the housing conditions of young talents.

Secondly, there is a methodological gap. Previous migration and housing studies have largely been based on traditional neoclassical theories. In neoclassical economic theory, decision-makers are assumed to always seek wage or utility maximization and have complete knowledge of the market (Castles, Haas, et al., 2014, p. 29; Jansen & Coolen, 2011, p. 16), but this assumption often does not align with reality due to incomplete information and cognitive biases. Therefore, in studies of housing and migration choices, scholars have shifted their focus to examining the role of individual subjective agency, such as their values and goals (Castles, Haas, et al., 2014, p. 37; Clapham, 2005). However, these theoretical frameworks, such as means-end theory (Coolen et al., 2002a) and value-expectancy models(De Jong & Fawcett, 1981a), often fail to consider broader social and cultural background factors, as well as the influence of individual characteristics and psychological factors on decision-making. Additionally, some existing frameworks and theories like often do not focus on how individuals cope with risk and uncertainty (Clark & Lisowski, 2017; Czaika, 2015). Furthermore, some existing research examines residential mobility and migration behavior in isolation, often neglecting to explore the interconnections between these two phenomena.

Therefore, there is a need for more suitable theoretical frameworks that not only emphasize individual bounded rationality but also consider how individual preferences, social factors, psychological expectations, and risk attitudes influence their housing and migration decisions. Hence, in this thesis, the **theory of planned behavior**, **prospect theory**, **housing pathways approach**, and **Bourdieu's practice theory** were employed to study the migration and housing behavior decisions of young talents at the micro behavior level.

To address the aforementioned issues of losing appeal to young talents and housing difficulties of young talents in metropolitan cities and bridge the research gaps, the primary objectives of this dissertation are threefold. Firstly, it aims to meticulously examine the determinants of young talent migration choices from the psychological and economic behavioral perspective. Secondly, it seeks to explore the housing pathways of young talents in major cities in China and reveal the determinants of their housing choices and outcomes. Thirdly, it endeavors to link migration and housing behaviors, uncovering their interactions. By addressing the above aims, this thesis additionally seeks to propose policy recommendations based on the research findings, providing references for policy formulation regarding attracting and retaining young talents in metropolitan cities and improving housing conditions for young talents.

This dissertation examines the mechanisms through which psychological and behavioral economic factors influence migration and housing decisions among young talents, focusing on four major metropolitan areas in China: **Beijing, Shanghai, Shenzhen, and Guangzhou**. These four first-tier cities were chosen due to their challenges in attracting talent and providing affordable housing, as well as their frequent role as pilot sites and benchmarks for China's urban planning and development strategies. Migration behavior in this context primarily refers to domestic migration, specifically the movement of young talent from other cities to these first-tier cities or moving outward from first-tier cities to other regions.

Specifically, this dissertation addresses four research questions, following a chronological narrative of "**Aspire—Adapt—Anchor**" to ensure coherence and cohesion. The first research question explores the factors that attract young talent to move to major cities, emphasizing their aspirations and the motivations driving them to seek opportunities in first-tier cities (Aspire). The second and third research questions examine the housing conditions and choices of young talent in these cities, reflecting their adaptation process as they navigate and make decisions within the housing market (Adapt). Finally, the fourth research question delves into the reasons why young talent choose to settle permanently in first-tier cities, investigating the factors that encourage them to anchor their lives in these urban centers (Anchor).

The specific research questions, methodologies, findings and policy recommendations are as follows:

Research question 1: What factors influence the migration intentions of young talents to metropolitan cities? (Aspire)

The first research question examines why young talents intend to migrate to metropolitan cities. This study employs the Theory of Planned Behavior (TPB) to investigate the factors influencing university students' intention to migrate to first-tier cities post-graduation. Analyzing questionnaire survey data collected from 1242 students across China, it was discovered that approximately two-thirds of them express such intentions. Structural Equation Modeling (SEM) revealed that attitudes, subjective norms, and perceived behavioral control (PBC) significantly impact migration intentions. Notably, positive attitudes towards first-tier cities are shaped by beliefs in achieving future dreams, enhanced job prospects, and better salaries. Support from family, friends, teachers, and peers fosters favorable subjective norms regarding migration to first-tier cities. Conversely, concerns about high housing costs, living expenses, and family ties deter university students from migrating to first-tier cities. Additionally, being male, having siblings, studying in first-tier cities, and attending prestigious universities positively influence migration

intentions by affecting attitude, subjective norm, perceived behavioral control, and their corresponding beliefs. For example, students attending 985/211 universities (i.e., prestigious universities in China) have a higher intention to move to first-tier cities compared to students from other institutions because they exhibit lower levels of concern about housing prices in these cities (a control belief), thereby perceiving a higher degree of perceived behavioral control (PBC).

Policy recommendations could prioritize enhancing students' attitudes towards first-tier cities by emphasizing their potential to realize future dreams in first-tier cities. This can be achieved through strategic city branding efforts highlighting economic and social development opportunities. Increasing job opportunities and wages can also attract talent. Leveraging the influence of family, teachers, and social networks in talent policies is crucial, with targeted promotions toward parents and educators. Addressing concerns about the high cost of living and housing prices is essential. Measures like providing living allowances, minimum wages, and housing subsidies can make people feel more in control of their situation regarding moving to first-tier cities(namely improving PBC). Tailoring talent policies based on individual backgrounds, such as providing elder care or cash benefits for only children, is recommended.

Research question 2: What are the housing pathways of young talents in metropolitan cities, and what is the connection between the housing pathways and their future migration intentions? (Adapt)

The second research question delves into the housing pathways and future migration plans of young talents in Shenzhen, China. Utilizing Bourdieu's theory of practice alongside the housing pathways approach, the study explores the interplay between structural and agency factors in shaping housing pathways. Through 18 semi-structured interviews, four distinct housing pathways emerged: staying at parents' homes, private renting to owning, talented renting, and progressive private renting. It was observed that the interplay of habitus and diverse forms of capital significantly influences their housing pathways. Furthermore, the study highlights that young talents pursuing different housing pathways harbor varying future migration intentions.

Policy recommendations are provided from both cities and young talent perspectives. The first aspect of policy implications revolves around attracting and retaining young talents in Shenzhen. While homeownership is crucial for talent retention, ensuring it for all in a high-priced city like Shenzhen is impractical. However, reducing barriers like hukou and social insurance requirements could aid in talent attraction and retention. Additionally, streamlining processes for Affordable Commercial Residential

Housing (ACRH) purchases could boost homeownership rates among young talents. Encouraging the supply of talented rental housing is vital, as talents on this pathway are less likely to leave Shenzhen. The second aspect focuses on enhancing the housing situation for young talents. Those in the fourth pathway, engaging in progressive private renting, often face challenges in the urban village rental sector. Improving the living conditions in urban village rental housing, including lighting and infrastructure enhancements, could alleviate these issues and support young talents' housing transitions.

Research question 3: What motivates young talents to consider home purchases in metropolitan cities? (Adapt)

The third research question investigates the homeownership aspirations of young talents in metropolitan cities. Through the utilization of the Theory of Planned Behavior (TPB), this research question examines the intentions of young talents to purchase a home by investigating specific beliefs and background factors. Structural equation modeling was employed to analyze 1065 questionnaires collected from young talents across four first-tier cities in China, revealing significant impacts of various beliefs and background factors on buying intentions. Particularly noteworthy is the pivotal role played by behavioral beliefs, wherein young talents perceive homeownership as an investment opportunity, a source of belonging, and a means to provide better education for their children. Normative beliefs, including the influence of individuals who already own homes, family members, and partners, also exert significant influence. Control beliefs, encompassing financial constraints related to down payments and mortgages, access to family support, and the decision to settle down in the city, further shape home-buying intentions. Moreover, background factors such as gender, occupation, and current tenure contribute to the formation of diverse beliefs and attitudes among young talents, consequently influencing their intentions to purchase a home.

The research findings offer actionable insights for policymakers and practitioners. Emphasizing the investment potential of homeownership in government initiatives can boost young talents' intentions to buy homes, given the influence of the belief "My own house would be a good financial investment" uncovered in the study. However, caution is advised in reinforcing beliefs that link homeownership with better access to educational resources, as this could inadvertently worsen inequalities between homeowners and renters in terms of education opportunities. Policymakers should ensure that any initiatives promoting homeownership do not widen educational disparities, thereby maintaining a balance between promoting economic growth and safeguarding equal access to education for all. Addressing the down payment barrier is crucial, as highlighted by the significance of the belief "I

expect that I can accumulate enough money to afford the down payment in the next five years." Policymakers should consider reducing the down payment percentage to facilitate homeownership among young talents.

Research question 4: What determinants influence the intention of young talents to stay in metropolitan cities? (Anchor)

The fourth research question explores the determinants influencing the long-term settlement decisions of young talents in first-tier cities. By developing a comprehensive analytical framework that incorporates reference dependence, loss aversion, endowment effects, and risk attitudes, this study advances the application of prospect theory in migration research. Employing logistic regression analysis, it examines survey data from 1065 young talents across four major cities. The findings indicate that young talents' expectations and current discrepancies regarding career development prospects and housing costs significantly impact their intentions to settle long-term. Moreover, young talents exhibit heightened sensitivity to prospective losses. Additionally, endowments including local hukou, public sector employment, homeownership, longer durations of residence, and place attachment significantly enhance their willingness to settle. Lastly, the study observes divergent impacts of general risk attitudes and migration-specific risk attitudes on migration decisions; general risk attitude exhibits positive effects in some models, while migration risk attitude consistently shows strong negative effects. This suggests that young talents willing to remain in first-tier cities display a preference for general risks, such as socio-economic uncertainties and challenges at the local level, yet demonstrate a strong aversion to migration risks.

Based on the findings, talent retention policies might consider several aspects: First, addressing loss aversion in career prospects, as any perceived decline in career opportunities under challenging economic conditions could trigger an accelerated outflow of talents. Thus, cities should prioritize maintaining the stability and quality of existing professional opportunities—protecting established career paths, supporting existing businesses, and preserving innovation ecosystems. Second, strengthening endowment effects, particularly institutional endowments such as local hukou and public sector employment. Third, managing risks: on one hand, by enhancing the risk-reward balance in cities (e.g., entrepreneurial incentives) to amplify the direct positive effects, and on the other hand, by mitigating migration pull factors (e.g., improving local welfare) to neutralize negative impacts.

In summary, these research questions collectively contribute to a deeper and more nuanced understanding of the decision-making mechanisms underlying young talent migration and housing behavior. The research findings provide valuable insights for

policymakers seeking to devise effective strategies amidst the evolving dynamics of population and housing. These strategies aim to attract and retain talent as well as assist individuals aspiring to remain in metropolitan areas in improving their housing conditions. Moreover, the study enriches the application of theories from psychology and behavioral economics in the domains of migration and housing research, laying the groundwork for subsequent related investigations.

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Samenvatting

Sinds Lucas (1988) het endogene groeimodel introduceerde, is de opvatting dat menselijk kapitaal de belangrijkste drijvende kracht is achter regionale economische groei en sociale ontwikkeling wijdverbreid erkend onder wetenschappers en praktijkmensen (Gennaioli et al., 2013; Pelinescu, 2015). In het tijdperk van de kenniseconomie is jong talent, gedefinieerd in deze studie als individuen van 20 tot 40 jaar die een bachelor diploma of hoger bezitten, of over nationale beroepskwalificatiecertificaten beschikken (zoals Zhuanye Jishu Renyuan in China), of als professionals of managers in bedrijven werken, het centrale punt geworden van mondiale concurrentie (Florida, 2002; Glaeser en Maré, 2001). In de afgelopen jaren heeft ook China een intense strijd om talent gekend. Sinds 2017 hebben enkele second-tier cities[2], zoals Wuhan, Xi'an, Chengdu en Changsha, een binnenlandse "strijd om talent" ontketend. Vervolgens hebben meer steden, waaronder first-tier cities zoals Beijing en Shanghai, zich bij deze concurrentie aangesloten. Volgens onvolledige mediastatistieken hebben meer dan 100 steden tussen 2017 en 2018 beleid ingevoerd om talent aan te trekken. Deze beleidsmaatregelen, waaronder verhuiskostensubsidies, woningtoelagen, leefsubsidies en andere stimulerende maatregelen om afgestudeerden aan te trekken en te behouden, tonen een ongekende mate van overheidsbetrokkenheid (He et al., 2020; Wang et al., 2023).

De andere kant van de medaille is dat steden moeite doen om jong talent aan te trekken, maar ze verliezen hen ook om verschillende redenen, vooral in metropoolsteden. In het verleden werkten internationale metropolen als magneten voor jong talent vanwege de overvloed aan carrièremogelijkheden en hogere lonen (Harvey, 2014). Echter, veel metropoolgebieden wereldwijd verliezen momenteel hun aantrekkingskracht voor hoogopgeleid talent, mogelijk gedreven door de voortdurend stijgende huizenprijzen en huren, de krappe woningmarkt, verkeersproblemen, de intense concurrentie op de arbeidsmarkt, luchtvervuiling en hoge misdaadcijfers (Chen, Hu en Lin, 2019; Osutei en Kim, 2023; Qin en Zhu, 2018). Voorbeelden van dergelijke metropoolgebieden zijn Noord-Californië in de Verenigde Staten (Krishan, 2021), New South Wales in Australië (Rabe, 2023), Vancouver in

2 China kent een hierarchie binnen steden, waarbij de grootste steden 'first-tier cities' genoemd worden, de iets minder grote steden 'second-tier cities' en de kleinere steden 'small cities'. Omdat deze termen moeilijk naar het Nederlands te vertalen zijn, zullen deze Engelse termen gebruikt worden.

Canada (The Canadian Press, 2019) en 'first-tier cities' in China (Chen et al., 2019). Chen et al. (2019) geven bijvoorbeeld aan dat door de stijgende huisvestingskosten in Chinese first-tier cities een toenemend aantal talenten overweegt om te verhuizen naar second-tier cities en andere steden met lagere kosten van levensonderhoud, woningprijzen en huren. Volgens een enquête onder 2000 respondenten die momenteel werken of studeren in eerstelijnssteden of dit eerder hebben gedaan, heeft 71% van hen deze steden verlaten of overweegt dit te doen, waarbij 64% dit toeschrijft aan de hoge huizenprijzen (China Youth Daily, 2017).

Het fenomeen waarbij metropoolgebieden hun aantrekkingskracht voor jong talent verliezen, weerspiegelt twee belangrijke sociale kwesties. Vanuit het perspectief van metropolen heeft het verlies van jong talent in zekere mate de innovatie en economische groei van de stad verminderd (Florida, 2002; Wong en Yip, 1999). Vanuit het perspectief van jong talent is de onzekere leefsituatie in grote steden ook zorgwekkend. De afgelopen jaren hebben woningtekorten, stijgende woningprijzen en huurprijzen, toenemende onderwijskosten, krappe hypotheekmarkten, instabiele arbeidsmarktcondities en onzekere carrièremogelijkheden de huisvestingsproblemen voor jongeren wereldwijd verergerd (Hochstenbach en Boterman, 2015; McKee, 2012).

Daarom is **het bestuderen van de migratie- en woonkeuzes van jong talent en de factoren die deze keuzes beïnvloeden, van groot belang en zeer actueel**. De onderzoeksresultaten kunnen gedetailleerde aanknopingspunten bieden voor het formuleren van beleid om jong talent aan te trekken en te behouden in metropoolsteden, evenals beleid voor het verbeteren van de woonomstandigheden van jong talent in de metropoolsteden.

Verschillende eerdere studies hebben het migratie- en woongedrag van jongeren onderzocht en bieden ons waardevolle inzichten voor deze studie. Echter, er blijven enkele hiaten in dit onderzoek bestaan.

Ten eerste is er een kenniskloof. Momenteel worden metropoolsteden in China, evenals in andere landen, geconfronteerd met de uitdaging dat zij hun aantrekkingskracht op talent lijken te verliezen, wat steeds meer een zorg wordt voor lokale overheden. Ondanks verschillende maatregelen om talent aan te trekken en te behouden, is de effectiviteit hiervan beperkt. Dit proefschrift stelt dat de kern van dit probleem ligt in het gebrek aan begrip bij beleidsmakers van de factoren die de migratiebeslissingen van jong talent beïnvloeden, vooral het beperkte inzicht in subjectieve beslissfactoren op microniveau. Daarnaast ontbreekt het de overheid aan een goed begrip van de woonsituatie en toekomstperspectieven van jong talent, evenals van de wederzijdse relatie tussen huisvesting en hun migratieplannen—of

huisvesting van invloed is op migratieplannen en, omgekeerd, of migratieplannen van invloed zijn op huisvestingskeuzes. Deze kennislacunes belemmeren de effectieve formulering van beleid voor het aantrekken en behouden van talent en voor het verbeteren van de woonomstandigheden van jong talent.

Ten tweede is er een methodologische kloof. Eerdere studies over migratie en huisvesting zijn grotendeels gebaseerd op traditionele neoklassieke theorieën. In de neoklassieke economische theorie wordt aangenomen dat beslissers altijd streven naar loon- of nutmaximalisatie en dat zij volledige marktkennis hebben (Castles, Haas en Miller, 2014:29; Jansen en Coolen, 2011:16). Maar deze aanname komt vaak niet overeen met de werkelijkheid vanwege onvolledige informatie en cognitieve denkfouten (biases). Daarom hebben onderzoekers in studies naar huisvesting- en migratiegedrag hun focus verlegd naar het onderzoeken van de rol van individuele subjectieve motivaties, zoals waarden en doelen (Castles et al., 2014:37; Clapham, 2005). Echter, deze theoretische denkkaders, zoals de means-end theory (Coolen, Boelhouwer en Van Driel, 2002) en value-expectancy models (De Jong en Fawcett, 1981), houden vaak geen rekening met bredere sociale en culturele achtergrondfactoren en met de invloed van individuele kenmerken en psychologische factoren op de besluitvorming. Bovendien richten bestaande kaders en theorieën zich veelal niet op hoe individuen omgaan met risico's en onzekerheid (Clark en Lisowski, 2017; Czaika, 2015). Verder onderzoeken bestaande studies residentiële mobiliteit en migratiegedrag meestal afzonderlijk, waarbij vaak wordt nagelaten de onderlinge verbanden tussen deze twee fenomenen te verkennen.

Daarom is er behoefte aan meer geschikte theoretische kaders die niet alleen de beperkte rationaliteit van individuen benadrukken, maar ook rekening houden met hoe individuele voorkeuren, sociale factoren, psychologische verwachtingen en de houding ten aanzien van risico de huisvestings- en migratiebeslissingen beïnvloeden. In dit proefschrift worden daarom de **Theory of Planned Behavior (TPB)**, **Prospect Theory**, **de Housing pathways benadering** en **Bourdieu's Practice theory** gebruikt om de migratie- en huisvestingsbeslissingen van jong talent op microniveau te bestuderen.

Om de bovengenoemde problemen van het verlies aan aantrekkingskracht op jong talent en de huisvestingsmoeilijkheden voor deze groep in metropoolsteden aan te pakken en de onderzoekslacunes te dichten, zijn de primaire doelstellingen van deze dissertatie drievoudig. Ten eerste beoogt het een nauwgezette analyse te zijn van de determinanten van migratiekeuzes van jong talent vanuit psychologisch en economisch gedragsperspectief. Ten tweede wil het de huisvestingstrajecten van jong talent in grote steden in China verkennen en de determinanten van hun woonkeuzes en woongedrag bepalen. Ten derde streeft het ernaar om migratie- en woongedrag

met elkaar te verbinden en hun onderlinge interacties bloot te leggen. Door deze doelstellingen te realiseren, beoogt dit proefschrift tevens beleidsaanbevelingen te doen op basis van de onderzoeksresultaten, met aanknopingspunten voor beleidsvorming gericht op het aantrekken en behouden van jong talent in metropoolsteden en het verbeteren van de woonomstandigheden voor jong talent.

Dit proefschrift onderzoekt de mechanismen waarmee psychologische en economische gedragsfactoren migratie- en huisvestingsbeslissingen onder jong talent beïnvloeden, met een focus op vier grote metropoolgebieden in China: **Beijing, Shanghai, Shenzhen en Guangzhou**. Deze vier grote steden zijn gekozen vanwege hun uitdaging om talent aan te trekken en betaalbare huisvesting te bieden, maar ook vanwege hun rol als pilotsites en benchmarks voor de stedelijke planning en ontwikkelingsstrategieën van China. Migratiegedrag in deze context verwijst voornamelijk naar binnenlandse migratie, specifiek de beweging van jong talent van andere steden naar 'first-tier cities' of vanuit 'first-tier cities' naar andere regio's.

Specifiek behandelt deze dissertatie vier onderzoeksvragen, die een chronologische verhaallijn van "**Aspire—Adapt—Anchor**" volgen om samenhang en consistentie te waarborgen. De eerste onderzoeksvraag onderzoekt de factoren die getalenteerde jongeren aantrekken om naar grote steden te verhuizen, met de nadruk op hun aspiraties en de motivaties die hen drijven om kansen te zoeken in 'first-tier cities' (Aspire). De tweede en derde onderzoeksvraag analyseert de huisvestingsomstandigheden en keuzes van jong talent in deze steden, waarbij hun aanpassingsproces blijkt uit de wijze waarop zij navigeren en beslissingen nemen binnen de woningmarkt (Adapt). Ten slotte gaat de vierde onderzoeksvraag in op de redenen waarom jong talent ervoor kiest om zich permanent te vestigen in 'first-tier cities', waarbij de factoren worden onderzocht die hen motiveren om zich in deze stedelijke centra te vestigen (Anchor).

De specifieke onderzoeksvragen, methodologieën, bevindingen en beleidsaanbevelingen zijn als volgt:

Onderzoeksvraag 1: Welke factoren beïnvloeden de migratie-intenties van jong talent naar metropoolsteden? (Aspire)

De eerste onderzoeksvraag heeft betrekking op de intenties van jong talent om naar metropoolsteden te migreren. Hierbij wordt de Theory of Planned Behavior (TPB) toegepast om de factoren te achterhalen, die de intentie van universiteitsstudenten beïnvloeden om na hun afstuderen naar 'first-tier cities' te migreren. Door middel van het analyseren van enquêteresultaten, verzameld onder 1242 studenten in heel China, werd ontdekt dat ongeveer twee derde van hen dergelijke intenties heeft.

Structural quation models (SEM) toonden aan dat attitudes, subjectieve normen en waargenomen gedragscontrole (PBC) significant van invloed zijn op deze migratie-intenties. Positieve attitudes ten aanzien van 'first-tier cities' worden met name gevormd door overtuigingen over het verwezenlijken van toekomstige dromen, betere carrièremogelijkheden en hogere salarissen. Ondersteuning van familie, vrienden, docenten en leeftijdsgenoten bevordert gunstige subjectieve normen met betrekking tot migratie naar 'first-tier cities'. Omgekeerd ontmoedigen zorgen over hoge huisvestingskosten, levensonderhoud en familiebanden universiteitsstudenten om naar deze steden te migreren. Daarnaast beïnvloeden het mannelijk zijn, het hebben van broers en zussen, het studeren in first-tier cities, en het bijwonen van prestigieuze universiteiten positief de migratie-intenties door attitude, subjectieve norm, waargenomen gedragscontrole, en hun overeenkomstige overtuigingen te beïnvloeden. Bijvoorbeeld, studenten die studeren aan 985/211 universiteiten (d.w.z. prestigieuze universiteiten in China) hebben een hogere intentie om naar eersteklas steden te verhuizen in vergelijking met studenten van andere instellingen omdat zij lagere zorgen over huisvestingsprijzen in deze steden vertonen (een controle overtuiging), waardoor zij een hogere graad van waargenomen gedragscontrole (PBC) ervaren.

Beleidsaanbevelingen kunnen zich richten op het versterken van de positieve houding van studenten ten aanzien van 'first-tier cities' door de nadruk te leggen op hun mogelijkheden om toekomstige dromen te realiseren. Dit kan worden bereikt door strategische branding van de stad, waarbij de economische en sociale ontwikkelingskansen worden benadrukt. Het vergroten van de werkgelegenheid en het verhogen van de lonen kan ook talent aantrekken. Het benutten van de invloed van familie, docenten en sociale netwerken in het te ontwikkelen beleid is cruciaal, met gerichte promotie richting ouders en opvoeders. Daarnaast is het wegnemen van de zorgen over de hoge kosten voor levensonderhoud en huisvesting essentieel. Maatregelen zoals het verstrekken van toelagen voor levensonderhoud, minimumlonen en huursubsidies kunnen mensen een groter gevoel van controle geven over hun situatie met betrekking tot het verhuizen naar first-tier cities(namelijk het verbeteren van de PBC). Tot slot wordt aanbevolen om het beleid af te stemmen op de individuele achtergronden van de getalenteerde jongeren, zoals het verstrekken van ouderenzorg of financiële voordelen wanneer een getalenteerde jongere thuis enig kind is.

Onderzoeksvraag 2: Wat zijn de wooncarrières van jong talent in metropoolsteden, en wat is de verbinding tussen deze carrières en hun toekomstige migratie-intenties? (Adapt)

De tweede onderzoeksvraag heeft betrekking op de wooncarrières (housing pathways) en toekomstige migratieplannen van jong talent in de Chinese stad Shenzhen. Met behulp van Bourdieu's Practice theory, in combinatie met de Housing Pathway benadering, verkent deze studie de wisselwerking tussen algemene contextuele factoren en individuele factoren bij het tot stand komen van de wooncarrieres van jong talent. Door middel van 18 semi-gestructureerde interviews kwamen vier verschillende typen wooncarrières naar voren: bij ouders thuis blijven wonen, verhuizen van de particuliere huursector naar de koopsector, huren van een woning met een specifieke regeling voor jong talent, en doorverhuizen binnen de particuliere huursector. Er is geconstateerd dat de wisselwerking tussen 'habitus' en diverse vormen van kapitaal (sociaal, cultureel en economisch), de wooncarrières van jong talent significant beïnvloedt. Daarnaast toont de studie aan dat jong talent met verschillende wooncarrières uiteenlopende migratie-intenties voor de toekomst koesteren.

Beleidsaanbevelingen worden gegeven vanuit zowel het perspectief van de steden als van de groep getalenteerde jongeren. De eerste beleidsaanbeveling draait om het aantrekken en behouden van jong talent in Shenzhen. Hoewel eigenwonigbezit cruciaal is voor het behouden van jong talent in de stad, is dit in een dure stad als Shenzhen niet voor iedereen haalbaar. Het verlagen van barrières, zoals het moeten bezitten van een hukou en sociale verzekering, zou echter kunnen helpen bij het aantrekken en behouden van getalenteerde jongeren. Daarnaast kan het vereenvoudigen van procedures voor de aankoop van betaalbare commerciële woningen (Affordable Commercial Residential Housing, ACRH) het percentage huiseigenaren onder jong talent verhogen. Het bevorderen van het woningaanbod voor jonge talenten in de particuliere huursector is eveneens essentieel. Talenten die binnen deze sector kunnen doorverhuizen, zijn namelijk minder geneigd om Shenzhen te verlaten. Het tweede aspect richt zich op het verbeteren van de huisvestingssituatie voor jong talent. De jongeren die het vierde type wooncarrière hebben gevolgd, doorverhuizen binnen de particuliere huursector, ondervinden vaak uitdagingen in de stedelijke huursector. Het verbeteren van de leefomstandigheden in stedelijke wijken met huurwoningen, zoals betere verlichting en infrastructuurverbeteringen, zou de mogelijkheden van jong talent voor een wooncarrière in deze sector kunnen ondersteunen.

Onderzoeksvraag 3: Wat motiveert jong talent om eigenwoningbezit te overwegen in metropoolsteden? (Adapt)

De derde onderzoeksvraag stelt de aspiraties van jong talent voor eigenwoningbezit in metropoolsteden centraal. Gebruikmakend van de Theory of Planned Behavior (TPB) worden de intenties van getalenteerde jongeren om een woning te kopen bestudeerd, door specifiek te kijken naar bepaalde overtuigingen en achtergrondfactoren. De Structural Equation Models (SEM) methode is toegepast om de resultaten uit 1065 enquêtes te analyseren, verzameld onder jong talent in vier 'first-tier cities' in China. Hieruit is gebleken dat diverse overtuigingen en achtergrondfactoren een significante invloed hebben op de koopintenties. Vooral de cruciale rol van gedragsmatige overtuigingen is opmerkelijk, waarbij jong talent een eigen woning ziet als een investeringskans, een bron van verbondenheid en als een middel om betere onderwijsmogelijkheden voor hun kinderen te bieden. Normatieve overtuigingen, zoals de invloed van personen die al een woning bezitten en de mening van familieleden en partners, hebben eveneens een aanzienlijke impact. Controle-overtuigingen, waaronder financiële beperkingen met betrekking tot aanbetalingen en hypotheken, toegang tot gezinsondersteuning, en de beslissing om zich in de stad te vestigen, hebben eveneens effect op de koopintenties. Bovendien dragen achtergrondfactoren zoals geslacht, beroep en huidige woonsituatie bij aan de vorming van diverse overtuigingen en houdingen van jong talent, die weer van invloed zijn op hun intenties om een woning te kopen.

De onderzoeksresultaten bieden bruikbare inzichten voor beleidsmakers en praktijkmensen. Het benadrukken van het investeringspotentieel van eigenwoningbezit in overheidsinitiatieven kan de koopintenties van jong talent versterken, gezien de in dit onderzoek vastgestelde invloed van de overtuiging "Mijn eigen huis zou een goede financiële investering zijn". Er is echter voorzichtigheid geboden bij het versterken van overtuigingen die eigenwoningbezit verbinden met betere toegang tot onderwijsinstellingen, omdat dit onbedoeld de ongelijkheden op het gebied van onderwijs kan verergeren tussen huiseigenaren en huurders. Beleidsmakers zouden er op moeten toezien dat initiatieven ter bevordering van het eigenwoningbezit niet leiden tot een grotere onderwijsongelijkheden. Er dient een balans te worden behouden tussen het stimuleren van economische groei en het waarborgen van gelijke toegang tot onderwijs voor iedereen. Het aanpakken van de drempel voor het betalen van de maandelijkse aflossing op de hypotheek is cruciaal, zoals onderstreept door de overtuiging "Ik verwacht dat ik genoeg geld kan sparen om de aflossing op de hypotheek in de komende vijf jaar te kunnen betalen." Beleidsmakers zouden kunnen overwegen om het aflossingspercentage op de hypotheek tijdelijk te verlagen om eigenwoningbezit onder jong talent te vergemakkelijken.

Onderzoeksvraag 4: Welke determinanten beïnvloeden de intentie van jong talent om in metropoolsteden te blijven wonen? (Anchor)

De vierde onderzoeksvraag onderzoekt de factoren die de beslissingen van jong talent beïnvloeden om zich op lange termijn in first-tier cities te vestigen. Door het ontwikkelen van een uitgebreid analytisch kader dat referentieafhankelijkheid, verliesaversie, dotatie-effecten en risicoattitudes omvat, bevordert deze studie de toepassing van de vooruitzichttheorie in migratieonderzoek. Met behulp van logistische regressieanalyse onderzoekt het de enquêtegegevens van 1065 jonge talenten in vier grote steden. De bevindingen geven aan dat de verwachtingen van jong talent en de huidige discrepanties met betrekking tot carrièreontwikkelingsvooruitzichten en huisvestingskosten aanzienlijk invloed hebben op hun intenties om zich op lange termijn te vestigen. Bovendien vertonen jonge talenten een verhoogde gevoeligheid voor toekomstige verliezen. Daarnaast versterken dotaties, waaronder lokale hukou, werkgelegenheid in de publieke sector, huiseigendom, langere verblijfsduur en plaatsverbondenheid, hun bereidheid om zich te vestigen aanzienlijk. Tot slot observeert de studie uiteenlopende effecten van algemene risicoattitudes en migratiespecifieke risicoattitudes op migratiebeslissingen; de algemene risicoattitude vertoont positieve effecten in sommige modellen, terwijl de migratierisicoattitude consequent sterke negatieve effecten toont. Dit suggereert dat jong talent dat bereid is in first-tier cities te blijven een voorkeur toont voor algemene risico's, zoals sociaal-economische onzekerheden en uitdagingen op lokaal niveau, maar tegelijkertijd een sterke afkeer van migratierisico's toont.

Op basis van de bevindingen kunnen beleidsmaatregelen voor talentbehoud verschillende aspecten overwegen: Ten eerste, het aanpakken van verliesaversie bij carrièrevooruitzichten, aangezien elke waargenomen daling van carrièrekansen onder uitdagende economische omstandigheden een versnelde uitstroom van talenten kan veroorzaken. Daarom moeten steden prioriteit geven aan het behouden van de stabiliteit en kwaliteit van bestaande professionele mogelijkheden - gevestigde carrièrepaden beschermen, bestaande bedrijven ondersteunen en innovatie-ecosystemen behouden. Ten tweede, het versterken van dotatie-effecten, met name institutionele dotaties zoals lokale hukou en werkgelegenheid in de publieke sector. Ten derde, het beheren van risico's: enerzijds door het risico-beloningsevenwicht in steden te verbeteren (bijv. ondernemersstimulansen) om de directe positieve effecten te versterken, en anderzijds door migratietrekfactoren te verminderen (bijv. het verbeteren van lokale welzijnsvoorzieningen) om negatieve effecten te neutraliseren.

Samenvattend dragen de antwoorden op de vier onderzoeksvragen in deze studie bij aan een dieper en meer genuanceerd begrip van de besluitvormingsmechanismen, die ten grondslag liggen aan het migratie- en woongedrag van jong talent. De onderzoeksresultaten bieden waardevolle inzichten voor beleidsmakers die effectieve strategieën willen ontwikkelen binnen de veranderende dynamiek van bevolking en huisvesting. Deze strategieën kunnen gericht zijn op het aantrekken en behouden van jong talent en op het ondersteunen van individuen bij het verbeteren van hun huisvestingsomstandigheden, wanneer zij in metropoolgebieden willen blijven wonen,. Bovendien verrijkt de studie de toepassing van theorieën uit de psychologie en gedragswetenschappen binnen de domeinen van migratie- en huisvestingsonderzoek, waarmee de basis wordt gelegd voor verder onderzoek op dit terein.

1 Introduction

1.1 Background and context

The war for talent

With the advent of the knowledge economy, highly skilled individuals have become the focal point of competition worldwide. In 1998, the largest management consulting firm in the United States, McKinsey & Company, pointed out in their research report that "better talent is worth fighting for" and introduced the concept of the "war for talent" (Chambers et al., 1998). Since its introduction, the phrase "war for talent" has become widely used in literature, drawing increasing interest from researchers and policymakers alike (Harvey, 2014). In numerous countries across the globe, there exists a concerted effort to attract high-skilled migrants because they are "often viewed as less welfare dependent and more labor market ready than other types of migrants" (Boucher & Cerna, 2014, p. 21). According to data from 111 countries in 2019, 40% of those nations implemented policies to attract highly skilled migrants, while only 5% enacted measures to restrict such migration. Approximately 19% of the countries aimed to maintain the status quo, and 37% had no specific policies in this regard (United Nations, 2019, p. 32).

In recent years, China has also witnessed a fervent battle for talent. Since 2017, some second-tier cities such as Wuhan, Xi'an, Chengdu, and Changsha have ignited a "war for talent." For example, Wuhan, as one of the major hubs for higher education in China, launched the "One Million College Students Stay in Wuhan Initiative," aiming to retain college graduates for entrepreneurship and employment (Xinhuanet, 2017). Subsequently, more cities, including first-tier cities[3] like Beijing and Shanghai, have joined the competition. According to incomplete media statistics, more

3 Definition of first-tier cities in China: 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).

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than 100 cities introduced talent policies between 2017 and 2018. These policies, offering settlement subsidies, housing allowances, living subsidies, and other incentives to attract and retain college graduates, represented an unprecedented level of governmental commitment (He et al., 2020; Q. Wang et al., 2023).

What qualifies talent?

According to Qian (2010), there are two ways to define who can be considered as talent. The first approach is from a human resources perspective, where individuals holding a college or higher-level degree are typically regarded as talent. The second approach, as defined by Florida (2002b), focuses on the creative class, which comprises the super-creative core (including scientists and engineers, university professors, poets and novelists, artists, entertainers, actors, designers, architects, non-fiction writers, editors, cultural figures, think-tank researchers, analysts, and other opinion-makers) and creative professionals (working in high-tech sectors, financial services, the legal and health care professions, and business management). However, Chinese scholars often find it difficult to use Florida's (2002b) definition because there are no specific occupational data available in China's official statistical materials (Qian, 2010). Therefore, Qian (2010) used China's "Zhuanye Jishu Renyuan" (professional and technical personnel) as an alternative to the creative class. **Following Qian (2010) and for the purpose of simplicity, young talent in this thesis is defined as individuals aged between 20 and 40 who either possess a bachelor's degree or higher, or hold national vocational qualification certificates(namely Zhuanye Jishu Renyuan), or work as professionals or managers in enterprises.**

Why do cities engage in the 'war for talent'?

The primary and often-cited reason is that talent can stimulate regional economic growth. Several theoretical perspectives lend support to this notion, including the concept of the knowledge economy, the human capital perspective, the endogenous growth theory, and the creative class approach. For instance, the knowledge economy, as delineated by Powell & Snellman (2004), is characterized by the production and delivery of goods and services rooted in activities that heavily utilize knowledge. It is highlighted that the essence of the knowledge economy lies in a greater dependence on intellectual capacities rather than material inputs or natural resources. Their research underscores the pivotal role played by human resources in driving technological progress, fostering innovation, and bolstering productivity. Glaeser (1998) contends that cities are essentially dense agglomerations of people and firms, and all the benefits of cities ultimately stem from reduced transport costs for goods, people, and ideas. Glaeser argues that in the 20th century, as transportation costs decreased and large-scale manufacturing declined, the positive impact of agglomeration resulting from reduced costs in moving goods

became less significant. However, the costs associated with moving people and ideas appeared to remain as important as ever. Consequently, Glaeser's human capital perspective argues that a high concentration of educated individuals propels regional growth. The endogenous growth theory suggests that economic growth in regions is driven by the development of new knowledge, new technologies, and the enhancement of innovative capabilities facilitated by the cultivation of high-skilled human capital (Faggian et al., 2017; Lucas, 1988). In Richard Florida's (2002b) seminal work, "The Rise of the Creative Class", he presents the creative class thesis, which asserts that not only educated individuals but also other factors, such as a talented workforce and a base of economic activities are equally essential for regional growth when combined with a climate characterized by tolerance, open-mindedness, and diversity.

Numerous studies have presented empirical findings supporting the connection between talent and regional growth. For instance, Rauch (1993) discovered that cities in the United States with higher average educational levels exhibited elevated salaries and housing rents. Simon and Nardinelli (1996) examined English cities between 1861 and 1961, revealing that cities with a larger share of talent experienced faster growth. Likewise, Simon (1998) established a consistently positive and substantial correlation between the average human capital level and regional employment growth in the United States over an extended period. More recently, Yang and Pan's (2020) study shows that the aggregation of human capital exerts a long-lasting positive impact on economic development, emerging as a pivotal determinant of regional economic growth.

The participation of cities in the 'war for talent' may have several other reasons. High-skilled migrants are considered to enhance regional innovation, which is also a core support of endogenous growth theory. For instance, in a study on the relationship between immigration and innovation using the 2003 National Survey of College Graduates data, Hunt and Gauthier-Loiselle (2010) found that for every 1% increase in the proportion of migrant college graduates in the population, the per capita patent output would increase by 6%. Additionally, high-skilled migrants may also elevate the level of amenities in a region. Mazzolari and Neumark (2012) found that immigrants contribute to greater diversity in the restaurant industry, although their study did not distinguish immigrants by skill level. However, Faggian et al. (2017) suggested that high-skilled immigrants may impact regional amenities in different ways. The increase in human capital stock can enhance a region's ability to attract businesses from other areas and increase the number of businesses that can be supported, which promotes the improvement and diversification of regional amenities. Moreover, high-skilled migrants also contribute to the social and cultural diversity of the region. A diverse workforce may attract more diverse types of high-skilled migrants and increase demand for diverse goods and services (Faggian et al., 2017; Nathan, 2015).

The loss of appeal of metropolitan cities and potential causes

The other side of the coin is that cities are making efforts to attract young talents, but they are also losing them for some reasons, especially in metropolitan cities. In the past, due to abundant employment opportunities and higher wages, international metropolises have traditionally been magnets for young talents (Harvey, 2014). However, many metropolitan areas worldwide are currently witnessing a brain drain, possibly driven by the continuous soaring housing prices and rents, the tight housing market, traffic congestion, intense job competition, air pollution, and high crime rates (J. Chen et al., 2019a; Osutei & Kim, 2023; Qin & Zhu, 2018). Examples of such metropolitan areas are Northern California in the United States (Krishan, 2021), New South Wales in Australia (Rabe, 2023), Vancouver Canada (The Canadian Press, 2019), and first-tier cities in China (J. Chen et al., 2019a). As reported by Krishan (2021), in Northern California, USA, talent outflow has long been observed, a trend exacerbated by the outbreak of the COVID-19 pandemic. The outbreak of the COVID-19 pandemic has triggered rapid changes in people's social and cultural behaviors. Specifically, remote work and online meetings are becoming increasingly accepted, making the importance of working and living in the same location less significant. According to Krishan (2021), since September 2020, the Bay Area has experienced an average outflow rate of 49.8%, as these professionals are drawn to states with lower living costs and taxes.

The attractiveness of China's first-tier cities to talent is also declining. Chen et al. (2019a) indicate that due to the soaring housing costs in China's first-tier cities, an increasing number of talents are considering relocating to second-tier cities and other cities with lower living costs, housing prices, and rents. The talent war in China, as mentioned earlier, is initiated by some vigorously developing second-tier cities. The talent attraction policies proposed by these second-tier cities have further exacerbated the declining trend in the attractiveness of first-tier cities to talent. As shown in Figure 1.1, the total population growth rates of the four first-tier cities have generally been on a downward trend over the past years. In terms of talent migration trends, the proportion of talent inflow into first-tier cities has steadily decreased since 2016, dropping from 22.4% in 2016 to 17% in 2023 (also see Figure 1.1). This suggests that the talent attraction of China's first-tier cities has been gradually declining.

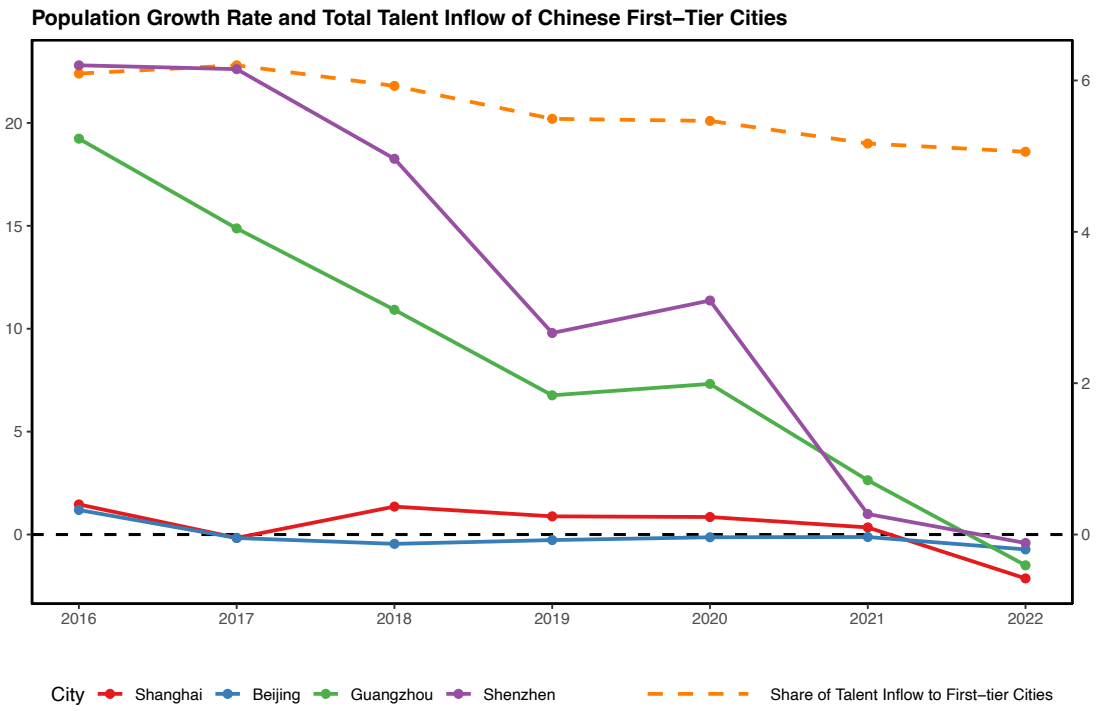

FIG. 1.1 Population growth and talent inflow rate of China's first-tier cities(2016–2022). Sources: Zeping Macro Series Data Report (Ren, 2024) and Statistical Yearbooks of the National Bureau of Statistics

Notes: 1. Talent inflow proportion = talent inflow into a city / total migrant talent nationwide; 2. It should be noted that the talent in this report refers to users who have submitted resumes on job search websites (Zhilian Zhaopin, one of China's largest recruitment platforms), which may differ from our own definition of talent.

Housing may play a vital role in the above phenomenon. Formal private housing, or commercial housing, is extremely expensive in China's first-tier cities. According to Sun (2020), the average House-Price-to-Income-Ratio (HPIR) of formal private housing in China's four first-tier cities is 14, with Beijing (16.9), Shenzhen (15), Shanghai (14.2), and Guangzhou (12.9). In the meanwhile, the Rent-to-Income-Ratio (RIR) of formal private housing reached 65%, 30%, 67%, and 58% respectively. However, HPIR and RIR should be below 3 and 25%, respectively, to be considered affordable (Sun, 2020). The huge gap shows housing affordability has been in crisis in recent years. According to an online survey, housing unaffordability has emerged as a primary factor deterring talented individuals from both relocating to and remaining in first-tier cities (Xinhua News, 2021). However, we argue that the reasons behind the exodus of young talents from first-tier cities may be more complex and require further research for exploration.

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The research direction of this thesis

Given the declining attractiveness of metropolitan cities in China and other countries to talent, it is crucial for policymakers and urban planners to understand the migration decisions of young talents. These decisions significantly affect labor markets, foster innovation, and contribute to broader social and economic development. A clear comprehension of these trends will enable more effective planning and policy formulation to address the challenges associated with talent attraction and retention in urban centers. Moreover, a comprehensive understanding of the housing circumstances and choices of young talents in these cities is essential, as it serves as a crucial mechanism for attracting and retaining young talents. From the perspective of young talents, the unstable housing situation in large cities is also a cause for concern. In recent years, shortages in housing supply, rising housing prices and rents, increasing education costs, tight mortgage markets, unstable labor market conditions, and heightened employment risks have exacerbated housing difficulties for young people globally (Hochstenbach & Boterman, 2015; McKee, 2012). Therefore, studying the migration and housing choices of young talents and formulating policy recommendations based on the findings can help large cities attract and retain young professionals. Additionally, these recommendations can serve as a foundation for developing strategies to improve housing conditions for young talents.

More specifically, this research will use first-tier cities in China as case studies to investigate the housing and migration decisions of young talents in these cities. The selection of first-tier cities as case studies is prompted by their diminishing appeal and ongoing issues with talent attrition, as previously mentioned. Despite this, the demand for talent in these cities remains robust. For example, among the top ten cities in China with the highest number of high-tech enterprises, the share of high-tech enterprises in first-tier cities reached 64% of the total number of high-tech enterprises in these ten cities (Yicai, 2021). As the number of skilled individuals in these cities declines, it inevitably results in increased labor costs for businesses, which in turn constrains innovation vitality and sustainable development. Further details about the research area will be provided in Section 1.5 later in the thesis.

1.2 Research objective and research questions

The primary objectives of this dissertation are threefold. First, it endeavors to gain a nuanced insight into the determinants that influence young talents' migration choices from a micro-level perspective. Second, it seeks to explore the housing trajectories of young talents in metropolitan cities and unravel the determinants of their housing choices and outcomes. Third, it also strives to reveal the interactions between migration and housing behaviors. This dissertation also seeks to provide policy recommendations based on the research findings, offering insights that can serve as a reference for attracting and retaining talent in first-tier cities, as well as improving housing conditions for young talents.

More specifically, this research will address four research questions. This study adheres to a temporal narrative sequence of "aspire – adapt – anchor," which ensures coherence and cohesion throughout the research. The first research question examines the factors that attract young talents to migrate to metropolitan cities, focusing on their aspirations and the motivations driving their decisions to pursue opportunities in first-tier cities. The second and third research questions explore the housing situation and choices of young talents in first-tier cities, reflecting the process of adaptation as they navigate housing markets and make their options. Lastly, the fourth research question delves into why young talents choose to settle permanently in first-tier cities, examining the factors that lead them to anchor themselves in these cities. The specific research questions are as follows:

- **RQ1:** What factors influence the migration intention of young talents to first-tier cities? (Aspire)
- **RQ2:** What are the housing pathways of young talents in first-tier cities, and what is the connection between the housing pathways and their future migration intention? (Adapt)
- **RQ3:** What motivates young talents to consider home purchases in first-tier cities? (Adapt)
- **RQ4:** What determinants influence the intention of young talents to stay in first-tier cities? (Anchor)

1.3 Literature review of housing and migration choices

Housing choices and migration choices, although seemingly distinct, are internally related. Housing choices refer to the decisions made by individuals or households regarding their housing options[4]. Housing choice is closely related to residential mobility because housing choice is a key factor influencing whether or not individuals or households decide to move to a new residence (Mulder, 1996). It is important to note that while both residential mobility and migration entail a change in location, scholars typically delineate residential mobility as involving shorter-distance moves and migration as encompassing long-distance relocations across administrative boundaries (Courgeau, 1985; Mulder & Hooimeijer, 1999). According to Mulder (1996), the centrality of housing choice is arguably more pronounced in the context of residential mobility as compared to long-distance migration. This is primarily because the availability of suitable housing plays a critical role in motivating a relocation decision. In the case of migration, the search for housing is often a 'by-product' of the decision to accept a job or start higher education (Mulder, 1996). However, it is important to acknowledge that securing housing is an indispensable prerequisite for migration itself. Therefore, Mulder (1996) contends that a strict demarcation between migration and residential mobility is not always tenable.

This research aligns with the convention that housing choices and residential relocations typically occur within the confines of the city where young talents currently reside, while migration choices extend beyond city boundaries, involving decisions to either relocate to first-tier cities or remain in their current city. This approach is adopted due to the research's primary objective of investigating the factors that attract and retain young talents in first-tier cities, as well as scrutinizing the evolution of their housing pathways within first-tier cities.

4 It is important to note that housing preference and housing choice are distinct concepts. According to Jansen et al. (2011, p. 2), "The most important difference between housing preference and housing choice is that preference is a relatively unconstrained evaluation of attractiveness. In the case of a house, choice will always reflect the joint influences of preference, market conditions, regulations, availability, and internal and external personal factors such as lifestyle and social class."

1.3.1 Young people's homeownership aspiration and housing choices

Young people's homeownership aspiration and difficulties

In many countries, homeownership has become a 'normalized' choice, particularly desired by young people (Beer et al., 2011; McKee, 2012). Several scholars have offered diverse explanations for the aspirations of young people toward homeownership. According to Molgat (2007), youth, as a key period of transition, has been delineated as a progression towards adulthood encompassing the achievement of three significant milestones: the transition from education to entering the workforce, the shift from residing in the parental home to establishing one's independent household, and the initiation of a family. Hoolachan et al. (2017) assume that 'youth' comes to an end upon reaching the adult milestones of securing employment, homeownership, and forming a family, all of which rely on both material and ontological security[5]. On the other hand, residing in private rentals can leave young people feeling incapable of satisfying their 'home' and security objectives, resulting in a sense of frustration (Hoolachan et al., 2017). Additionally, with the maturation of neoliberalism, welfare regimes in many nations are shifting from collective to asset-based welfare (Doling & Ronald, 2010; McKee, 2012), which assumes that individuals can build housing wealth to finance their welfare needs throughout their lives (Lowe et al., 2012; Mckee et al., 2017). In China, the meaning given to homeownership is even greater, as it is also considered to be a symbol of status and a prerequisite for marriage (Hu & Wang, 2020). Moreover, during the period characterized by 'housing financialization' (Aalbers, 2016), marked by soaring housing prices, many young people view homeownership as an attractive financial investment, while renting is seen as benefiting their landlord's investment at the expense of building their own property investment (Hoolachan et al., 2017).

Unfortunately, the homeownership rates among young people have been declining around the world over the past two decades (Clapham et al., 2012; Cui et al., 2021; Fuster et al., 2019; Hochstenbach & Arundel, 2021; Mackie, 2016; McKee, 2012). For instance, in the United States, the proportion of individuals born after 1980 who own their homes by the age of 35 has decreased by 20% compared to those born after 1940 (Paz-Pardo, 2022). There has been a heated discussion around the rise of 'Generation Rent', which denotes 'young people who are increasingly living in

5 Giddens (1990) defines ontological security as the confidence individuals have in the continuity of their self-identity and the constancy of their social and material environments. Saunders (1984, 2003) also proposed that homeownership offers individuals a means through which they can attain a sense of ontological security in their everyday lives.

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the private rented sector for longer periods of their lives because they are unable to access homeownership or social housing' (Hoolachan et al., 2017). Indeed, the housing market that young people encounter today differs significantly from the one their parents and grandparents experienced (McKee, 2012). It is increasingly difficult for young people to become homeowners. The discrepancy between idealized housing preferences (homeownership) and the economic reality faced by young people is framed as the 'fallacy of choice' by Mckee et al. (2017). However, recent research has shown that many individuals make an intentional choice to engage in private renting, rather than solely as a consequence of budgetary limitations (Li et al., 2022). Although rental accommodation is frequently linked to attributes such as substandard quality, instability, and insufficient regulation, it does have merits, such as flexibility (Gilbert, 2016). In addition, the Private Rental Sector (PRS) provides a foothold in the housing market when homeownership may be financially unattainable. This can be especially valuable for young people who are starting their careers and managing their expenses.

The literature presented above demonstrates that although young people express a preference for homeownership for a variety of reasons, a significant proportion are compelled to reside in rental accommodations due to financial limitations or opt for rental housing owing to its advantages in terms of flexibility, accessibility, and affordability. Next, the determinants of young people's housing choices will be reviewed.

Determinants of young people's housing choices and common research frameworks

Numerous studies have investigated (young) people's housing preferences and choices through various approaches. Jansen et al. (2011) examined nine theoretical frameworks suitable for investigating housing preferences and choices. Widely employed and recognized theoretical frameworks in the field of housing research include the neo-classical economic analysis (Henderson & Ioannides, 1983; Koopman, 2011), family lifecycle/career-life cycle/life course models (Boumeester, 2009; L. Chen et al., 2022; Mulder & Wagner, 1998; Rossi, 1955), and means-end theory (Coolen et al., 2002b; Coolen & Hoekstra, 2001).

In the realm of neo-classical economic analysis, the foundational framework relies on the expected utility theory, which posits that when individuals make decisions in uncertain situations, their primary objective is to maximize their subjective expected utility. This framework also assumes that consumers possess perfect knowledge about the dynamics of the market (Marsh & Gibb, 2011). One of the most widely employed models in this context is the Discrete Choice Model.

This model operates on the assumption that individuals possess preferences for various attributes associated with the available alternatives and engage in trade-offs among these attributes when arriving at a decision (Bartik et al., 1992; Knapp et al., 2001; Koopman, 2011). In the context of housing research, the discrete choice model serves as a valuable tool for comprehending and forecasting housing-related decisions, encompassing choices such as opting to purchase or rent a specific type of residence (referred to as tenure choice), selecting a particular neighborhood, or deciding whether to relocate or remain in one's current dwelling (relocation choice) (Koopman, 2011). Within the neo-classical economic framework, demographic factors are considered to affect housing choice through changing socio-economic status only and not through the life cycle per se (Huang & Clark, 2002).

However, demographers, geographers, and sociologists assert that the selection of housing tenure involves complexities beyond straightforward investment or consumption decisions, intricately connected to household characteristics and shifts in the real estate market (Clark & Dieleman, 1996; Huang & Clark, 2002). While acknowledging the significance of income, they contend that demographic characteristics within households (such as age, family size, and composition) and life events (such as childbirth, marriage, and career change) are crucial factors influencing family housing choices (Boumeester, 2004; Deurloo et al., 1987; Huang & Clark, 2002). This leads to other theoretical frameworks to investigate residential mobility: the life-cycle, career life-cycle, and life course approach.

The family life-cycle model proposed by Rossi (1955) is one of the most significant frameworks for explaining housing relocations. According to the original family life-cycle model, "different stages of nuclear family formation (cohabitation/marriage), expansion (birth of children), contraction (children moving out), and dissolution (divorce or death of a spouse) lead to changes in the size and composition of households as well as in their residential preferences and needs (Jansen et al., 2011, p. 3)". Changes in housing needs and preferences may consequently result in residential relocation. The career life-cycle model primarily examines changes in the housing ladder of families from a longitudinal perspective of lifelong mobility. This approach suggests that families upgrade their housing ladder based on their housing needs and paying capacity (Boumeester, 2004, p. 14). The housing needs of families are determined by changes in family composition, such as marriage or the birth of children (Boumeester, 2004, p. 14). Paying capacity is primarily determined by the progression of one's career, such as changes in job location (Boumeester, 2004, p. 14). The life course approach adopts a longitudinal method to study how individuals' life trajectories interact with demographic, economic, institutional, and societal changes (Jansen et al., 2011, p. 4; Kok, 2007). Within the life course framework, individuals are seen to follow parallel, intertwined trajectories

across different life domains: educational career, labor market career, family career, and housing career (Mulder & Hooimeijer, 1999). Various advancements in one's life trajectory may trigger relocation and parallel careers can also determine relocation by influencing available choices (Mulder & Hooimeijer, 1999). The housing pathways approach, to be utilized in this thesis, is also developed from the aforementioned theoretical frameworks. A detailed introduction to the housing pathways approach will be provided in Section 1.4.3 and Chapter 3.

While the aforementioned approaches primarily center on the impact of objective determinants on individuals' housing preferences, an increasing number of scholars have begun to underscore the significance of subjective factors, including socio-psychological elements (Aguda, 2018), values and goals (Coolen et al., 2002b; Coolen & Hoekstra, 2001), attitudes and lifestyle (Andersen, 2011), etc. As an example, Coolen & Hoekstra's (2001) means-end theory has its roots in the means-end approach originally developed in the field of marketing (Reynolds & Olson, 2001). The means-end theory is useful because it provides a framework for understanding the underlying motivations and connections between attributes, consequences, and values that influence individuals' housing preferences and decision-making processes (Coolen & Hoekstra, 2001). It allows researchers to delve deeper into the psychological and emotional factors that shape consumer preferences, going beyond surface-level attributes and exploring the underlying values that drive those preferences. Coolen & Hoekstra (2001) employed a technique called 'laddering' to construct the means-end chain model. However, the means-end theory also has its limitations, such as its primary focus on values and goals, thus overlooking external factors like social norms and culture that influence the decision-making process (Li et al., 2022).

In summary, the issue of housing choices for young talents is a complex topic. Factors such as recent affordability crises, increased labor mobility, uncertain future income prospects, and housing policies aimed at attracting and retaining talent have further exacerbated its complexity. This makes housing choices for young talents a multifaceted and noteworthy research topic. Despite the existence of various theoretical frameworks aimed at comprehending individuals' housing preferences and decisions, the majority of these frameworks predominantly emphasize the influence of structural factors in shaping housing choices while diminishing the significance of agency-related factors[6]. Agency factors like the individual capacity

6 According to Clapham (2012), structural factors refer to global, national, social and institutional related factors that can constrain or provide opportunities on individual decision making such as housing policies, housing market, and social-demographic variables. In contrast, the central subject of the agency factor is the individual. Agency factors mean the ability and power of individual to take action to make things happen such as personal, attitudes, preferences and strategies.

for how people think and respond to the structural factors shaping their housing outcomes, along with factors such as attitudes and strategies, can influence housing decisions. Existing research, such as Clapham (2005), Clapham et al. (2014), and Balampanidis (2020), has demonstrated the potential significance of agency factors in people's housing choices. What's more, many existing theoretical frameworks are tailored for cross-sectional studies. They tend to focus on examining people's static housing choices at a specific time, neglecting the dynamic changes in housing conditions over time and across various parallel careers. The **Theory of Planned Behavior**, the **Housing Pathways Approach**, and **Bourdieu's Theory of Practice** are selected as the theoretical framework for this study due to their consideration of non-rational human assumptions, human agency, and their ability to provide a more nuanced and dynamic understanding of housing choices. A detailed description of these theories will be provided in Section 1.4 later in this thesis.

1.3.2 A review of migration research

Migration can be studied from two perspectives: as an aggregate phenomenon or as an individual decision (De Jong & Fawcett, 1981b). The aggregate approach primarily centers on the analysis of migration patterns, trends, the characteristics of migrants, and the examination of socioeconomic or ecological factors associated with population movement systems. In contrast, the individual perspective aims to elucidate mobility decisions at the micro-level, specifically, the determination of whether to relocate or remain in place and the selection of preferred destinations among available alternatives (De Jong & Fawcett, 1981b). In terms of theory, Castles et al. (2014, p. 27) categorized migration theories into two primary paradigms: functionalist and historical-structural theories. Functionalist theories view society as a system with interdependent parts, akin to an organism, where equilibrium is a natural tendency. In this context, functionalist migration theory typically regards migration as a beneficial phenomenon that serves the interests of most individuals and fosters greater equality within and between societies. Historical-structural theories, rooted in neo-Marxist political economy, highlight how social, economic, cultural, and political structures shape individuals' behavior in ways that often perpetuate imbalances rather than promote equilibrium. In this section, I will primarily concentrate on functionalist theories. This choice is driven by the fact that historical-structural theories primarily center around the mass mobilization of labor and presuppose that individuals are compelled to migrate due to the erosion of traditional economic structures resulting from their integration into the global political-economic system and associated processes (Castles, de Haas, et al., 2014, p. 32). Such assumptions do not align with the focus of the research, which is focused on understanding the

migration behavior of young talents based on their personal choices and career aspirations. Therefore, three main functionalist theories will be reviewed in this section, i.e., push-pull models, neoclassical theory, and value-expectancy model.

Push-pull models do not constitute a singular theoretical framework; rather, they encompass a set of models that identify economic, environmental, and demographic factors responsible for pushing individuals from their places of origin or pulling them to destination locations. One of the earliest push-pull models can be traced back to Ravenstein's (1885) Laws of Migration, which highlighted economic reasons as the main drivers of migration, suggesting that people often move from areas with fewer job opportunities to bustling centers of industry and commerce. Subsequently, there have been developments such as the Gravity Model, which was inspired by Newton's law of gravity, and that predicts migration flows between cities, regions, or countries based on population sizes and distance (Wheeler, 2005, p. 120). This model highlights that larger populations in two places result in higher migration volumes between them, but the probability of migration decreases as distance increases between the two places. Lee (1966) further elaborates in "A Theory of Migration" that migration behavior is influenced by both positive and negative factors across four key dimensions: factors associated with the place of origin, factors linked to the destination, intervening obstacles, in addition to individual characteristics.

The push-pull models may appear appealing because they integrate nearly all the factors that can influence migration decisions (Bauer & Zimmermann, 1998, p. 103). However, its utility is limited (Castles, de Haas, et al., 2014). One prominent critique is that they are essentially descriptive models, wherein factors believed to influence migration are listed somewhat arbitrarily, lacking explicit delineation of their roles and interactions (Castles, de Haas, et al., 2014; Skeldon, 1990). Moreover, Bogue (1977) asserts that the 'push-pull' framework lacks efficacy in micro-level research and advocates for its substitution with a cost-benefit or value-disvalue perspective, which is addressed by the neoclassical theory.

Neoclassical migration theory, rooted in modernization theory (Rostow, 1990), views migration as an integral part of the development process, positing that surplus labor from rural areas fuels urban industrial economies (Castles, de Haas, et al., 2014). This theory explains migration as a response to geographical disparities in labor supply and demand, where wage differences incentivize workers to move from low-wage regions to high-wage areas. At the individual level, neoclassical theory regards migrants as rational actors who make migration decisions based on cost-benefit calculations to maximize income (Castles, de Haas, et al., 2014). At the macro-level, neoclassical theory perceives migration as a mechanism that optimizes the distribution of production factors (Castles, de Haas, et al., 2014). It anticipates that migration will alleviate labor

scarcity in destination areas while intensifying it in sending regions (Castles, de Haas, et al., 2014). Conversely, capital is anticipated to move in the opposite direction. Over time, this process is expected to lead to wage convergence (Lewis, 1954).

While neoclassical migration theory adeptly elucidates the motivations behind individual migration decisions, its foundation rests on the assumption of rationality among actors. This assumption posits that migration choices are driven by the aspiration to maximize income or 'utility,' and further presumes that individuals possess a comprehensive awareness of salary levels and employment prospects in their intended destination regions (Marsh & Gibb, 2011). However, as highlighted by Boelhouwer (2011), the housing market exhibits imperfections stemming from factors such as information deficits, product intricacies, extended production timelines, substantial investment requirements, site-specific considerations, and government regulatory interventions. Furthermore, it is important to recognize that individuals sharing similar background variables may manifest distinct preferences and behavioral tendencies within the housing market (Jansen, 2012). Therefore, both the postulates of neoclassical migration theory deviate from the complex realities of real-world migration dynamics.

Indeed, both push-pull models and neoclassical theories have overlooked the role of 'human agency' in migration behavior. As Castles (1998) put it:

> Neither push-pull nor neoclassical theories have much room for human agency, which is the limited, but real ability of human beings to make independent choices and to change structural conditions. They portray human beings as socially isolated individuals who passively and uniformly react to external factors, while people's aspirations and capability to migrate actually depend on factors such as age, gender, knowledge, social contacts, preferences, and perceptions of the outside world. These theories generally do not consider how migrants perceive their world and relate to their kin, friends, and community members. As far as they deal with structural factors, such as government policies or recruitment practices, all, neoclassical approaches see them as distortions of perfect markets which affect migration costs rather than as migration drivers in their own right. (Castles, de Haas, et al., 2014, p. 31)

To consider the influence of 'human agency' and investigate connections between the microlevel and macrolevel, scholars advocated for a more encompassing model capable of integrating individuals' 'motivations (De Jong & Fawcett, 1981b).' These motivations are typically recognized based on the objective that behavior aims to achieve and generally pertain to the individual or situational intensity of goal-driven behavioral tendencies (Sell & Dejong, 1978). Innovatively, De Jong & Fawcett

(1981b) proposed a cognitive model called the value-expectancy (V-E) model to apply to migration behavior. The fundamental elements of the V-E model consist of goals (values and objectives) and expectancies (subjective probabilities). The V-E model focuses on the individual's perspective and subjective evaluations, recognizing that migration decisions are influenced by personal needs, values, and aspirations. It acknowledges that different individuals may have different motivations for migration.

Although the V-E model breaks the assumption of rationality, its limitation is also obvious. The V-E model focuses primarily on individual-level factors and does not adequately account for the broader social, cultural, and environmental contexts in which migration decisions are made. Factors such as political climate, community norms, and opportunity differentials between areas can significantly impact migration motivations but are not explicitly incorporated into the model. Therefore, it may have limited predictive power. Furthermore, migration is inherently a risky activity due to the fact that individuals typically possess more detailed information about income, consumption, and leisure prospects in their present location as opposed to potential alternative destinations (Jaeger et al., 2010). Consequently, those individuals who exhibit a greater inclination towards risk-taking are more likely to migrate. This correlation is substantiated through an empirical analysis of the German Socio-Economic Panel data (Jaeger et al., 2010). However, few studies have taken into account the influence of individuals' risk attitudes when examining their migration choices.

In essence, conventional neoclassical migration theories often fail to account for the influence of human agency in migration decisions. This omission results in a deviation from the realities of actual life and undermines the reliability of the analysis. While the V-E model does challenge the assumption of pure rationality and acknowledges the importance of psychological factors in individuals' migration choices, it tends to neglect the role of social, cultural, and background factors, as well as individuals' risk attitudes. This limitation diminishes its predictive power. Therefore, the **Theory of Planned Behavior** and **Prospect Theory** are chosen as the theoretical framework for this thesis due to their adequacy of being based on the non-rational man assumption, taking into account human's subjective agency and limited information as well as risk issues. More detailed information about these two theories will be given later in section 1.4.

1.3.3 Research gap

Knowledge gap

Currently, metropolitan cities in some countries like China's first-tier cities are grappling with the challenge of "brain drain", which is also becoming an increasingly concerning issue for local governments across these cities. Despite various measures being implemented to attract and retain talent, their effectiveness is limited. This research argues that the root of this issue lies in policymakers' lack of understanding of the factors influencing the migration decisions of young talent, particularly their limited understanding of subjective decision-making factors at the micro-level. Furthermore, governments lack a comprehensive understanding of the housing situation and pathways of young talents, as well as how these aspects relate to their future migration plans. These knowledge gaps hinder the formulation of effective talent attraction and retention policies. Therefore, studying young talents' migration and housing behavior and their correlation in metropolitan cities is an important and timely topic.

Methodological gap

Previous migration and housing studies have largely been based on traditional neoclassical theories. In neoclassical economic theory, decision-makers are assumed to always seek wage or utility maximization and have complete knowledge of the market, but this assumption often does not align with reality due to incomplete information and cognitive biases. Therefore, in studies of housing and migration choices, scholars have shifted their focus to examining the role of individual subjective agency, such as their values and goals. However, these theoretical frameworks, such as means-end theory and value-expectancy models, fail to consider broader social and cultural background factors, as well as the influence of individual characteristics and psychological factors on decision-making. Additionally, some existing frameworks and theories often inadequately emphasize how individuals cope with risk and uncertainty. Furthermore, some existing research examines residential mobility and migration behavior in isolation, often neglecting to explore the interconnections between these two phenomena. Therefore, there is a need for more suitable theoretical frameworks that not only emphasize individual bounded rationality but also consider how individual preferences, social factors, psychological expectations, and risk attitudes influence their housing and migration decisions. Hence, the theoretical frameworks employed in this study include the **Theory of Planned Behavior**, **Prospect Theory**, the **Housing Pathways Approach,** and **Bourdieu's Theory of Practice**, all of which will be introduced later.

1.4 Theoretical framework employed in the current research

This research mainly employs the following research theoretical frameworks.

Firstly, the Theory of Planned Behavior (TPB) will be utilized to address two key research questions. The first question, RQ1, focuses on identifying the factors that impact the migration intention of young talents to metropolitan cities. The third question, RQ3, seeks to uncover the driving forces behind young talents' considerations of homeownership in metropolitan cities. This is because, compared to other theories, the TPB accounts for human irrationality and limited information, making it more suitable as the theoretical framework for this study to uncover the effects of psychological and background factors on migration and housing choices.

Secondly, the Housing Pathways Approach and Bourdieu's Theory of Practice are used to study the second research question. The RQ2 pertains to the dynamic housing pathways and their determinants for young talents in metropolitan cities, as well as their relationship with migration plans. The Housing Pathways Approach takes into account both structural factors and agency factors, revealing various dynamic patterns of housing situations for young talents in the past and present as well as future migration plans. As a complement, Bourdieu's Theory of Practice elucidates how structural factors and agency factors interact, providing a robust theoretical framework for explaining the differences between these housing patterns.

Thirdly, Prospect Theory is utilized to address the fourth research question (RQ4), focusing on the future migration intention of young talents and the factors related to this intention. Previous research has largely relied on the framework of rational actor assumptions and often overlooked the impact of risk and uncertainty on migration behavior. Prospect Theory, by considering human bounded rationality and cognitive biases such as loss aversion and status quo bias, compensates for these gaps. It provides a nuanced understanding of the psychological mechanisms behind individual migration choices, making it a highly useful and appropriate theory for this study.

Next, the contents of these theories and their applicability in this study will be introduced.

1.4.1 Theory of planned behavior

The TPB is a well-established psychological framework that seeks to explain and predict human behavior, particularly in the context of decision-making. The TPB was developed by Ajzen (1991) and is an extension of the earlier Theory of Reasoned Action (Fishbein & Ajzen, 1977). The theory posits that people's behavior is influenced by their attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). The underlying determinants of their attitudes, subjective norms, and PBC are the behavioral, normative, and control beliefs that people hold about the behavior, respectively (Ajzen, 2011). The specific structure of the TPB aligns closely with the requirements of this study, and it is anticipated that these three components will effectively elucidate the intention of young talents regarding both migration and homeownership.

Attitudes refer to an individual's overall evaluation of a specific behavior. In the context of the current research, attitudes are formed by individuals' assessments of the likelihood and significance of expected outcomes associated with moving and buying property in first-tier cities (behavioral beliefs). For instance, the more strongly one believes that first-tier cities offer better job opportunities, and the more important this outcome is perceived, the more positive one's attitude toward moving to these cities becomes. Subjective norms represent the perceived social pressure or support that an individual experiences regarding a particular behavior. Within the scope of current research, subjective norms are shaped by the support or actions of significant others, such as parents and partners, regarding moving to and purchasing homes in first-tier cities, as well as the perceived likelihood of colleagues engaging in these behaviors, and the importance attributed to their actions (normative beliefs). For instance, the stronger one's belief in their partner's support for buying a home in a first-tier city, and the more value one places on their partner's opinion, the stronger the subjective norms felt towards purchasing property in such cities. Perceived behavioral control relates to an individual's perception of their ability to perform the desired behavior. In the background of the current study, perceived behavioral control is influenced by individuals' recognition of the resources, skills, and additional relevant factors that may either support or hinder their capacity to move to first-tier cities or acquire housing there, as well as the perceived efficacy of these factors (control beliefs). For example, the more someone is confident in their financial ability to manage housing costs in a first-tier city, the stronger their perceived control becomes.

TPB also points out that individuals possess various background factors that shape their beliefs (Ajzen, 2011). These background factors include personal attributes such as age, gender, and education, as well as social elements like religion, culture, and geography. Collectively, these factors contribute to differing beliefs among individuals.

In summary, TPB provides a suitable theoretical framework for understanding the decision-making processes behind individuals' migration and tenure choices, taking into account the variety of background factors, human irrationality, and limited information.

1.4.2 Prospect theory

Prospect Theory was proposed by Kahneman and Tversky in 1979. The theory is based on the assumption that people assess the potential results of their decisions not in terms of objective final wealth or utility, but rather by comparing perceived gains and losses relative to a reference point, typically their current circumstances (Kahneman & Tversky, 1979). Specifically, in Prospect Theory, utility is determined by the product of value and decision weights. The decision-making equation in Prospect Theory is as follows:

$$U = \sum_{i=1}^{n} v(x_i) * w(p_i) \tag{1.1}$$

Where U denotes the overall or expected utility of the decision-maker concerning the potential outcome, x_i designates the possible outcome, and p_i indicates the associated probability. The function $w(p_i)$ acts as a decision weight function, and $v(x_i)$ denotes the value attributed to the outcome, also known as the value function.

Within the equation, decision weights are not direct measures of belief or probability but are derived from prospects as nonlinear weightings of probabilities. These weights are based on individuals' subjective perceptions of probabilities. It argues that in risk assessment and decision-making, individuals tend to overestimate the significance of low-probability events and underestimate that of high-probability events (Tversky & Kahneman, 1992).

Value in decision-making is assessed relative to a reference point, encompassing potential gains and losses, as depicted in Figure 1.2 The value function exhibits several key characteristics (Tversky & Kahneman, 1991): Firstly, it is reference-dependent, determining value relative to a reference point, categorized into losses and gains. Secondly, the function displays loss aversion, where reactions to losses exceed those to equivalent gains. Thirdly, it reflects risk attitudes, showing risk aversion in gains and risk tolerance in losses. Additionally, the value function demonstrates diminishing sensitivity, characterized by an S-shaped curve steepest at the reference point, indicating that the marginal value of gains and losses decreases as one moves away from this point.

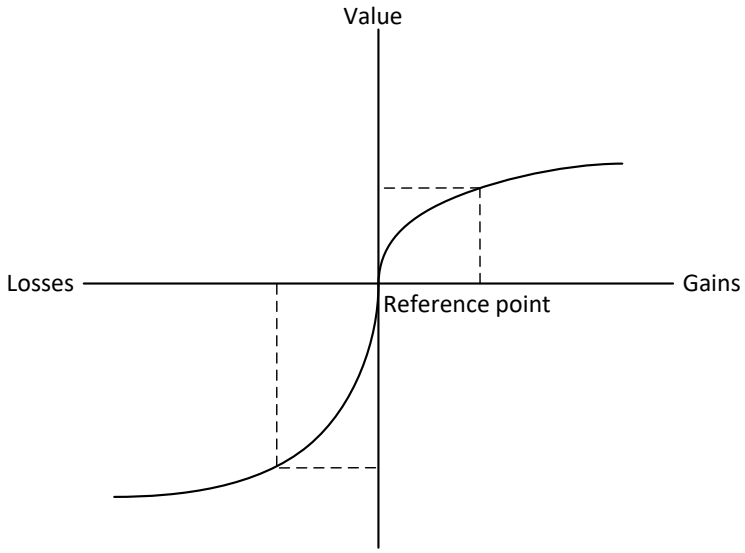

FIG. 1.2 Schematic of the value equation. Source: Kahneman and Tversky (1979)

The expression for the value function can be articulated as follows:

$$v(x) = \begin{cases} (x - Re)^{\alpha} & x \geq Re \\ -\lambda (Re - x)^{\beta} & x < Re \end{cases} \tag{1.2}$$

In the equation, $v(x)$ represents the value function for the outcome x, and Re is the reference point. The equation distinguishes between gains, where x exceeds Re, and losses, where x is less than Re. The coefficient λ, greater than one, signifies that the value function is steeper in the loss domain compared to the gain domain, indicating loss aversion. This coefficient is commonly referred to as the loss aversion coefficient. The parameters α and β, both less than one, capture the diminishing sensitivity effect.

Applying Prospect Theory to migration research effectively addresses the research gaps previously overlooked regarding human irrationality, risk, and psychological biases. It provides a suitable framework for understanding the complexities of migration decisions beyond traditional economic models by revealing how risk, uncertainty, and psychological biases such as loss aversion and reference dependence influence migration choices. The application of Prospect Theory enriches neoclassical migration theories by offering a more realistic and nuanced understanding of human decision-making in the context of migration.

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1.4.3 Housing pathways approach and Bourdieu's theory of practice

Housing pathways approach

The Housing Pathways Approach is an analytical framework in the housing field, developed and articulated by Clapham (2005). This framework is based on the concept of housing pathways, which refer to the dynamic interactions between homes and housing over time and space. The housing pathways approach builds on previous approaches, such as the housing career and housing history, but also differs from them. The historical approach generally focuses on the past and documents how individuals reach their current positions. The career approach tends to assume a predefined upward trajectory, where households progressively move towards better housing conditions over time (Clapham et al., 2014). In contrast, the pathways approach offers a dynamic perspective that not only traces past experiences but also uses these experiences as a foundation for forecasting future outcomes, acknowledging that past decisions and changing environments can influence future housing situations. It also allows for varying circumstances among individuals in terms of resources, preferences, and choices, recognizing that housing pathways are not necessarily upward (Clapham, 2005).

Central to the pathways approach is the rejection of the rational actor model prevalent in other methods, focusing instead on individuals' and households' attitudes and perceptions of housing (Clapham, 2005). It explores how these factors shape future decisions. Additionally, drawing on Giddens' structuration theory (Giddens, 1999), the housing pathways approach emphasizes the interplay of structural and agential factors, providing opportunities and imposing constraints on the dynamic housing experiences of individuals (families) (Opit et al., 2020). On their housing pathways, individuals and families make varied housing choices within the opportunities available to them under different constraints. Housing pathways also intersect with many other aspects of life, including career pathways and life course events, and are influenced by changes in family structure related to marriage, childbirth, or divorce (Clapham et al., 2014).

This study employs the housing pathways approach, as it centers on the individual (household), accounting for the joint influence of agent and structural factors on housing outcomes, and offers a dynamic means to examine people's housing experiences. Although the housing pathways approach is highly suitable for this research, it is, as Clapham (2005) himself acknowledges, merely an analytical framework rather than a theory, and it does not explain the interaction between agency and structural factors. Consequently, to provide a theoretical enhancement to the examination of housing experiences, three concepts from Bourdieu's theory were introduced, which will be elaborated upon subsequently.

Bourdieu's theory of practice: habitus, capital, and field

Based on three core concepts: "habitus," "capital," and "field," French sociologist Bourdieu developed a theory of practice to explain social phenomena like daily life practice (Bourdieu, 1984). This theory emphasizes the interaction between agency and structural factors, aligning with the central claims of the housing pathways approach but providing a detailed elucidation of how these interactions occur.

Habitus encompasses a durable and transposable system of dispositions that influence behaviors, observations, actions, and thoughts, as well as the frameworks or schemas through which perceptions, concepts, actions, distinctions, and principles are organized (Bourdieu, 1990, p. 53). The durable nature of habitus suggests it is a stable set of dispositions shaped by past life experiences, while transposable nature indicates its ability to adjust to new experiences and environmental shifts. For example, the way people's childhood housing shaped their habitus impacts their current housing decisions, which in turn will influence their future housing dispositions. Habitus can also be seen as a method of internalizing social structures and historical contexts within an individual—it consists of dispositions that not only mirror external social structures but also influence an individual's world view like attitudes and their reactions to it like strategies (Power, 1999).

Due to the complex and elusive nature of habitus, this study concentrates on its tangible outcomes. In examining individuals' housing pathways, these outcomes manifest primarily in two ways: first, through how individuals conceptualize the world, translated into their attitudes toward different housing tenures, and second, through their behaviors, transformed into strategies for making housing choices. Such strategies are shaped by both the habitus and individuals' attitudes toward various housing types. For instance, people from higher-income backgrounds or those consistently living in owner-occupied homes are likely to develop a habitus that promotes a favorable view of homeownership, prompting them to adopt strategies like saving or obtaining mortgages to buy homes.

According to Bourdieu (1986), capital is accumulated labor, manifesting in three primary forms: economic, cultural, and social capital. Economic capital is directly and immediately convertible into money and may be institutionalized as property rights. Cultural capital, under certain conditions, can be converted into economic capital and institutionalized as educational qualifications. Social capital, derived from social networks, can sometimes be converted into economic capital and institutionalized in the form of titles (Bourdieu, 1986). Beyond these conventional definitions of capital, other forms of capital also exist. For instance, in the context of China's

housing market, attributes such as "holding a city Hukou[7]," and "being young talent," constitute resources that individuals can leverage to secure specific housing opportunities. An example is young talents employed by state-owned enterprises who may have the opportunity to apply for talent rental housing.

Actors' habitus and capital require a field in which to function, which Bourdieu (1984) conceptualizes as a bounded social space governed by its own principles. Bourdieu likens fields to games with specific rules and stakes, inhabited by players who dominate based on their habitus and capital. His analysis encompasses various fields such as law, art, science, and cultural production. In the context of this study, the field of interest is housing.

Bourdieu posits that practice—what people do in their everyday lives—results from the interplay between an actor's habitus, various forms of capital, and the field in which they operate (Power, 1999). This process illustrates the interaction of structural and agentic factors. Specifically, in this research, we employ these three concepts to supplement the housing pathways approach, aiming to better elucidate how different housing pathways are influenced by various structural and agent factors. For example, within the housing field, individuals' diverse habitus shape their attitudes towards housing (such as a proactive stance on homeownership) and strategies (such as forging close familial ties for intergenerational support). This, combined with their capital, such as economic capital, culminates in distinct housing pathways, like being a homeowner.

7 The term "Hukou" refers to China's household registration system. Every individual is assigned a hukou, or registered identity, which categorizes the population as either rural or urban. Additionally, hukou is closely tied to social welfare benefits. In some cities, for example, only those with local hukou are eligible to purchase property.

1.5 Research area, methods, and data

1.5.1 Research area

This dissertation focuses on China's first-tier cities as case study areas. The following will provide detailed information about these cities and explain the rationale behind the selection.

The definition of a first-tier city varies among scholars depending on their foci of urban studies. Scholars have classified first-tier cities and other-tier cities based on criteria such as the political system, economic model, globalization, and spatial function of cities (Cardoso & Meijers, 2016). There are four prominent Chinese cities that can be rightfully designated as first-tier cities: Beijing, Shanghai, Guangzhou, and Shenzhen (Li et al., 2021; Chen et al., 2019). The geographical locations of the four cities are depicted in Figure 1.3

Beijing, the capital city of China, stands as a political, economic, and cultural center. Known for its rich historical heritage, the city houses key governmental institutions, diplomatic missions, and prestigious universities. In addition to its role as the political heart of the nation, Beijing is a hub for various industries, including technology, finance, and education. Beijing hosts an impressive 26 universities that are part of the prestigious 211 Project and 985 Project[8], a number that surpasses any other city in China. It is also home to numerous tech giants, start-ups, and financial institutions.

Shanghai is located at the mouth of the Yangtze River on the eastern coast of China and is part of the Yangtze River Delta region. The city covers an area of 6,340.5 square kilometers and governs 16 districts. Due to its geographical location, Shanghai possesses one of the busiest ports in the world, making it a significant international maritime hub. It serves as China's largest international economic center and a major international financial hub, attracting a dense concentration of financial institutions. Shanghai is also a center for technological and scientific development, hosting numerous technology parks and innovation centers.

8 Universities included in Project 985 and Project 211 can be seen as the top universities in China. See website: https://www.chinaeducenter.com/en/ce du/ceduproject211.php for more information.

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FIG. 1.3 Research area. Sources: Adapted from National Geomatics Center of China, available on https://www.tianditu.gov.cn/

Located in the southern part of China, Guangzhou possesses a deep historical legacy as a trading hub. It is an international trade and manufacturing center. Guangzhou's economy thrives in sectors such as manufacturing, foreign trade, and logistics. The city's strategic location, proximity to Hong Kong, and well-established transportation infrastructure make it a pivotal player in the global supply chain.

Shenzhen, often dubbed the "Silicon Valley of China," has rapidly evolved from a fishing village to a dynamic technological city. Its exceptional growth has been driven by innovation and technology. Shenzhen is recognized for housing some of China's most prominent tech companies, fostering a vibrant entrepreneurial spirit. It is a key player in electronics manufacturing, telecommunications, and biotechnology, making it a focal point for cutting-edge research and development.

Table 1.1 presents a set of fundamental statistics about the four first-tier cities, encompassing population, GDP, and housing prices. Furthermore, their per capita GDP significantly surpasses the national average, which stood at 86,000 RMB in 2022. These cities symbolize China's ongoing urban metamorphosis, marked by a transition towards a knowledge-based, service-oriented, and innovation-focused economy.

TABLE 1.1 Basic statistics of four first-tier cities. Sources: National Bureau of Statistics and Local Statistical Offices. The housing prices data is sourced from cityhouse.cn, while the price-rent ratio data can be found at http://house.china.com.cn/1696479.htm. The price-rent ratio is calculated by dividing the average housing prices per square meter by the monthly rent per square meter.

City	Beijing	Shanghai	Guangzhou	Shenzhen
Urban Population (million, 2021)	17.8	19.9	14.9	17.4
Land Area (thousand sq. km)	16.5	6.3	7.4	1.7
GDP (2022) (in billion RMB)	4161	4465	2884	3239
GDP per Capita (2022) (thousand RMB)	190	180	154	183
Average Second-Hand Housing Prices (thousand RMB/sq. m) (2023)	70.1	71.9	45.2	68.2
Price-Rent Ratio (2020)	637	600	567	757
Number of 211/985 university	26	9	4	1

However, these cities also face significant challenges. As previously mentioned, in recent years, first-tier cities have experienced a decline in their attractiveness to young talents. This issue may have adversely impacted the innovative development of these cities, leading, in particular, to shortages of human resources in certain industries. For instance, in the past five years, Beijing has exhibited a significant demand for talent in artificial intelligence-related positions, approximately 650,000, whereas the number of graduates in relevant fields from local universities during the same period was less than 40,000. This has resulted in a substantial talent gap in the foundational workforce of Beijing's artificial intelligence industry (Xinhua News, 2021).

Additionally, the housing situation for young talents in these first-tier cities is not very optimistic. Housing prices in these cities are notably elevated. To illustrate, consider the case of Beijing in 2022, where the disposable income per capita of residents was recorded at 77,415 yuan (Beijing Municipal Bureau of Statistics, 2023). This implies that an individual's yearly earnings would be

required to purchase just one square meter of housing within Beijing. Consequently, homeownership remains beyond the reach of a substantial proportion of the younger population, Another example, is in Shenzhen, approximately 60% of the population resides in cramped, small, poorly ventilated, and poorly lit urban villages (SOHU, 2024). Housing issues have been regarded as key factors driving young talents away from, or discouraging them from moving to, first-tier cities (Chen et al., 2019).

Given the challenges of declining talent attraction and housing issues faced by these first-tier cities, selecting them as case studies to examine the migration and housing choices of young talents is both necessary and timely. As leading centers of political, economic, and cultural development in China, these cities frequently serve as pilot sites and benchmarks for national urban planning and development strategies. Their selection as case studies may thus provide valuable insights for other cities in China. Additionally, the issues encountered by these cities—declining talent appeal and housing difficulties—are challenges shared by numerous major metropolises globally. While rooted in the Chinese context, the insights from this dissertation can contribute to a broader understanding of the migration and housing decisions of young talents in similarly challenged international cities, especially regarding research methodologies and processes.

1.5.2 Data and methods

Commonly used micro-level socio-economic databases in China, such as the China Family Panel Studies (CFPS), the Chinese General Social Survey (CGSS), and the China Migrants Dynamic Survey (CMDS), do not provide detailed data on housing choices, trajectories, and migration specific to the target population of this study—young talents in first-tier cities. Moreover, the theoretical frameworks employed in this study, such as the Theory of Planned Behavior and Prospect Theory, require variables not included in previous surveys. Therefore, this study did not use existing open databases but instead conducted three rounds of fieldwork to collect the necessary research data.

Before conducting the fieldwork, this study applied for and received approval from the TU Delft Human Research Ethics Committee (HREC).

Survey 1: nationwide questionnaire on the migration intention of graduate students to a first-tier city (for RQ1)

The first phase of this research consists of a comprehensive survey targeting students enrolled in higher education institutions across China, including those pursuing bachelor's, master's, and doctoral degrees. The primary goal of this survey is to explore the motivations and factors influencing university students' aspirations to build careers in first-tier cities after graduation, to answer the first research question. The survey is grounded in the Theory of Planned Behavior (TPB) and employs a two-stage data collection approach.

In the preliminary stage, a pilot study was conducted with 28 university students from 16 different institutions across various regions. Participants were recruited through referrals from personal contacts and popular online platforms such as WeChat and QQ. The pilot study aimed to identify the key beliefs held by students regarding career development in first-tier cities post-graduation. Participants responded to open-ended questions, and the most frequent responses were identified as salient beliefs.

Using the findings from the pilot study, a full TPB-based questionnaire was developed for the second stage of data collection. The final questionnaire assessed participants' intentions, attitudes, subjective norms, perceived behavioral control, and the salient beliefs identified earlier. This questionnaire was administered online to a broader and more diverse sample of university students nationwide. Recruitment was conducted through university networks, social media, and online communities, and data collection took place in October 2020. Respondents provided demographic information such as age, gender, educational level, university ranking, and location. A total of 1242 valid responses were collected, with the sample displaying diversity across key demographic variables, though minor deviations in gender, university ranking, and regional representation were noted. For further details, please refer to Chapter 2.

Survey 2: semi-structured interviews with young talents in Shenzhen (for RQ2)

To identify and understand the housing pathways of young talents to answer the second research question, the second phase of data collection involved online semi-structured interviews with 18 young professionals living and working in Shenzhen, conducted in November and December 2021 via platforms like WeChat video and Tencent Meeting.

A combination of snowball and purposive sampling was used to identify interviewees, who were recruited through personal networks and referrals. Interviewees were selected based on criteria such as gender, place of birth, educational background, marital status, occupation, and length of residence in Shenzhen. Interviews, lasting 30 minutes to 2 hours, focused on participants' housing trajectories, including details about each residence, factors influencing housing choices, attitudes toward each residence, reasons for moving, and future housing plans. Interviews were audio-recorded with consent, transcribed in Chinese, and coded using Atlas.ti with both inductive and deductive coding methods. Coding was based on the housing pathways approach and Bourdieu's theory of practice and emergent themes. The connections between housing situations were mapped into a network to analyze and categorize different housing pathways. Detailed information on the interview process is provided in Chapter 3.

Survey 3: questionnaire on home-buying and the settlement intention of young talents in first-tier cities (for RQ3 and RQ4)

Survey 3 addresses the research questions, "What drives young talents to buy a home in China's first-tier cities?" (RQ3) and "What factors influence their intentions to stay in these cities?" (RQ4). The survey is framed by the Theory of Planned Behavior (TPB) and Prospect Theory, respectively. The questionnaire consists of three main sections.

The first section collects demographic and socio-economic background information. The second section focuses on TPB constructs, with the dependent variable measuring intention to buy a home in a first-tier city within five years, and independent variables including attitudes, subjective norms, PBC, and related beliefs. The third section is based on Prospect Theory and examines the intention to settle in the current city, with respondents asked, "How long do you plan to stay in this first-tier city?" with options ranging from less than 1 year to over 10 years. The independent variables include reference dependence, endowment effect, and risk attitudes, consistent with Prospect Theory.

Data collection took place from September 14 to October 15, 2022, using a virtual snowball sampling method. Initial respondents were identified via the authors' social networks and previous study participants, who then acted as referrers to distribute the questionnaire across first-tier cities. A total of 1065 valid responses were retained, with near-equal sample sizes across Beijing, Shanghai, Guangzhou, and Shenzhen. Additional details can be found in Chapters 4 and 5.

1.6 Outline of the thesis

This thesis consists of six chapters, using Aspire-Adapt-Anchor as its organizational structure. Figure 1.4 shows how the collected data, together with the theoretical approaches and analytical methods, have been used in each chapter to answer the research questions.

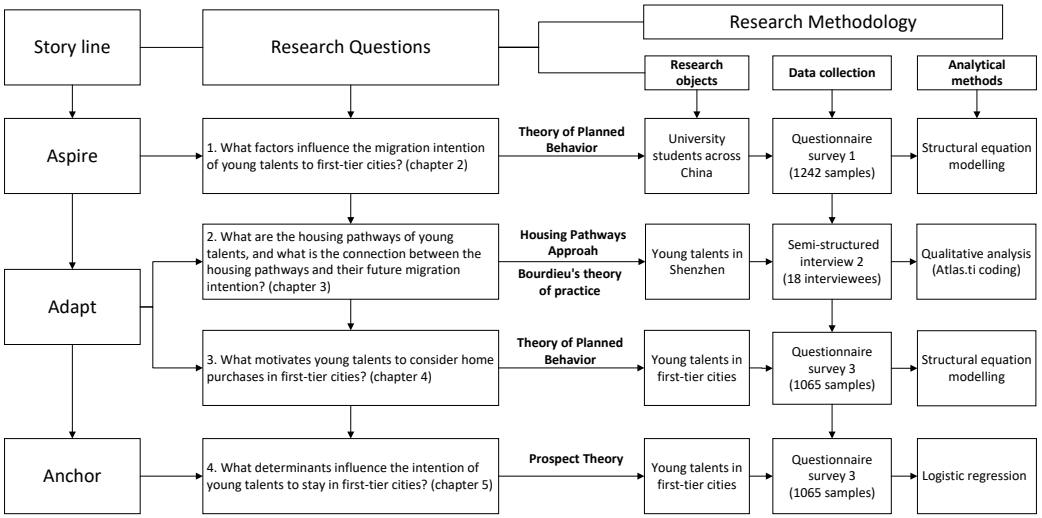

FIG. 1.4 Research scheme of the thesis

Chapter 2 aims to address the first research question: “What factors influence the migration intention of young talents to first-tier cities in China?” Using the Theory of Planned Behavior, a quantitative questionnaire was designed and administered to university students across China. The data was then analyzed using Structural Equation Modelling (SEM), revealing the importance of attitudes, subjective norms, PBC, and beliefs in migration decisions. The results also demonstrate how various background factors influence migration intentions through the components of the Theory of Planned Behavior.

Chapter 3 tackles the second research question: “How do the housing pathways of young talents in China’s first-tier cities unfold, and what is the connection between these pathways and their future migration intentions?” Through semi-structured

interviews with young talents in Shenzhen, this chapter scrutinizes the interplay of both structural and agent factors that impact housing pathways, drawing upon Bourdieu's theory of practice. Additionally, it delves into the correlations between these housing pathways and the prospective migration intentions of these young talents.

Chapter 4 addresses the third research question: "What motivates young talents to consider homeownership in China's first-tier cities?" Also based on the Theory of Planned Behavior and using survey data from young talents in four first-tier cities, it investigates their aspirations for homeownership and the psychological and background factors shaping their housing choices.

Chapter 5 focuses on the fourth research question: "What determinants influence the intention of young talents to stay in China's first-tier cities?" It explores factors like future expectations, endowments, and risk attitudes shaping young talents' migration plans, drawing from Prospect Theory in behavioral economics to challenge neoclassical assumptions about rationality and perfect market information.

Chapter 6 synthesizes the key findings from the previous four empirical chapters. It provides policy recommendations for local governments to better attract and retain young talents based on the research findings. The chapter also reflects on the theories used and acknowledges limitations while setting directions for future research.

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2 What Attracts Young Talents?

Understanding the Migration Intention of University Students to First-tier Cities in China

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ABSTRACT In recent years, China has witnessed fierce competition for talents among cities. There is evidence that China's first-tier cities are losing their appeal for young talents due to the soaring housing prices and high living costs in first-tier cities, as well as the catch-up of next-tier cities. Therefore, uncovering what factors drive young talents to develop in first-tier cities is important for policymakers to maintain and enhance the attractiveness of first-tier cities. Most previous research on talent migration has focused on demographic and socioeconomic factors, while little research has examined the influence of psychological factors. By adopting the Theory of Planned Behavior (TPB), this paper aims to explore what beliefs and background factors influence university students' intention to develop in first-tier cities after graduation. Using the data we collected from 1242 university students across China, we found that two-thirds of university students have the intention to develop in a first-tier city after graduation. The Structural Equation Modeling (SEM) results show that students' migration intentions were most influenced by their attitudes, followed by subjective norms and perceived behavioral control (PBC). Specifically, beliefs such as realizing future dreams, better job opportunities, and higher wages shape students' positive attitudes towards developing in first-tier cities. The supports from family, friends, teachers, and classmates contribute to positive subjective norms of developing in first-tier cities. In contrast, perceptions of high housing prices, high living costs, and family ties

discourage students from developing in first-tier cities. Furthermore, being male, being a non-only child, studying in first-tier cities, and attending higher-ranking universities have positive influences on migration intention through the mediating effects of the TPB constructs. Policy implications were discussed to help first-tier cities attract graduates.

KEYWORDS Migration intention; university students; theory of planned behavior; first-tier cities; China

2.1 Introduction

With the advent of the knowledge economy, how to attract and retain talents has become one of the most significant discussions in the development of regions and cities worldwide (Arntz, 2010; Darchen & Tremblay, 2010; Esmaeilpoorarabi et al., 2016). The view that human capital is of great importance to regional growth and development has been widely agreed upon by scholars and policymakers (Corcoran et al., 2010; Florida, 2005). A number of studies have provided empirical evidence that supports the talent-regional growth relationship. For example, Rauch (1993) revealed that both salary and housing rents were higher in cities with higher average educational levels in the United States. In their study of English cities from 1861 to 1961, Simon and Nardinelli (1996) found that cities with higher proportions of talents grew more rapidly. Similarly, Simon (1998) identified a positive, large, and persistent relationship between the average level of human capital and regional employment growth over a considerable time frame in the United States. Universities are important sources for human capital cultivation and play crucial roles in importing human capital into regions (Haapanen & Tervo, 2012). Therefore, the migration of university students - graduating from university and entering the workforce somewhere - has received considerable academic interest (Faggian & McCann, 2009; Greenwood, 1973; Venhorst & Corvers, 2018). Policymakers in various regions and cities have taken initiatives to retain local university students and attract university students from outside the region (Gottlieb & Joseph, 2006; Raco, 2008). In line with China's economic transformation and development in recent years, the thirst for talent has become ever more intense. To attract and retain talents, various cities in China launched a heated "competition for talents". A series of policies have been introduced to attract and retain university students in the form of settlement subsidies, housing subsidies, and living subsidies. For example, in 2017, the city of Zhengzhou launched the "Smart Zhengzhou" talent program which provided a three-year living allowance of 1500, 1000, and 500 RMB per month for graduates with a doctoral, master's, and bachelor's degree respectively, if they settle in Zhengzhou after graduation.

Previous studies found that university students tend to develop in first-tier cities[9] after graduation because they offer access to higher salaries and better urban services (He et al., 2016; Liu & Shen, 2014a). However, some recent studies suggest that high housing prices, fierce employment competition, and low residential satisfaction are leading to a gradual decline in the proportion of graduates going to first-tier cities, while enthusiasm towards going to second-tier and other cities is on the rise (Chen et al., 2019; Lin et al., 2021). For example, the net talents inflow ratio[10] in the first-tier cities decreased with 0.8%, −0.5%, −0.9% and −2.7% from 2016 to 2019. In contrast, the net talent inflow ratio in the second-tier and third-tier cities showed a continuous increase in the same period, with (0.60%, 3.20%, 3.60%, 1.10%) and (0.40%, −0.30%, −0.30%, 1.80%) respectively (TPN, 2021). Furthermore, according to the report released by the McKinsey Institute (2021), the proportion of university students opting to work in first-tier cities after graduation decreased from 26% in 2015 to 17% in 2020. This shows that the demand for talents remains acute in first-tier cities. For example, among the top ten cities with the most high-tech companies in China, the number of high-tech companies located in first-tier cities accounted for 64% of the total number (Yicai, 2021). Researchers believe that as the number of talents in first-tier cities decreases, the labor cost of enterprises will increase, and innovation vitality will inevitably be constrained (Daily, 2021). The brain drain may become a serious deterrent to the sustainable development of cities (Zhou et al., 2018), necessitating a more in-depth and evidence-based understanding and analysis of the drivers of talents' migration intention to first-tier cities. Instead of encompassing all kinds of talents, this paper focuses on only one specific group: university students. It is because university students constitute the majority of future talents and are the main targets of 'talent competition' among China's cities.

Numerous international studies have attempted to examine the factors influencing the university-to-work migration of university graduates. An earlier study by Greenwood (1973) argued that factors influencing the migration behavior of US graduates were: the size of the regional labor market, (un)employment rates, and specific regional characteristics such as regional livability. For instance, Greenwood (1973) argued that the larger the size of the labor market, the greater the number of jobs it would provide and, therefore, the higher the expected in-migrants of the region. Kodrzycki (2001) later added that house prices, quality of life, and

9 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 s-tier cities, which are mostly provincial capital cities (e.g., Wuhan) or sub-provincial cities (e.g., Qingdao).

10 The net talent inflow ratio is equal to (number of talents flowing into a city - number of talents flowing out of a city) /total number of migrant talents across the country.

prior migration experience also affected the US graduates' migration behavior. For example, high house prices at the destination discourage the migration behavior of university students. Several aspects have been identified as crucial factors influencing the migration behavior of UK graduates. A series of studies by Faggian and his colleagues found that regional innovation and differences in job opportunities and wages drive graduates' migration behavior (Faggian et al., 2007b; Faggian & McCann, 2009). Besides, they argued that migration is associated with personal characteristics such as gender and ethnicity (Faggian et al., 2007a, Farivar et al., 2019). The research by Marinelli (2013) and Dotti et al. (2013) on the mobility of Italian graduates from south to north yielded similar results. Their findings suggested that regional economic base, labor market dynamics (regional job vacancies), graduates' academic background and employability skills influence graduates' migration choices.

While these studies provide important insights, significant gaps remain in this field. To begin with, most existing research agreed that university students' migration behavior after graduation was related to the information that they obtain about the origin and the intended destination (Greenwood, 1973; Herzog et al., 1985). The predominant "push-pull theory", for example, suggested that 'push' factors of origin and 'pull' factors of destination together influenced graduates' migration decisions (Dorigo and Tobler, 1983). They stressed the importance of variations in 'push' and 'pull' factors across regions and the impact of differences in information about the 'push' and 'pull' factors that different people accessed (Farivar et al., 2019; Van Hear et al., 2018). However, they overlooked the fact that most people do not have perfect information and different people react to the information differently, thus resulting in variations in people's subjective perceptions towards the migration behavior. In the decision-making process, subjective perceptions are considered to be the ultimate component that leads directly to people's migration intention (Lee, 1966; Lu, 1998). Therefore, further research is needed on how subjective perceptions, such as attitudes and subjective norms, shape migration choices. Furthermore, many studies have focused on graduates of a specific profession or degree (Dotti et al., 2014; Gesing and Glass, 2019; Gottlieb & Joseph, 2006) or graduates from a specific city (Cui et al., 2016). However, research about determinants of graduates' migration intention across different majors and degrees at a national level is insufficient. Furthermore, most current studies on Chinese talent migration are not based on theoretical frameworks and hence only provide scattered evidence and cannot ensure generalizability in the research field (Liu et al., 2017; Shi, 2015; Wang et al., 2020).

The current paper aims to better understand the intention and its driving factors of Chinese university students to develop in first-tier cities after graduation. Based on

the Theory of Planned Behavior (TPB) (Ajzen, 1991), an online survey was conducted to collect data on the intention to develop in first-tier cities from 1242 university students from all over China. The TPB provides the opportunity to analyze the students' attitude, subjective norms, and perceived behavioral control (PBC) as well as the underlying beliefs (perceptions about consequences and possibilities) towards developing in a first-tier city.

Specifically, the following questions are addressed:

1 What is the proportion of university students who intend to develop in a first-tier city after graduation from 2021 onwards?

2 To what extent is the intention of university students to develop in a first-tier city after graduation explained by attitudes, subjective norms, and PBC?

3 What beliefs about first-tier cities do university students hold that influence their attitudes, subjective norms, and PBC to develop in a first-tier city after graduation?

4 Do differences in personal background factors contribute to variations in beliefs, attitude, subjective norm, and PBC and the intention to develop in a first-tier city?

The remainder of the paper is structured as follows. The next section provides an overview of the theories of migration and introduces the TPB and the rationale for using it. The third section describes the data collection process and statistical methods. The fourth section presents the findings, followed by a discussion of the results in section five. The paper concludes with the main findings and policy implications.

2.2 Theoretical framework

2.2.1 Theories of migration

Researchers have developed a variety of theoretical frameworks to explain and predict human migration behavior. The oldest theory of migration dates back to Ravenstein's Laws of Migration (Ravenstein, 1885), which claimed that the call for labor in the canters of industry and commerce is the prime cause of the flow of migration in the UK. This theory also argued that most migrants in the UK only migrate short distances. When people choose to migrate long distances, they choose the great centers of commerce and industry which offer better facilities (Ravenstein, 1885,p.198). In the early twentieth century, geographers developed the 'gravity model' inspired by Newton's law of gravity to predict the volume of migration between cities, regions, and countries (Castles, 1998, p. 28; Karemera et al., 2000; Vanderkamp, 1977). Despite the existence of some variants (Haynes & Fotheringham, 2020), the gravity model basically claims that the volume of migration is proportional to the product of the population size between two regions and inversely proportional to the square of the distance separating them. In his widely cited paper "A Theory of Migration", Lee (1966) argued that migration behavior was influenced by 'plus' and 'minus' factors in four dimensions: factors related to the place of origin, factors related to the destination, disturbance factors, and personal characteristics. These types of theoretical frameworks are frequently referred to as 'push-pull' models (Passaris, 1989). Despite its practicality, the 'push-pull' models have received much criticism for failing to unravel the interactions between the influencing factors of migration (Skeldon, 1990).

The neoclassical theory views migration as a part of the overall national development process through which surplus labor from the rural sector becomes labor for the urban industrial economy (Castles, 1998; Lewis, 1954). Due to wage gaps, workers migrate from low-wage, labor-surplus regions to high-wage, labor-scarce areas, which will finally result in the convergence between wages in the two areas (Castles, 1998; Harris & Todaro, 1970). However, neoclassical theory is based on the premise that people are rational actors—that is, their decisions about migration are governed by the goal of maximizing their income or 'utility', and they are completely aware of the salary levels and job opportunities in the intended destination area, which is unrealistic in real-life migration (Coolen et al., 2002; Boelhouwer, 2011; Hu et al., 2020; Lee, 1966).

In a nutshell, both 'push and pull' and neoclassical theories have overlooked the role of 'human agency' in migration behavior. As Castles (1998) put it:

> ('Push and pull' and neoclassical theories) portray human beings as socially isolated individuals who passively and uniformly react to external factors, while people's aspiration and capability to migrate actually depends on factors such as age, gender, knowledge, social contacts, preferences, and perceptions of the outside world. These theories generally do not consider how migrants perceive their world and relate to their kin, friends, and community members. (Castles, 1998, p. 31).

Personal characteristics, such as sensitivity and intelligence, can influence the evaluation of information (Fishbein & Ajzen, 2011), while access to migration information also depends on personal accessibility or sources of information that are not generally available (Greenwood, 1973). Therefore, the decision to migrate is never entirely rational and for some people, the rational component is much lower than the irrational component. Therefore, in addition to objective factors, it is important to identify what subjective beliefs people hold about migration and how these beliefs influence their intention to migrate.

2.2.2 Theory of planned behavior

Different from the above theories, the theory of planned behavior (TPB) does not presume that people are rational (Ajzen, 2015). The TPB, depicted in Figure 2.1, was proposed by Ajzen (1991) based on the Theory of Reasoned Action (Fishbein & Ajzen, 1977). According to the TPB, the intention to perform a behavior is shaped by people's attitudes, subjective norms, and perceived behavioral control (PBC) regarding that behavior (Ajzen, 1991). Whereas the underlying determinants of their attitudes, subjective norms, and PBC are the behavioral, normative, and control beliefs that people hold about the behavior, respectively (Ajzen, 2011). Attitude towards the behavior is determined by the behavioral beliefs, which consist of the individual subjective probability that the behavior will produce a given outcome or experience, weighted by the evaluation of that outcome or experience (Ajzen, 1991). Normative beliefs are the perceived behavioral expectations of important referring individuals or groups (e.g., family, or friends). The strength of normative beliefs – combined with the motivation to comply with different referents – determine prevailing subjective norms (Fishbein & Ajzen, 2011). Control beliefs are perceptions of factors that may facilitate or hinder behavioral performance. Specifically, the strength of control beliefs (how strong is the control belief) – in combination with the power

of each control factor that influences the behavior (how strong is its influence) – determine the general PBC (Fishbein & Ajzen, 2011). The TPB makes no assumptions about the veracity or objectivity of the beliefs, which may be based on invalid or selective information. The beliefs may be irrational, reflecting unconscious bias, paranoid tendencies, wishful thinking, or other personal motivations (Ajzen, 2020).

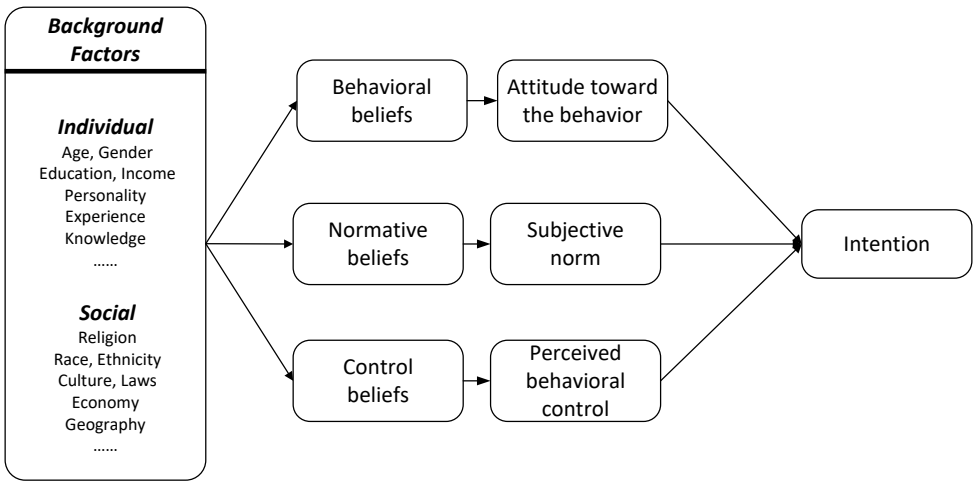

FIG. 2.1 Theoretical model. Sources: (Ajzen, 2019; Ajzen et al., 2011).

The TPB points out that background factors can influence the beliefs that people hold. Examples are demographic variables (such as age, gender, and income), individual personality factors, and past experiences (Ajzen, 2011; Ajzen, 2019). These factors vary depending on the population and behavior studied (Fishbein & Ajzen, 2011). It is expected that background factors will indirectly influence the intention to perform the behavior through their impact on the beliefs that people hold.

The past literature suggested that gender was associated with university students' intention and behavior to migrate (Cui et al., 2016; Faggian et al., 2007c; Orosová et al., 2018). For example, Orosová et al. (2018) found that the opinions of families and friends have a greater impact on female students' intention to migrate than male students because emotional ties inhibit female migration. The present study, therefore, examines how gender, as a background variable, affects the beliefs of university students and thus their intention to migrate. China enacted the "one-child policy" in 1980 (Feng et al., 2013), and a considerable proportion of university students are the "only child" in their families. It has been shown that being the

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only child in the family influenced their decision to migrate (Giles & Mu, 2007; Liu & Shen, 2014b). The "only child" is more likely to develop in the hometown to take care of his or her parents (Deutsch, 2004). Therefore, we incorporated the factor of "being the only child" as a background factor in our study. Several studies found that previous migration experience had a significant influence on university-to-employment migration (DaVanzo, 1976, DaVanzo, 1983; Faggian et al., 2007b; Kodrzycki, 2001). In China, university students are very likely to migrate from their hometowns to universities, which can be considered as past experience of migration. Thus, previous migration experience is also included as a background factor in our study.

Additionally, since our research population is university students, some student-related variables should also be taken into consideration. For example, by analyzing a large dataset of Scottish and Welsh students, Faggian et al. (2007a) found that students who had higher educational attainment and who studied in higher-ranked universities were more mobile. He also found that students graduating in different majors had different migration propensities. His findings showed that students studying medicine and science generally had a higher propensity to migrate than students studying social sciences. Similarly, Ciriaci (2014) found that both the research and teaching quality of the university influenced the migration choices of Italian students. Furthermore, several studies have revealed that the migration choice of university students is path-dependent (Cui et al., 2015; Liu et al., 2017). For example, Liu et al. (2017) found that students who study at a regular university have a strong tendency to stay in the university's province after graduation. In our case, students who study in first-tier cities may well have a higher intention to develop in a first-tier city. Therefore, university ranking, major, the year of education, university location (city level), and educational level are also included in our study.

The TPB has been successfully adopted in various domains to predict and explain behavior such as environmental behavior (De Leeuw, et al., 2015; Harland, et al., 1999), health-related behavior (Godin & Kok, 1996; Grønhøj et al., 2013), shopping behavior (George, 2004; Yadav & Pathak, 2016), and travel behavior (Han et al., 2017; Quintal et al., 2010). A few studies have used TPB to explain and predict the migration intention of university students, for example, Cui et al. (2016) and Novotný et al. (2020). Both authors have examined the effects of beliefs and attitudes, subjective norms, and PBC on migration intention. However, they did not specifically examine how beliefs influence attitudes, subjective norms, and PBC, which in turn influence migration intention. The present paper argues that the relationship between beliefs and attitude/subjective norm/PBC is one of the core parts of TPB. Understanding what beliefs determine the attitude/subjective norm/PBC may not only unravels the mechanism of the decision-making process of migration behavior but also provides us with directions for policy implications.

2.3 Research methodology

2.3.1 Data collection

The target population of our study is university students at school (until 2021) around China, including bachelors, masters, and Ph.D. students. The universities in this research refer to "Higher Education Institutions (HEIs) Offering Degree Programs" and exclude "Higher Vocational Colleges", "Adult HEIs", and "Other Non-government HEIs". Due to limited financial and human resources as well as the difficulty of implementation during the covid-19 pandemic, we could only include a subsection of the population and could not conduct offline investigations. Instead, we adopted the online questionnaire survey and used the snowball sampling method to select our study sample. Details about the sampling strategy will be presented in Section "Formal questionnaire".

As recommended by Ajzen (2006), a two-stage TPB survey was conducted. In the first stage, an elicitation study was conducted which aimed to elicit salient beliefs of university students regarding developing in a first-tier city after graduation. The results of the elicitation study were used to further design the TPB questionnaire in the second stage, which aimed to explore the determinants of university students' intention to develop in a first-tier city.

Elicitation study

The aim of an elicitation study is to identify what important behavioral, normative, and control beliefs are shared by the target population. Following Ajzen's instructions (Ajzen, 2006), an open questionnaire survey was conducted to elicit university students' salient beliefs towards developing in a first-tier city after graduation. The survey contains nine open questions, such as "What do you believe are the (dis)advantages of developing in a first-tier city?", "Are there any individuals or groups who would (dis)approve of your developing in a first-tier city?", and "What factors or circumstances facilitate/impede you to develop in a first-tier city?". Different questions aim to elicit different beliefs. The abovementioned three sets of questions were aimed to elicit behavioral beliefs influencing attitude, normative beliefs influencing subjective norms, and control beliefs influencing PBC, respectively. Respondents were encouraged to share their thoughts and stories

freely in response to these questions. The most frequently mentioned answers to these questions are considered to be salient beliefs.

A total of 28 university students from 16 universities in different regions were investigated through an online survey in October 2020. These respondents were recruited through referrals from acquaintances and online social apps like WeChat and QQ. Their average age was 21 years old; 15 were female and 13 were male. In addition, 22 respondents were bachelor's students, while four and two were master's students and doctoral students, respectively[11].

Finally, seven behavioral beliefs, five normative beliefs, and four control beliefs were collected (see Appendix 2.1 for the details of these beliefs). Notably, one of the behavioral beliefs 'fulfill my dreams for the future' was also mentioned by five respondents as a control belief, implying this belief might be both a behavioral belief and a control belief. The information obtained in this elicitation study was used to develop the complete TPB survey.

Development of the questionnaire

Following Francis et al. (2004), we used three different semantic items to measure intention, attitude, subjective norm, and PBC. For example, to measure intention, we used the three items "I expect to develop myself in a first-tier city after graduation", "I want to ……", "I intend to ……", and the measurement scale of each item ranged from "Strongly disagree (1)" to "Strongly agree (7)". The mean value of the three items was used as the respondent's generalized intention. This was done to ensure the accuracy and reliability of the measurement. The questions that are used to measure attitude, subjective norm, and PBC are also coined by Ajzen (2020) as "reflective indicators". Appendix 2.2 contains detailed information on the reflective indicators.

Measuring behavioral/normative/control beliefs

As explained in Section 2.2, the strength of each behavioral belief, combined with the outcome evaluation, influences the attitude. The same applies to the subjective norm (strength of normative belief and motivation to comply) and the PBC (strength of control belief and perceived power of control factor). The beliefs that influence the attitude, subjective norm, and PBC are called 'formative indicators(Ajzen, 2021).

11 As a rule of thumb, the pilot study should include a sample of 25 to 30 participants representative of the general research population (Ajzen, 2021).

Following Ajzen (1991), strength was measured using a seven-point unipolar adjective scale (1–7) and power with a seven-point bipolar adjective scale (−3–+3). For example, the perceived likelihood (strength) of the control belief "The house prices in first-tier cities are high", was measured on a scale from Extremely unlikely (1) to Extremely likely (7). To measure its power, we used the statement "High house prices would make it __ for me to develop myself in a first-tier city after graduation", for which respondents could choose an answer between "Much more difficult (-3)" and "Much easier (3)". See Appendix 2.1 for an overview of the beliefs.

Background factors

In this study, eight background variables were included, namely "gender", "only child", "previous migration experience", "educational level", "university ranking", "university location (city level)", "major", and "the year of education". For "gender", the male is used as the reference. The "only child" is defined as being the only child in the family with no other siblings, and the "non-only child" is used as the reference. "Previous migration experience" refers to whether university students had the experience of inter-provincial migration, i.e., whether their university location and hometown were in the same province. Those who did not have cross-province college experience were used as the reference. To simplify the research, we converted the variable "educational level" into a dichotomous variable containing "bachelor" (reference) and "master & PhD". To indicate "university ranking", we asked students whether they attend a university from the 985/211 project[12]. Students who attend a regular university are used as the reference. The indicator "university location (city level)" indicates whether the student's university is located in a first-tier city. In this study, a non-first-tier city location is the reference. For "major", we divided the students into four categories: Arts & Humanities, Engineering & Technology, Life & Natural Sciences & Medicine, and Social Sciences & Management. Finally, the year of education was collected.

12 Universities included in Project 985 and Project 211 can be seen as the top universities in China. See website: https://www.chinaeducenter.com/en/cedu/ceduproject211.php for more information.

Questionnaire survey

The data were collected with the use of an online survey, in January and February 2021. An online survey is easy to implement, fast to deliver, inexpensive, widely available, and convenient for respondents to answer (Hamzah & Zyed, 2020; Sekaran & Bougie, 2016).

Pilot questionnaire

Before the distribution of the formal online questionnaire, we conducted a small pilot survey in November 2020 with 18 university students from all over the country. These students were referred by the previous elicitation respondents. The main purpose of the pilot survey was to test whether the length of the questionnaire was appropriate, whether the terminology and questions were easy to understand and answer, and whether important factors had been omitted. Based on the feedback of the respondents in the pilot survey, we adjusted the order of the questions and rephrased some questions that were not entirely clear.

Formal questionnaire

The participants of the formal questionnaire were selected using the virtual snowball sampling method. The main merit of this approach is its effectiveness to extend the geographic range and easily reach individuals with visiting barriers (Baltar & Brunet, 2012). Baltar and Brunet (2012) argue that the virtual snowball sampling method can increase the number of cases in the sample and improve representativeness as well since the number and type of responses can be controlled during the process. Following the steps of snowball sampling proposed by Biernacki and Waldorf (1981), we first identified initial respondents/referrers, including classmates and friends known to the researchers, respondents known through the pilot study described above, and college teachers (teachers do not serve as direct respondents to the study but serve as key referrers to the snowball sampling method). We then verified the eligibility of these respondents/referrers and selected 66 of them who were willing to collaborate as our research assistants to help spread the questionnaire. The distribution of the 66 assistants covers the spread of major universities all over China. The assistants are either teachers or students and have access to a wide range of students. We began distributing the questionnaire to the initial respondents/referrers via email, WeChat, QQ, and other virtual social apps in January 2021. These initial respondents/referrers further distributed the questionnaire to new respondents through virtual social media. To achieve statistical precision, Kline (2015) recommended that the sample size should be at least 10 times, or preferably 20 times the number of

parameters to be estimated. There are 41 parameters at most to be estimated in our theoretical model (mainly including path coefficients). Therefore, the minimum sample size required is 410, and the suggested sample size is 820. To ensure the representativeness of the sample, we also controlled for the spread direction of the referral chain in terms of educational level, geographic location of the university, and level (ranking) of the university as much as possible. By February 26, 2021, we had received a total of 1330 responses, which met our sample size requirement and that showed relatively good representativeness with regard to the level of education and the quality of universities. Therefore, the online survey was closed. We dropped 82 responses with low response quality (e.g., responses that selected the first option for all questions) and too short a response time (<6 min) and 6 responses whose hometowns are first-tier cities, ultimately yielding 1242 valid responses.

Sample characteristics and data representativeness

The average age of the respondents is 20.9, of which 40.5% are male and 59.5% are female. Although the male to female ratio seems to be imbalanced, it is close to the national university population level. According to the OECD report, the overrepresentation of women in the college population has become a global trend (Vincent-Lancrin, 2008). In terms of the educational level, our data is representative. 84.9% of our respondents are bachelor students, while 12.4% and 2.7% are master and Ph.D. students respectively. Concerning university ranking, 12.5% of our respondents were from 985/211 project universities while 87.5% are from regular universities. Students from 985/211 Project universities were slightly overrepresented. The National Bureau of Statistics (2011) divides China into four economic regions: East, Central, West, and Northeast. According to this classification, respondents from universities in eastern China are overrepresented while students from universities located in western and northeast China are underrepresented. See Table 2.1 for the detailed characteristics of the respondents.

TABLE 2.1 Characteristics of the respondents. Sources: The data on gender ratio came from https://www.163.com/dy/article/FK7JPJF70524WU43.html (accessed on 26 August 2021). The national data of educational level, university ranking, and university location are calculated based on the latest official data published by the Ministry of Education of the People's Republic of China (MEPRC, 2020).

	Mean/percentage of our sample	National university population level
Age (S.D.)	20.9	-
Gender		
Male	40.5%	42.3%
Female	59.5%	57.7%
Only child		
Yes	38.5	-
No	61.5%	-
Previous migration experience		
Yes	44.7%	-
No	55.3%	-
Educational level		
Bachelor	84.9%	86%
Master	12.4%	11.9%
PhD	2.7%	2.1%
Major		
Arts & Humanities	*8.7%*	-
Engineering & Technology	*35.7%*	-
Life & Natural Sciences & Medicine	*7.5%*	-
Social Sciences & Management	*48.1%*	-
The year of Education		
First-year bachelor	*28.7%*	
Second and third-year bachelor	*36.9%*	
Final year bachelor	*19.2%*	-
Master & PhD	*15.1%*	-
University ranking		
985/211 project	12.5%	8.9%
regular universities	87.5%	91.1%
University location		
East China	61.4%	40.2%
Central China	24.6%	25.2%
West China	11.8%	24.6%
Northeast China	2.3%	10%
University location (city level)		
First-tier cities	8.2%	-
Other cities	91.8%	-

2.3.2 Analytical process

Under the framework of the Theory of Planned Behavior (TPB), our analytical process to address the proposed research questions consists of the following four steps:

Step 1: By counting the proportion of respondents with varied intentions (1–7) to develop in a first-tier city after graduation, we will answer research question 1: After graduating, what percentage of university students intend to develop their career in a first-tier city?

Step 2: To answer research question 2, we constructed a basic model (model 1) containing only attitude, subjective norm, PBC, intention, and their corresponding reflective indicators. The objective of Model 1 was to primarily test the explanatory power of the TPB model. Model 1 also allowed us to measure the relative importance of attitude, subjective norm, and PBC in the prediction of the intention.

Step 3:To understand what beliefs shape university students' attitude, subjective norm, and PBC (research question 3), we introduced behavioral beliefs, normative beliefs, and control beliefs to the basic model (Model 2). In particular, the beliefs we have introduced refer to the product of the strength of a belief and the importance of that belief, that is, behavioral belief strength × outcome evaluation, normative belief strength × motivation to comply, and control belief strength × power of control factor. As Fishbein and Ajzen argue, the product is better at predicting the corresponding attitude, subjective norm, and PBC than the strength of the belief alone (Ajzen, 2011; Fishbein & Ajzen, 2011). Meanwhile, behavioral beliefs, normative beliefs, and control beliefs, as formative indicators of attitude, subjective norm, and PBC, respectively, together with the reflective indicators, form a multiple indicators and multiple causes (MIMIC) model (Diamantopoulos & Winklhofer, 2001; Hauser & Goldberger, 1971). Compared to the reflective model (model 1), the MIMIC model (model 2) cannot only identify which beliefs predict attitude, subjective norm, and PBC but can also reveal which beliefs are more important judging from the estimates of the standardized regression or path coefficients.

Step 4: Finally, we added background factors in Model 3. The purpose of model 3 was to test whether and how background factors affect intention. To avoid an overly complex model, we first conducted a series of one-way ANOVA or independent samples t-test (where applicable) to examine the relationship between each of the background factors and the intention. This procedure was repeated for all salient beliefs. Relationships between background factors and beliefs were only included in model 3 when significant results had been found using these tests ($p < 0.05$). See Appendix 2.3 and Appendix 2.4 for the results of the t-tests and the ANOVA.

2.3.3 Statistical method

The Structural Equation Modeling (SEM) method was adopted in our study to test the proposed TPB model due to its distinct advantages. To begin with, it allows for the estimation of models with multiple independent variables and multiple dependent variables simultaneously. Furthermore, it allows for the estimation of latent (unobserved) variables from observed variables and considers measurement error of variables. More importantly, SEM supports the examination of mediating effects (Jin et al., 2021; Chin, 1998; Kline, 2015; Ullman & Bentler, 2003). These features of SEM are well suited to our data analysis requirements.

Following Collier (2020, p. 62), before the construction of the structural model (Model 1, 2, and 3), a Confirmatory Factor Analysis (CFA) was conducted to analyze how well the reflective indicators measure the unobserved constructs and whether the unobserved constructs are uniquely different from one another, in other words, the reliability and validity of the model (Jöreskog, 1969). Composite reliability (CR)[13] is a commonly used way to measure the internal reliability of the measurement model. When CR ≥ 0.6, it can be considered that the internal reliability of each latent variable is high and meets the requirements (Bacon et al., 1995). Convergent validity and discriminate validity are two main indicators of validity (Fornell & Larcker, 1981). In general, when Average Variance Extracted (AVE)5 ≥ 0.5, convergent validity is of the required standard (Fornell & Larcker, 1981). If the positive square root of AVE > The biggest correlation between latent variables, it implies the discrimination validity is acceptable (Fornell & Larcker, 1981). The CFA results show that the measurement model has adequate reliability and validity, suggesting that latent variables can be well measured by the observed variables and that the latent variables are clearly distinct from each other. The results of the CFA can be found in Appendix 2.5 and Appendix 2.6.

In our analysis, the maximum likelihood (ML) method was adopted because it provides more accurate and robust parameter results when data are normally distributed (Hair, 2009). However, it is unable to report the significance of indirect and total effects because indirect effects are often non-normally distributed. Therefore, we also employed the bootstrap technique[14] to test the significance of indirect and total effects. The analysis was performed through AMOS 21 in SPSS.

13 See Hair (2009) for the detailed calculation method and formula of CR value and AVE value.

14 The Bootstrap technique is a resampling method that uses random sampling methods to estimate the sampling distribution of almost any statistic. Bootstrap allocates accuracy (bias, variance, confidence interval, prediction error, etc.) to the sample estimates (Efron and Tibshirani, 1994, Esmaeilpoorarabi et al., 2016)

2.4 Empirical results

2.4.1 University students' intention to develop in first-tier cities

Three items were used to measure students' migration intention: "I expect to develop myself in a first-tier city after graduation", "I want to ……", and "I intend to…". Before averaging the value of the three items, an internal reliability test was performed using Cronbach's Alpha. Generally, an alpha value above 0.70 is considered to reflect a reliable scale (Nunnally, 1994). According to this criterion, the three items showed high internal consistency, so they can be averaged ($\alpha = 0.955$). Table 2.2 shows that only 14% of respondents explicitly stated that they do not want to develop in a first-tier city. 22% were neutral, while over 64% of university students expressed their willingness to develop in a first-tier city. This result clearly answers our first research question: almost two-thirds (64%) of university students have the intention to develop in a first-tier city after graduation.

TABLE 2.2 University students' intention to develop in first-tier cities (N = 1242).

Average intention score								
Interval	1 – 1.99	2 – 2.99	3 – 3.99	4	4-4.99	5-5.99	6-7	Mean (S.D.)
N	34	37	107	268	111	303	382	4.92 (1.39)
Percent	2.74%	2.98%	8.62%	21.58%	8.94%	24.40%	30.76%	

2.4.2 SEM results

Basic TPB model (model 1)

Figure 2.2 shows the results of the basic TPB model (model 1). The results provide an answer to the second research question. The fit indices[15] of model 1 indicate that our data fit the theoretical model well. As shown in Figure 2.2, attitude, subjective norm, and PBC together explain 53% of the variance in university students' intention to develop in a first-tier city after graduation. The intention was influenced most by the attitude, followed by the subjective norm and then the PBC. Students with a more positive attitude, a more supportive subjective norm, and more perceived control, generally have a stronger intention to develop in a first-tier city.

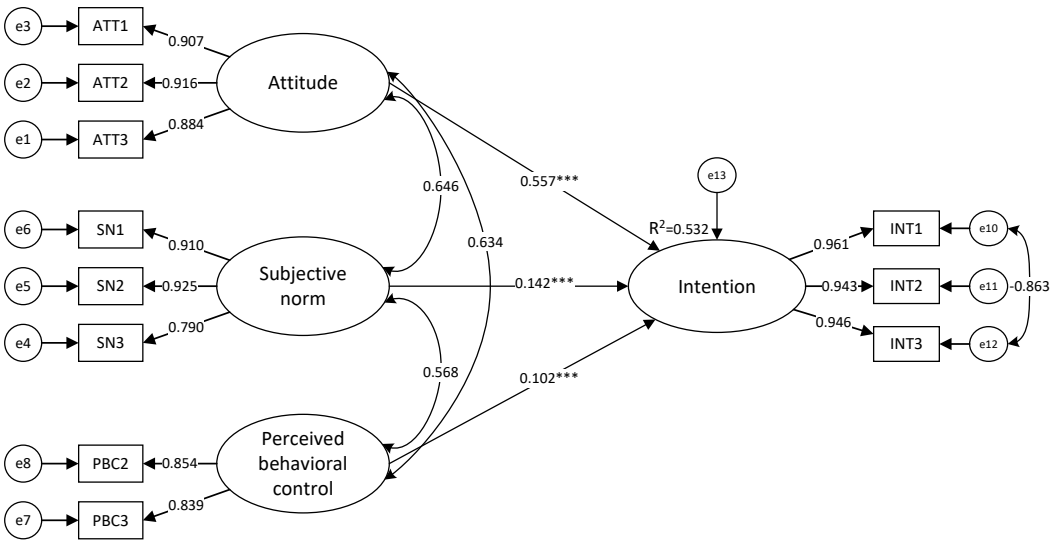

FIG. 2.2 Model 1: Basic TPB Model (standardized estimates)

*Notes: Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001; Model fit indices: CFI = 0.99, TLI = 0.98, RMSEA = 0.06.*

15 Model fit indices provide the most fundamental indication of how well the proposed theory fits the data. The comparative fit index (CFI), root mean square error of approximation (RMSEA), and Tuckere Lewis Index (TLI) are most recommended indices to be reported by researchers (Hu & Bentler, 1999). Generally, TLI > 0.95, CFI > 0.95, and RMSEA<0.08, reflect a good model fit (Kline, 2015).

Influences of salient beliefs (model 2)

In model 2, we examined the influence of salient beliefs on university students' attitude, subjective norm, and PBC towards developing in a first-tier city after graduation. This model provides the answer to the third research question. Figure 2.3 shows the estimation results of Model 2. The R2 of attitude and the subjective norm were 0.498 and 0.571 respectively, showing strong explanatory power. The initial R2 of PBC was 0.153, which did not meet the structural validity criteria of the MIMIC model ($R2 \geq 0.3$) (Heiny et al., 2019). The previous elicitation study showed that the belief "fulfill my dreams for the future" was also mentioned as a control belief. Therefore, we assumed that this belief would not only influence attitude but also PBC and added a relationship between "fulfill my dreams for the future" and PBC. As a result, the R2 of PBC increased to 0.296, and the overall fit of the model also improved slightly (see Figure 2.3).

Five out of the eight beliefs had significant positive effects on attitude. "Fulfill my dreams of the future" was shown to have the largest influence, followed by "excellent job opportunities", "fast-paced lifestyle", "generous income", and "high work pressure". In contrast, "accumulate a high-quality social network", "excellent medical services at my disposal", and "ascertain elite education for my children" were shown to be insignificant.

Regarding normative beliefs, "families' support" had the greatest impact on the desire of university students to develop in a first-tier city, followed by the support from friends and the practices of classmates (cohort). The support from teachers also had a significant positive influence. The influence of seniors' (older students') failed to reach significance.

Among the five control beliefs, four were found to have a significant effect on PBC. "Fulfill my dreams for the future" was shown to have the largest influence, it significantly and positively influenced PBC. Surprisingly, "high living costs (apart from housing expenditure)" had a significant positive effect on PBC, which means that respondents who expected high living costs also expected to have high PBC. To check the robustness of this result, a Pearson correlation test was performed between "high living costs" and PBC (using the mean value of the three reflective indicators). It turns out that the two factors were negatively correlated ($r = -0.075$, $p < 0.01$, $n = 1242$), which was in accordance with our expectations. Furthermore, the correlations between "high living costs" and "high house prices"/ "high rent prices" turned out to be rather high ($r = 0.825$ and 0.908 respectively). An additional linear regression analysis of all control beliefs regressed on PBC indicated the existence of multicollinearity of "high living costs" (Tolerance = 0.163, VIF = 6.141).

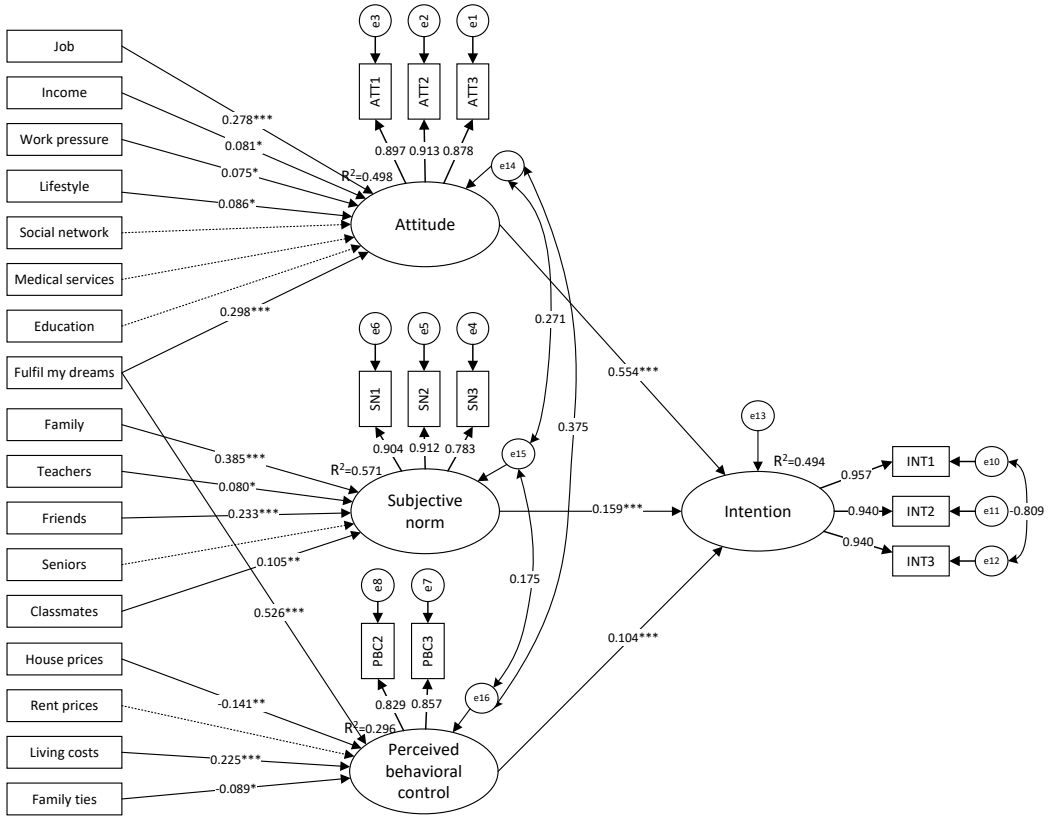

FIG. 2.3 Model 2: Consolidation of Salient Beliefs (standardized estimates)

*Notes: Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001; Model fit indices: CFI = 0.96, TLI = 0.95, RMSEA = 0.06; "……" Dashed lines = non-significant; To avoid overloading the figure, arrows between beliefs are not shown.*

Therefore, we believe that multicollinearity might explain the positive effect of "high living cost" on PBC. In addition, "high house prices" and "family ties (not being able to take good care of my family)" were shown to have significant negative effects on PBC, while "high rent prices" was found to be insignificant.

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Influences of background variables (model 3)

In Model 3, six background variables were included (see Figure 2.4). The results of the bivariate analyses showed that "major" and "the year of education" did not have a significant relationship with students' migration intentions and beliefs (see Appendix 2.4). Therefore, these variables were not included in model 3. Model fit indices indicate that the data fit the model well. The direct effects of the background factors on various beliefs are shown in Figure 2.4, while the indirect (total) effects of the background factors on attitude, subjective norm, PBC, and intention are shown in Table 2.3. The results answer the fourth research question.

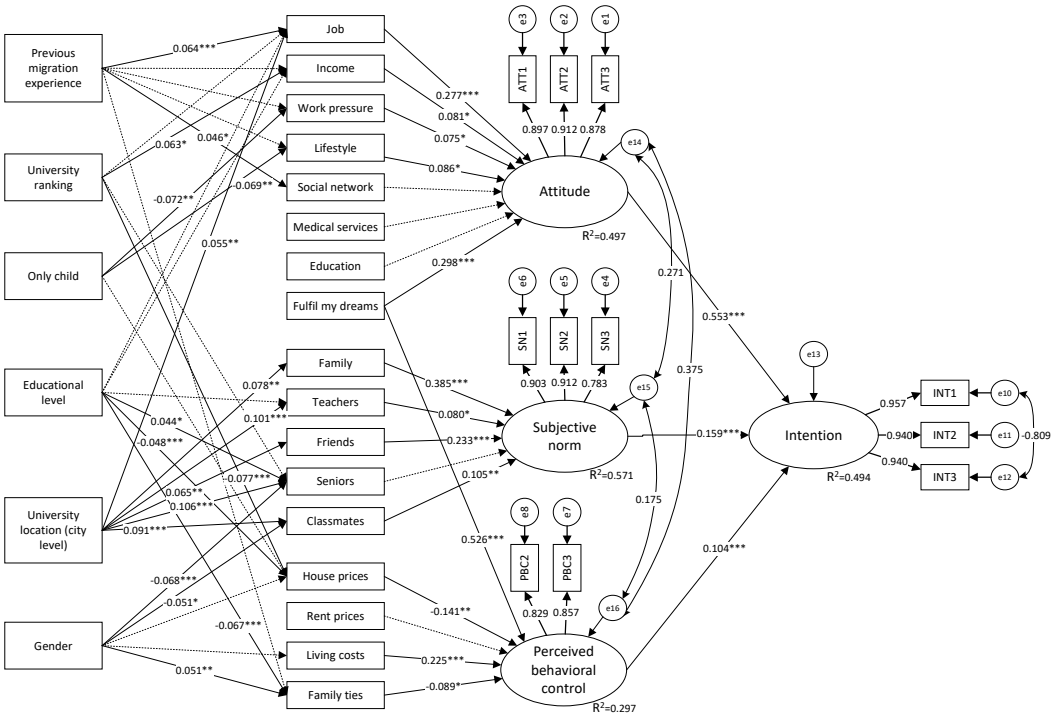

FIG. 2.4 Model 3: Incorporation of Background Factors (standardized estimates).

*Notes: Significance levels: * p < 0.05, ** p < 0.01, *** p < 0.001; Model fit indices: CFI =0.961, TLI = 0.939, RMSEA = 0.054; "……" Dashed lines = non-significant. To avoid overloading the figure, error items of beliefs and arrows between them are not shown.*

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TABLE 2.3 Standardized indirect (total) effects of background factors.

Background factors	Attitude	Subjective norm	PBC	Intention
Gender (male as reference)	-	-0.01**	-0.004	-0.002*
Only child (non-only child as reference)	-0.011**	-	0.002	-0.006**
Previous migration experience (who have no across- provinces migration experience as reference)	0.013	-	0.002	0.007
Educational level (bachelor as reference)	0.007	0.006*	0.013**	0.006
University ranking (regular university as reference)	0.017	0.001	0.011*	0.01**
University location (city level) (other cities as reference)	0.015***	0.069***	...	0.02***

*Significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.*

Among the six background factors, university location has the largest influence on students' intention. Students who study in first-tier cities have a statistically significantly more positive attitude, a more favorable subjective norm, and a higher intention to develop in a first-tier city than those who study in second and lower tier cities. The second most influential factor is university ranking. Students from 985/211 universities showed higher perceived behavioral control and a higher intention than students from regular universities to develop in a first-tier city. "Only child" was found to be a statistically significant predictor of intention, attitude, and PBC. Those who are non-only-child have a more positive attitude and a higher intention towards developing in a first-tier city, but lower perceived control. Female respondents were found to have a statistically significantly lower intention than male respondents to develop in a first-tier city after graduation. Meanwhile, female students were less supported by their social norm than male students. Previous migration experience and educational level were not statistically significantly related to intention.

2.5 Discussion

The migration behavior of university students has attracted increasing interest from scholars and practitioners worldwide (Faggian & McCann, 2009; Haussen & Uebelmesser, 2018). The current paper investigated the intention, as well as its underlying determinants, of university students to develop in a first-tier city after graduation in China. Specifically, four research questions were proposed: 1) the proportion of university students who intend to develop in a first-tier city after graduation, 2) the explanatory power of attitude, subjective norm, and PBC on intention, 3) the influence of various beliefs on attitude, subjective norm, and PBC, and 4) the influence of background factors on the intention to develop in a first-tier city. Using the TPB as the theoretical framework, we designed a questionnaire and collected online data from 1242 university students across China to address the above questions.

With regard to the first research question, 64% of the university students we surveyed expressed an intention to develop in a first-tier city after graduation. This is consistent with the findings of some studies in Western countries, where university students and graduates are willing to relocate to thriving metropolitan areas (Berck et al., 2016; Faggian & McCann, 2009). This result seems to contradict a recent report stating that in 2020 only 17% of graduates with bachelor's degrees in China actually worked in first-tier cities, while the percentage of graduates with master's degrees is 33% (McKinsey Institute, 2021). It might imply that a large proportion of graduates who intend to go to a first-tier city after graduation finally fail to do so. This is understandable as the intention-behavior relationship is moderated by PBC and "actual behavioral control" (Ajzen, 2011). The actual behavioral control concerns the actual opportunities and limitations that a student encounters when trying to develop in a first-tier city. These factors were not included in the current study.

Concerning the second research question, attitude, subjective norm, and PBC together explained 53% of the variance in intention in model 1, 49% in Model 2, and 49% in Model 3. According to the meta-analysis of Armitage and Conner (2001), the TPB accounts for 39% of the variance in intention on average, suggesting that the TPB can be well adopted in students' migration intention. Furthermore, we found that attitude had the greatest effect on university students' intention to develop in a first-tier city, followed by the subjective norm and PBC. The attitude that students have is more important than the barriers that they expect regarding their development in a first-tier city. The subjective norm is also important,

but still less important than attitude. According to our study, attitude should be given the highest priority by policymakers. This finding is slightly different from the findings of Cui et al. (2016), who found that the intention of university students to stay in Nanjing after graduation was most influenced by the subjective norm, followed by attitude, while the PBC had no significant effect on the intention. The differences between the two studies could be explained by the differences in the behaviors that were studied. The current study explores the intention of university students to develop in a first-tier city after graduation, while Cui et al. (2016) studied the intention of university students to stay in Nanjing after graduation. It has been demonstrated that the factors influencing the behavior of staying in a place and going to a place are different (Haapanen & Tervo, 2012; Marinelli, 2013; Novotný et al., 2020). This result is also in line with the view of Ajzen (1991) that the relative importance of attitude, subjective norm, and PBC in predicting intention varies according to behavior and situation.

As for the third research question, it was found that the most important behavioral belief was "fulfill my dreams for the future", which has rarely been studied in past research. As one of our respondents mentioned, "My boyfriend and I are determined to go to a first-tier city, because only in these cities can we have a greater probability of success. This possibility is fascinating because it can ignite people's spirit of struggle... We may meet some people or come across some opportunities, and start a business or something like that, to fulfill our dreams." It is clear that ambition has played an important role in driving students to develop in a first-tier city. This finding supports Hagen-Zanker and Hennessey (2021)'s appeal for an emphasis on the influence of subjective and intangible factors on migration decisions. In accordance with most existing studies (Darchen & Tremblay, 2010; Haussen & Uebelmesser, 2018; Venhorst et al., 2011), we found that regional economic factors such as job opportunities and income are also important drivers of university students' intention to develop in a first-tier city after graduation.

One interesting finding was that the more the students believed they will have high work pressure and a fast-paced lifestyle in the first-tier city, the more positive their attitude towards developing in such a city. Some respondents expressed that they indeed appreciated the pressure and the fast pace of life in the first-tier cities because it helped them to make career progress more quickly. This result is especially interesting when compared with Cui et al. (2016), in which university students who enjoyed a moderate pace of life had a higher intention to stay in Nanjing. A possible explanation is that those who intend to develop in a first-tier city have greater ambition than those who want to develop in a lower-tier city. In contrast to previous studies that have emphasized the role of urban amenities (Florida, 2005; Whisler et al., 2008), "accumulate a high-quality social network",

"excellent medical services at my disposal", and "ascertain elite education for my children" did not have a significant influence on students' intention to develop in a first-tier city in this study. Considering that this research was conducted among university students who are young and healthy, these factors might be not very important to them.

Regarding the normative beliefs, we found that opinions from family, friends, and teachers, as well as the behavior of classmates, shaped the subjective norm of university students' decisions to develop in a first-tier city after graduation. This finding echoes with previous studies that suggested migration decision making is not a purely personal process but is influenced by social networks and pressures from family, friends, and colleagues (Cui et al., 2016; Kaplan et al., 2016; Orosová et al., 2018; Van Dalen & Henkens, 2013). The importance of Chinese parents' opinions on their children's behavior can be explained by the Chinese Confucian familism that considers following parents' instructions as a "filial piety" (Yao & Yao, 2000). Dolfin and Genicot (2010) found that social networks can influence migration decisions by providing different types of services, such as information on jobs and help at the destination. In our study, friends and classmates are the main social network of university students, thus they also influencing university students' migration decisions. As one of the respondents said, "After graduation, I want to develop in the same city as my friends or classmates so that we can take care of each other". Perceived teacher support was found to be statistically significantly associated with students' intention to develop in a first-tier city. This is consistent with Metheny et al. (2008), who found that perceived teacher support influenced adolescents' career decision-making and vocational outcome expectations.

In terms of the control beliefs, the results showed that "fulfill my dream for the future" had the largest influence on perceived behavior control. What our respondents said is: "My dream motivates me to move forward and help to build my confidence, so I am confident that I can go to a first-tier city for a brighter future". In contrast, university students' perceived high cost of living and high housing prices discouraged their intention to develop in a first-tier city. This is coherent with previous research findings that the high cost of living/housing deter the migration to the destination (Kodrzycki, 2001; Whisler et al., 2008). Probably, recent graduates are in the early stages of their independent lives/careers and do not yet have enough savings. They therefore tend to choose cities where they can afford to live. Besides, China is a nation of homeowners, and housing is often a prerequisite for marriage (Huang et al., 2021b; Li & Wu, 2014). This also explains why there is no effect of high rent prices. Chinese urban house prices have been on a strong upward trend since the beginning of the century, with house prices in first-tier cities rising at a much higher rate than the national average (Chen et al., 2021). The deteriorating

housing affordability of the younger generation and new immigrants has become a serious social problem (Huang et al., 2021a; Li et al., 2021). Family ties are another important deterrent, which has been highlighted in the literature by Mincer (1978) as an important factor influencing migration. In China, especially in rural areas, many parents do not have national social insurance and are dependent on the care of their children as they grow older. One of the respondents said: "If I go to a first-tier city after graduation, I may not be able to take good care of my elderly parents".

For the fourth research question, we found that four out of eight background factors had significant effects on intention. Judging from the standardized coefficients, university location had the largest influence on students' intention among the eight factors. Students who studied in a first-tier city had significantly higher intention than their counterparts to develop in a first-tier city, echoing with previous studies (Cui et al., 2015; Liu et al., 2017). Interestingly, Model 3 provides some new insights beyond path dependence unraveling the mechanism linking university location and intention. Students who studied in first-tier cities were more likely to be supported by their referring individuals towards developing in a first-tier city, resulting in more favorable subjective norms and stronger intention. In addition, students from 985/211 universities have a higher intention to develop in a first-tier city than those from regular universities because they have higher perceived behavioral control. More specifically, 985/211 students were less concerned about the high housing prices in first-tier cities. Furthermore, students who were the only child had lower intention to develop in a first-tier city than their counterparts. According to our model, students who were the only-child in the family were less likely to enjoy the high work pressure and fast-paced lifestyle in the first-tier cities than their counterparts, leading to lower attitude and intention. This finding adds new insights because previous studies maintained that the only-child is less likely to migrate because they face the obligation of parent care without siblings (Giles & Mu, 2007; Gui & Koropeckyj-Cox, 2016). Next, male students had a stronger intention than female students to develop in a first-tier city after graduation, in line with Guohua et al. (2021). According to Model 3, it is because male students were more likely to be influenced by their classmates (cohorts) than female students. Although Ph.D. students and Masters are perceived to have more control over their development in a first-tier city and receive more support from seniors than bachelors, there are no significant differences between their attitudes. That could explain why the total effect of educational level on intention was not statistically significant. This result is also consistent with Cui et al. (2016).

This research has some limitations. A limitation of the study concerns the data representativeness. Due to time and funding constraints, our data cannot fully represent university students around China because students from universities

located in western and north-eastern China were underrepresented. In addition, this study only examined university students' intention to develop in a first-tier city after graduation without investigating the actual migration behavior of university students after graduation. However, established research has shown that intention is a strong predictor of future migration behavior (Orosova & Gajdošova, 2017; Van Dalen & Henkens, 2013). Future studies could conduct longitudinal surveys to further study the actual migration behavior of university students. Moreover, since the first-tier cities were used as case studies, the results of this paper cannot be generalized to non-first-tier cities. However, the theoretical framework and methodology employed in the paper can be adopted by other researchers studying other cities. Future studies can focus on graduates' intention to develop in second or lower tier cities to help them attract talents and thus promote more balanced regional development. Another limitation of the current study concerns the multicollinearity posed by the variable "living costs". In line with Bacon (2001), we believe that the existence of multicollinearity may be the consequence of asking the same respondent multiple similar questions in the same context. Such multicollinearity cannot be completely avoided in general. However, several scholars argue that the deleterious effects of multicollinearity can be largely offset when the sample size is large and the independent variables explain a high proportion of the variance in the dependent variable (Grewal et al., 2004; Mason & Perreault, 1991). In addition, the robustness of SEM estimates might alleviate the problems generated by multicollinearity (Westlund et al., 2008). Finally, only eight background variables were included in this paper for model parsimony because we were limited in the number of questions that we could include in the survey. However, other background factors such as parents' educational level and wealth might also influence students' migration intention (Abramitzky et al., 2013). Follow-up studies could include more background factors, in conjunction with the use of the TPB framework, to examine how other background factors influence the intention.

2.6 Policy implications

The findings of this study have some important implications for policymakers. In this paper, it is found that students' intention to develop in a first-tier city is most influenced by the students' attitude, followed by the subjective norm and perceived behavioral control. Furthermore, our third model has clearly shown what beliefs determine students' attitude, subjective norm, and perceived behavioral control. For example, to improve students' attitude towards developing in a first-tier city, the belief that 'first-tier cities can help realize my future dreams' could be promoted as a city branding image. In doing so, the local municipality could advertise the idea that first-tier cities are at the forefront of economic and social development, providing them with a greater stage to exploit their abilities so as to help them realize their dreams. Since 'job' and 'income' were also found to be significantly correlated to attitudes, creating more jobs and promoting higher wages are also possible means of attracting talents. Next, the role of family, teachers, and social networks – important referents for university students – could also be highlighted when developing relevant talent policies. For example, when publicizing and advertising the first-tier cities, targeting parents and teachers might have a good effect. In terms of perceived behavioral control, we found that university students were concerned about the "high cost of living" in the city. The provision of living allowance to new graduates or the introduction of minimum wage might reassure their concerns. In addition, to address the concern of high housing prices, the local government could consider encouraging the construction of talented housing and providing housing subsidies to improve the perceived control of university students. Finally, talent policies could be individualized depending on the background of the talents. For example, for graduates who are the only child of their parents, providing elder care or cash benefit for their parents at home could be considered.

Appendices

Appendix 2.1. Descriptive statistics of behavioral/normative/control beliefs

Behavioral beliefs: strength of behavioral beliefs (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
If I would develop myself in a first-tier city after graduation, I would:		
have excellent job opportunities	Extremely unlikely →Extremely likely: 1→7	5.31 (1.28)
have a generous income		5.39 (1.21)
have high work pressure		5.94 (1.15)
have a fast-paced lifestyle		5.88 (1.18)
accumulate a high-quality social network		5.44 (1.19)
have excellent medical services at my disposal		5.53 (1.17)
ascertain elite education for my children (if any)		5.58 (1.23)
fulfill my dreams of the future		5.39 (1.22)
Outcome evaluation (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
For me to have excellent job opportunities is	Extremely bad → Extremely good: -3→+3	1.53 (1.13)
For me to have a generous income is		1.75 (1.12)
For me to have high work pressure is		0.36 (1.76)
For me to have a fast-paced lifestyle is		0.52 (1.57)
For me to accumulate a high-quality social network is		1.42 (1.17)
For me to have excellent medical services at my disposal is		1.54 (1.12)
For me to ascertain elite education for my children (if any) is		1.65 (1.23)
For me to fulfill my dreams of the future is		1.51 (1.18)
Normative beliefs: Strength of normative beliefs (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
My family will approve of my development in a first-tier city	Strongly disagree → Strongly agree: -3→+3	0.93 (1.23)
My teachers will approve of my development in a first-tier city		1.19 (1.09)
My friends will approve of my development in a first-tier city		1.12 (1.11)
Most of my seniors (older students) developed themselves in first-tier cities after graduation		0.77 (1.18)
Most of my classmates (cohort) that I knew will develop themselves in first-tier cities after graduation		0.83 (1.19)

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Motivation to comply (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
How much do you value the following groups' opinions or behavior when it comes to developing yourself in a first-tier city?		
Family	Extremely unimportant → Extremely important: 1→7	5.18 (1.1)
Teachers		4.72 (1.11)
Friends		4.72 (1.03)
Seniors		4.48 (1.14)
Classmates		4.42 (1.17)
Control beliefs: strength of control beliefs (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
The house prices in first-tier cities are high	Extremely unlikely →Extremely likely: 1→7	6.01 (1.13)
The rent prices in first-tier cities are high		5.96 (1.15)
The living costs (apart from housing expenditure) in first-tier cities are high		5.94 (1.13)
I cannot take good care of my family when I develop myself in a first-tier city		5.57 (1.26)
Power of control (formative indicators)		
Item Wording	Item value: scale	Mean (S.D.)
High house prices would make it for me to develop myself in a first-tier city after graduation	Much more difficult →Much easier: -3→+3	-1.3 (1.25)
High rent prices would make it for me to develop myself in a first-tier city after graduation		-1.26 (1.24)
High living costs would make it for me to develop myself in a first-tier city after graduation		-1.25 (1.23)
Not being able to take good care of my family would make it for me to develop myself in a first-tier city after graduation		-1.17 (1.28)

Appendix 2.2. Measurement of intention, attitude, subjective norm, and PBC

Intention measurement			
Item Wording	Item name	Item value: scale	Mean (S.D.)
I expect to develop myself in a first-tier city after graduation	INT1	Strongly disagree → Strongly agree: 1→7	5.05 (1.41)
I want to develop myself in a first-tier city after graduation	INT2		4.95 (1.44)
I intend to develop myself in a first-tier city after graduation	INT3		4.76 (1.50)
Attitude measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
I think developing myself in a first-tier city after graduation is	ATT1	Bad → Good: 1→7	5.05 (1.23)
	ATT2	Worthless → Useful: 1→7	5.13 (1.26)
	ATT3	The wrong thing to do → The right thing to do: 1→7	4.97 (1.22)
Subjective norm measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
Most people who are important to me think that I should develop in a first-tier city after graduation	SN1	Strongly disagree → Strongly agree: 1→7	4.74 (1.23)
Most people whose opinions I value would approve of me developing in a first-tier city after graduation	SN2		4.77 (1.24)
Most of the students in the university like me will develop themselves in a first-tier city after graduation	SN3		4.84 (1.81)
Perceived behavioral control (PBC) measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
Whether or not I develop myself in a first-tier city after graduation is completely up to me	PBC1	Strongly disagree → Strongly agree: 1→7	5.31 (1.27)
For me, to develop myself in a first-tier city after graduation is easy	PBC2		4.48 (1.35)
I am confident that if I want to, I could develop myself in a first-tier city after graduation	PBC3		4.73 (1.41)

Appendix 2.3. Results of the t-tests.

Independent Samples Test	Gender	Only child	Previous migration experience	Educational level	University ranking	University location (city level)
Variable	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
Job	0.491	0.176	**0.001**	**0.001**	**0.001**	**0.000**
Income	0.382	0.271	**0.008**	**0.001**	**0.001**	0.106
Work pressure	0.247	**0.015**	**0.018**	0.069	0.268	0.249
Lifestyle	0.571	**0.02**	**0.020**	0.079	0.928	0.365
Social network	0.209	0.693	**0.024**	0.114	0.241	0.054
Medical service	0.929	0.724	0.212	0.058	0.409	0.152
Education	0.813	0.287	0.363	0.501	0.892	0.844
Fulfil my dreams	0.860	0.393	0.948	0.761	0.580	0.348
Family	0.084	0.728	0.861	0.333	0.600	**0.004**
Teachers	0.368	0.458	0.416	**0.039**	0.220	**0.000**
Friends	0.622	0.409	0.636	0.911	0.165	**0.012**
Seniors	**0.003**	0.184	0.930	**0.004**	**0.007**	**0.000**
Classmates	**0.016**	0.699	0.503	0.415	0.133	**0.001**
House prices	**0.007**	**0.017**	0.062	**0.000**	**0.000**	0.953
Rent prices	0.057	0.113	0.095	0.322	0.804	0.309
Living costs	**0.024**	0.242	0.258	0.988	0.594	0.056
Family ties	**0.002**	0.101	**0.025**	**0.004**	**0.026**	0.052
Intention	0.942	0.274	0.756	0.119	0.447	**0.001**

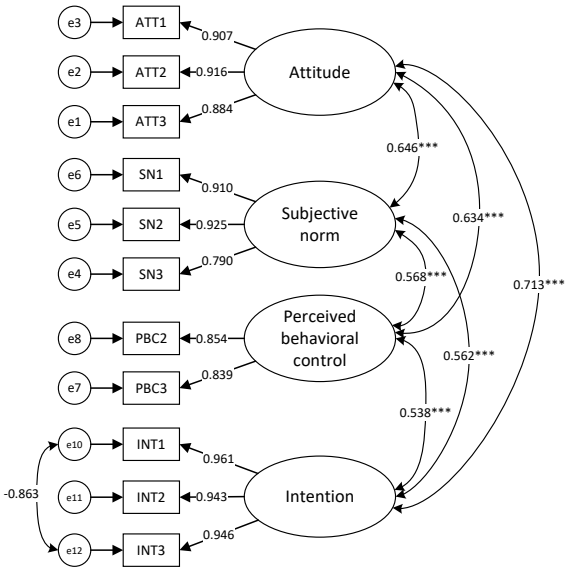
Note: significant at p<0.05. Significant result presented in bold.

Appendix 2.4. Results of one-way ANOVA

ANOVA	Major (N=1242)		Year of education (Only bachelors, N=1054)	
Variable	One-way ANOVA/Welch's F	Sig.	One-way ANOVA/Welch's F	Sig.
Job	F(3, 1238) = 1.353	0.256	F(3, 1050) = 1.194	0.311
Income	F(3, 1238) = 1.664	0.173	F(3, 1050) = 0.486	0.692
Work pressure	F(3, 1238) = 0.152	0.929	F(3, 1050) = 0.389	0.761
Lifestyle	F(3, 1238) = 0.153	0.928	F(3, 1050) = 0.692	0.557
Social network	F(3, 1238) = 2.116	0.096	F(3, 1050) = 1.272	0.283
Medical service	F(3, 1238) = 0.724	0.538	F(3, 1050) = 0.564	0.639
Education	F(3, 1238) = 2.000	0.112	F(3, 1050) = 0.534	0.659
Fulfil my dreams	F(3, 1238) = 0.990	0.396	F(3, 1050) = 1.960	0.118
Family	F(3, 1238) = 1.004	0.372	F(3, 1050) = 1.551	0.200
Teachers	F(3, 1238) = 2.117	0.095	F(3, 1050) = 1.014	0.385
Friends	F(3, 1238) = 0.180	0.910	F(3, 1050) = 0.525	0.665
Seniors	F(3, 1238) = 2.549	0.056	F(3, 1050) = 2.196	0.087
Classmates	F(3, 1238) = 1.374	0.251	F(3, 1050) = 1.381	0.247
House prices	F(3, 1238) = 1.808	0.146	F(3, 1050) = 2.547	0.058
Rent prices	F(3, 1238) = 0.816	0.486	F(3, 1050) =2. 278	0.103
Living costs	F(3, 1238) = 0.914	0.434	F(3, 1050) = 1.586	0.192
Family ties	F(3, 1238) = 0.961	0.412	F(3, 1050) =0.702	0.551
Intention	F(3, 1238) = 0.350	0.789	F(3, 1050) = 2.211	0.085

Note: significant at p<0.05. The results of Post Hoc Tests are not presented since none of the bivariate tests for the relationship between "major" and intention or beliefs were significant in the table. The same applies to variable "the year of education".

Appendix 2.5. Model of Confirmatory factor analysis (standardized estimates)



Note:
Significance levels:
** p <0.05,*
*** p < 0.01,*
**** p < 0.001;*
Since we can and can only adjust the model fit based on the covariance between error terms in the same construct when performing CFA (Collier, 2020), we added the covariance between the error terms e10 and e12 based on the output of the modified indices prompted in AMOS. We finally obtained acceptable model fit; Model fit indices: CFI = 0.99, TLI = 0.98, RMSEA = 0.08;

Appendix 2.6. Results of the Confirmatory factor analysis (CFA).

Latent variables	Measurable variables	Factor loading	CR	AVE	Square root of AVE	Correlation		
						ATT	SN	PBC
ATT	ATT1	.907***	0.929	0.814	0.902			
	ATT2	.916***						
	ATT3	.884***						
SN	SN1	.910***	0.908	0.769	0.877	0.646***		
	SN2	.924***						
	SN3	.790***						
PBC	PBC2	.854***	0.835	0.717	0.762	0.634***	0.568***	
	PBC3	.839***						
INT	INT1	.961***	0.965	0.903	0.950	0.713***	0.562***	0.538***
	INT2	.943***						
	INT3	.946***						

*1. Significance levels: *** p < 0.001, **p < 0.01, *p < 0.05.*
2. Reliability indicators and qualification criteria: CR≥0.6
3. Validity indicators and qualification criteria: AVE≥0.5; Square root of AVE> The biggest intercorrelation between latent variables.

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TOC

3 Understanding the Housing Pathways and Migration Plans of Young Talents in Metropolises

A Case Study of Shenzhen

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ABSTRACT In the context of skyrocketing house prices and fierce competition for talents between cities, this study explores the housing pathways of young talents and their future migration plans in Shenzhen, China. Using the housing pathways approach and Bourdieu's theory of practice with three concepts, this study uncovers how structural factors and the often-overlooked agency factors together influence the formation of different housing pathways. Drawing on 18 semi-structured interviews with young talents, four different housing pathways were identified: staying at parents' home, private renting to owning, talented renting, and progressive private renting. We found that the interaction of habitus and different forms of capital shapes different housing pathways. In addition, young talents following different

housing pathways have various future migration plans. This paper sheds new light on the use of the housing pathways approach and Bourdieu's theory of practice in providing a nuanced understanding of housing and migration behavior.

KEYWORDS Young talents; housing pathways; migration plans; habitus; capital; field

3.1 Introduction

In the knowledge-based economy, cities all over the world are struggling to attract and retain young talents[16] to stimulate cities' social and economic development (Florida 2006). The housing career in the city is regarded as a major determinant of whether young talents stay or leave the city (Aner 2016; Cui, Geertman, and Hooimeijer 2015; Dainov and Sauka 2010; Teixeira and Drolet 2018). Some young talents successfully settled in cities following the upward housing ladder such as "rent-to-own" whereas others left the city due to twisted housing ladder routes, such as "snake", "slide down", or "move backwards" (Bobek, Pembroke, and Wickham 2020; Lennartz, Arundel, and Ronald 2016). In these cases, the housing situation did not improve or even deteriorated over time (Dainov and Sauka 2010). The twisted housing ladder routes are particularly relevant in the case of young migrants in metropolitan areas with high house prices like Amsterdam (Hochstenbach and Boterman 2015), Beijing (Wang, Li, and Deng 2017), Helsinki (Eskelä 2018), Klang valley (Hamzah and Zyed 2020), and San Francisco (Kober 2021), etc. In China, for example, an emerging social phenomenon called "Escape from Beijing, Shanghai, Guangzhou, and Shenzhen" indicates that the housing pressure in these first-tier cities[17] is so high that a number of young talents are choosing not to go to or leave these cities (Jin et al. 2022; Xu, Wang, and Nygaard 2022). According to a survey among 2000 respondents (previously) working or studying in first-tier cities, 71% have left or are considering leaving this city, with 64% of them blaming it on high house prices (China Youth Daily 2017).

16 There is no universal definition of talents. In academic terms, the definition of talent is often defined by educational attainment, vocational skills, and the creativity of the work. Young talents in this study are defined as people aged between 20 and 35, who have a bachelor's degree or above, or have a national vocational qualification certificate, or are professionals or managers of the companies.

17 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).

The above phenomenon reflects two important social problems. From the perspective of metropolitan cities, the loss of young talents is to some extent reducing the innovation and economic growth of cities (Florida 2005; Wong and Yip 1999). From the perspective of young talents, the precarious housing situation in metropolitan cities is equally alarming. In recent years, the shortage of housing supply, rising house prices and rents, increased educational costs, the tight mortgage market, unstable labor market conditions, riskier employment prospects, etc. have exacerbated the housing difficulties of young people all over the world (Hochstenbach and Boterman 2015; McKee 2012). Therefore, examining the housing situation of young talents in metropolitan cities, exploring what factors contribute to differences in their housing situations, and obtaining insight into their future migration plans are necessary and important. The results could help metropolitan cities to attract and retain young talents and to provide suggestions to find tools to improve young talents' housing situations.

Much research has already been done into the housing situation of young people in metropolitan cities. Despite the wealth of literature in this area, there remain two research gaps. First, many existing studies are cross-sectional which tend to examine young people's static housing choices at a certain point in time, such as home-buying (Lennartz, Arundel, and Ronald 2014) and living in shared housing (Maalsen 2019). The cross-sectional approach neglects the changes in the housing situation over time (Coolen, Boelhouwer, and van Driel 2002). The housing conditions attained in the past can strongly influence the present housing situation (Bolt and van Kempen 2002). For example, people who previously had very negative experiences with private rental housing may not choose to continue renting in the future. The dynamic housing pathways[18] approach overcomes this problem by examining the housing situation over a period of time instead of only once at a specific point in time.

The second gap concerns the lack of research into agency factors[19]. A lot of effort has been exerted on exploring the role of structural factors in explaining differences in the housing situation of young people, including the changing housing market, the housing provision regime, the stability of the labor market, the institutional constraints, the intergenerational transfer, and other social-economic factors. For example, Boelhouwer (2020) studied the impact of the housing market on social

18 The concept of housing pathway is often used interchangeably with housing career and housing trajectory. Simply put, it is the housing routes(outcomes) that an individual or a household takes over time.

19 According to Clapham (2012), structural factors refer to global, national, social and institutional related factors that can constrain or provide opportunities on individual decision-making such as housing policies, housing market, and social-demographic variables. In contrast, the central subject of the agency factor is the individual. Agency factors mean the ability and power of individual to take action to make things happen such as personal, attitudes, preferences and strategies.

inequalities and pointed out that the younger generation benefits less from mortgage interest tax relief because of changes in the Dutch housing mortgage policy since 2015. Maroto and Severson (2019) suggested that labor precarity influences young adults in Canada to enter the housing market. The findings of empirical research by Wang, Li, and Deng (2017) revealed that institutional factors, such as the household registration (hukou) system, still play a significant role in accessing social welfare (urban public housing) for skilled young workers in Beijing, China. Druta and Ronald (2017) explored the housing trajectories of young adults in the UK. They found that homeownership is an "ideal gift" from parents, which smoothens the housing pathway for young adults. The research of Lennartz and Helbrecht (2018) in Germany and Deng, Hoekstra, and Elsinga (2020) in China also show that family financial support becomes increasingly important in shaping youngsters' housing pathways. Xian and Forrest (2020) highlighted the need to focus on the impacts of social-economic factors, such as educational level and the specific local context on forming young people's housing choices. Despite these and other studies, relatively little attention has been paid to agency factors, such as the personal abilities of how young talents think and react to the structural factors that shape their housing pathways. Studies like Clapham (2005), Clapham et al. (2014), and Balampanidis (2020) have demonstrated that agency factors might play an important role in the formation of people's housing pathways.

To fill in the gaps, i.e. the lack of research into the longitudinal housing situation and the exclusion of agency factors, the current study aims to obtain insights into the housing pathways and future migration plans of young talents and to explore differences in these housing pathways by considering both structural and agency factors.

In this study, we conducted a qualitative retrospective study by exploring and analysing the past and present housing narratives of young talents in Shenzhen, China. During the past four decades, Shenzhen has transformed from a cluster of rural villages and townships of about 300,000 people into a metropolitan city with a population of more than 17 million, of which over 70% are migrants (Statistics Bureau of Shenzhen Municipality 2021). In addition, Shenzhen, as an international metropolitan city, has an average population age of 33 years. The proportion of talents reached 44.5% in 2018 (Liang 2020), which represents a typical gathering place for young talents. The diversity of the housing market in Shenzhen also provides a good arena for analysing the different housing situations of young talents (Li et al. 2021). Therefore, as a city with a large number of skilled young migrants, Shenzhen seems to serve as a good case to investigate the housing issues and migration plans of young talents. Specifically, we focus on addressing the following research questions:

1 What are the housing pathways of young talents in Shenzhen and how do they differ from each other?

2 What structural and agency factors are capable of explaining these differences?

3 What are the future migration plans of young talents following different types of housing pathways in Shenzhen?

The housing pathways approach (Clapham 2005) and Bourdieu's theory of practice with concepts of "habitus", "field", and "capital" (Bourdieu 1984, 1986) have been used as a research framework and theoretical basis for this study, respectively. The housing pathways approach allows us to study the housing practices of young talents over a period of time and to identify their different housing pathways. The housing pathways approach is defined by Clapham (2005) as a research framework used to frame thoughts, rather than a theory. While the approach emphasizes that both structural and agency factors influence housing outcomes, it does not reveal how these factors interact in doing so. Therefore, to explain what causes the differences in housing pathways of young talents in metropolitan cities, we turned to Bourdieu's theory of practice in which people are considered to be active individuals who use different "capital" to generate practice in a certain "field" according to their "habitus" (Bourdieu 1984, 1986). Applied to the field of housing, a young talent's outcome of habitus, such as a need to buy a house, interacts with the acquired level of capital (economic, social, and cultural capital) to generate housing-related practices and outcomes towards the housing field, i.e. the owner-occupied sector. In summary, the housing pathways approach sheds light on the various patterns regarding the previous and current housing situations of young talents. Bourdieu's theory can be used as a solid theoretical framework to explain the differences between these housing patterns.

Compared with previous research using the same theory (Hochstenbach and Boterman 2015), the current study is novel in introducing and examining the role of "habitus" in forming young talents' housing pathways. In addition, the current study links the housing pathways of young talents to their future migration plan, which extends the framework of the housing pathways approach.

3.2 Literature Review

3.2.1 Housing pathways approach

The concept of housing pathways is often used interchangeably with “housing career” and “housing trajectory” and is defined as patterns of interaction (practices) concerning house and home, over time and space (Clapham 2002). Rather than simply providing descriptions of the individual’s or household’s housing experiences, the housing pathways approach was developed by Clapham as a structure for analysis in the field of housing studies (Clapham 2002, 2005; Clapham et al. 2014). The housing pathways approach was adopted for this study as it provides a framework for housing research that is 1) dynamic, since it provides a deeper insight and understanding of the housing experience than just static location knowledge, 2) flexible, since it allows for the study of a shorter period of time 3) taking the individual (household) as the creative subject and 4) considering the impact of both structural and agency factors on housing outcomes. Figure 3.1 illustrates the analysis framework of this study by using the housing pathways approach.

A housing pathway is linked to many other areas of life and runs alongside employment pathways (Clapham 2005). For example, the housing pathway is influenced by changes in household structure relating to marriage, the birth of children, or divorce. In addition, drawing from Giddens’s structuration theory (Giddens 1984), the housing pathways approach highlights both structural and agency factors as influencing factors providing opportunities or imposing constraints on the individual’s (household’s) dynamic housing experience (Opit, Witten, and Kearns 2019). Along the housing pathway, individuals and households make housing choices among the opportunities open to them under the constraints (Clapham 2005).

In recent literature, the housing pathways approach has been used as a tool to unfold various housing phenomena, such as residential stability (Meeus and De Decker 2015), homelessness (Fitzpatrick, Bramley, and Johnsen 2013), and housing of the elderly (Bates et al. 2020), young people (Hamzah and Zyed 2020; Hochstenbach and Boterman 2015), and highly-skilled migrants (Balampanidis 2020; Eskelä 2018).

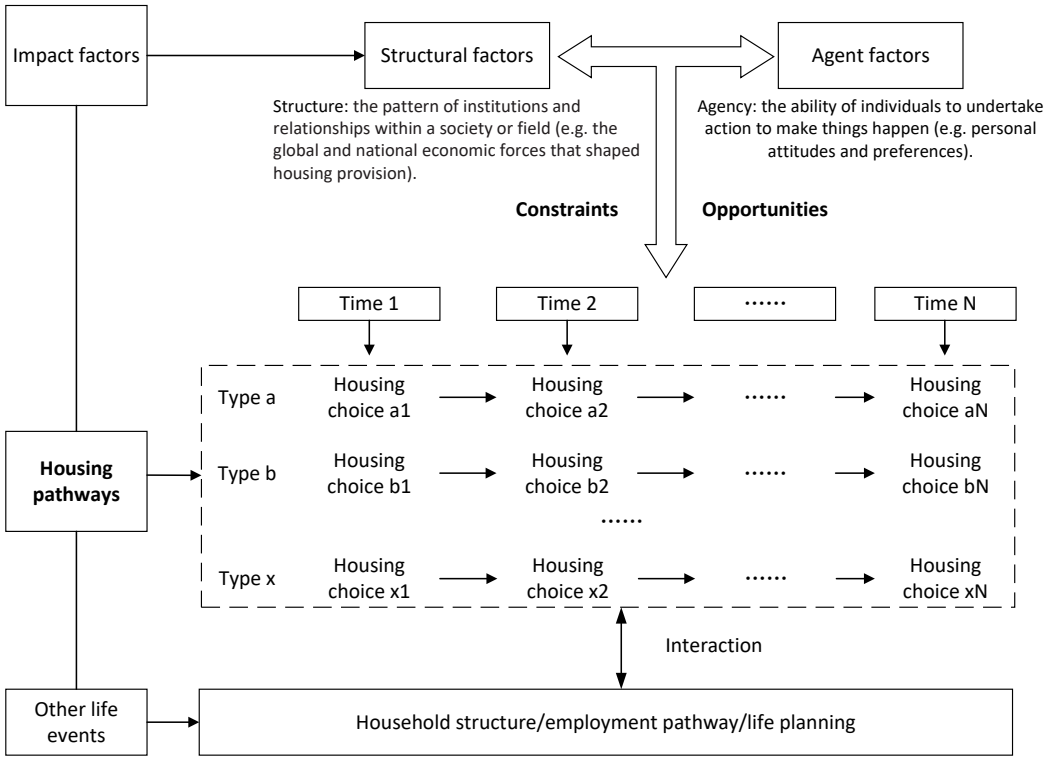

FIG. 3.1 Analysis framework of the housing pathways approach. Sources: adapted from Clapham (2005, 2012) by authors

3.2.2 Habitus, capital, and field

In the course of research attempting to interpret social phenomena and mechanisms such as class inequality and practical logic of everyday life, the French sociologist Bourdieu developed a set of theories and concepts (Power 1999). Bourdieu's theory emphasizes the interaction of structure and agency. His key theoretical claims are based on the three core concepts of "habitus", "capital", and "field" (Bourdieu 1984).

The concept of habitus forms the core of the theoretical framework of Bourdieu. In the words of Bourdieu:

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> The conditionings associated with a particular class of conditions of existence produce ***habitus***, systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures […] (Bourdieu 1990, 53). […] it is a socialized body, a structured body, a body which has incorporated the immanent structures of a world or of a particular sector of that world - a field - and which structures the perception of that world as well as action in that world (Bourdieu 1998, 81).

In other words, ***habitus*** refers to a durable, transposable system of dispositions that are ways of being, observing, acting, and thinking, a system of scheme or schema or structures of perceptions, concepts, actions, distinctions, and principles for generating and organizing practices and representations (Bourdieu 1990, 53). Durable means that habitus is a relatively stable disposition acquired from past life experiences, and transposable means that habitus also adapts to changes in experience and environment. For example, childhood housing experiences shape habitus that affects present housing choices, and present housing experiences shape future housing habitus.

Habitus is also "a way of describing the embodiment of social structures and history in individuals – it is a set of dispositions, internal to the individual, that both reflects external social structures and shapes how the individual perceives the world and acts in it" (Power 1999).

From the above descriptions, it can be seen that habitus is an abstract, complex and multifaceted concept. In our view, habitus can be considered as a mediator between social structures, e.g. family and cultural norms, that influence the individual and the individual's perception of the world and action, which are the outcome of habitus (see Figure 3.2).

Since habitus is a set of dispositions, which are difficult to describe, measure, and analyse, we have focused on the outcome of habitus in the current study. Specifically, the outcome of habitus consists of at least two components when analysing people's housing pathways. Firstly, the individuals' perception of the world can be operationalized into the attitude towards different housing tenure, such as private renting and owning. The attitude towards housing tenure has been proven to be one the of most important determinants of people's tenure choice (Lennartz 2013; Li et al. 2022). Secondly, individuals' actions can be operationalized into people's strategies for their housing choice. Such strategy can be influenced by habitus and attitudes towards different types of housing. For example, people who are from higher-income families or who always lived in an owner-occupied dwelling might have a habitus that shapes a relatively positive attitude towards an owner-occupied dwelling and they may use strategies, such as saving up or getting a mortgage, to buy a house.

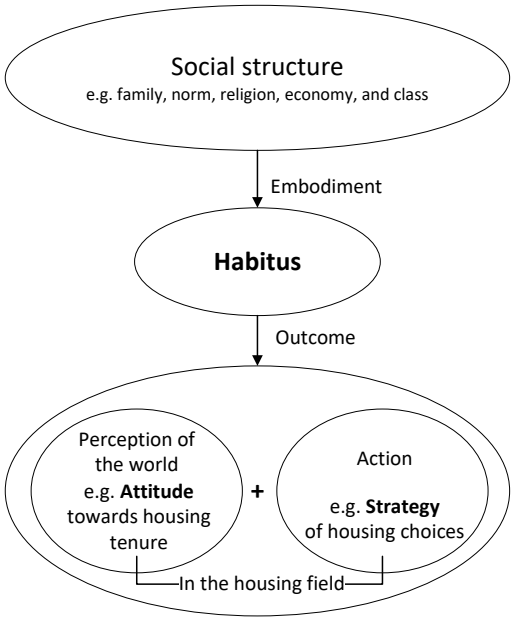

FIG. 3.2 The role of habitus. Source: drawn by authors

According to Bourdieu (1986), "capital is accumulated labor (in its materialized form or its incorporated, embodied form) which, when appropriated on a private, i.e. exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labor". Capital often presents itself in three forms: economic, cultural, and social capital. Economic capital can be directly and immediately converted into money and may be institutionalized as property rights. Cultural capital, in some situations, can be transformed into economic capital and can be institutionalized as educational qualifications. Social capital, accrued from social networks, can, in some cases, be transformed into economic capital and can be institutionalized in the form of titles of nobility (Bourdieu 1986).

In addition to the traditional definition of capital above, other forms of capital also exist. In the housing field, factors like "holding a Shenzhen hukou", "being a young talent", "the willingness to enter the informal housing market" and "being employed by certain companies" are all resources that people can use to access specific housing opportunities. For example, young talents who are employed by a state-owned company have the opportunity to apply for talented rental housing.

Drawing on the work of Boterman (2012) and Hochstenbach and Boterman (2015), examples of the economic, cultural, social capital, and other forms of capital – applied to the housing market – are shown in Table 3.1.

TABLE 3.1 Various types of capital. Sources: adapted from Boterman (2012); Hochstenbach and Boterman (2015) by authors.

Types of capital	Examples
Economic capital	Income (the stability of incomes), inherited assets, financial assistance, other family resources, parents' background (support from family)
Cultural capital	Education, knowledge of the housing market, risk-taking willingness
Social capital	Resources accrued through social networks such as friends and acquaintances. For example, information and/or available housing within the social network, the attributes of the company (the location of the working place/the welfare of the company)
Other forms of capital (in the housing field)	Holding a Shenzhen hukou; being young talents; the willingness to enter the informal housing market; being employed by certain companies (for example the state-owned companies which provide talented rental housing for their employees)

The habitus and capital held by the actor must have a field to deploy. A field is a bounded social space that has its own principles. Bourdieu likens a field to a game that has specific rules and stakes, which includes players who occupy dominant positions according to their habitus and capital (Bourdieu 1984). The fields analysed by Bourdieu include the field of law, the field of art, the field of science, and the field of cultural production, to name just a few. In the current paper, the field refers to the field of housing.

From the above analysis of the concepts of habitus, capital, and field, it is clear that these three concepts incorporate elements of both agency and structure. Bourdieu claimed that practice – what one does in everyday life – is the result of the relationship between an actor's habitus, different forms of capital, and the field of the action (Power 1999).

3.3 The Shenzhen context

Whereas we explore the housing pathways of young talents in Shenzhen, some information about the Shenzhen housing market situation is needed. Since being designated as one of China's five Special Economic Zones in the 1980s, Shenzhen has experienced phenomenal population growth (from 0.31 million in 1979 to 17.63 million in 2020), which has contributed to a booming housing market. The average annual house price growth in Shenzhen was 11% over the last decade and its average house price is now the world's fifth most expensive (CBRE 2020). In contrast, the presence of poorly built, cheap, and available rental housing in urban villages has kept the average rent in Shenzhen relatively low, which in turn has contributed significantly to the development of the private rental sector (PRS) (Li et al. 2021; Zhou 2019). According to a recent report, 77% of the population lives in the private rental sector in Shenzhen (China Construction News 2022).

The details of the different tenure types in Shenzhen are depicted in Table 3.2. There are three primary ways of entering the owner-occupied sector. First, to purchase commercial housing. Commercial housing used to be supplied without restrictions. However, since the Purchase Restriction Policy in 2010, entry access is restricted not only by economic capital but also by institutional restrictions including local household registration (hukou) and the years of participating in local social insurance (Gong and MacLachlan 2020). It is important to point out that the Shenzhen Talent Introduction Policy allows highly educated and highly skilled migrants to readily obtain a Shenzhen hukou (HRSSASM 2016). Second, government policy-supported housing can be purchased. Since 2010, the government has mainly supplied Affordable Commercial Residential Housing (ACRH), which refers to housing with limited size, sales price, and transferability period. There are restrictions on buying ACRH, based on the number of years of having obtained a formal Shenzhen hukou and paying local social insurance (Gong and MacLachlan 2020; Li and Shamsuddin 2022). As a result, younger people may rarely enter homeownership through ACRH. The third way is to enter homeownership in an informal way, such as purchasing a small property rights housing (SPRH)[20]. By drastically cutting development costs, including land transfer fees and various taxes, the SPRH is priced

20 Small property rights housing (SPRH) means an informal housing market taking place in the urban villages at the suburban zones of major cities (Liu, Wong, and Liu 2012). SPRH is built on collective land and Chinese law does not allow real estate development on collective land. Its legal validity is highly controversial and the purchase and sale of it in the housing market is not protected by law. In sum, SPRH is informal and characterized by a lack of public services, instability of tenure, and the violation of construction regulations.

at 40–60% below regular commercial house prices (He et al. 2019; Wang, Sun, and Li 2014). Therefore, those who have insufficient economic capital and are willing to take risks might choose to buy SPRH.

TABLE 3.2 Housing sectors (fields) in Shenzhen. Sources: (Gong and MacLachlan 2020; HCBSM 2016, 2021; Li and Shamsuddin 2022).

Housing sectors	Subsectors	Provider	Target groups/requirements
Owner occupied sector	Commercial Housing (CH, Shangpin Fang in Chinese)	Market	✓ Shenzhen hukou and has paid social insurance for at least 3 years; ✓ No Shenzhen hukou but has paid social insurance for at least
	Policy supported housing (Mainly Affordable Commercial Residential Housing (ACRH, Anjuxing Shangpinfang in Chinese))	Government	✓ Shenzhen hukou, has paid social insurance for at least 5 years (3 years for talents), and no homeownership in Shenzhen
	Other (such as Small Property Rights Housing (SPRH, Xiaochanquan Fang in Chinese))	Market (informal)	✓ Everyone
Private rental sector	Urban village rental housing (UVRH, Chengzhongcun Zhufang in Chinese)	Market (informal)	✓ Everyone
	Commercial rental housing (CRH)	Market	✓ Everyone
	Long-term rental apartment (LTRA, Changzu Gongyu in Chinese)	Market	✓ Everyone
Public rental sector	Public rental housing (PRH, Gonggong Zulin Zhufang in Chinese)	Government	✓ Shenzhen hukou, and has paid social insurance for at least 3 years (1 year for talents), and no homeownership or public housing in Shenzhen
	Talented rental housing (TRH, Rencai Fang21 in Chinese)	Government (Secondary allocation by the employer)	✓ Employees in certain companies without homeownership or public housing in Shenzhen
Other	Company provided housing	Employer	✓ Employees in certain companies

21 In order to attract and retain talents to enhance urban international competitiveness and promote sustainable and healthy economic and social development, the Shenzhen government has included talents in the scope of housing security since 2010 with the launch of the Talent Housing Project (Rencai Anju Gongcheng/Banfa in Chinese). Talents are those with a bachelor's degree or above, or a national technician qualification of grade 2 or above, and those stipulated to be included in the shortage catalogue. TH is planned to be available for rent or sale, but as of the time of the survey (13 May 2022), what the authors have learned that TH in Shenzhen is still mainly for rent. Policies and regulations related to the sale of TH are being formulated. Therefore, TH in this study refers to Talented rental housing only.

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The private rented sector can be divided into three sub-sectors according to the variation in housing conditions, neighbourhood environment, and landlord service: urban village rental housing, commercial rental housing, and Long-term Rental Apartment (LTRA) (Li et al. (2021). All housing in these three sub-sectors is supplied by the market and there are no institutional restrictions on who can rent them. Urban village rental housing is informal housing built on collective land. Most urban villages are densely populated and have inadequate lighting and poor infrastructure. The housing conditions can be described as overcrowded, in the lack of basic facilities such as indoor toilets and kitchens (Wu 2016). Commercial rental housing is generally located in a gated community that provides a host of social, commercial, and recreational services which is rented out by the private owners of commercial housing and condominiums (Li et al. 2021; Wu 2012). LTRAs are defined as dwellings rented out and managed by professional companies with a tenancy period that is often longer than one year. LTRAs are usually decorated, furnished, equipped with appliances, ready for immediate move-in, with professional live-in managers, and with rents typically 15% to 30% higher than comparable spaces nearby (Li et al. 2021; Zheng 2018).

There are two main types of social rental housing in Shenzhen after 2010. The first one is Public Rental Housing (PRH), which refers to housing provided by the government with a limited size and rental price. The PRH is offered to low- and middle-income households or single residents with housing difficulties (HCBSM 2014). The rent of PRH is usually 30% of the market rent. The initial requirements for applying for PRH are to obtain a Shenzhen hukou and to participate in social insurance for 3 years. Those who meet the criteria need to apply first and then they will be put on a waiting list for suitable housing (Gong and MacLachlan 2020). The second one is Talented rental housing (TRH), which is provided for highly educated and skilled workers. The rent for TRH is usually 60% of the market rent. The current supply pattern of TRH requires the key enterprises[22] to apply to the government first. Then the government scrutinizes the application and supplies the TRH to qualified enterprises. The qualified enterprises then set their own allocation criteria accordingly to rent the TRH to their talents[23] (Gong and MacLachlan 2020; Wang and Pan 2019). Thus, the access of young talents to talent housing is directly related to their job opportunities.

22 Key enterprises have different requirements for each district in Shenzhen, for example, Luohu District 2021 recognizes 351 leading enterprises and recommended companies in the industry in the district as key enterprises that can apply for talent housing.

23 A few very outstanding talents and high-level talents designated by the Shenzhen government can apply for special talented housing in their personal names. As the percentage of such cases is low and it is difficult for the young talents we studied to be recognized as above talents, we will not mention it in detail.

There are also other forms of residential housing, such as housing provided by the employer. The employer's housing is either self-built or rented from the market and then supplied to the employees. This is mainly the case in factories and service industries that provide shared accommodation for low-income migrants (Huang and Tao 2015). Or, state-owned enterprises such as hospitals, universities, and other institutions provide specialized housing for talents to attract them (Huang and Tao 2015). The latter applies to the young talents included in the current study. Thus, access to company-provided housing is also mainly related to job opportunities.

3.4 Methodology

The data of the current study draws from online semi-structured interviews with 18 young talents[1], sometimes accompanied by their family members (if have), who work and live in Shenzhen. The interviews were conducted in November and December 2021 using social apps such as WeChat video and Tencent Meeting. University students were not included because all students can live in the special dormitories that Chinese universities provide. A combination method of snowball sampling and purposive sampling was adopted to reach the potential interviewees. The interviewees were recruited via personal networks and recommendations from interviewees. Different types of suitable interviewees were purposively selected to ensure a good mix in the resulting sample, based on gender, place of birth, educational background, marital status, occupation, and length of residence in Shenzhen. The characteristics of all respondents are shown in Table 3.3.

TABLE 3.3 Personal characteristics

	Mean/Number	Percentage
Age(mean)	23-33(28.9)	
Gender		
Male	9	50%
Female	9	50%
Place of birth[24]		
Shenzhen	4	22%
Other	14	78%
Educational level		
High school and below	1	6%
Bachelor	6	33%
Master	8	44%
PhD	3	17%
Household type		
Married with child	6	33%
Married without child	2	11%
In a relationship	5	28%
Single	5	28%
Occupation		
Private company	11	61%
State-owned company	4	22%
Other	3	17%
Length of residence in Shenzhen (since starting work)		
<2years	5	28%
2-5years	8	44%
> 5 years	5	28%

Our interview was a retrospective investigation of young talents' housing pathways after entering employment in Shenzhen and lasted between 30 minutes and 2 hours. The interviewees were asked to reflect in detail on their housing pathways, from the first dwelling after entering employment in Shenzhen to the current dwelling at the time of the interview. More specifically, respondents were asked to provide information on:

24 According to the results of the seventh national census in Shenzhen 2021, the proportions of locals and non-locals are 71% and 29% respectively.

1. detailed characteristics of each dwelling including location, tenure type, size, cost (rent or monthly payment), number of residents, travel convenience, neighbourhood amenities, etc.;
2. factors that influenced their choice for each dwelling;
3. perceptions/attitudes concerning each dwelling;
4. reasons for each move;
5. changes in life events that were related to housing, e.g. changing jobs, falling in love, and having children;
6. housing visions/plans for the next 5-10 years;
7. whether they intended to continue to work and live in Shenzhen in the next 5-10 years.

All the interviews were audio-recorded with the respondents' oral consent and transcribed in Chinese. The names used in the current paper are pseudonyms and any personal information disclosed has been removed.

The Atlas. ti program was used to code the transcripts using both inductive and deductive coding techniques (Fereday and Muir-Cochrane 2006). The coding system was first formulated according to the theoretical frameworks of both the housing pathways approach and the theory of Bourdieu and then developed to reflect the themes that emerged during the interviews. For example, we coded various housing situations according to the scheme provided in Table 3.2 and coded economic factors that influenced housing choices as economic capital. A coding scheme of various forms of habitus was developed in the course of the interviews. Finally, the built-in Networks function of Atlas. ti was used to construct relationships between the codes to identify, analyse and classify different housing pathways. For instance, the connections between the various housing situations (fields) of a respondent were constructed as a network resulting in the housing pathway of the respondent (see Figure 3.3). Adding codes to the type of capital, the various forms of habitus, and specific life events to this network further contributed to disentangling the various factors leading to differences in housing pathways. All codes and networks were written in English and quotations were translated from Chinese to English.

3.5 Findings

A summary of the 18 housing pathways is depicted in Figure 3.3 Important housing and other basic features are included in the Figure. Building on the work of Clapham et al. (2014) and Hochstenbach and Boterman (2015), we ultimately identified four different types of housing pathways based on the analysis of the codes and networks outlined in the current interviews. The four are housing pathways "staying at parents' home (SPH)", "private renting to owning in Shenzhen (PRTO)", "(private renting to) talented renting (PRTTR)", and "progressive private renting (PPR)". These four housing pathways are distinct from each other mainly in the past and present predominant tenure (housing fields) occupied by young talents as well as the number and type of moves. A summary of the various housing pathways is shown in Table 3.4.

We also found that the formation of different housing pathways can be explained by the interaction of the various habitus and the various economic, social, and cultural capital (see Table 3.4). The next parts describe how habitus, capital, and the housing fields interact to shape different housing pathways.

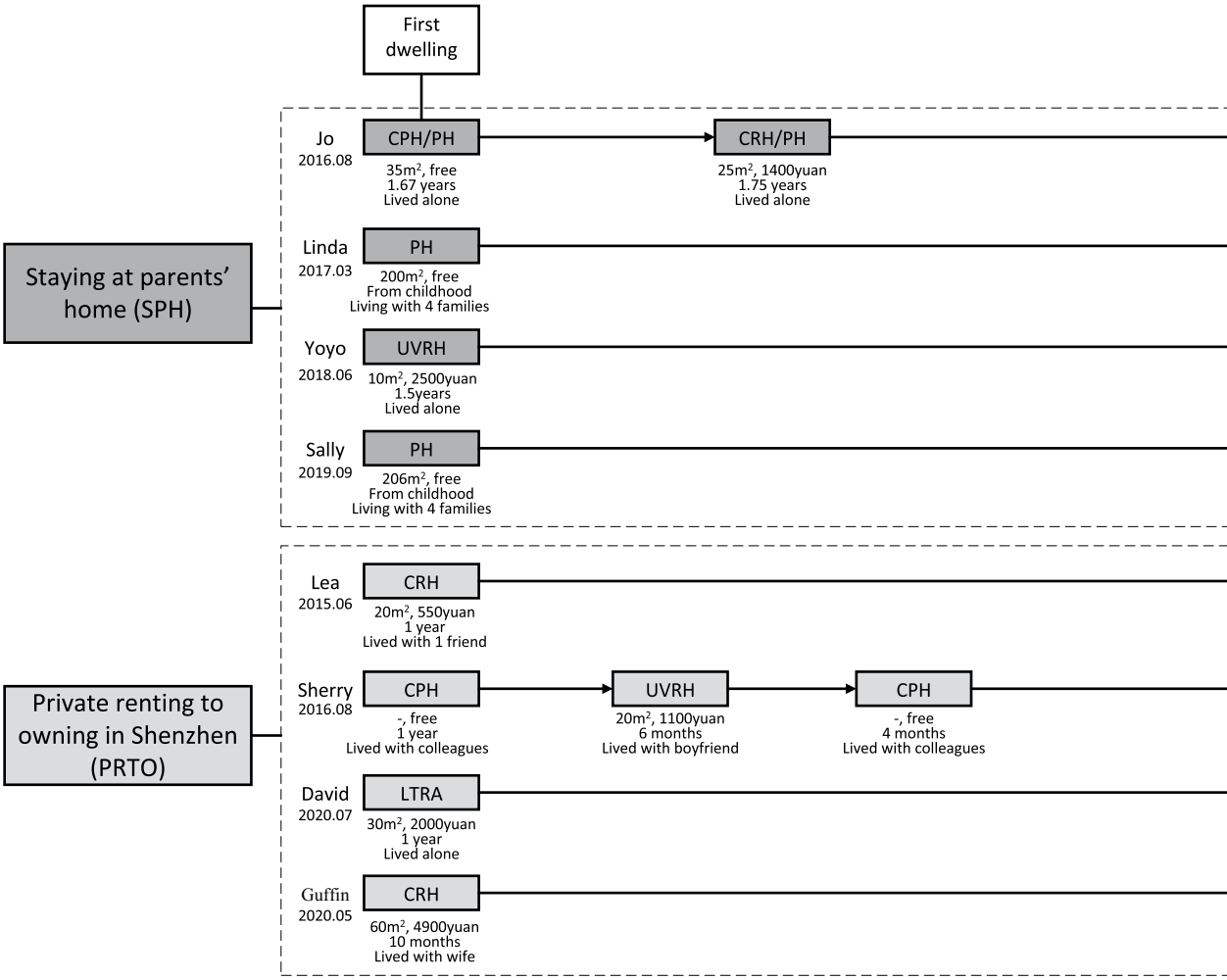


FIG. 3.3 General housing pathways of all the interviewees

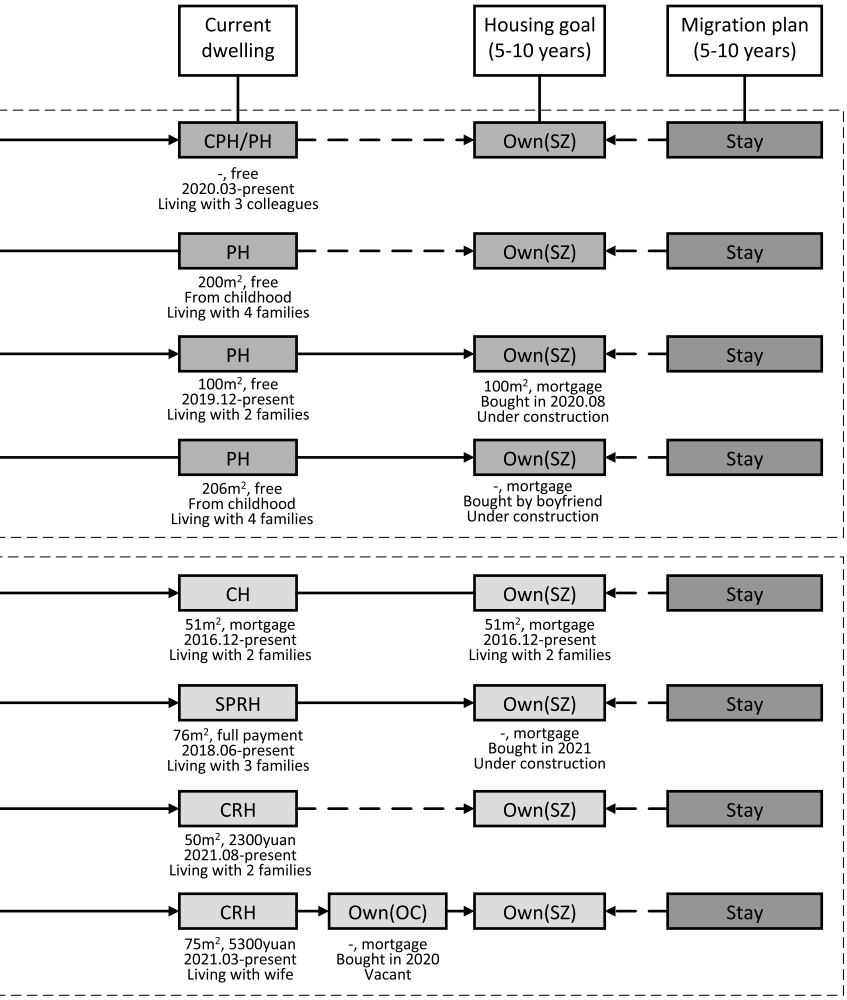
Notes:

Meaning of different lines:

Past and present: solid line with arrows / Future: dotted line with arrows / Remain the same: solid line without arrows

Codes and description in brackets:

PH (Parents' housing); CPH (Company provided housing); CH (Commercial housing); CRH (Commercial rental housing); SPRH (Small Property Rights Housing); UVRH (Urban village rental housing); LTRA (Long term rental apartment); TRH (Talented rental housing); SZ (Shenzhen); OC (Other cities).


Current dwelling
Housing goal (5-10 years)
Migration plan (5-10 years)
CPH/PH
-, free
2020.03-present
Living with 3 colleagues
Own(SZ)
Stay
PH
200m², free
From childhood
Living with 4 families
Own(SZ)
Stay
PH
100m², free
2019.12-present
Living with 2 families
Own(SZ)
100m², mortgage
Bought in 2020.08
Under construction
Stay
PH
206m², free
From childhood
Living with 4 families
Own(SZ)
-, mortgage
Bought by boyfriend
Under construction
Stay
CH
51m², mortgage
2016.12-present
Living with 2 families
Own(SZ)
51m², mortgage
2016.12-present
Living with 2 families
Stay
SPRH
76m², full payment
2018.06-present
Living with 3 families
Own(SZ)
-, mortgage
Bought in 2021
Under construction
Stay
CRH
50m², 2300yuan
2021.08-present
Living with 2 families
Own(SZ)
Stay
CRH
75m², 5300yuan
2021.03-present
Living with wife
Own(OC)
-, mortgage
Bought in 2020
Vacant
Own(SZ)
Stay

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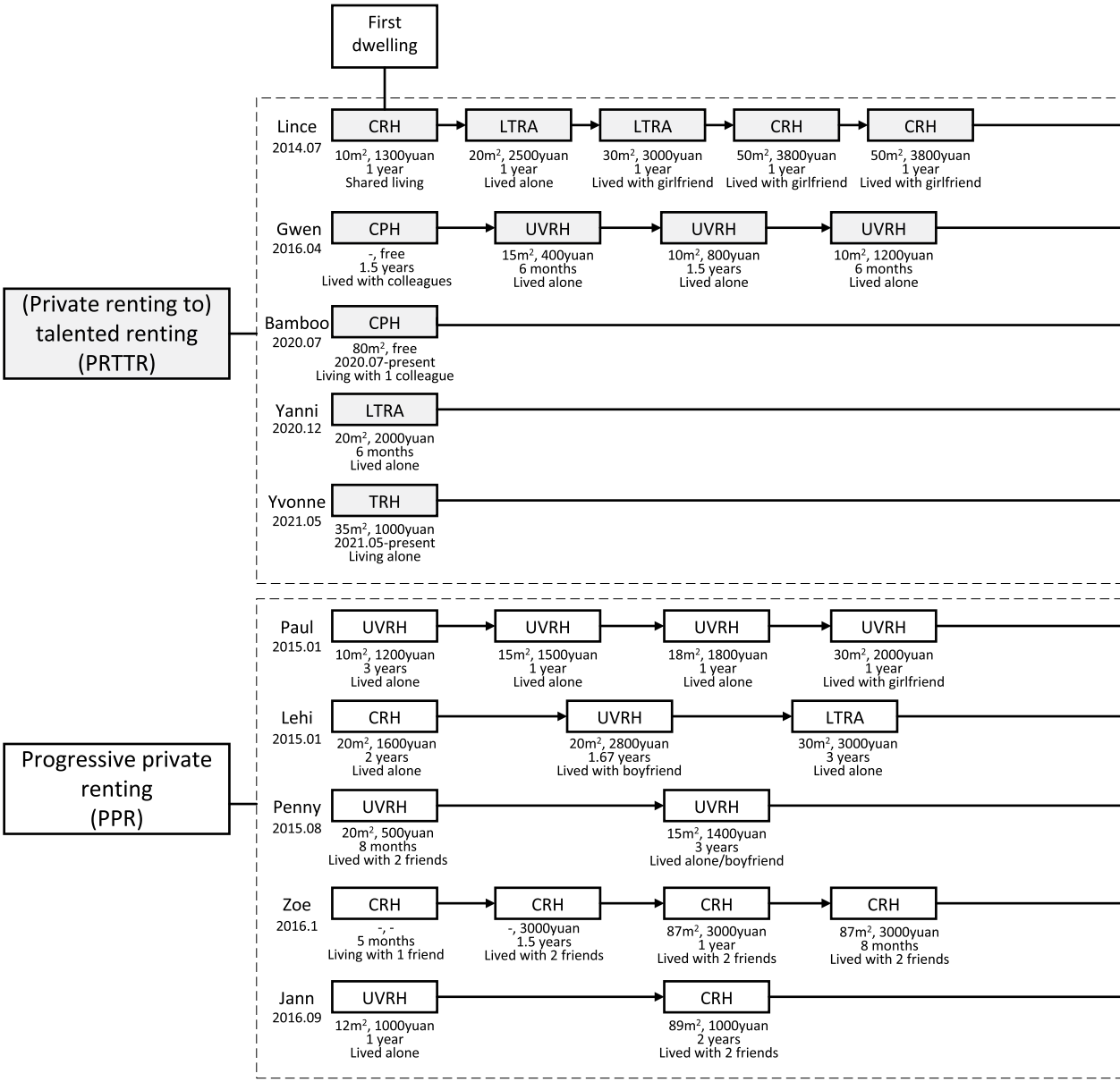

FIG. 3.3 General housing pathways of all the interviewees

Notes:

Meaning of different lines:

Past and present: solid line with arrows / Future: dotted line with arrows / Remain the same: solid line without arrows

Codes and description in brackets:

PH (Parents' housing); CPH (Company provided housing); CH (Commercial housing); CRH (Commercial rental housing); SPRH (Small Property Rights Housing); UVRH (Urban village rental housing); LTRA (Long term rental apartment); TRH (Talented rental housing); SZ (Shenzhen); OC (Other cities).

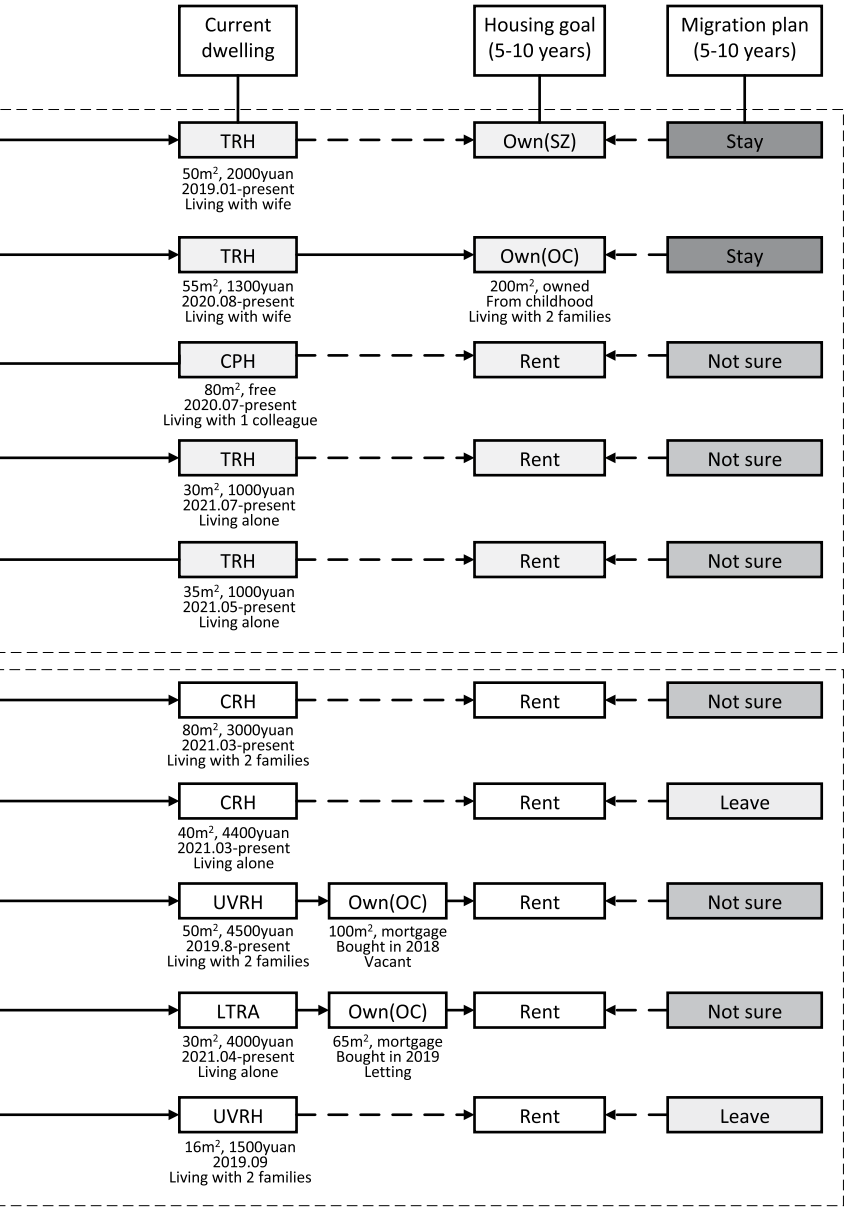
Current dwelling
Housing goal (5-10 years)
Migration plan (5-10 years)
TRH
50m², 2000yuan
2019.01-present
Living with wife
Own(SZ)
Stay
TRH
55m², 1300yuan
2020.08-present
Living with wife
Own(OC)
200m², owned
From childhood
Living with 2 families
Stay
CPH
80m², free
2020.07-present
Living with 1 colleague
Rent
Not sure
TRH
30m², 1000yuan
2021.07-present
Living alone
Rent
Not sure
TRH
35m², 1000yuan
2021.05-present
Living alone
Rent
Not sure
CRH
80m², 3000yuan
2021.03-present
Living with 2 families
Rent
Not sure
CRH
40m², 4400yuan
2021.03-present
Living alone
Rent
Leave
UVRH
50m², 4500yuan
2019.8-present
Living with 2 families
Own(OC)
100m², mortgage
Bought in 2018
Vacant
Rent
Not sure
LTRA
30m², 4000yuan
2021.04-present
Living alone
Own(OC)
65m², mortgage
Bought in 2019
Letting
Rent
Not sure
UVRH
16m², 1500yuan
2019.09
Living with 2 families
Rent
Leave

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TABLE 3.4 Characteristics of the four housing pathways for young talents in Shenzhen

Housing pathways	Frequency and types of moves	Main sub-housing fields	Outcome of habitus		Dominant Capital	Future migration plan
			Attitude towards housing tenure and subsector	Strategy		
Staying at parents' home (SPH)	Seldom move. Marriage or having a child	Parents' local housing; (Future) Owner-occupied (Shenzhen)	Deep-rooted belief in homeownership (e.g. as a prerequisite for marriage or as a good investment)	Building close relationships with family members to save or borrow money to buy a house;	Economic capital; Cultural capital; Shenzhen hukou	Stay in Shenzhen
Private renting to owning in Shenzhen (PRTO)	Few moves. Marriage or having a child	Commercial rental/LTRA; Owner-occupied (Shenzhen)	Deep-rooted belief in homeownership (e.g. as a prerequisite for marriage or as a good investment)	Saving or borrowing money from others to buy a house; Buying even in other cities	Economic capital; Social capital; Shenzhen hukou; The willingness to enter the informal housing market	Stay in Shenzhen
(Private renting to) talented renting (PRTTR)	Few moves. Job change	Talented housing/ company-provided housing	Positive attitude towards talented renting (e.g. it is cheaper and has better housing conditions)	Opportunities driven (working for specific companies)	Cultural capital; Social capital; Being employed by certain companies; Being young talents	Stay or not sure
Progressive private renting (PPR)	Frequent move. Job change/ better living conditions/in a relationship/ marriage or having a child	Urban village rental; Commercial rental/LTRA; Owner-occupied (other cities)	[For some] Deep-rooted beliefs in homeownership; (e.g. as prerequisite for marriage) [For some] Positive attitude towards private renting (e.g. it is cheaper and more flexible)	Buying even in other cities; Renting is an active or passive choice	Lack of all kinds of capital especially economic capital	Not sure or leave

3.5.1 Staying at Parents' Home (SPH)

Housing field, habitus, and capital

Four respondents, who are Shenzhen locals, are following the SPH pathway, due to the fact that their parents are homeowners in Shenzhen. This group of respondents chooses to continue living with their parents after entering the labor market. For example, Linda has been working in Shenzhen for four years and has always been living in her parents' house.

> Since I returned to work in Shenzhen, I have been living with my other 2 siblings in my parents' house, which is around 200 m^2. […] At present, I don't want to live independently because I can't handle grocery shopping, cooking, and washing dishes on my own, for example. […] Basically, I would like to be able to interact closely with my family and I am satisfied with my current housing situation. […] I'll buy my own house when I get married. (Linda, female, 28, master, Shenzhen local)

The possession of a Shenzhen hukou is the basic capital for respondents who follow this pathway. The capital allows them to receive many local welfare benefits such as the direct eligibility to buy a house and the possibility of public rental housing. In the case of Linda, she can buy a house when she wishes.

We also found that respondents who follow this pathway have some economic capital of their own, primarily derived from their parents. Because of the intimate relationship between parents and children in China, it is common for children to still live with their parents even after they have started working (Li and Shin 2013; Or 2017). Respondents tend to obtain satisfactory housing conditions through mutual support with their parents. On the other hand, parents get the accompaniment and care of their children. These respondents have always lived in an owner-occupied dwelling, and, consequently, their habitus makes them more positive towards owner-occupied housing. Living with their parents also helped them to save money and get financial support from their parents to buy a house.

In addition, some respondents were influenced by their parents' experience of successfully purchasing a house in Shenzhen and developed habitus that shaped their beliefs that homeownership is a good investment and that it is easy to afford a house by themselves in the long run. Respondents might use the economic capital that they can obtain to acquire homeownership. Thus, habitus is a relevant concept for understanding housing behavior. As Yoyo said,

We bought a pre-sale house which is still under construction after we got married. […] At present, we use almost all of our salary to pay the monthly mortgage. I'm grateful that we can now live in my parents' house without paying rent. Otherwise, we'd be overdrawn. Although the monthly mortgage seems very high now, a few years later when prices and wages increase, paying the monthly mortgage will be relatively easier. […] My parents' house was bought in 2005 when the price of 3000–4000 yuan (RMB)/m^2 was considered to be expensive, but now the price appears to be super cheap. (Yoyo, female, 28, master, Shenzhen local)

As locals, the cultural capital of knowing the housing market and system in Shenzhen is another typical feature of young talents who follow this housing pathway. For example, some respondents know how to find both satisfying and cheap housing, as well as which policies to use to obtain maximum benefits.

I plan to buy a second-hand house in Longgang which is relatively cheap. […]I plan to buy it after I get married. Because as far as I know, a married couple can get a loan of 900,000 yuan, almost twice that of a single. So it will be more cost-effective to buy after marriage. (Jo, male, 26, bachelor, Shenzhen local)

Frequency of moving and future migration

Young talents who follow the SPH pathways have seldom moved. The main reasons for moving in the future are getting married or having children. As for future migration plans, all respondents following this housing pathway stated that they will stay in Shenzhen.

3.5.2 Private Renting to Owning in Shenzhen (PRTO)

Housing field, habitus, and capital

On the PRTO pathway, respondents first enter the private rental market and (will) finally acquire homeownership. The respondents more often lived in commercial rental housing or LTRA instead of urban village rental housing. Several respondents mentioned that they could not accept the poor conditions of urban village rental housing. Young talents who follow the PRTO pathway either have usable economic capital or social capital or Shenzhen hukou. For example, the financial support of parents, which is economic capital, helps some respondents to buy a house.

Lea and her husband's housing experience is an example of the PRTO pathway. They are both migrants who chose to work in Shenzhen after graduation. At first, they lived in an old commercial rental house. A year later, they made up their minds to buy a house.

My husband and I are both migrants. I believe that if we want to settle down in Shenzhen, we must own a house there. I wouldn't get married if we didn't own a house. […] My husband's parents paid the down payment and we decorated the house with the money we saved from work. It's not a big house, but it's enough for us to live in. (Lea, female, 29, bachelor, migrant)

This example illustrates how the habitus shaped the belief about owning a house and how it influenced the way in which they view housing. It also shows how they employed the economic capital that is available to them, i.e. their savings and their parents' financial support, to achieve their goal, namely buying a house.

The case of Sherry and her husband demonstrates how social capital and the readiness to enter the "grey market" of informal housing were used to obtain homeownership in Shenzhen. Sherry and her husband, who are both migrants, started working together in a community hospital in Shenzhen after graduation. At first, they chose to live in the doctors' collective accommodation of the hospital to save money. In their third year in Shenzhen, they bought their first house, a small property rights housing (SPRH). Two years later, they bought a second house, which is a normal commercial house. They used the word "anxiety" to describe their feelings in Shenzhen before they bought their first house.

The atmosphere that has been created in our social networks before we went to Shenzhen and when we were already there was that the house prices in Shenzhen are constantly rising. We could apply for public rental housing, however, I got to know that there was a very long waiting list and those houses were in remote locations. We believed that we had to buy a house right away or it would become increasingly difficult to afford. We were very anxious. (Sherry, female, 32, master, migrant)

Their determination to buy a house in Shenzhen was reinforced by the signals they received from social networks. Their utilization of information and financial resources from social networks and their readiness to accept informal housing enabled them to enter homeownership successfully. Regarding their buying experience, they said:

From chatting with some of our colleagues, we learned that it would be cheaper to buy a SPRH. Considering the limitation of our financial resources, we chose to take the risk of buying a SPRH. With our own savings (36%) and the money borrowed from relatives and friends (64%), we had just enough money to pay for a SPRH. (Sherry)

In Sherry's case, the interaction of habitus and social capital can be summarized as follows: first, the anxious atmosphere in their social networks reinforced their belief to quickly buy a house. Then the information and financial resources received from social networks and the readiness to accept informal housing enabled them to buy.

Frequency of moving and future migration

The results of the interviews showed that most respondents on this pathway rarely move, partly because they want to save money by reducing the cost of moving, and partly because they entered homeownership and no longer need to move. The main reasons to move are getting married or childbirth. Respondents stated that they could live alone in a low-quality dwelling but wanted to provide better living conditions for their partners and children. In China, educational resources are usually better for home-owners than for renters (Feng and Lu 2013). The future education of children is therefore one of the reasons why respondents move into homeownership.

As for the future migration plans, those who were already homeowners in Shenzhen explicitly stated that they would stay in Shenzhen, as they had already settled down. However, the relationship between the wish to stay in Shenzhen and the wish to buy a house is not one-directional. Guffin (male, 31, PhD, migrant) and David (male, 25, master, migrant), for example, want to stay in Shenzhen because of the very nature of their work. Both of them are prepared to buy a house in Shenzhen. However, the latest Shenzhen 2020 policy requires migrants to have a Shenzhen hukou and to have paid social insurance for at least 3 years before they can purchase commercial housing.

3.5.3 (Private Renting To) Talented Renting (PRTTR)

Housing field, habitus, and capital

Young talents following the PRTTR pathway enter talented rental housing or company-provided rental housing (hereafter referred to together as talented housing) directly or after experiencing a period of private rental housing. Consistent with the discussion in Section 3.3 (the Shenzhen context), the results show that many respondents are employed in the public sector such as government departments, state-owned enterprises, and universities. Otherwise, they are employed by key private enterprises such as high-tech enterprises. The opportunity to live in talented housing was identified as a special kind of capital. In general, as long as young talents do not change their jobs, they can stay in talented housing for 6 years at a lower rent (Wang and Pan 2019). Therefore, the tenancy period for talented housing is relatively stable.

According to the results of the interviews, the outcome of the habitus of the respondents on this pathway can be summarized as having a positive attitude towards talented renting and being opportunity-driven. They take advantage of cultural capital and/or social capital and try to obtain satisfying work to follow the PRTTR through the housing opportunities offered by their employers.

Cultural capital in this regard refers primarily to the education received by young talents (Bourdieu 1986). The case of Yanni is an example of a highly educated individual taking the PRTTR pathway. Yanni completed her PhD at a leading university abroad. She joined a university in Shenzhen through an introduction scheme for talents. She first rented in the private rental market as there was a limited number of talented housing units at the university that required queuing. After six month-waiting, she moved into the university arranged talented housing.

> The rent for talented housing is only 60% of the market rent. The opportunity to rent such housing is very satisfying. (Yanni, female, 32, PhD, migrant)

The case of Lince is a good demonstration of how social capital and being employed by a certain company can be used to follow the PRTTR pathway. During his previous years of working in Shenzhen, he moved through the private rental market. Then after he got his present job, he and his family rented talented housing that was supplied by his present company. The information he and his company obtained from social networks (social capital), made it possible for him to enter the PRTTR pathway. Speaking about how he managed to live in the talented housing, he said:

My current company specializes in consulting services for overseas talents, so we are very familiar with the talent policy in Shenzhen. […] Probably in late 2018, the company got information about the pending allocation of talented housing by the Shenzhen government in advance and immediately applied to the government, which ended up with about 11 sets of talented housing. As a senior employee of the company, I also applied to the company for talented housing immediately and was allowed to rent. (Lince, male, 33, master, migrant)

Frequency of moving and future migration

Some respondents almost directly entered the talented housing whereas others had to move repeatedly before they got this opportunity. As mentioned above, a change of job is the most important reason for them to move in the future, but marriage or childbirth are also reasons.

Our findings showed that some respondents clearly expressed a preference to stay in Shenzhen, while others said that they were uncertain about their future migration plans. The main reasons for the uncertainty are related to work and housing affordability. As Bamboo mentioned,

Many people come to Shenzhen to earn money. After working in Shenzhen for several years, they may go back to their home city or the capital city of their home province to settle down. They won't and can't stay in Shenzhen for a long time. At least I think this is the case for most of them. […] I come from Changsha, Hunan Province. […] An important point is that houses in Changsha are much more cost-effective (than in Shenzhen). I would definitely be willing to move there if it was possible to find a satisfying job (in Changsha). Shenzhen is a wonderful city, but if you don't have a place to live, your well-being will be reduced. […] But as I just started to work a year ago, I'm not too sure yet. (Bamboo, male, 25, master, migrant)

3.5.4 Progressive Private Renting (PPR)

Housing field, habitus, and capital

Respondents who followed the PPR pathway are all migrants and frequently moved within the private rental sector. In general, the housing quality generally becomes better after each move to a new dwelling or stays the same. Most of them rented a house in urban villages in the early stage of their stay in Shenzhen. Later they moved into commercial rental housing and LTRA, if available. Some respondents own

a house in the peripheral cities of Shenzhen or their hometown due to marriage or childbirth. However, they also rent in Shenzhen due to the inconvenience of the long commuting time to their other house.

Those who follow the PPR pathway lack all kinds of capital, especially economic capital, compared to young talents who follow other pathways. This group of respondents has a mixed habitus. Some respondents had deep-rooted beliefs about homeownership shaped by their habitus due to social norms or the family environment in which they were raised. Their strategy was to buy a house in a city with lower prices in the periphery of Shenzhen because of the lack of economic capital. Other respondents' habitus resulted in a positive attitude towards private renting, which was seen as cheap and flexible. These respondents said they did not want to be "kidnapped" by their mortgage. The interaction of their habitus and lack of economic capital makes them stay trapped in the repetitive private rental sector.

This pathway is well illustrated by Paul, a start-up entrepreneur who has been living in Shenzhen for almost 7 years. Upon graduating from university, he chose to move to work in Shenzhen. By the time of the interview, he has rented a total of five different houses, of which the first four were in urban villages. The first house was only 10 m^2 with one small single room and a tiny bathroom, no sunlight, damp and noisy, where he lived for three years. Later, he moved to a second similar house of 13 m^2 due to his change of workplace. After a year, he switched to the third house of about 18 m^2 for another year because he thought the second house was too small, too dark, and he couldn't stand the noisy surroundings anymore. Because he fell in love and planned to live with his girlfriend, which required more space for two people, they moved into the fourth one-bedroom house of about 25 m^2. Over a year later, their child was born, and they moved into a relatively remote, old rental commercial housing of 80 m^2. He said:

I would be fine with renting all the time if the rent was always affordable. […] If you buy a house in Shenzhen, not only yourself but your parents and the whole family (financial resources) are kidnapped by the house. This is not the life that I want, and I do not like too much pressure. […] I'm still wandering about my future housing. (Paul, male, 30, technician, migrant)

It can be seen that Paul had a chequered housing experience in Shenzhen. This is partly due to the constraints of economic capital, but also due to his own habitus and choices, such as his openness and acceptance of continuous private renting.

In addition, our research found that the ability of respondents to buy a house is influenced by the volume of their economic capital, but the conditions of rental housing are more determined by their own preferences. For example, Jann clearly expresses an economic motive. Jann still lives in an urban village rental housing. Regarding buying a house in Shenzhen, he comments:

Unless I win five million RMB in a lottery, there is no way I can buy a house on my own in Shenzhen […] the house prices are too high […] totally unaffordable for the ordinary worker. (Jann, male, 28, bachelor, migrant)

However, Lehi has decided otherwise. After experiencing several bad rental rooms in urban villages, she is now living in an expensive rental apartment. When asked why she chose the current more expensive rental apartment,

I moved to an expensive apartment, not because of the increase in my salary or because I became rich but because I was unhappy with my job. So I wanted to live in a better apartment to increase my happiness. (Lehi, female, 32, bachelor, migrant)

Frequency of moving and future migration

Compared to other pathways, our results showed that respondents on this pathway moved more frequently. The reasons for moving vary and could be either because of a wish to move or because they had to move. The main reasons for active moves are changes in the workplace and the desire to improve living conditions. Important reasons for forced moves are the landlord selling or redecorating the house and arbitrary rent increases.

Regarding future migration plans, some respondents on this pathway clearly indicated their intention to leave Shenzhen in the future. Others were not sure about their future migration plans. When asked about the reasons for leaving Shenzhen, the issue of housing affordability was repeatedly mentioned, with respondents stating the following:

[…] I would not stay in Shenzhen […] (house prices) are too expensive. You can not afford it so you feel like you do not belong in the city […] (Lehi)

I have many friends who came to work in Shenzhen for two or three years and then went back to their hometown […] They could not afford to buy a house (in Shenzhen) […] If I go back to Wuhan (hometown), I can put down roots by buying a house there, then find a girlfriend and get married […] (Jann, male, 28, bachelor, migrant)

3.6 Discussion

The main aim of the current study is to identify and understand the housing pathways of young talents in Shenzhen, as well as the structural and agent factors that underlie these housing pathways. Using the housing pathways approach and Bourdieu's theory of practice, three research questions were addressed.

3.6.1 Housing pathways of young talents in Shenzhen

Regarding the first research question, four different types of housing pathways for young talents were identified: staying at parents' home (SPH), private renting to owning in Shenzhen (PRTO), (private renting to) talented renting (PRTTR), and progressive private renting (PPR). These four housing pathways are distinct from each other mainly in the past and present predominant tenure (housing fields) occupied by young talents as well as the number and type of moves (see Table 3.4). These results are consistent with the conclusion of Ford, Rugg, and Burrows (2002) that the degree to which pathways are tenure-specific varies. The first housing pathway (SPH)resembles the "stay at home to own" housing pathways identified by Clapham et al. (2014). However, unlike Clapham et al. (2014), i.e. young people perceive this pathway as a shameful, ad hoc strategy to save for future homeownership, we found that our respondents did not feel ashamed of living with their parents. Instead, both young talents and their parents believe that living together is a better way to take care of each other. This finding can easily be explained by the difference in cultural background, where living with parents is a form of filial respect in China (Yang 2021). The second housing pathway (PRTO) is in line with the traditional linear housing pathway of "rent to own" found in studies by Ford, Rugg, and Burrows (2002), Hamzah and Zyed (2020), etc. The third housing pathway (PRTTR) might be more specific for Shenzhen as it has gradually emerged since the enactment of the Talent Housing Project in 2010. The pathway is different from other studies that refer to young people living in social housing (Hochstenbach and Boterman 2015) or council housing (Clapham et al. 2014). Young talents who follow the PRTTR pathway are not low-income or those who have experienced a long waiting-list. Instead, they meet the conditions to be employed in one of the key enterprises that are supported by the Shenzhen government. The fourth housing pathway (PPR) seems comparable to the "progressive chaotic housing pathway" as outlined by Hochstenbach and Boterman (2015). Young talents in our study who followed this pathway remained in private renting, although most of them gradually

improved their housing conditions. Note that our study did not provide indications for chaotic or homeless pathways as identified in previous studies (Clapham et al. 2014), probably because our study was conducted with young talents rather than young people in general. Young talents may have higher incomes or better access to resources than young people in general.

3.6.2 What structural and agency factors explain differences in housing pathways?

Concerning the second research question, our results show that the formation of different housing pathways can be explained by the interaction of habitus and its outcome and various types of economic, social, cultural, and other types of capital within the housing fields (also see Table 3.4). The results are generally in agreement with Hochstenbach and Boterman (2015) and Boterman (2012), who distinguished three different housing pathways, i.e. linear, progressive chaotic, and reproductive chaotic, based on the combination of different search behavior and different types of capital. The current study explains the role of habitus, which was mentioned only briefly by Hochstenbach and Boterman (2015), in more detail. However, we found that the concept of habitus is abstract, complicated, and difficult to describe. For this reason, we operationalized habitus into its outcomes, that is, the attitude towards housing tenure and the strategy of housing choice. We found that habitus shaped deep-rooted beliefs about homeownership in the first and second types of housing pathways (PRTO and SPH). This is in line with the previous research by Rowlands and Gurney (2000), who found that young people in the UK perceived homeownership as a social norm in British society and the solution to basic housing needs. In China, the meaning given to homeownership is even greater, as it is also considered to be a symbol of status and a prerequisite for marriage (Hu and Wang 2020). Besides from that, these respondents also believed that buying a house is a good investment, based on their parents' prior successful home-buying experiences. Furthermore, in both pathways, economic capital is used to acquire housing, such as borrowing money to buy a house. The two pathways differ with regard to the cultural and social capital. In SPH pathways, the cultural capital is used, which is knowledge of the local housing market. The dominant capital in PRTO pathways is the social capital and the readiness to enter the informal housing market. These differences might be explained by the fact that the respondents following the SPH pathway are Shenzhen locals whereas those following the PRTO pathway are mainly migrants. Young talents following the third housing pathway (PRTTR) rely more on cultural capital (educational attainment) and social capital (advanced information from social networks) and the capital of being employed by certain companies to access talented

rental housing. They are characterized as having a positive attitude towards talented renting and being opportunity driven. They may select particular companies because of their housing opportunities, or they may be offered housing opportunities by selecting particular companies. The last housing pathway (PPR) is formed by a deep-rooted belief in homeownership, a positive attitude towards private renting and the lack of all kinds of capital, especially the economic capital. The combination of these beliefs and the lack of economic capital led to differences in housing outcomes. All respondents following this pathway stayed in private rentals in Shenzhen, but some of them also bought a (relatively cheap) house in the surrounding cities of Shenzhen. As for the reasons reported by the respondents for the lack of economic capital, it was partly because of the non-advantageous economic background of their parents. Along with the findings of Deng, Hoekstra, and Elsinga (2020) and Or (2017), our results highlight the important role of intergenerational transmission in young people's housing experiences.

3.6.3 The future migration plans of young talents

As for the final research questions, we found a clear association between future migration plans and the various types of housing pathways. This confirms the conclusion of previous studies that the housing career influences migration behavior (Aner 2016; Cui, Geertman, and Hooimeijer 2015; Dainov and Sauka 2010; Teixeira and Drolet 2018). Those who follow the SPH and PRTO housing pathway indicated that they will stay in Shenzhen for the next 5–10 years. We found that staying in Shenzhen is related to homeownership. This is inconsistent with the findings of Eskelä (2018), who stated that homeownership is not an influencing factor for skilled migrants to stay in Helsinki. The difference might be explained by the Chinese concept of putting down roots. In China, you don't have a home without a house (Xie and Chen 2018). In addition, we also found that some respondents living in stable rental housing had plans to stay in Shenzhen. This suggests that the ongoing Talent Housing Project may have some positive effects on talent retention. In contrast, some of the respondents following the PPR pathway have articulated their intention to leave Shenzhen in the future.

3.7 Conclusion

The present paper offers a refined comprehension of the housing and migration behavior of young talents in Shenzhen. Based on the analysis of 18 semi-structured interviews, four distinct housing pathways were identified: 1) staying at parents' home, 2) private renting to owning, 3) talented renting, and 4) progressive private renting. Different housing pathways can be accounted for by the way diverse habitus and its outcome interact with various forms of economic, social, cultural, and other types of capital in the housing field. A clear association between future migration plans and types of housing pathways was found. For example, young talents who have undergone unstable housing situations are more likely to leave Shenzhen. The present paper provides a novel perspective on the application of the housing pathways approach and Bourdieu's theory of practice. We found housing pathways approach to be particularly useful for investigating peoples' housing history/trajectory because it provides a framework of thinking to guide the design of interview questions as well as the collection and analysis of data. Besides, we believe that the graphic housing pathways approach gives the researcher a clear perception and an intuitive understanding of the housing history/trajectory experienced by people.

However, the housing pathways approach is not a theory but a research framework. We then used Bourdieu's three concepts of "habitus", "capital", and "field" as a further development to the housing pathways approach to explain how different housing pathways are shaped by the interaction of different structural and agency factors. The use of Bourdieu's theory helps to improve the depth of the research. Moreover, we present a more operationalized use of the concept of "habitus" that has only been mentioned by other authors but has not been used much in housing studies. Based on the definition of habitus, we found that habitus produces certain outcomes that can be summarized and described. We often cannot capture the specific habitus in housing analysis but we can summarize and describe the different outcomes of different habitus. We believe that this is an alternative way of analysing habitus.

Although the study provides detailed information on the housing pathways of young talents in Shenzhen based on solid theoretical approaches, a number of important limitations need to be considered. First, the researchers used a convenience sample, meaning that the interviewees were recruited via personal networks and recommendations from interviewees. There might be a possible selection bias in the final sample. For example, the housing pathways of all our interviewees were

eventually progressive. Young talents with regressive or chaotic housing pathways may have been out of our reach, may have refused participation, or may have left Shenzhen. Further research might investigate the housing pathways of young talents in Shenzhen using a more representative sample and might find additional types of housing pathways, among which are regressive and chaotic pathways as well. Second, with a small sample size of 18 interviewees in Shenzhen, caution must be applied, as the findings might not be representative of Shenzhen and might not be transferable to other cities and countries. Nevertheless, the theory and approach adopted in this paper can be employed by scholars studying this city or other cities in the future. The third limitation concerns the qualitative nature of the current study. Our results are more detailed in information and exploratory. However, a large quantitative study of the housing pathways of young talents is needed to obtain more accurate results regarding the variety of housing pathways and the share of young talents following each housing pathway.

The findings of the current study have a number of important implications for policymakers in Shenzhen. Consistent with the implications statement in the introduction section, the policy implications will be discussed in two aspects: from the viewpoint of the city and that of its residents. The first aspect concerns the implication of how the city might attract and retain young talents. The findings of our research suggest that homeownership is a critical factor for young talents to stay in Shenzhen. It is not realistic to guarantee homeownership to all young talents in a city like Shenzhen with high house prices. However, reducing the barriers to homeownership for young talents, such as the hukou and social insurance requirements may help in attracting and retaining young talents. In addition, further improvements to the process and regulations for the purchase of Affordable Commercial Residential Housing (ACRH, Anjuxing Shangpinfang in Chinese) would also be beneficial in increasing the homeownership rate of young talents. We also found that young talents following the talented housing pathway are less likely to leave Shenzhen in the future. Increasing the supply of talented rental housing is therefore strongly recommended. The second aspect of implications concerns the improvement of the housing situation of young talents in Shenzhen. Our results show that young talents following the fourth housing pathway (progressive private renting) experienced frequent moves in the private rental sector, mainly in urban village rental housing. Their housing problems are well worth being looked at. Urban village rental housing is an important part of the initial housing transition for young talents due to its low rent. Policymakers could work on improving the living environment of rental housing in urban villages, such as the improvement of lighting in rental dwellings and the infrastructure in urban villages.

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4 Beyond Economics

Unravelling the Psychological and Socio-Demographic Factors Shaping Home Purchase Intentions among Young Talents in China's First-Tier Cities

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ABSTRACT Young talents significantly contribute to the social and economic development of cities. However, the challenge of unaffordable homeownership in China's first-tier cities is leading to a phenomenon where young talents are being increasingly sidelined. Therefore, understanding young talents' home-buying intentions and their driving factors becomes imperative for crafting policies aimed at both attracting and retaining this vital demographic. Although several studies have attempted to identify the determinants of individuals' decisions to buy a home, few have considered the role played by behavioral psychological factors. This paper utilizes the Theory of Planned Behavior (TPB) to investigate the specific beliefs and background factors that influence young talents' intentions to buy a home. Through the analysis of 1065 self-collected questionnaires from young talents across four first-tier cities in China using structural equation modelling, we found that many beliefs and background factors significantly impact buying intentions. Notably, behavioral beliefs play a pivotal role, as young talents perceive homeownership as an investment opportunity, a source of belonging, and a means to provide better education for their children. Normative beliefs are also influential, with individuals valuing the opinions of those who have already acquired a house, as well as their family members and partners. Control beliefs, encompassing financial constraints related to down payments and mortgages, access to family support as well as the decision to settle

down in the city, also exert a significant influence on home-buying intentions. Moreover, background factors, such as gender, occupation, and current tenure, shape various beliefs and attitudes among young talents, subsequently impacting their intentions to purchase a home. This study marks a noteworthy advancement in the literature on tenure choice by employing TPB and concentrating on specific beliefs and how socio- demographic factors influence behavioral intentions.

KEYWORDS Home-buying intention; young talents; theory of planned behavior; belief; first-tier cities; housing investment

4.1 Introduction

Many people aspire to own a home, a sentiment eloquently articulated by Angelou (1986), who observed that "The ache for home lives in all of us, the safe place where we can go as we are and not be questioned." Homeownership not only provides a sense of security and enhances the overall quality of life compared to renting but also serves as a pivotal avenue for individuals to establish asset-based welfare (Doling & Ronald, 2010; Li, 2023; Li, et al., 2023). However, in recent years, the surging housing prices in metropolitan cities globally have rendered it increasingly difficult for individuals to realize their ambition of purchasing a house, particularly for fresh graduates who are yet to accumulate capital (Boelhouwer, 2020; Lennartz, et al., 2016). The affordability of housing for young talents is especially acute in China's first-tier cities[25] (Li, et al., 2021; Lian, 2022; Tao, et al., 2022). Research has indicated that young talents who cannot afford to buy houses in first-tier cities may opt not to go to or leave these cities (Chen, et al., 2019; Jin, et al., 2022; Lin, et al., 2021). As young talents drive social and economic innovation (Corcoran, et al., 2010; Florida, 2005), their departure from a first-tier city due to unaffordable housing can significantly weaken the city's economic and social progress. Therefore, it is crucial to comprehend young talents' buying intention and why they intend to buy homes in first-tier cities. This understanding will enable policymakers to identify the housing needs of young talent and develop policies that will attract and retain them.

25 It is recognised 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.

Numerous scholarly works have delved into the decision-making process of housing tenure —between buying and renting—through diverse theoretical frameworks. These include examinations through lenses such as neo-classical economic theory (Koopman, 2011), family lifecycle approach (Chen et al. 2022), and means-end theory (Coolen, Boelhouwer, and Van Driel 2002). Neo-classical economic theory is one of the most widely used theories in studying people's housing tenure choices, see for example Henderson and Ioannides (1983), Campbell and Cocco (2007) and Yi and Lee (2014). The study of market supply and demand, as well as the maximization of utility, was utilized in neo-classical economic theory to explicate individuals' housing tenure choices. The neo-classical paradigm posits the supposition of rational behavior, complete information, and autonomous decision-making by households and producers (Koopman, 2011). Employing the neo-classical economic theory, academics found various market and economic factors pertinent to individuals' housing choices, including but not limited to interest rate, borrowing constraints, income, tax, house price as well as rental price (Arimah, 1997; Bourassa, 1995; Bourassa & Yin, 2006; Carliner, 1974; Haurin, et al., 1996). Another dominant school of research advocates the socio-demographic approach to studying housing tenure choice (Clark & Dieleman, 1996; de Groot, et al., 2013; Mulder & Wagner, 2001). The socio-demographic approach argues that the individual's housing choices depend on his/her life cycle (e.g. marriage and giving birth to a child), family structure, and other socio-demographic characteristics like age, gender and educational level (Chen, et al., 2022; Mulder, 2006a; Mulder, 2006b).

Although these studies have offered valuable insights into housing tenure research, an increasing number of scholars have started to question the rationality assumption of the neo-classical theory that decision-making under uncertainty is the maximization of subjective expected utility and consumers have perfect knowledge about the market (Marsh & Gibb, 2011). For example, as argued by Boelhouwer (2011), the housing market is imperfect because of insufficient information, intricate product design, extended production periods and costly investments. People's knowledge and information regarding the housing market can be biased. Instead of acting on rational assumptions of neo-classical economic theory in housing decisions, people act based on their imperfect information, such as their beliefs and attitudes (Lindblad, et al., 2017; Odermatt & Stutzer, 2022). For instance, Odermatt and Stutzer (2022) found that homebuyers may base their purchasing decisions on biased beliefs regarding the enduring advantages of owning a home. Drew (2014) even asserts that people's beliefs about homeownership, such as financial benefits, improved child-rearing, and increased security, have a greater influence on their willingness to buy a home than some of the economic and socio-demographic factors typically associated with tenure preferences. On the other hand, studies examining individuals' housing decisions through socio-demographic theories frequently

struggle to explain the divergent intentions for housing tenure among people from diverse backgrounds. Even individuals sharing similar socio-demographic characteristics can manifest disparate behavioral patterns and housing preferences. (Jansen, 2012). An increasing number of studies have shown that psychological factors, including personal values, beliefs, attitudes, and subjective norms, can better elucidate the dynamics underlying housing tenure choices (Aguda, 2018; Ben-Shahar, 2007; Coolen, et al., 2002). However, these investigations have concentrated solely on a limited set of psychological factors, neglecting to construct a comprehensive theoretical framework capable of integrating both socio-demographic factors and various psychological elements.

To bridge the research gaps and gain deeper insights into the home-buying intentions of young talents, this study adopts the theory of planned behavior (TPB). By employing TPB, we aim to uncover the interplay between socio-demographic factors and psychological determinants, offering a nuanced understanding of how they collectively influence the home-buying intentions of young talents.

The paper makes both theoretical and practical contributions. Theoretically, it transcends the rationality assumption inherent in traditional economics by exploring not only socio-demographic but also psychological factors that shape individuals' housing tenure choices. This approach enables a comprehensive understanding of how socio-demographic factors influence decision-making processes. In practice, the paper also has twofold significance. Firstly, the detailed results of how different background factors form different beliefs to influence buying intention can empower governmental bodies and developers to better understand the housing needs of this demographic, thereby facilitating the provision of more tailored housing options. Secondly, the current sluggish real estate sales market in China poses significant challenges to the local economy and social stability. By comprehensively understanding the influencing factors behind individuals' intentions to buy homes, policymakers can devise strategies aimed at promoting homeownership if they aimed to.

The structure of the paper unfolds as follows. In the subsequent section, we provide a detailed introduction to the Theory of Planned Behavior (TPB) and outline the specific research questions. Following this, we offer an overview of the case cities and detail the data collection process. Subsequently, we delineate the statistical methods and analytical procedures employed in this study. We then present the results and engage in discussion, along with an exploration of the study's limitations. Finally, the paper concludes by highlighting policy implications and offering reflections on potential avenues for future research.

4.2 Theoretical framework

As highlighted in the Introduction, researchers have recognized the significance of psychological factors in understanding individuals' housing tenure choices. Yet, there remains a lack of a comprehensive theoretical framework capable of integrating both socio-demographic factors and various psychological determinants. To address this gap in the literature, this paper utilizes the theory of planned behavior (TPB) to provide a cohesive framework that bridges these two dimensions. The TPB was chosen as the theoretical framework for this paper because it explains which psychological factors (beliefs, attitudes, subjective norms and perceived behavioral control) influence the intention to buy a home without assuming that people behave rationally (Ajzen, 1991). It also provides a theoretical framework that incorporates socio-demographic characteristics to understand which factors influence the intention to buy a home and why people with different background factors have different behavioral intentions.

The TPB was developed by Ajzen (1991) as a theoretical framework to study human behavior. Figure 4.1 depicts a diagrammatic illustration of the theory. The TPB suggests that people's intention to engage in a behavior is influenced by their attitudes towards the behavior, the subjective norms they perceive, and their perception of the control they have over performing the behavior (referred to as perceived behavioral control or PBC) (Ajzen, 1991).

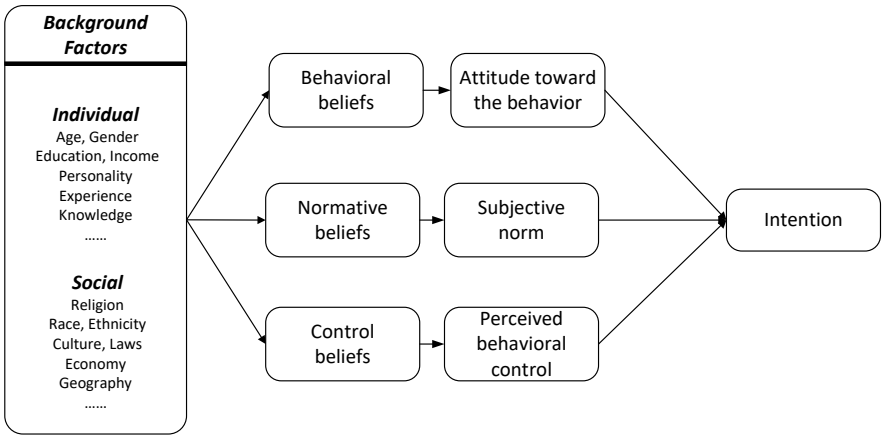

FIG. 4.1 Theoretical framework. Sources: (Ajzen, 2019; Ajzen, et al., 2011)

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According to the TPB, the determinants that shape people's attitudes, subjective norms, and perceived behavior control (PBC) towards a behavior are rooted in their corresponding behavioral, normative, and control beliefs about that behavior (Ajzen, 1991). A behavioral belief is a subjective assessment of the likelihood that engaging in the behavior will result in a specific outcome or experience. A normative belief refers to the personal perception of how likely a particular reference individual is to either engage in the behavior themselves (descriptive normative belief) or encourage others to engage in the behavior (injunctive normative belief). A control belief refers to an individual's personal estimation of the likelihood of a particular factor that either facilitates or hinders their desired outcome, being present in the relevant situation. Behavioral, normative, and control beliefs, therefore, provide substantive and detailed information about the determinants of behavior (Ajzen, 2011).

The TPB has been recommended by some scholars for application in the residential mobility and tenure choice domain due to its prominent behavioral explanation and predictive performance (Cui, et al., 2016; Hew, et al., 2020; Jansen, et al., 2011). Cohen, et al. (2009) were the pioneers in utilizing the TPB in the realm of tenure choice. In their research, they analysed a longitudinal dataset spanning four years, which was collected from 919 low- and moderate-income tenants in the United States. Using fixed-effects regression, they found that respondents expressed a higher intention to buy if they agreed that purchasing a home was important (positive attitude), if people who were important to them thought they should buy (supportive subjective norm), and if no obstacles were preventing them from buying (perceived control). Other factors like year, relative income, parental homeownership status, age and employment status were also found to have significant effects on the intention to buy a home. Lindblad, et al. (2017) further expanded on this study by examining a 10-year panel of data from the same dataset. Their findings are consistent with those of Cohen, et al. (2009), but they also discovered that only perceived behavioral control had an impact on actual purchase behavior. In their wake, a growing body of literature has adopted TPB in the tenure choice domain recently. For example, studies on willingness to buy green housing and industrial brownfield housing (Judge, et al., 2019; Liadi & Tapamose, 2021; Masukujjaman, et al., 2022; Sang, et al., 2020; Zhang, et al., 2018; Zhang, et al., 2020) and on renting intentions (Lennartz, 2013; Li, et al., 2022; Zheng, et al., 2019). The studies above revealed that the impact of attitude, subjective norm, and perceived behavioral control on intention to buy varied across different home buying behaviors. For instance, the subjective norm was found to influence individuals' intention to purchase green housing but not industrial brownfield housing.

These studies provide evidence of the effectiveness of the TPB in researching tenure choice behavior. However, most studies suffer from a common limitation – they only investigate the impact of people's attitudes (e.g., whether buying a home is worthwhile), subjective norms (e.g., whether important individuals would agree to buy a home), and PBC (e.g., whether it is easy to buy a home) on intention or behavior. These studies overlook people's specific beliefs about buying a home, such as behavioral beliefs (e.g., buying a home brings a sense of belonging), normative beliefs (e.g., whether parents support buying a home), and control beliefs (e.g., whether they can afford a down payment or a mortgage). As Drew (2014) suggested, beliefs can significantly influence housing preferences and provide specific information about housing choices. Understanding the role of specific beliefs that shape attitudes/subjective norms/PBC and ultimately determine the intention to purchase a home can uncover the decision-making mechanisms for home-buying behavior (Chan, et al., 2015; McEachan, et al., 2011). Therefore, the first research question of the paper is:

1 **What beliefs about homeownership do young talents hold that influence their attitudes, subjective norms, perceived behavioral control, and thereby indirectly the intention to buy a home in a first-tier city?**

The TPB has been further developed to incorporate background factors, such as demographic and socio-demographic factors and exposure to information (Ajzen, 2005). TPB suggests that some background factors may indirectly influence intentions and behavior through their impact on more immediate determinants in the theory, namely beliefs, attitudes, subjective norms, and perceived behavioral control (Ajzen, 2005). By integrating background factors, TPB offers insights into how these factors shape individuals' decision-making processes. This leads to our second research question:

2 **Which personal background factors influence the intention to buy a home in a first-tier city, and through which beliefs and TPB constructs?**

4.3 Data sources

4.3.1 Research object and study area

The research object of this paper is young talents. Qian (2010) suggests two ways to define talents. One view, from human capital, considers individuals with at least a college degree as talents. Another perspective, as outlined by Florida (2002), highlights the creative class, including scientists, artists, entertainers, and professionals in various fields. However, applying Florida's definition in China is challenging due to the lack of specific official occupational data. Thus, Qian (2010) substituted China's "Zhuanye Jishu Renyuan" (professional and technical personnel) for the creative class. For simplicity, this paper defines young talents as individuals aged between 20 and 40, holding a bachelor's degree or above, or possessing a national vocational qualification certificate (Zhuanye Jishu Renyuan). Additionally, professionals or managers of companies are also considered young talents.

The current study focuses on all four first-tier cities in China, namely Beijing, Shanghai, Guangzhou, and Shenzhen. These cities are renowned for their leading economic, social, and cultural development in the country. Beijing, the capital of China, is situated in Northern China and spans an administrative area of 16,410.5 km^2 with a population of 21.88 million residents as of 2020, according to NBS (2021). Shanghai, located on the southern estuary of the Yangtze River, boasts the highest population among Chinese urban areas, with 24.87 million inhabitants as of 2020. Guangzhou and Shenzhen, both located in southern China within Guangdong province, are significant urban centres. Guangzhou, the capital city of Guangdong province, has a population of 18.68 million, while Shenzhen, despite being the smallest city in terms of administrative area among the four first-tier cities, still has a population of 17.56 million. Collectively, these four first-tier cities are home to approximately 83 million residents and represent the epitome of development in China.

The selection of first-tier cities as the study area was motivated by two primary considerations. Firstly, these cities grapple with some of the most severe housing unaffordability issues in China. Over the past two decades, housing prices in Beijing, Shanghai, Shenzhen, and Guangzhou have witnessed exponential growth, far surpassing the national average. For instance, the average price of commercial housing in Beijing skyrocketed over nine times from 4557 yuan/m^2 in 2000 to 42684 yuan/m^2 in 2020, whereas the national average increased by approximately five times during the same

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period (NBS, 2023). Moreover, the average housing prices in Shanghai, Shenzhen, and Beijing rank among the fourth, fifth, and sixth most expensive in the world, respectively (CBRE, 2020). Secondly, these first-tier cities have long been magnets for young talents due to higher salaries and superior urban amenities (He, et al., 2016; Liu & Shen, 2014). The concentration of young talents in these cities provides an ideal setting to investigate their home-buying intentions. Additionally, the intricate balance between the allure of first-tier cities and the affordability challenges they pose renders the study of young talents' home-buying intentions in these cities particularly intriguing and valuable.

4.3.2 Data collection

Following the guidelines provided by Ajzen (2002), a two-stage investigation was carried out to collect the research data. The first stage is an elicitation study to find the most common shared thoughts/beliefs of the target population about buying a home in first-tier cities. Next, the results of the elicitation study were used to formulate the main TPB questions for the questionnaire survey in the second stage. The data collection was performed after the approval of the Human Research Ethics Committee (HREC) of Delft University of Technology.

Elicitation study

During the time of our elicitation study in August 2022, China implemented strict lockdown measures due to the COVID-19 pandemic, limiting our ability to conduct on-site interviews. Consequently, we opted for online interviews as a practical alternative. Online interviews and open-ended surveys were conducted with a sample of 39 young talents[26] to elicit salient behavioral beliefs, normative referents and control beliefs that influence the housing purchasing intention. The elicitation study was conducted with 11 young talents from Beijing, 11 from Shanghai, 8 from Guangzhou and 9 from Shenzhen. Moreover, a good mix of these respondents was achieved in terms of basic demographic factors such as gender, education, marital status and tenure type. During the interview, we assured participants of the confidentiality and anonymity of their responses and made efforts to establish rapport with the respondents to foster trust and open communication, enabling participants to express themselves more freely and authentically.

26 As a rule of thumb, the pilot study should include a sample of 25 to 30 participants representative of the general research population (Ajzen, 2020)

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The survey contained 11 questions, including, for example, “Do you plan to buy a home in a first-tier city in the next five years? And why(not)?”, “What are the pros/cons of buying a home in a first-tier city in the next five years?”, “Who would (dis)agree with you to buy a home in a first-tier city?”, and “What factors or circumstances would facilitate/prevent you from buying a home in a first-tier city?”.

The salient beliefs were obtained by a content analysis that focused on extracting and summarising the most frequently mentioned responses to the 11 questions. We also scrutinized the elicited beliefs using a literature review, referencing Aguda (2018), Ben-Shahar (2007), and Drew (2014), among others. Finally, 9 behavioral beliefs, 6 normative beliefs and 6 control beliefs were identified. See Appendix 4.1 for detailed information on the beliefs.

Questionnaire survey

Development of the questionnaire

The questionnaire survey for the current research is part of a comprehensive survey into young talents’ housing and migration intention. The specific questionnaire for the current study consisted of 2 main parts. The first part asked questions about the background factors. These are explained in section 4.2 and summarized in Table 4.1. The second part asked young talents about personal opinions with regard to buying a home in a first-tier city in the next 5 years[27] under the guidance of the TPB framework.

Measuring intention, attitudes, subjective norms, and PBC

To assess young talents’ intention to buy a home in a first-tier city in the next 5 years, we used 3 different semantic items (e.g., “I expect/want/intend to buy a home in a first-tier city in the next 5 years”). Answers were collected on a 7-point scale ranging from “strongly disagree=1” to “strongly agree=7”. Likewise, three different semantic items with 7-point scales were used to measure attitude, subjective norm, and perceived behavior control. Such items are referred to as reflective indicators by Ajzen (2020) because they are a reflection of what is intended to be measured. They can be found in more detail in Appendix 4.2.

27 The reason for asking about the intention to buy a home in the next five years is that five years seems a good compromise. Buying a home is not as easy as buying groceries. Short-term intentions to buy a home, such as 2 years, may be affected by insufficient time to prepare adequately. A long-term desire to buy a home, such as 10 years, maybe too far in the future to make a concrete plan.

Measuring behavioral/normative/control beliefs

Behavioral beliefs, normative beliefs, and control beliefs are called formative indicators as they influence the formation of attitude, subjective norm, and perceived behavioral control, respectively. Multiplicative terms (the product of the strength of a belief combined with the importance/value/power of that belief) were recommended by Ajzen to examine the impact of beliefs on their corresponding constructs (Ajzen, 1991). For example, attitude is influenced by the multiplication of behavioral belief strength and outcome evaluation. However, the multiplicative model has been challenged by scholars due to the difficulty of interpreting the meaning of the multiplicative terms and the other statistical technical issues, see (Evans, 1991; French & Hankins, 2003; Gagné & Godin, 2000; Newton, et al., 2012) for details. In the current research, we only measured the influence of beliefs on the corresponding constructs - and ultimately on the intentions - by inquiring about the strength of the beliefs. This was done to reduce the number of questions in the questionnaire and thus obtain a higher response rate, and to avoid the instability of the effect of the multiplicative model.

To measure behavioral beliefs, 9 behavioral beliefs were converted into 9 questions. For example, one question asked 'How much do you agree/disagree with the following statement? When I would buy a home in a first-tier city in the next five years, this house would be a good financial investment'. A 7-point scale, ranging from 'strongly disagree=1' to 'strongly agree=7', was used to quantify the behavioral beliefs.

As for the 6 normative beliefs, questions like 'How much do you value your parents' opinions when it comes to buying a home in a first-tier city in the next five years?' were made for each of the six salient normative referents. Quantification was done using 7-point scales ranging from 'not at all important = 1' to 'very important = 7'.

Concerning the 6 control beliefs, for example, the question was asked 'When considering buying a home in a first-tier city in the next five years, do you think that the following factors and circumstances play a role in your situation? I expect that I can accumulate enough money to afford the down payment in the next five years'. The question was then measured on a scale from 'extremely unlikely=1' to 'extremely likely=7'. Such questions were conducted for all six salient control beliefs. Appendix 4.1 lists the complete information on all the beliefs.

Field work

An online survey was employed to gather research data from September 14th to October 15th, 2022. Before the formal launch of the questionnaire, a small pilot study involving 6 young talents was conducted in early September 2022. Any poorly articulated questions, difficult-to-understand terminologies, and spelling errors identified during the pilot survey were promptly rectified.

The distribution of the formal questionnaire was facilitated through virtual snowball sampling. This method was chosen to overcome logistical barriers associated with on-site visits, facilitate geographic expansion, and afford a degree of control over the quantity and nature of responses by regulating referrals during the survey (Baltar & Brunet, 2012).

We conducted snowball sampling primarily through social media platforms such as WeChat and QQ. Initially, we initiated the referral chain by identifying eligible respondents, drawing from both the authors' social networks and participants in the elicitation study. Subsequently, we engaged these initial respondents to refer additional participants. Referrals were selected based on their residency or employment in first-tier cities, their affiliation with social networks comprising our target population, and their level of activity on social media platforms. A total of 46 participants from diverse industries were selected to help disseminate the questionnaire as referrals. Among them, 13 were tasked with distributing the questionnaire in Beijing, while 10, 11, and 12 individuals were responsible for distributing the questionnaire link in Shanghai, Guangzhou, and Shenzhen, respectively. Referrers primarily disseminated the questionnaire by sharing links to electronic surveys within their social networks in first-tier cities. During the distribution of questionnaires, we took measures to ensure demographic diversity by targeting individuals from different age groups, educational levels, occupations, housing tenures, etc. We monitored the distribution process closely to avoid oversampling certain demographic groups and to achieve a balanced representation across various characteristics.

As a rule of thumb, SEM analysis typically requires a minimum sample size of 200 (Kline, 2015). Given that our study encompassed four cities, it was deemed appropriate to aim for a minimum sample size of 200 respondents per city. Consequently, we initially targeted a sample size of 1000 respondents, considering the likelihood of obtaining some invalid responses. Ultimately, we received a total of 1152 responses. Following data cleaning procedures, 1065 valid responses were

retained. During the data cleaning process, we excluded responses that did not align with our target group criteria, such as individuals under 20 or over 40 years of age, school students not yet employed, responses with durations of less than 3 minutes, and responses containing obvious errors.

Table 4.1 presents the characteristics of the respondents. The young talents were almost equally distributed over the four first-tier cities (25% each). Due to the scarcity of reference city-level data on young talents for comparative analysis, along with the limited sample size within each city, it remains inconclusive whether our dataset accurately reflects the broader demographic of young talents across first-tier cities. However, considering our study's primary objective of uncovering the determinants behind young talents' intention to purchase homes, the issue of generalization will probably not impede our findings because the correlational relationships between factors are determined by analysing the variability within the sample rather than its similarity to the population.

TABLE 4.1 Characteristics of the respondents

N = 1065	Number of respondents	Mean(S.D.) / percentage of our sample	Definition(Coding)
Age	1065	28.85(3.60)	Continuous variable
Gender			Binary variable (0=Male)
Male	481	45.2%	
Female	584	54.8%	
Only child			Binary variable (0=Non-only child)
No	460	43.2%	
Yes	605	56.8%	
Educational level			Binary variable (0=Bachelor's degree and below)
Bachelor's degree and below	291	27.3%	
Master's degree and above	774	72.7%	
Educational level (parents' highest)			Categorical variable
Junior high and below	281	26.4%	
High school	234	22.0%	
College degree	201	18.9%	
Bachelor and above	349	32.8%	

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TABLE 4.1 Characteristics of the respondents

N = 1065	Number of respondents	Mean(S.D.) / percentage of our sample	Definition(Coding)
Hukou status[28]			Categorical variable
hukou of first-tier cities	696	65.4%	
Other urban hukou	210	19.7%	
Other rural hukou	159	14.9%	
Marital status			Categorical variable
Single/ Divorced/Widowed	440	41.3%	
Cohabiting/In a relationship	277	26.0%	
Married	348	32.7%	
Living with partner			Binary variable (0=No)
No	608	57.1%	
Yes	457	42.9%	
Living with children			Binary variable (0=No)
No	909	85.4%	
Yes	156	14.6%	
Current living/working city			Categorical variable
Beijing	266	25.0%	
Shanghai	262	24.6%	
Guangzhou	272	25.5 %	
Shenzhen	265	24.9%	
Current occupation			Binary variable (0=Working privately)
Working privately(including self-employed)	520	48.8%	
Working in government/public/ state-owned/collected companies	545	51.2%	
Family income (monthly after-tax household income)			Categorical variable
Less than 10000yuan	188	17.7%	
10,000-20,000yuan	324	30.4%	
20,000-40,000yuan	376	35.3%	
Over 40,000yuan	177	16.6%	
Current housing tenure (in a first-tier city)			Binary variable (0=Owner)
Owner	349	32.8%	
Non-owner	716	67.2%	

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28 The hukou (household registration) system in China has segregated the rural and urban populations. Each person has a hukou (registration status), classified as “rural” or “urban” in a specific administrative district (Chan, 2010). In some cities where the local government wants to inhibit speculative home-buying , people without a local hukou have to pay social insurance or taxes for some years (e.g., five years in Beijing) to be allowed to buy housing in this city.

TABLE 4.1 Characteristics of the respondents

N = 1065	Number of respondents	Mean(S.D.) / percentage of our sample	Definition(Coding)
Indigenous people (born in first-tier cities)			Binary variable (0=No)
No	928	87.1%	
Yes	137	12.9%	
Length of residence in the current first-tier city (in years)[29]		7.40(7.53)	Continuous variable
Length of working in the current first-tier city(in years)		3.58(3.23)	Continuous variable

4.4 Analytical methods

4.4.1 Statistical methods

Structural equation modelling (SEM) was chosen as the main statistical method for models in the current paper. Chin (1998) identified several advantages of SEM. Chin claimed that SEM provides researchers with the flexibility to (a) assess model relationships between multiple predictive variables and dependent variables at the same time, (b) enable the exploration of mediating and total effects in one analysis, and (c) construct the latent(unobservable) variables[30]. In the current research, the intention, attitude, subjective norm, and perceived behavioral control are conceptual in nature and cannot be observed directly. For this reason, they are regarded as being latent variables.

Maximum likelihood (ML) was employed in the current analysis as it gives the most precise and robust statistical results (Hair, 2009). Nevertheless, it is unable to report the significance of indirect and total effects, as indirect effects tend to be non-

29 The length of residence is longer than the length of work in the current first-tier city can be attributed to two reasons. First, our respondents also include local young talents born and raised in first-tier cities. Secondly, many respondents pursued their education in the current first-tier city, such as completing bachelor's or master's studies. As academic study is not counted as employment, individuals may have resided in the city for educational purposes before entering the workforce.

30 In SEM, observed variables refer to the data that you have collected, for which scores have been entered into a data file. Latent variables typically represent hypothetical constructs or explanatory entities that are presumed to reflect a continuum that cannot be directly observed (Kline, 2015)

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normally distributed (Bollen & Stine, 1990). Therefore, the bootstrapping technique was also adopted to test the significance of the indirect and total effects. The analysis was conducted using AMOS 24 in SPSS.

A two-stage SEM analysis was performed in the current research. A confirmatory Factor Analysis (CFA), also called measurement analysis, was carried out first to check the reliability and validity of the measurement model (Collier, 2020, p. 62). Based on this analysis, one item of PBC ("Whether or not I buy a home in a first-tier city in the next five years is completely up to me") was removed to yield a good CFA result. The criteria and the results of the CFA are illustrated in Appendix 4.3. The CFA results indicate satisfactory reliability and validity of the measurement model, indicating the effective measurement of the latent variables and their distinguishability. The second stage of the structural model analysis is usually carried out after the CFA analysis has been completed. The structural model analysis specifies the relationships among latent variables and/or observed variables in a complex system. And it provides a framework for understanding how different variables in the system are related to one another, and how they jointly influence the outcome variable of interest.

4.4.2 Analytical models

Model 1: A basic TPB model with beliefs was constructed to initially examine what underlying beliefs influence the attitude, subjective norm, perceived behavioral control and intention to buy (Figure 4.2). For the simplicity of the model, only beliefs that significantly influence intention were retained for the final model.

Model 2: To understand the role of background factors and their relationship with beliefs, we introduced background factors into the basic model in step 2. To ensure model parsimony, we conducted bivariate analyses between the background factors and both the mean intention and all significant beliefs. This approach allowed us to select the significant background variables to be included in the final model while minimizing unnecessary complexity. Pearson correlation, independent T-Test, and one-way ANOVA were utilized for analysing numerical, binary, and multi-categorical background variables, respectively (refer to Appendix 4.4 for detailed results). In the final model, we retained background factors demonstrating a significant binary relationship with the mean intention. Additionally, only when the binary relationships between the background factors and the significant beliefs were significant were the influence relationships between them included. The final model is illustrated in Figure 4.3

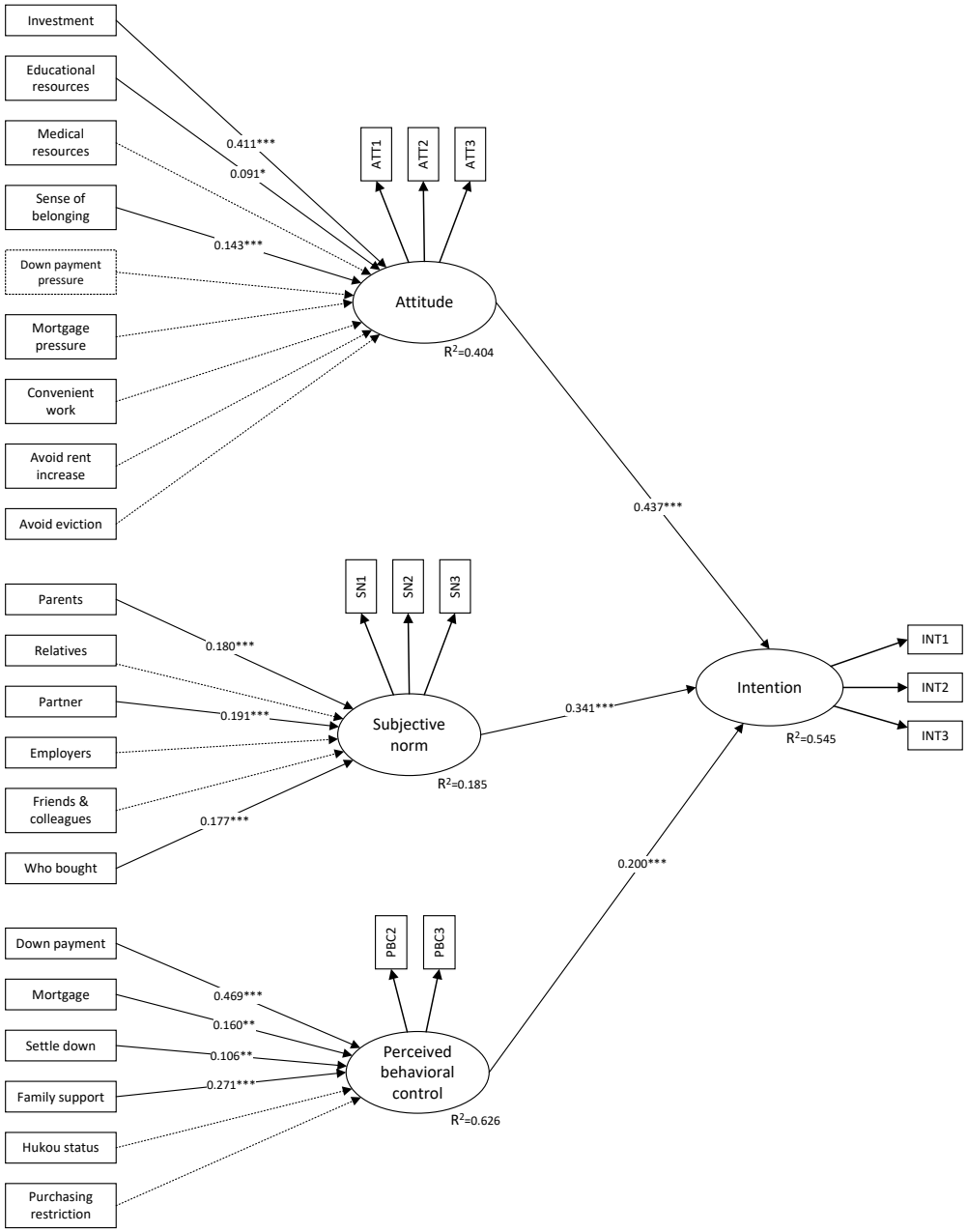

FIG. 4.2 The basic model with salient beliefs (standardized estimates)

*Notes: Significance levels: * p <0.05, ** p < 0.01, *** p < 0.001; Model fit indices: CFI = 0.942, GFI = 0.921, RMSEA = 0.071; "……" Dashed lines = non-significant; Refer to Appendix 4.1 for the description of each belief; To avoid overloading the figure, error items of beliefs and arrows between them are not shown.*

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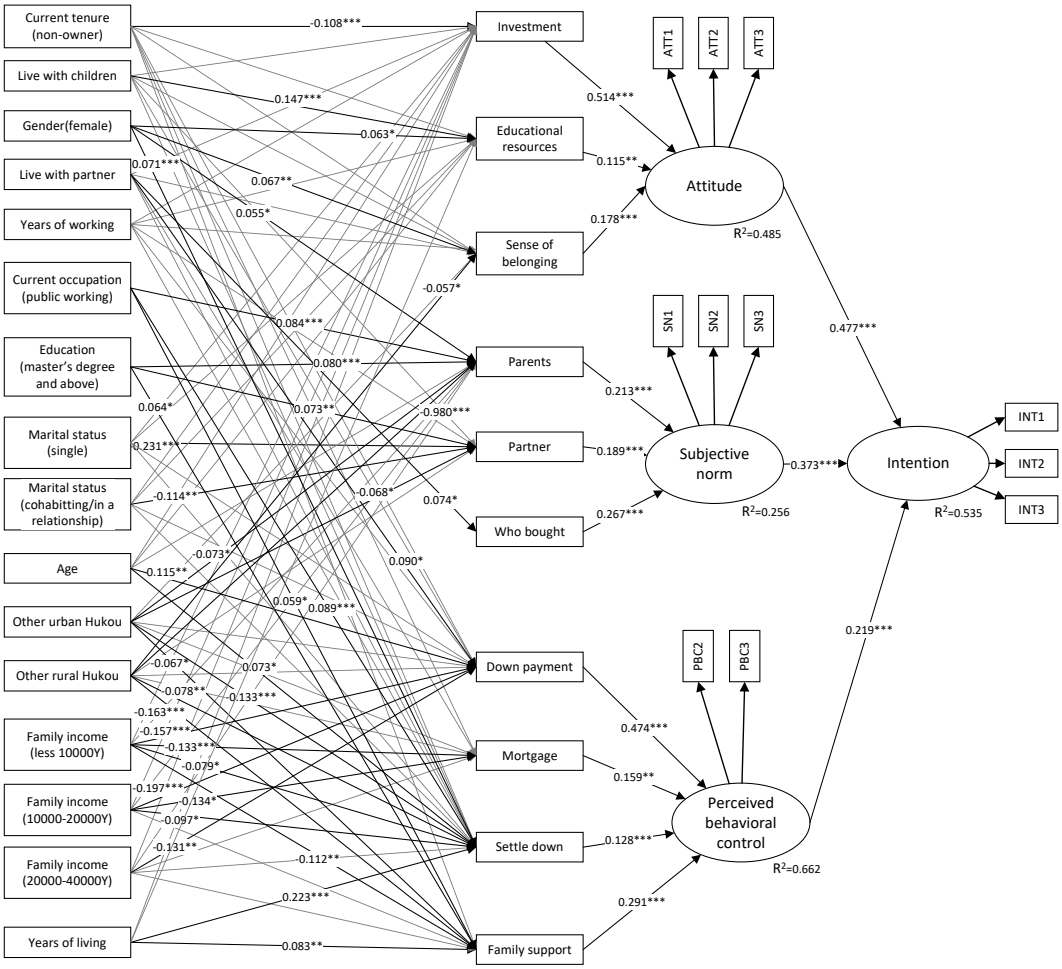

FIG. 4.3 Final results of SEM

*Notes: Significance levels: * p <0.05, ** p < 0.01, *** p < 0.001; Model fit indices: CFI = 0.937, TLI = 0.934, RMSEA = 0.057. The comparative fit index (CFI), tucker lewis index (TLI), and root mean square error of approximation (RMSEA)were chosen because they are most recommended by researchers. In general, CFI > 0.9, TLI > 0.9, and RMSEA < 0.08 are indicative of a good model fit (Kline, 2015); Light grey lines = non-significant; To avoid overloading the figure, error items are not shown.*

4.5 Results

Figure 4.2 depicts the basic model incorporating salient beliefs. Notably, attitude, subjective norm, and perceived behavioral control (PBC) exhibited significant effects on intention. However, among the six behavioral beliefs examined, including notions such as ‘owned house would be convenient for work’, ‘avoiding a sudden increase in the rent’, and ‘not being evicted by the landlord’, none demonstrated significant impacts on attitude and intention. Similarly, three normative beliefs failed to significantly influence subjective norm and intention. Additionally, two out of the six control beliefs showed no significant effect on PBC and intention. To streamline the final model, all the aforementioned non-significant factors were omitted.

The findings from the final model incorporating background factors are depicted in Figure 4.3 Table 4.2 presents the standard total effects of TPB constructs, salient beliefs, and background factors on intention. The R-squared value for intention was calculated as 0.535, indicating that the independent variables in the model accounted for 53.5% of the variance in intention. The analysis revealed that attitude exerted the most substantial influence on young talents’ intention to purchase a home in a first-tier city, followed by subjective norms and perceived behavioral control. This suggests that young talents with more positive attitudes, stronger subjective norms, and a heightened sense of control are more inclined to express their intention to buy a home within the next five years in a first-tier city.

TABLE 4.2 Standardized total effects of the final model

	Attitude	Subjective norm	PBC	Intention
TPB constructs and beliefs				
Attitude	-	-	-	0.477***
My own house would be a good financial investment **(Investment)**	0.514***	-	-	0.245***
My own house would ascertain better educational resources for my (future) children (if any) **(Educational resources)**	0.115**	-	-	0.055**
My own house would give me a sense of belonging **(Sense of belonging)**	0.178***	-	-	0.085***
Subjective norm	-	-	-	0.373***
Parents' opinions **(Parents)**	-	0.213***	-	0.080***
Partner's opinions **(Partner)**	-	0.189***	-	0.071***
Opinions of people around me who bought a home **(Who bought)**	-	0.267***	-	0.099***
Perceived behavioral control	-	-	-	0.219***
I expect that I can accumulate enough money to afford the down payment in the next five years **(Down payment)**	-	-	0.474***	0.104***
I expect my salary will rise in the next five years to allow me to pay the monthly mortgage (more easily) **(Mortgage)**	-	-	0.159**	0.035***
I expect to decide to settle down for more than 10 years in a first-tier city **(Settle down)**	-	-	0.128***	0.028***
I expect that I can get family financial support to buy a home in the next five years **(Family support)**	-	-	0.291***	0.064***

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TABLE 4.2 Standardized total effects of the final model

	Attitude	Subjective norm	PBC	Intention
Background factors				
Age	/	/	0.064***	/
Years of working	/	/	/	/
Years of living	/	/	0.053****	/
Gender (male as reference)	0.019**	0.012**	0.009***	0.016***
Current occupation (Working privately as reference)	-	0.018**	0.028**	0.013***
Education (bachelor's degree and below as reference)	-	0.031***	0.019*	0.016***
Live with children (do not live with children as reference)	0.061**	/	/	0.034**
Live with a partner (do not live with a partner as reference)	/	/	0.053*	/
Current tenure (owner as reference)	-0.069**	-	/	-0.030*
Hukou status (hukou of first-tier cities as reference)				
Other urban hukou	/	-0.028**	-0.068**	-0.030***
Other rural hukou	-0.010*	-0.030**	-0.054*	-0.028***
Marital status (married as reference)				
Single	/	-0.044***	/	/
Cohabiting/in a relationship	/	-0.021**	/	/
Family income (over 40,000yuan as reference)				
less than 10,000yuan	/	/	-0.138***	-0.042*
10,000-20,000yuan	/	/	-0.149***	-0.046*
20,000-40,000yuan	/	/	-0.077*	/

*Notes: Significance levels: * p <0.05, ** p < 0.01, *** p < 0.001; Dash line (-) = no pre-assumed relationship; Slash line (/) = non-significant relationship*

4.5.1 The impact of beliefs

The impact of salient beliefs on the Theory of Planned Behavior (TPB) constructs and intention is illustrated in Figure 4.3 and detailed in Table 4.2. Among the behavioral beliefs examined, three displayed significant positive effects on attitude and intention. Notably, 'Investment' exerted the strongest influence on attitude and intention. This implies that young talents who perceive buying a home as a sound investment tend to hold more positive attitudes toward home purchase and exhibit stronger intentions to buy. 'Sense of belonging' and 'Educational resources of children' followed, albeit with slightly lesser effects on attitude and intention.

Regarding normative beliefs, three out of six demonstrated significant impacts on subjective norm and intention to purchase a home in a first-tier city within five years. Particularly noteworthy was the considerable positive influence of 'the opinions of people around me who already bought a home' on subjective norm and intention. A compelling illustration from one of our interviews underscores this point:

"Those around me who bought a home often discuss home-buying related issues, which might have influenced me. I remember once we had dinner with my husband's colleagues. During the whole dinner, they discussed and planned to buy another house (they already bought one around 2018). They also strongly suggested that we should rush to buy a home in Shanghai ..... We bought our own house last year." (female, 30 years old, living in Shanghai, interviewed on 2 August 2022).

Additionally, the opinions of parents and a partner significantly influenced subjective norm and strengthened the intention to buy. This suggests that the perceived importance of parental and partner opinions among young talents correlates with higher social pressure or support, thereby enhancing their willingness to purchase a home in a first-tier city. Conversely, the opinions of relatives, friends, colleagues, employers, and supervisors did not significantly influence subjective norm and intention.

Regarding control beliefs, four were identified to significantly influence perceived behavioral control and intention. Notably, the belief that 'I expect that I can accumulate enough money to afford the down payment in the next five years' exhibited the highest impact on perceived behavioral control and intention. This suggests that young talents who harbour greater confidence in their ability to save enough money for a down payment within the next five years tend to wield greater control over their perceived behavior, thereby displaying a stronger intention to purchase a home. Following closely, the belief that 'I expect that I can get family financial support to buy a home in the next five years' demonstrated the second-

highest impact, succeeded by the belief 'I expect my salary will rise in the next five years to allow me to pay the monthly mortgage (more easily)', and finally, the belief 'I expect to decide to settle down for more than 10 years in a first-tier city'.

4.5.2 The impact of background factors

Based on the outcomes of binary analyses conducted between background factors and the mean intention to purchase, twelve background factors exhibiting significant binary relationships were integrated into the final model (refer to Appendix 4.4 and Figure 4.3). Continuous and binary variables were directly introduced into the model, while multi-categorical variables were transformed into multiple dummy variables, with N-1 (where N represents the number of variable categories) dummy variables being included in the model. The excluded dummy variable was utilized as the reference.

Seven background factors were identified to possess a significant relationship with intention. These factors include 'gender', 'current occupation', 'education', 'living with children', 'current tenure', 'hukou status', and 'family income'. Conversely, background factors such as 'age', 'years of working', 'years of living', 'living with a partner', and 'marital status' displayed a non-significant relationship with intention and were consequently omitted. The Discussion section will offer plausible explanations for the insignificance of these background factors. Next, the seven significant background factors are elaborated upon.

Remarkably, in comparison to male young talents, female young talents exhibited a greater inclination to purchase a home in a first-tier city within the next five years. As depicted in Table 4.2, female young talents showcased a more favourable attitude, perceived greater social support or pressure, and were deemed to possess higher behavioral control than their male counterparts. Further insights into the underlying driving forces are provided in Figure 4.3 Firstly, female young talents more frequently concurred that buying a house would secure better educational resources for their (future) children (if any) and that an owner-occupied house would engender a sense of belonging, thereby shaping their positive attitude towards the home purchase. Secondly, the heightened social support/pressure perceived by young female talents stemmed from the greater importance accorded to parental opinions among them. Lastly, the enhanced perceived behavioral control among female young talents was primarily attributed to their increased likelihood, relative to male counterparts, of opting to settle in a first-tier city for more than 10 years.

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Regarding current occupation, it was observed that young talents employed in sectors such as state-owned, government or collective companies perceived higher levels of social pressure/support and behavioral control, consequently exhibiting a greater intention to purchase a home compared to their counterparts in the private sector. As depicted in Figure 4.3, individuals working in public companies placed greater value on parental opinions and were more inclined to settle in a first-tier city for over a decade, as well as anticipate family financial support, contributing to their heightened perceptions of social pressure/support and behavioral control, respectively.

Educational attainment displayed a significantly positive association with intention, indicating that young talents with higher educational levels (master's and PhDs) were more inclined to purchase a home. Figure 4.3 illustrates that individuals with advanced educational qualifications were perceived to have a greater likelihood of receiving financial support from their families for home purchase within the next five years. This increased likelihood of family financial support bolstered their perceived behavioral control, consequently elevating their willingness to purchase a home. Additionally, the greater significance attributed by highly educated young talents to the opinions of their parents and partners heightened their perception of support or pressure toward home purchase.

Furthermore, compared to young talents without children or those not residing with their children in a first-tier city, those living with children exhibited a more positive attitude and a higher intention to purchase a home within the next five years. As evidenced in Figure 4.3, young talents cohabiting with children were more likely to believe that homeownership would afford better educational opportunities for their offspring. This behavioral belief regarding educational resources for children shaped their positive attitude toward home purchase and heightened their intention to buy.

Current tenure exhibited a significantly negative relationship with attitude and intention. Specifically, the findings revealed that young talents who were homeowners in a first-tier city displayed a more positive attitude and a higher intention to purchase additional homes in a first-tier city within the next five years compared to their non-homeowner counterparts. Figure 4.3 further illustrates that homeowners were more convinced of the soundness of investing in a home in a first-tier city compared to non-homeowners. In essence, the heightened buying intention among homeowners stemmed from their stronger belief in the investment potential of purchasing a home in a first-tier city.

Hukou status demonstrated a significant relationship with intention. Young talents holding rural or urban hukou in other cities displayed a lower intention to purchase a home compared to those with a first-tier city hukou. For both young talents with urban and rural hukou in other cities, Figure 4.3 indicates that they accorded less importance to parental opinions, were less likely to settle in a first-tier city for over a decade, and had a lower likelihood of receiving family financial support compared to those with a first-tier city hukou. Notably, subtle distinctions existed between young talents with other urban hukou and those with other rural hukou. For instance, young talents with other urban hukou valued their partner's opinion less than those with a first-tier city hukou, while young talents with other rural hukou believed less in the ability of a house to provide a sense of belonging compared to their counterparts in a first-tier city hukou. These divergent beliefs held by young talents with different hukou statuses contributed to variations in their attitudes, perceived social pressure, and behavioral control toward home purchase in a first-tier city, subsequently resulting in differences in intention.

Family income was statistically significantly related only to perceived behavioral control and not to attitude or subjective norm. In comparison to young talents with a monthly family income exceeding 40,000 yuan, those with a monthly family income of less than 10,000 yuan and between 10,000 yuan and 20,000 yuan exhibited significantly lower intentions to purchase a home. Conversely, no significant difference in intention was observed between young talents with a monthly family income exceeding 40,000 yuan and those earning between 20,000 yuan and 40,000 yuan. Figure 4.3 highlights that young talents with a monthly family income below 20,000 yuan faced challenges in affording the down payment and monthly mortgage, as well as in settling in a first-tier city for over a decade. Furthermore, those with a monthly family income below 10,000 yuan also had reduced chances of receiving family financial support. Consequently, young talents with a monthly family income below 20,000 yuan perceived lower behavioral control over purchasing a home within the next five years.

4.6 Discussion

Amidst the backdrop of a sluggish housing market in China's first-tier cities, there arises a critical need to examine the decision-making process surrounding home ownership, particularly among young professionals who are in the nascent stages of their careers and face financial constraints. This study endeavours to delve into the intention of these young talents to purchase a home within the next five years in China's first-tier cities. Employing the TPB in conjunction with various background factors, we seek to address two pivotal research inquiries: 1) How do the beliefs of young talents regarding homeownership influence their intention to buy a home? and 2) What impact do background factors exert on the homebuying intentions of young talents? In this section, we present our findings, drawing comparisons with existing literature. Furthermore, we scrutinize the limitations inherent in our research and propose avenues for future investigation.

4.6.1 The impact of beliefs

The initial research inquiry delved into the specific beliefs surrounding homeownership that influence the intentions of young talents to purchase a home in first-tier cities. Notably, the behavioral belief "My own house would be a good financial investment (Investment)" emerged as the most influential factor positively impacting both attitude and intention toward homebuying. This outcome resonates with the observed trend in China's major urban centres, where many buyers have experienced substantial property value appreciation and lucrative returns on investments over recent decades (Li, et al., 2024; Zheng, et al., 2023). Moreover, this finding is corroborated by research conducted in various countries, highlighting the pivotal role of financial beliefs in motivating individuals to pursue homeownership (Belsky, 2013; Case & Shiller, 2003; Drew, 2014; Liu & Li, 2018; Reid, 2013). For instance, Drew's (2014) study on housing tenure choice in the US revealed that individuals who perceived homeownership as a profitable long-term investment were significantly more inclined (280%) towards becoming homeowners compared to those who did not share this belief.

Additionally, our investigation unveiled that homeownership fosters a sense of belonging and offers perceived benefits such as access to superior educational resources for children. Qualitative research by Reid (2013) illustrated how homeownership represents a sense of belonging, particularly for migrants, as it

symbolizes citizenship and the right to establish roots in a country. Similarly, Liu and Li (2018) emphasized the connection between homeownership and a sense of belonging to a city, as homeowners perceive themselves as integral members of their community.

The belief that homeownership translates into enhanced educational opportunities for children is intricately linked to China's education system, particularly the concept of the "school district." The longstanding "nearby schooling" policy and the "school district system" in China's compulsory education landscape (Wen, et al., 2017) dictate that children of homeowners have access to higher-quality public schools within their designated district compared to children of renters (Li, et al., 2022). Although policies in some cities, such as Shenzhen, are gradually diluting the significance of the "school district," this belief continues to shape individuals' intentions to purchase a home.

An interesting revelation concerning normative beliefs is the substantial influence wielded by the opinions of individuals within the respondent's social circle who have already embarked on the journey of homeownership. Surprisingly, these peer opinions exert a more pronounced impact on shaping positive subjective norms and, consequently, on the intention to buy a home, surpassing the influence of parents and partners. This stands in contrast to the findings of Li et al. (2022), who identified valuing the perspectives of family members as the most influential factor guiding individuals toward choosing the private rental market. Such divergent results highlight the nuanced nature of normative beliefs, which may exert varying influences on different behavioral intentions (Ajzen, 1991).

Despite both buying and renting representing housing tenure choices, they diverge significantly in their economic attributes and social symbolism. Notably, homeownership is often associated with elevated social status, as posited by McCabe (2018). Consequently, the desire to uphold or attain a similar social standing to one's peers may elucidate the significance of peer opinions among individuals who have intentions to purchase a home. This phenomenon aligns with numerous studies investigating the impact of market sentiment on homebuying intentions, indicating that heightened enthusiasm within the housing market, evidenced by peers engaging in home purchases, correlates with increased inclination toward homeownership (Dong, et al., 2022; Jin, et al., 2023).

The present study uncovered a significant association between the perception of a higher likelihood of affording a down payment and mortgage and increased behavioral control and intention to purchase a home. This finding is intuitive, considering the enduring financial commitment that buying a home entails. Moreover,

perceiving a high likelihood of receiving familial support was also found to enhance control over homeownership decisions and the propensity to buy a home. This result aligns with prior research by Lux, et al. (2018), Druta and Druta and Ronald (2017), and Deng, et al. (2019), underscoring the pivotal role of family support in facilitating young individuals' access to homeownership. In the face of today's increasingly unattainable housing market, relying on familial assistance emerges as a crucial avenue for contemporary young adults grappling with the homeownership dilemma.

Furthermore, young talents who envision settling in first-tier cities exhibit a heightened intention to purchase a home, perceiving it as a key indicator of permanent residency. This finding offers valuable insight into the nexus between migration patterns and housing behavior, supplementing existing literature that predominantly explores how homeownership influences individuals' intentions to remain in their current locale (Aner, 2016; Cui, et al., 2015; Teixeira & Drolet, 2018).

4.6.2 The impact of background factors

The second research question delves into the influence of personal background factors on the intention to purchase a home in a first-tier city. While prior research has often established a direct correlation between background factors and homebuying intentions (Bazyl, 2009; Njo & Sugeng, 2023; Wang & Li, 2006), it has frequently overlooked the mechanisms through which these factors exert their influence, either theoretically or empirically. In contrast, this study contributes to the literature by demonstrating that certain background factors impact young talents' intentions to purchase a home through the mediating effects of the TPB components.

Specifically, our findings illuminate how disparities in beliefs, attitudes, subjective norms, and perceived behavioral controls among young talents from diverse backgrounds contribute to variations in their intentions to buy a home. In the results section, we elaborate on seven significant background factors that shape homebuying intentions, providing a nuanced understanding of their influence. Next, we will discuss five background factors that were potentially relevant in previous studies but were not significant in this study.

Drew (2014) discovered that age strongly influences future house purchase expectations. However, in our study, the effect of age on the intention to buy a home was not significant, possibly due to our sample comprising young talents aged 20-35, exhibiting limited age variation. Furthermore, Liadi and Tapamose (2021) found that a longer stay in the city correlated with a more positive attitude/intention to

buy. Yet, in our study, neither the length of residence nor the length of work in the city significantly related to the intention to buy a home. This disparity in findings may stem from differences in methodology; while their study solely examined the bivariate correlation between length of residence and attitude/intention, our analysis went further and incorporated other independent variables. Despite this, the relationship between length of residence/work and intention remained insignificant, suggesting that homebuying intention is not contingent upon the duration of residence/work.

Furthermore, our study revealed that living with a partner was unrelated to the intention to buy a home, contrasting with the significant influence of living with children. This observation aligns with Jin et al.'s (2023) findings, suggesting that young talents may tolerate substandard rental housing conditions but aspire to provide better accommodations for their children in the future. In contrast, while life course models typically emphasize the importance of marital status in promoting housing purchases (Raya & Garcia, 2012), our study did not find a significant relationship between marital status and the intention to buy a home. This divergence could be attributed to the prohibitively high threshold for homeownership in first-tier cities, rendering it unattainable for many young talents regardless of their marital status.

4.6.3 Limitation and future research direction

This study is subject to several limitations that warrant consideration. Firstly, it is important to note that our data was collected in 2022, when China's real estate market had just begun to cool down. Since then, the property market has experienced a significant downturn, characterized by declining housing prices and weakened market confidence. This temporal limitation suggests that young talents' current housing purchase intentions and their influencing factors might have evolved substantially from our findings. While our results effectively capture the dynamics of the initial cooling period, they may not fully reflect the more pronounced market challenges and altered perceptions of young talents in the current market environment. Future studies could investigate how young talents' housing purchase intentions have shifted in response to the sustained market downturn, and whether the relative importance of different influencing factors has changed under these new market conditions.

Secondly, our theoretical framework focuses exclusively on purchase intentions without examining the intention-behaviour gap. Given that housing purchase is a complex decision often involving multiple stakeholders (e.g., family members, banks, real estate agents) and various external constraints (e.g., mortgage availability, housing supply), strong purchase intentions may not necessarily translate into

actual buying behaviour. Future research endeavors could address this limitation by investigating both intentions and actual purchase behaviours, potentially incorporating the perspectives of different stakeholders in the housing purchase process.

Thirdly, while we examined young talents' housing purchase intentions across first-tier cities, our analysis did not fully account for the heterogeneous housing market conditions among these cities, such as differences in housing prices, supply levels, and local housing policies. Although our findings suggest no significant divergence in purchase intentions across cities (see Appendix 4.4), the underlying mechanisms and context-specific factors influencing these intentions might vary substantially. Future research could conduct more nuanced comparative analyses of how city-specific market conditions and policy environments shape young talents' housing purchase intentions.

4.7 Conclusion

Since the outbreak of the COVID-19 pandemic, the real estate sales market in China's first-tier cities has remained sluggish, presenting significant challenges to local social and economic stability. This is primarily due to a range of factors, including housing affordability issues, which continue to impede individuals' willingness to invest in property. However, policymakers and practitioners are grappling with a lack of understanding regarding the underlying factors influencing people's home-buying intentions. Therefore, there is a pressing need to revisit people's housing tenure choices in first-tier cities. This is particularly crucial for young talents, as they represent a pivotal demographic in the housing market. Meeting their aspirations for homeownership not only facilitates their integration into urban areas but also fosters the long-term development of the local economy.

Conventional housing tenure choice studies have typically focused on socio-demographic factors such as housing prices, interest rates, and demographic variables. While this approach has its merits, it often falls short in elucidating the decision-making process and how these variables influence individuals' choices. By employing the Theory of Planned Behavior (TPB) as its theoretical framework, this paper delves into the beliefs and background factors that shape young talents' intentions to buy homes. Understanding the underlying beliefs driving home-buying decisions from a psychological perspective offers distinct advantages over

the traditional neo-classical approach. Firstly, it acknowledges that individuals do not always maximize utility and act rationally, aligning more closely with reality. Moreover, comprehending these beliefs can assist policymakers in formulating more targeted and cost-effective initiatives. For instance, promoting homeownership traditionally involves adjusting interest rates, housing prices, or enhancing individuals' incomes. However, these measures are quite costly and difficult to implement. As questioned by De Jong and Fawcett (1981), "What else can be done in a shorter time and at a lower, more feasible cost?" Understanding the underlying beliefs that drive decision-making can inform targeted interventions such as education or persuasion to exert direct influence on tenure choice.

Appendices

Appendix 4.1. Descriptive statistics of behavioral/normative/control beliefs

Behavioral beliefs (formative indicators)			
Variable	**Item Wording** **When I would buy a home in a first-tier city in the next five years:**	**Item value: scale**	**Mean (S.D.)**
Investment	My own house would be a good financial investment	strongly disagree → strongly agree: 1→7	4.6(1.42)
Educational resources	My own house would ascertain better educational resources for my (future) children (if any)		5.09(1.39)
Medical resources	Because of my own house, I would enjoy excellent medical services easier		4.54(1.49)
Sense of belonging	My own house would give me a sense of belonging		5.4(1.43)
Down payment pressure	I would have high pressure to pay the down payment		5.59(1.35)
Mortgage pressure	I would have high pressure to pay the monthly mortgage		5.59(1.32)
Convenient work	I can live in my own house which is more convenient for me to work in the current city		5.08(1.49)
Avoid rent increase	I can live in my own house so that I would not have to cope with a sudden increase in the rent		5.05(1.50)
Avoid eviction	I can live in my own house so that I would have the certainty of not being evicted by the landlord		5.12(1.58)
Normative beliefs (formative indicators)			
Variable	**Item Wording** **How much do you value their opinion when it comes to buying a home in a first-tier city in the next five years?**	**Item value: scale**	**Mean (S.D.)**
Parents	Parents' opinions	not important at all → very important: 1→7	5.11(1.44)
Relatives	Relatives' opinions		3.19(1.59)
Partner	Partner's opinions		5.49(1.45)
Employers	Employer/supervisor's opinions		3.09(1.61)
Friends & colleagues	Friends' and colleagues' opinions		3.52(1.59)
Who bought	Opinions of people around me who bought a home		3.77(1.62)

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Control beliefs (formative indicators)			
Variable	Item Wording When considering buying a home in a first-tier city in the next five years, do you think that the following factors and circumstances play a role in your situation?	Item value: scale	Mean (S.D.)
Down payment	I expect that I can accumulate enough money to afford the down payment in the next five years	Extremely unlikely →Extremely likely: 1→7	3.99(1.83)
Mortgage	I expect my salary will rise in the next five years to allow me to pay the monthly mortgage (more easily)		4.46(1.57)
Settle down	I expect to decide to settle down for more than 10 years in a first-tier city		4.84(1.72)
Family support	I expect that I can get family financial support to buy a home in the next five years		4.37(1.8)
Hukou status	I expect that I can get a hukou in a first-tier city in the next five years (If already got one, indicate Extremely likely)		5.65(1.81)
Purchasing restriction	I expect the purchasing restrictions in first-tier cities to be more relaxed in the next five years		4.84(1.51)

Appendix 4.2. Measurement of intention, attitude, subjective norm, and PBC

Intention measurement			
Item Wording	Item name	Item value: scale	Mean (S.D.)
I expect to buy a home in a first-tier city in the next five years	INT1	Strongly disagree → Strongly agree: 1→7	4.8(1.86)
I want to buy a home in a first-tier city in the next five years	INT2		4.65(1.86)
I intend to buy a home in a first-tier city in the next five years	INT3		4.35(1.94)
Attitude measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
I think buying a home in a first-tier city in the next five years is	ATT1	Bad → Good: 1→7	4.8(1.58)
	ATT2	Worthless → Useful: 1→7	4.71(1.61)
	ATT3	The wrong thing to do → The right thing to do: 1→7	4.67(1.62)

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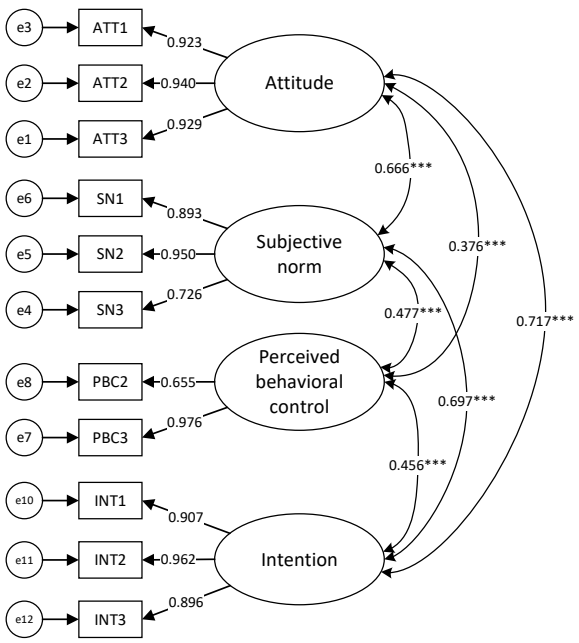
Subjective norm measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
Most people who are important to me think that I should buy a home in a first-tier city in the next five years	SN1	Strongly disagree → Strongly agree: 1→7	4.7(1.55)
Most people whose opinions I value would approve of me buying a home in a first-tier city in the next five years	SN2		4.73(1.54)
Most of the young people around me will buy a home in a first-tier city in the next five years	SN3		4.53(1.55)
Perceived behavioral control (PBC) measurement (reflective indicators)			
Item Wording	Item name	Item value: scale	Mean (S.D.)
Whether or not I buy a home in a first-tier city in the next five years is completely up to me	PBC1	Strongly disagree → Strongly agree: 1→7	5.02(1.53)
For me, buying a home in a first-tier city in the next five years is easy	PBC2		3.29(1.68)
I am confident that if I want to, I could buy a home in a first-tier city in the next five years	PBC3		4.24(1.71)

Appendix 4.3. Model of Confirmatory factor analysis (standardized estimates)



Note:
Significance levels:
** p <0.05,*
*** p < 0.01,*
**** p < 0.001;*
Model fit indices: CFI = 0.978, TLI = 0.969, RMSEA = 0.076; SRMR=0.036

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Appendix 4.3. Results of Confirmatory factor analysis (CFA)

Latent variables	Measurable variables	Factor loading	CR	AVE	Square root of AVE	Correlation		
						ATT	SN	PBC
ATT	ATT1	.923***	0.951	0.866	0.931			
	ATT2	.940***						
	ATT3	.929***						
SN	SN1	.893***	0.895	0.741	0.861	0.666***		
	SN2	.950***						
	SN3	.726***						
PBC	PBC2	.655***	0.815	0.696	0.834	0.376***	0.477***	
	PBC3	.976***						
INT	INT1	.907***	0.944	0.849	0.921	0.717***	0.697***	0.456***
	INT2	.962***						
	INT3	.896***						

*Note: Significance levels: *** p < 0.001, **p < 0.01, *p < 0.05; Reliability indicators and qualification criteria: CR≥0.6; Validity indicators and qualification criteria: AVE≥0.5; Square root of AVE> The biggest inter correlation between latent variables.*

Appendix 4.4. Binary analyses between background factors and mean intention as well as that between background factors and significant beliefs

1. Results of the Pearson correlation (for continuous background variables)

Pearson correlation		age	Years of working	Years of living
Mean intention	R(1063)	**0.062***	**0.108*****	**0.084****
	Sig.	0.042	0.000	0.006
Investment	R(1063)	**0.077***	**0.153*****	**0.083****
	Sig.	0.012	0.000	0.006
Educational resources	R(1063)	**0.065***	**0.132*****	**0.071***
	Sig.	0.034	0.000	0.020
Sense of belonging	R(1063)	-0.004	**0.063***	0.023
	Sig.	0.886	0.040	0.459
Parents' opinion	R(1063)	-0.058	-0.014	0.025
	Sig.	0.058	0.650	0.418
Partner's opinion	R(1063)	**0.077***	**0.098*****	0.031
	Sig.	0.012	0.001	0.320
Opinion of who bought	R(1063)	-0.015	0.054	-0.025
	Sig.	0.630	0.078	0.424
Down payment	R(1063)	**0.152*****	**0.145*****	0.015
	Sig.	0.000	0.000	0.635
Mortgage	R(1063)	-0.004	0.025	0.009
	Sig.	0.906	0.409	0.771
Settle down	R(1063)	**0.207*****	**0.247*****	**0.332*****
	Sig.	0.000	0.000	0.000
Family support	R(1063)	0.027	0.035	**0.119*****
	Sig.	0.385	0.248	0.000
Whether this background factor is included in the final model?		Yes	Yes	Yes

*Notes: Significance levels: *** p < 0.001. ** p < 0.01. * p < 0.05; The bolded coefficients indicate that the results of the binary analysis are significant and this relationship will be included in the final model.*

2.Results of the independent T-Test (for binary background variables)

Independent Samples Test		Gender	Only child	Education	Indigenous	Live with partner	Live with children	Current occupation	Current tenure
Mean intention	Sig.	**0.006****	0.416	**0.023***	0.983	**0.000*****	**0.001*****	**0.004****	**0.000*****
Investment	Sig.	0.067	0.857	0.125	0.321	**0.017***	**0.000*****	0.713	**0.000*****
Educational resources	Sig.	**0.004****	0.037*	0.078	0.740	0.094	**0.000*****	0.302	**0.000*****
Sense of belonging	Sig.	**0.003****	0.569	0.702	0.437	0.751	**0.010****	0.255	**0.014***
Parents	Sig.	**0.008****	0.000***	**0.001*****	0.718	**0.028***	0.099	0.000***	0.319
Partner	Sig.	0.959	0.802	**0.009****	0.074	**0.000*****	**0.000*****	0.304	0.183
Who bought	Sig.	0.751	0.031*	0.952	0.054	**0.050***	0.077	0.216	0.430
Down payment	Sig.	0.084	0.000***	0.517	0.782	0.000	**0.000*****	0.241	**0.002****
Mortgage	Sig.	0.443	0.101	0.977	0.408	0.042	0.160	0.088	**0.004****
Settle down	Sig.	**0.004****	0.832	0.650	0.000***	0.000	**0.000*****	**0.000*****	**0.000*****
Family support	Sig.	0.105	0.000***	**0.001*****	0.001***	0.309	0.125	**0.004****	**0.000*****
Whether this background factor is included in the final model?		Yes	No	Yes	No	Yes	Yes	Yes	Yes

*Note: Significance levels: *** p < 0.001. ** p < 0.01. * p < 0.05; The bolded coefficients indicate that the results of the binary analysis are significant and this relationship will be included in the final model.*

3.Results of the one-way ANOVA (for multi-categorical background variables)

ANOVA		Education (parents' highest)	Hukou status	Marital status	Current live city	Family income
Mean intention	ANOVA/ Welch's F	F(3, 1061) = 1.211	F(2, 1062) = 21.967	F(2, 1062) = 9.568	F(3, 1061) = 1.974	F(3, 1061) = 14.369
	Sig.	0.305	**0.000*** **	**0.000*** **	0.116	**0.000*** **
Investment	ANOVA/ Welch's F	F(3, 1061) = 1.692	F(2, 1062) = 1.557	F(2, 1062) = 5.730	F(3, 1061) = 0.702	F(3, 1061) = 5.921
	Sig.	0.167	0.211	**0.003** **	0.551	**0.001*** **
Educational resources	ANOVA/ Welch's F	F(3, 1061) = 3.458	F(2, 1062) = 2.555	F(2, 1062) = 6.386	F(3, 1061) = 0.526	F(3, 1061) = 1.937
	Sig.	0.016*	0.078	**0.002** **	0.665	0.122
Sense of belonging	ANOVA/ Welch's F	F(3, 1061) = 2.902	F(2, 1062) = 3.234	F(2, 1062) = 1.059	F(3, 1061) = 0.649	F(3, 1061) = 1.236
	Sig.	0.034*	**0.040***	0.347	0.584	0.295
Parents	ANOVA/ Welch's F	F(3, 1061) = 10.014	F(2, 1062) = 7.357	F(2, 1062) = 2.470	F(3, 1061) = 2.691	F(3, 1061) = 0.440
	Sig.	0.000***	**0.001*** **	0.052	0.045*	0.724
Partner	ANOVA/ Welch's F	F(3, 1061) = 0.534	F(2, 1062) = 6.682	F(2, 1062) = 27.413	F(3, 1061) = 1.172	F(3, 1061) = 9.092
	Sig.	0.659	**0.001*** **	**0.000*** **	0.319	**0.000*** **
Who bought	ANOVA/ Welch's F	F(3, 1061) = 2.803	F(2, 1062) = 2.989	F(2, 1062) = 0.456	F(3, 1061) = 1.532	F(3, 1061) = 0.405
	Sig.	0.039*	0.052	0.634	0.205	0.749
Down payment	ANOVA/ Welch's F	F(3, 1061) = 3.313	F(2, 1062) = 5.341	F(2, 1062) = 9.211	F(3, 1061) = 2.666	F(3, 1061) = 15.977
	Sig.	0.020*	**0.005** **	**0.000*** **	0.047	**0.000*** **
Mortgage	ANOVA/ Welch's F	F(3, 1061) = 0.584	F(2, 1062) = 3.728	F(2, 1062) = 2.200	F(3, 1061) = 2.011	F(3, 1061) = 7.569
	Sig.	0.626	**0.024***	0.111	0.111	**0.000*** **
Settle down	ANOVA/ Welch's F	F(3, 1061) = 1.930	F(2, 1062) = 45.898	F(2, 1062) = 14.857	F(3, 1061) = 5.228	F(3, 1061) = 22.620
	Sig.	0.123	**0.000*** **	**0.000*** **	0.001***	**0.000*** **
Family support	ANOVA/ Welch's F	F(3, 1061) = 24.261	F(2, 1062) = 25.118	F(2, 1062) = 0.737	F(3, 1061) = 2.763	F(3, 1061) = 9.812
	Sig.	0.000***	**0.000*** **	0.479	0.041*	**0.000*** **
Whether this background factor is included in the final model?		No	Yes	Yes	No	Yes

*Note: Significance levels: *** p < 0.001. ** p < 0.01. * p < 0.05; The results of Post Hoc Tests (multiple comparison) are not presented due to the limited length of the paper; The bolded coefficients indicate that the results of the binary analysis are significant and this relationship will be included in the final model.*

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TOC

5 An Integrated Prospect Theory Framework for Migration

Young Talents' Settlement Decisions in China's First-Tier Cities

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ABSTRACT Global metropolises, including first-tier Chinese cities, are confronting unprecedented challenges of talent exodus amid escalating housing costs, competitive job markets, and deteriorating urban living conditions. Traditional migration theories fall short in explaining young talents' mobility decisions, as their high human capital drives them to prioritize multidimensional considerations beyond mere economic returns. This study develops a comprehensive theoretical framework integrating multiple aspects of prospect theory—reference dependence, loss aversion, endowment effects, and risk attitudes—to investigate young talents' settlement intentions through logistic regression analysis of survey data from 1065 professionals across four first-tier Chinese cities. The research reveals that migration decisions are fundamentally shaped by asymmetric psychological evaluations: young talents demonstrate heightened sensitivity to potential losses in job prospects and housing expenses. Institutional and psychological endowments significantly enhance settlement intentions: homeownership, local hukou status, and public sector employment increase staying probability, along with longer duration of residence and stronger place attachment. Notably, our findings reveal nuanced

suppression effects of migration-specific risk attitude on one's general risk attitude: while first-tier cities attract individuals with higher general risk tolerance who are willing to embrace urban challenges, these individuals also tend to have higher migration-specific risk tolerance, which in turn reduces their long-term settlement intention. These insights not only advance behavioral economic understanding of talent mobility by challenging conventional assumptions of homogeneous risk preferences in migration decisions, but also provide crucial guidance for metropolitan policymakers seeking to develop more sophisticated talent retention strategies emphasizing institutional embeddedness and stable career development pathways.

KEYWORDS prospect theory, reference dependence, loss aversion, endowment effect, risk attitude, settlement intention, young talents, first-tier cities

5.1 Introduction

In the context of the knowledge-based economy, human capital is widely recognized as a key driver of regional growth and development (Arntz, 2010; Faggian et al., 2017; Florida, 2002). Historically, global metropolises have been magnets for young talent, offering abundant job opportunities and higher salaries (Harvey, 2014). However, in recent years, challenges such as rising living costs, soaring housing prices, congestion, job competition, air pollution, and crime have begun to erode their appeal, contributing to a talent outflow from major metropolitan areas (Chen et al., 2019; Naik, 2024; Osutei & Kim, 2023). Similar patterns have been observed globally, from Silicon Valley (Krishan, 2021), London (Cullen, 2023), New South Wales (Rabe, 2023), and Vancouver (The Canadian Press, 2019).

China's first-tier cities[31] exhibit a similar trend of talent outflow. Multiple data sources provide evidence for this trend. First, official statistics show that the floating population in all first-tier cities has been declining since 2018 (Figure 5.1.a). Second, authoritative talent flow reports from major recruitment platforms offer direct evidence. According to Ren (2024), the share of talent inflow in first-tier cities as a whole has shown a consistent decline, dropping from about 22% in 2016 to approximately 17% in 2022 (Figure 5.1.b). This declining trend is observed

31 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).

across all first-tier cities, with Beijing experiencing the most notable decrease from around 7% to 4%, while Shanghai, Guangzhou, and Shenzhen showing similar downward trajectories, albeit at different rates. Third, graduate retention rates in first-tier cities show concerning patterns. For instance, the "2019 Beijing Graduate Employment Quality Report" reveals a steady decline in the proportion of graduates choosing to stay in Beijing. Fourth, independent research institutions have documented shifting talent preferences. Analyses by The Economist suggest that China's second-tier cities are becoming increasingly attractive, while first-tier cities are losing their competitive edge in talent attraction (The Economist, 2024a, 2024b). Finally, this trend is further supported by recent academic studies showing that factors such as rising housing prices in first-tier cities have significantly diminished their appeal to skilled talents (Chen et al., 2019; Gu & Jie, 2024; Wen et al., 2024).

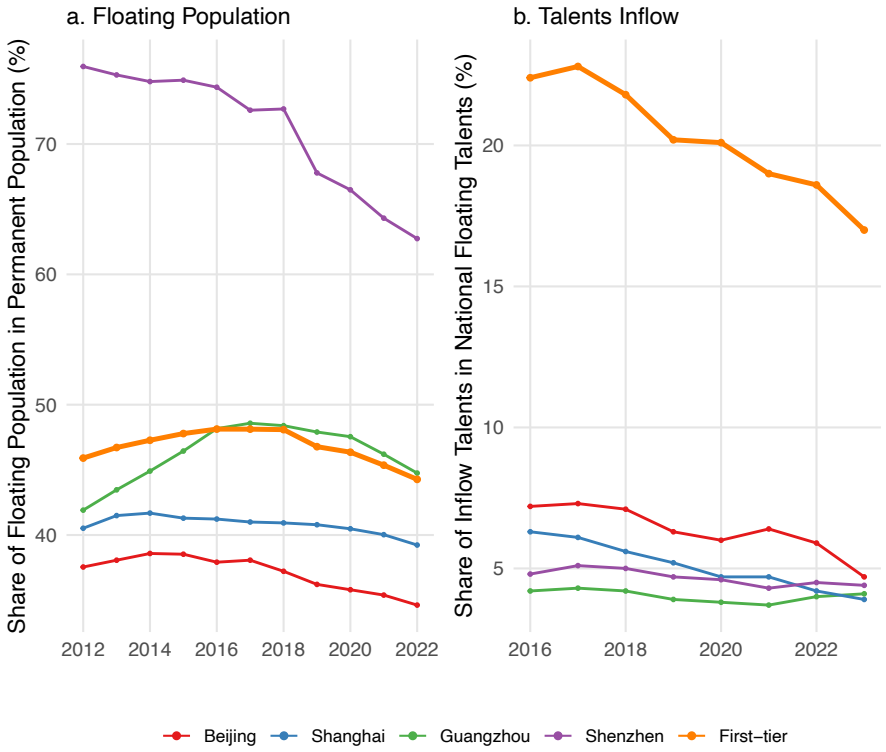

FIG. 5.1 Decreasing floating population and talent inflow in China's first-tier cities. Sources: Zeping Macro Series Data Report (Ren, 2024)

Notes: 1. Talent inflow proportion = talent inflow into a city / total migrant talent nationwide; 2. It should be noted that the talent in this report refers to users who have submitted resumes on job search websites (Zhilian Zhaopin, one of China's largest recruitment platforms), which may differ from our own definition of talent.

Given the critical role of talent in urban economic development and innovation (Gu & Jie, 2024), understanding what drives young talents' settlement decisions in first-tier cities has become increasingly important. This understanding is crucial not only for maintaining these cities' economic vitality and innovation capacity but also for developing effective talent retention policies.

Moreover, young talents possess unique characteristics that make their migration decisions particularly worthy of investigation. Unlike general laborers, talents are characterized by high human capital, which grants them stronger bargaining power and greater mobility in the labor market (Faggian & McCann, 2009; Schultz, 1961). They typically exhibit more sophisticated preferences, including both economic and non-economic needs, such as amenities and quality of life factors (Clark et al., 2002; Florida, 2002). Their migration decisions are also more complex due to their pursuit of both professional development and personal fulfillment (Jin et al., 2022; Tang et al., 2023). These distinctive traits, combined with their potential to generate positive externalities through knowledge spillovers and industrial agglomeration (Gu et al., 2024), make understanding their settlement intentions crucial for urban development.

Understanding such complex settlement decisions requires appropriate theoretical frameworks. Traditional approaches, including push-pull, neoclassical, and human capital theories, have provided valuable insights into migration behavior. The push-pull model emphasizes the influence of factors like economic conditions, environment, and demographics at both origin and destination (Lee, 1966). Neoclassical theory focuses on wage disparities as the primary driver of migration (Castles & Miller, 1998), while the human capital model frames migration as an investment in knowledge and skills (Sjaastad, 1962). However, these approaches share a common limitation: they assume individuals make migration decisions through rational cost-benefit calculations under perfect information, failing to account for the substantial uncertainty inherent in migration choices. When facing uncertain outcomes, people often deviate from rational utility maximization, especially in high-stakes decisions like migration where outcomes are ambiguous and multidimensional. Traditional theories' assumptions of consistent risk preferences and symmetric evaluation of gains and losses may not capture the psychological complexity of migration decisions.

Prospect theory, developed by Kahneman and Tversky (1979), emerged as a cornerstone of behavioral economics by providing a framework for understanding decision-making under uncertainty. Unlike traditional economic models, it recognizes that people evaluate options relative to reference points rather than absolute outcomes, and tend to weigh losses more heavily than equivalent gains. While some

studies have applied prospect theory to migration research (Bocquého et al., 2023; Clark & Lisowski, 2017; Czaika, 2015; O'reilly & Boyd, 2020), these applications remain fragmented and superficial. Most studies examine only isolated components of the theory, such as loss aversion (Aoki, 2024; Czaika, 2015), endowment effects (Clark & Lisowski, 2017; P. Hao & He, 2022) or risk aversion (Clark et al., 2023; Jaeger et al., 2010), without developing a comprehensive theoretical framework. Moreover, existing research has focused primarily on general population (Clark et al., 2023; Clark & Lisowski, 2017), refugee (Bocquého et al., 2023), or rural households (P. Hao & He, 2022; J. Zheng & Li, 2024), overlooking how prospect theory might specifically explain the unique decision-making patterns of young talents, who face distinct opportunities and constraints in their migration choices (Jin et al., 2022, 2023).

This study aims to investigate the determinants of long-term settlement intentions among young talents in China's first-tier cities through the lens of Prospect Theory. By integrating multiple key elements of prospect theory—reference dependence, loss aversion, risk attitudes, and endowment effects—into a unified framework, we examine how both objective factors (such as housing conditions and career development) and subjective factors (such as place attachment and social integration) influence settlement decisions. We employ a survey specifically designed to capture migration-specific gains and losses, risk perceptions, and both tangible and intangible endowments. This research not only advances the theoretical application of prospect theory to migration studies but also provides practical insights for urban policymakers seeking to retain talent in competitive environments.

5.2 Literature review and theoretical framework

5.2.1 Traditional theoretical frameworks for migration decision-making

Migration research can be approached from two fundamental perspectives: as an aggregate phenomenon or as an individual decision (De Jong & Fawcett, 1981). While the aggregate approach focuses on broad migration patterns and socioeconomic factors, the individual perspective examines mobility decisions at the micro-level, specifically investigating how individuals decide whether to relocate and select their preferred destinations.

Early migration theories, exemplified by Ravenstein's (1885) "Laws of Migration," primarily emphasized economic drivers, suggesting that people move from areas with limited opportunities to centers of commerce and industry. The push-pull framework, developed through Lee's (1966) work, expanded this understanding by considering four key dimensions: factors at the origin, factors at the destination, intervening obstacles, and personal characteristics. While these models appear comprehensive by incorporating multiple factors influencing migration decisions, they are essentially descriptive and lack explicit delineation of how these factors interact (Castles & Miller, 1998; Skeldon, 1990).

Neoclassical migration theory, grounded in the fundamental assumptions of neoclassical economics, views migration primarily as a response to labor market differentials. The theory assumes individuals make migration decisions through rational utility maximization with consistent risk preferences across contexts, treating utility as determined by absolute outcomes rather than changes from reference points. This framework views labor markets as the primary mechanism influencing migration flows (Harris & Todaro, 1970; Sjaastad, 1962; Todaro, 1969). However, these theoretical assumptions deviate significantly from real-world migration scenarios, where individuals typically possess incomplete information about potential destinations and face various institutional, cultural, and social barriers (Boelhouwer, 2011). As Castles and Miller (1998) argue, these approaches portray individuals as passive reactors to external factors, overlooking how personal aspirations, capabilities, and perceptions influence migration decisions.

Recognizing these limitations, particularly the oversimplified treatment of individual decision-making, the value-expectancy (V-E) model emerged as an innovative approach focusing on individual perspectives and subjective evaluations (De Jong & Fawcett, 1981). However, while V-E model advanced our understanding by incorporating subjective factors, it still didn't fully address a fundamental challenge in migration decisions: the inherent risk and uncertainty, with individuals typically possessing more detailed information about their current location than potential destinations (Jaeger et al., 2010).

In the context of talent migration specifically, neoclassical economic theory has also long served as a foundational framework. Building on neoclassical theory, Sjaastad (1962) introduced the human capital model, viewing migration as an investment decision. Recent studies have significantly expanded this perspective. Kerr et al. (2016) emphasize how innovation ecosystems and agglomeration effects in knowledge-intensive sectors influence talent flows, while Gu et al. (2024) propose a dual-driver framework that considers both economic factors and urban amenities. Latukha et al. (2022) further explore how organizational factors, such as talent management strategies, interact with regional characteristics to influence migration decisions.

However, when examining young talent migration specifically, these frameworks reveal significant limitations in addressing uncertainty and human agency. Young talents possess distinct characteristics that make their migration decisions particularly complex: their higher human capital and stronger labor market bargaining power (Schultz, 1961), their critical life stage of identity formation and career development (Niraula, 2022), and their enhanced adaptability in managing migration uncertainties (Faggian & McCann, 2009). These unique characteristics suggest that young talents' migration decisions involve more nuanced considerations beyond traditional economic factors, particularly in their evaluation of career development opportunities and quality of life factors (Faggian et al., 2017).

The complexity of young talent migration has led recent empirical studies to incorporate psychological perspectives into their research frameworks. Niraula (2022) identified key psychological elements in young talents' migration choices, including personal aspirations, future imaginaries, family dynamics, and self-development needs. Building on this psychological turn, Jin et al. (2022) applied the Theory of Planned Behavior (TPB), demonstrating that psychological constructs significantly shape university graduates' migration intentions. While TPB advances our understanding of psychological mechanisms in migration decisions, it faces several limitations in explaining young talent migration. The theory assumes a linear decision-making process, inadequately addresses uncertainty evaluation, and fails to capture cognitive biases in risk assessment.

Prospect Theory (Kahneman & Tversky, 1979) offers a more comprehensive framework for analyzing young talents' migration decisions under uncertainty. Unlike TPB, Prospect Theory explicitly addresses how individuals evaluate risks and uncertainties relative to their reference points, how they value their current endowments, and how they exhibit asymmetric risk preferences for potential gains versus losses. These features are particularly relevant for understanding young talents' migration decisions because: (1) they often evaluate migration opportunities relative to their current situation rather than in absolute terms; (2) their accumulated experiences and achievements in current locations may affect their willingness to relocate; and (3) their decisions frequently involve complex trade-offs between potential gains and losses across multiple dimensions (career, social, personal). Therefore, Prospect Theory provides a more nuanced theoretical framework for analyzing the complex interplay between psychological factors, uncertainty, and decision-making in young talents' migration choices.

5.2.2 Prospect theory: a behavioral economic lens on decision-making

Core concepts of prospect theory

Having established Prospect Theory as a suitable framework for analyzing young talents' migration decisions, we now elaborate on its key components and their specific applications to migration decision-making. The theory's core elements – reference dependence, loss aversion, risk attitudes, and endowment effect – provide analytical tools for understanding how young talents evaluate migration choices under uncertainty.

At its foundation, Prospect Theory challenges the conventional assumption of rational decision-making in Expected Utility Theory (EUT). While EUT suggests that individuals maximize utility through objective cost-benefit calculations with consistent risk preferences, Prospect Theory recognizes that decision-making often involves context-dependent risk attitudes, reference points, and asymmetric evaluations of gains and losses, particularly under uncertainty. This psychological dimension manifests through several distinct but interrelated phenomena that are especially pertinent to young talents' migration decisions.

First, the theory posits that individuals evaluate outcomes relative to a reference point rather than in absolute terms, as illustrated in Figure 5.2 by the value function's inflection point at the origin (reference point). This reference dependence suggests that in migration decisions, individuals do not assess outcomes based on

their absolute final states, but rather evaluate them as positive or negative deviations from their reference point. The S-shaped value function, which is asymmetric around the reference point, demonstrates that the same absolute change can be perceived differently depending on whether it represents a gain or a loss relative to one's current state.

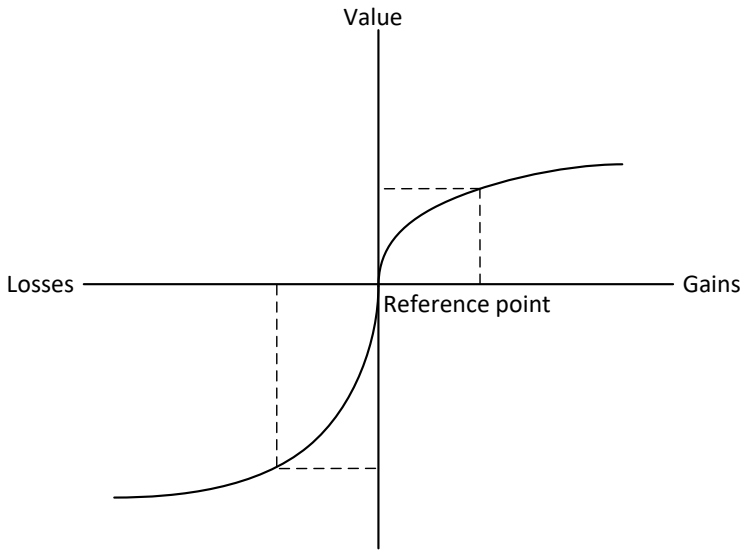

FIG. 5.2 Schematic of the value equation. Source: Kahneman and Tversky (1979)

Second, prospect Theory emphasizes loss aversion as a fundamental psychological principle, which is visually captured by the asymmetric steepness of the value function around the reference point. As shown in Figure 5.2, the value function is steeper in the loss domain (left side) than in the gain domain (right side), indicating that individuals experience a greater impact from losses than from equivalent gains. This asymmetry in the value function's slope demonstrates that the psychological pain associated with a loss is more intense than the pleasure derived from a gain of the same magnitude. For example, moving away from the reference point by the same absolute distance in either direction produces different magnitudes of value change, with the negative change in the loss domain being larger than the positive change in the gain domain. Following Yan and Bao (2018), we examine this loss aversion both directly through this asymmetric value response pattern, and indirectly through its behavioral manifestations in migration decisions.

Third, as an indirect measurement of loss aversion, we examine the endowment effect (Yan & Bao, 2018). While loss aversion directly measures people's asymmetric responses to gains and losses, the endowment effect represents a specific behavioral phenomenon where individuals place higher subjective value on things they already possess compared to identical things they do not yet own. In the migration context, the endowment effect helps explain why individuals might be particularly reluctant to give up their current situation in first-tier cities, even when presented with objectively equivalent or superior alternatives elsewhere. This effect can manifest through various aspects of urban life, including both tangible and intangible assets that people accumulate through living in a city. The endowment effect thus creates a status quo bias that influences migration decisions beyond pure economic calculations, making individuals more resistant to change simply because they perceive their current situation as part of their personal endowment.

Risk attitudes also play a crucial role in Prospect Theory, with individuals typically displaying risk aversion in the domain of gains but risk-seeking behavior in the domain of losses. This pattern has important implications for migration decision-making. When young talents perceive their current situation in first-tier cities as favorable (gain domain), they may be more risk-averse and reluctant to consider relocation. Conversely, when they perceive their situation as deteriorating (loss domain), they might become more willing to take risks and consider migration alternatives.

These behavioral patterns can be expressed through a value function that captures the psychological value individuals assign to outcomes:

$$v(x) = \begin{cases} (x - Re)^{\alpha} & x \geq Re \\ -\lambda (Re - x)^{\beta} & x < Re \end{cases} \tag{5.1}$$

where $v(x)$ is the value function based on outcome x, and Re is the reference point. The equation's initial segment defines the gain domain for $x > \mathrm{Re}$, while its subsequent part delineates the loss domain for $x < \mathrm{Re}$. $\lambda > 1$ captures loss aversion (indicating losses have a greater psychological impact than equivalent gains). $\alpha < 1$ and $\beta < 1$ reflect diminishing sensitivity to larger gains and losses. This value function serves as the theoretical foundation for our empirical analysis of migration intentions. The function's key features - particularly the asymmetric weighting of gains versus losses through λ - will guide our hypothesis development and empirical model specification in Section 5.3.

This theoretical framework offers valuable insights for understanding migration decisions. When individuals consider migration, they evaluate potential gains (e.g., higher wages, better opportunities) and losses (e.g., leaving familiar surroundings, social connections) relative to their current situation. The asymmetric nature of the value function suggests that potential losses in migration decisions might carry more weight than equivalent gains, potentially explaining why many people remain in suboptimal situations rather than risk migration's uncertainties.

The next section will review how these theoretical concepts have been applied in migration research, identify the limitations in existing studies, and demonstrate how our research contributes to addressing these gaps.

Applications of the components of prospect theory in migration research

Scholarly applications of prospect theory in migration research have demonstrated its considerable potential while also revealing important gaps. Studies examining loss aversion's role in migration have shown its significant influence on migration decisions. For example, Czaika (2015) used the "migration prospect theory" to analyze EU migration to Germany from 2001-2010. The findings reveal that negative economic prospects in origin countries exert a more profound impact on migration flows compared to positive economic conditions in destination countries. O'reilly and Boyd (2020) employed loss aversion to analyze historical migration fevers, demonstrating that when people faced certain declines in living standards, they opted for riskier migration choices to avoid certain losses, which explains the emergence of sudden mass migrations during crisis periods. Similarly, Aoki (2024) employed loss aversion to analyze residents' migration intentions in shrinking cities, revealing that people exhibit stronger loss aversion towards public transportation and medical facilities than community-related factors. Zheng and Li (2024) extended the application to environmental migration contexts, demonstrating how loss aversion influences adaptation behaviors even in the face of environmental risks.

The relationship between risk attitudes and migration propensity has emerged as another crucial area of investigation. Some studies indicate that risk-averse individuals are less inclined to migrate. For instance, Heitmueller (2005) explored how unemployment benefits and risk intersected during EU enlargement, revealing that risk-averse individuals tend to avoid migration. Jaeger et al. (2010) further confirmed Heitmueller's findings by studying how risk attitudes influence internal migration in Germany, showing that risk-takers are more prone to migrate. Clark et al. (2023) methodologically rigorous study established significant correlations between personality traits, risk preferences, and migration propensity. Some studies, however, argue that risk is irrelevant to migration decisions or that its role

is mixed. For example, L. Hao et al. (2014) conducted a field experiment in China, discovering no differences in risk and ambiguity preferences between migrants and non-migrants. Ayhan et al. (2020) observed, based on a distinctive four-wave panel sourced from the Ukrainian Longitudinal Monitoring Survey (2003-2012), that embracing risk has mixed impacts. It encouraged migration from rural to urban areas but discouraged migration from rural to town areas. The aforementioned studies provide a solid theoretical foundation for examining the impact of risk attitudes on migration decisions. However, most of these studies are based on existing databases such as the German Socio-Economic Panel Data (SOEP), the Panel Study of Income Dynamics (PSID) in the US, and the Income and Labor Dynamics in Australia (HILDA) survey, which primarily measure individuals' general or financial risk attitude. This may potentially limit the explanatory power in migration contexts.

Research on endowment effects has also yielded valuable insights into migration behavior. Clark and Lisowski (2017) empirical investigation revealed significant relationships between housing tenure, neighborhood familiarity, and residential stability, though their work acknowledged limitations in capturing occupation-related endowments. Hao and He (2022) contributed valuable insights through their analysis of rural-urban migration in China, demonstrating how land ownership and local resource access influence mobility decisions. However, the subjective dimensions of endowment effects, particularly regarding social integration and place attachment, remain inadequately explored.

Critical analysis of the existing literature reveals several significant gaps. First, while individual components of prospect theory have been applied to migration research, the literature lacks a comprehensive framework integrating these elements. Studies tend to examine loss aversion (Czaika, 2015; O'reilly & Boyd, 2020) or endowment effects (Clark & Lisowski, 2017) in isolation, without developing an integrated theoretical model that captures their interrelationships in migration decision-making. Second, prior literature such as Czaika (2015) has narrowly focused on economic prospects when analyzing how migrants evaluate gains and losses, overlooking the potential role of other prospective factors such as housing conditions, amenities, and quality-of-life considerations in shaping migration decisions. Third, current research often relies on proxy variables and general measures that may not adequately capture migration-specific psychological factors. The use of generalized risk attitude measures (Clark et al., 2023; Jaeger et al., 2010) potentially obscures migration-specific risk perceptions and behavioral responses. Fourth, the literature's treatment of endowment effects has primarily focused on tangible factors while underexploring psychological and social dimensions. While studies have examined housing tenure (Clark & Lisowski, 2017) and land ownership (P. Hao & He, 2022), less attention has been paid to occupation-related endowments, social integration, and place attachment—factors potentially

crucial for understanding migration decisions. Finally, a notable gap exists in the application of prospect theory to young talent migration in competitive urban environments. While the theory has been applied to various populations, the unique decision-making mechanisms of talented professionals remain understudied. This demographic group exhibits distinct characteristics in their migration decisions: they place greater emphasis on career development opportunities, show higher sensitivity to urban soft environments (such as innovation atmosphere and cultural amenities), and possess greater bargaining power and freedom of choice (Jin et al., 2022). Despite their crucial role in urban economic development, how these unique characteristics interact with prospect theory's core concepts in shaping their settlement intentions remains largely unexplored. This study aims to address these gaps by developing a comprehensive framework that integrates multiple aspects of prospect theory while focusing specifically on young talent migration in urban contexts.

5.2.3 Theoretical framework

Building upon the core concepts of prospect theory and identified research gaps, this study proposes an integrated theoretical framework to examine young talents' long-term settlement intentions in China' first-tier cities (Figure 5.3). The framework synthesizes three key theoretical mechanisms: reference dependence, loss aversion, and risk attitudes.

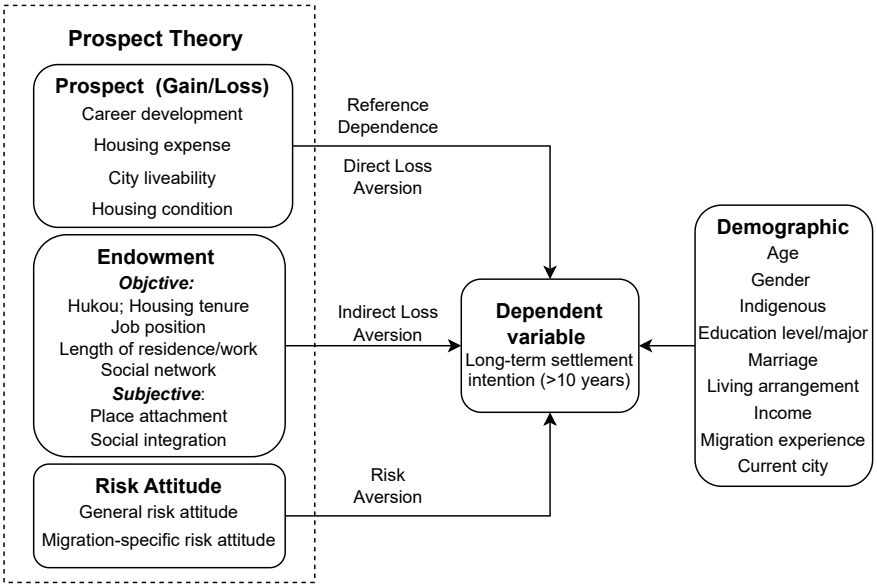

FIG. 5.3 A Holistic Theoretical Framework of Prospect Theory in Migration Decision-Making. Source: Developed by authors

Prospect evaluation

One of the key challenges in applying Prospect Theory to migration research, which constitutes one of our novel contributions, is identifying the most relevant dimensions through which individuals evaluate their potential gains and losses when making settlement decisions. This study focuses on four core aspects—career advancement opportunities, city livability, housing conditions, and housing expenses—as they represent the fundamental trade-offs that migrants consider when deciding whether to stay in a particular location. The selection of these dimensions builds upon and extends Spatial Equilibrium Theory (Glaeser & Gottlieb, 2009), particularly the Rosen-Roback model (Roback, 1982; Rosen, 1979) and the Alonso-Muth-Mills model (Alonso, 1964; Mills, 1967; Muth, 1969). While these classical models provide valuable insights into location choices, we adapt their frameworks to better reflect both the complexities of contemporary migration decisions and the unique characteristics of the Chinese context.

Career advancement is a primary dimension shaping migration choices. While traditional migration models and spatial equilibrium theory primarily focus on wage differentials, we argue that career development opportunities—encompassing not only income growth but also professional advancement and occupational status—

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better capture migrants' long-term considerations. This is particularly relevant in the Chinese context, where career progression in public sectors (e.g., civil service and public institutions) may prioritize professional status and job security over immediate income gains. Agglomeration economies (Glaeser et al., 1992) reinforce this dynamic, as large urban centers provide diverse career paths and development opportunities that extend beyond pure wage considerations.

City livability is the second dimension selected in this research. The Rosen-Roback model suggests that individuals choose their residential locations based on a compensating differential framework, where wages, housing costs, and urban amenities are traded off to achieve spatial equilibrium. If a city offers superior amenities, migrants may accept lower wages or higher living costs as a trade-off, whereas cities with lower amenities must offer wage premiums or reduced living costs to remain competitive. While urban amenities are central to this theoretical framework, we adopted the concept of 'city livability' for two reasons. First, compared to the broad and abstract nature of urban amenities, city livability provides a more structured framework that integrates economic, social, and environmental dimensions in a measurable way. Second, livability (宜居性) has been widely adopted in Chinese-speaking societies, from Singapore's urban development policies (Teo, 2014) to mainland China's talent retention strategies (He et al., 2022), making it a culturally resonant and well-understood concept for our survey research in the Chinese urban context.

The Alonso-Muth-Mills model, which focuses on housing market dynamics and intra-city equilibrium, emphasizes housing costs relative to income as a key determinant of residential location choice (Alonso, 1964; Mills, 1967; Muth, 1969). Housing affordability—measured in our study as the proportion of income spent on housing expenses (including mortgage payments and/or rent)—is crucial in determining whether individuals perceive their current situation as a gain or loss. Moreover, while the Alonso-Muth-Mills model primarily focuses on the economic aspects of housing, we extend our analysis to include housing conditions, defined as the physical quality of living space (including room size, independent kitchen access, sanitary facilities, heating and cooling systems, and other amenities). The inclusion of both dimensions is essential as migration decisions often involve evaluating not only the financial burden of housing but also physical quality of living space (Xie & Chen, 2018).

Endowment effect

Endowment effects influence migration decisions through indirect loss aversion, which we innovatively assess through both objective and subjective dimensions. The objective dimensions include institutional endowments (hukou status, job position), material endowments (housing tenure), and accumulated social capital endowments (length of working time, length of residence, and number of friends and relatives). The subjective dimensions are captured through place attachment and social integration, reflecting individuals' psychological bonds with the city and their perceived degree of integration into local society. This comprehensive framework extends prior research by simultaneously considering China's unique institutional factors and psychological attachments that have been traditionally overlooked in migration studies.

Local hukou status represents a unique institutional endowment in Chinese cities, particularly in first-tier cities where it is closely tied to access to education resources and housing purchase qualifications (Song, 2014). The value of local hukou is especially pronounced in cities with rich educational resources like Beijing and Shanghai, where it functions as a crucial institutional asset that residents are reluctant to relinquish (Chan & Buckingham, 2008).

Job position and length of working time constitute important career-related endowments that shape mobility decisions through accumulated professional capital and workplace embeddedness. We particularly focus on employment in public sector positions (civil service and public institutions) and corporate hierarchical positions (management, technical, and general staff). Public sector employment in China, which requires passing highly competitive civil service examinations, is widely regarded as a valuable endowment due to its superior job stability and comprehensive benefits compared to private sector employment (Mériade & Qiang, 2015). These positions, once obtained through intense competition, represent significant career capital that individuals are reluctant to forfeit through relocation. Similarly, length of working time reflects the accumulation of location-specific capital through deeper professional networks and better understanding of local business practices.

Housing tenure and length of residence represent fundamental determinants of mobility decisions, with homeowners and long-term residents exhibiting stronger endowment effects due to their reluctance to relinquish accumulated place-based advantages (Clark et al., 2023; Clark & Lisowski, 2017). Housing, particularly when owned rather than rented, serves as a psychological anchor that reinforces

loss aversion (Clark & Lisowski, 2017), while longer residence durations intensify emotional and practical ties to a location Clark (Clark et al., 2023).

Social networks, measured by the number of friends and relatives in the current city, represent another crucial endowment that influences migration decisions. Previous research has consistently shown that larger local social networks significantly reduce mobility intentions by increasing the psychological and social costs of relocation (Blumenstock et al., 2025; Munshi, 2020). These social ties act as location-specific capital that is difficult to transfer to new destinations.

Place attachment and social integration constitute crucial subjective dimensions of endowment effects. While endowment effects have traditionally been applied to material assets, they extend to social and emotional capital (Clark and Lisowski, 2017). Vezzoli (2023) introduces "relative endowment," highlighting how individuals' perceived privileges due to community ties shape migration aspirations. Psychological research demonstrates that place attachment creates inertia in migration decisions (Clark & Lisowski, 2017; Lewicka, 2011), while social integration through interpersonal relationships and community ties increases the perceived costs of migration (Z. Liu et al., 2017; Vezzoli, 2023), Hao and He (2022) characterize social networks as "soft endowment," restricting mobility similarly to financial or occupational constraints. Our original contribution lies in reconceptualizing subjective indicators such as place attachment and social integration as endowments, extending beyond conventional economic and structural perspectives. By incorporating both objective and subjective measures, we provide a more holistic framework for understanding endowment effects in migration decision-making.

Risk attitude

The framework explicitly incorporates both general risk attitudes and migration-specific risk attitudes, challenging the conventional assumption of consistent risk preferences across domains in previous migration research. Previous research has predominantly relied on general risk measures, often using broad self-assessments of risk tolerance that implicitly assume individuals exhibit uniform risk preferences across different decision contexts (Jaeger et al., 2010; Williams & Baláž, 2014). For example, Clark and Lisowski (2017) and Clark et al. (2023) confirmed that individuals with higher general risk aversion were significantly less likely to move. However, Weber et al. (2002) found that risk attitudes vary across domains, shaped by perceived risks and expected benefits rather than a stable individual trait. Their domain-specific risk-attitude scale revealed significant differences in risk-taking across financial, health/safety, recreational, ethical, and social contexts. Thus,

general risk measures may overlook some variations and fail to predict behavior in specific decisions. To address this, our framework incorporates migration-specific risk attitudes, aligning with scholars' calls to account for migration-related uncertainties (Morrison & Clark, 2016).

Demographic controls

The framework also accounts for demographic characteristics that may influence settlement intentions, including age, gender, indigenous status, marriage status, educational level, major, living arrangements, income, migration experience, and current city of residence. These control variables were informed by key migration studies, with representative works by Cui et al. (2016), Fan (2011) and Liu et al. (2017) providing foundational insights into the selection of demographic and contextual controls.

Through this integrated theoretical framework, the study aims to investigate the determinants of long-term settlement intentions among young talents in China's first-tier cities. By examining how reference dependence, loss aversion (both direct through prospect and indirect through endowment effects), and risk attitudes influence settlement decisions, while controlling for demographic factors, this framework provides a comprehensive approach to understanding young talents' settlement intentions.

5.3 Research hypotheses and empirical model

Based on the theoretical framework established in Section 5.2, this section develops specific research hypotheses and presents the empirical model for examining young talents' settlement intentions in China's first-tier cities.

5.3.1 Research hypotheses

Based on the theoretical framework developed in Section 5.2, we propose four hypotheses to examine how prospect theory's key components influence young talents' settlement intentions in first-tier cities.

Hypothesis 1: Migration-specific risk attitude is more important than general risk attitude in influencing young talents' inclination to stay.

This hypothesis examines the domain-specificity of risk attitudes in migration decisions. While general risk attitude reflects overall risk preferences, migration-specific risk attitude captures context-specific risk evaluation that should be more relevant for stay decisions. We expect migration-specific risk attitude to show stronger and more stable effects than general risk attitude.

Hypothesis 2: Young talents' stay intentions exhibit reference dependence, where decisions are evaluated relative to current conditions.

This hypothesis examines reference dependence by testing whether deviations from current conditions (reference points) significantly influence stay intentions. We examine this across four key aspects: city livability, housing conditions, housing expenses, and career development opportunities. Reference dependence will be supported if both gains and losses from current conditions show significant effects on stay intentions.

Hypothesis 3: Young talents demonstrate direct loss aversion in evaluating prospective changes.

This hypothesis tests loss aversion by comparing the relative impact of gains and losses across the four prospect dimensions. Loss aversion will be supported if negative changes show stronger effects than positive changes ($|\beta loss| > |\beta gain|$) or if losses are significant while equivalent gains are not.

Hypothesis 4: Young talents exhibit indirect loss aversion through the endowment effect.

This hypothesis examines how accumulated investments influence stay intentions through six endowment measures: housing tenure, length of residence, occupation, length of working time, place attachment, and social integration. These factors represent both tangible and intangible investments that young talents accumulate in their current locations. The endowment effect (indirect loss aversion) will be supported if these accumulated investments significantly influence stay intentions.

5.3.2 Empirical model

To test these hypotheses, we develop our empirical analysis through a series of nested logistic regression models, as our dependent variable is binary. Our full model specification is:

$$Pr\left(S_i = 1\right) = \frac{1}{1 + e^{-Z_i}} \tag{5.2}$$

where

$$Z_i = \beta_0 + \beta_1 R_i + \beta_2 G_i + \beta_3 L_i + \beta_4 E_i + \beta_5 D_i + \varepsilon_i \tag{5.3}$$

Here, S_i represents the long-term settlement intention for individual i (1 = intend to stay, 0 = otherwise); R_i is a vector of risk attitude variables (general and migration-specific); G_i and L_i represent prospect gains and losses respectively across multiple dimensions; E_i is a vector of endowment effect variables; D_i represents demographic control variables; and ε_i is the error term.

We estimate this model in a stepwise manner: Model 1 includes only risk attitude variables (R_i); Model 2 adds prospect gains and losses (G_i and L_i); Model 3 introduces endowment effect variables (E_i); and Model 4 incorporates demographic controls (D_i).

Building on the standard value function of prospect theory presented in equation (5.1), we specify how individuals evaluate potential gains and losses. While the original prospect theory incorporates both loss aversion (λ) and diminishing sensitivity (α,β), we focus primarily on loss aversion in our empirical specification as it typically dominates decision-making contexts. Our value function for each prospect dimension j is:

$$V_{ij} = \begin{cases} \beta_{j1}\left(x_{ij} - Re_{ij}\right) & \text{if } x_{ij} \geq Re_{ij} \text{ (Gains)} \\ \beta_{j2}\left(Re_{ij} - x_{ij}\right) & \text{if } x_{ij} < Re_{ij} \text{ (Losses)} \end{cases} \tag{5.4}$$

where x_{ij} represents individual i's evaluation of dimension j (career development, housing expenses, city livability, and housing conditions) in first-tier cities for the next 3-5 years; Re_{ij} represents individual i's current conditions in dimension j (reference points); β_{j1} and β_{j2} are coefficients for gains and losses respectively.

The hypotheses will be supported if:

1. Migration-specific risk attitude shows stronger and more stable effects than general risk attitude across models (H1);
2. The coefficients for gains (β_{j1}) and losses (β_{j2}) are significant (H2);
3. Direct loss aversion is demonstrated through either $|\beta_{j2}| > |\beta_{j1}|$ or β_{j2} being significant while β_{j1} is not (H3);
4. The coefficients for endowment effects (β_4) are significant (H4).

5.4 Research design and data

5.4.1 Questionnaire Design and Variables

The questionnaire designed for this specific study comprises two primary sections. The initial section focuses on gathering socio-demographic information. The subsequent section is dedicated to probing young talents regarding their future migration plans and their decision-making related factors under uncertainty and risk. The dependent variable is a binary indicator of long-term stay intention, coded as 1 for individuals planning to stay in the first-tier city for 10 years or more, and 0 for those with shorter stay plans. The independent variables, including socio-demographic controls, prospects, endowments, and risk attitudes, are shown in both Figure 5.3 and Table 5.1.

5.4.2 Data collection

The research data were gathered via an online survey from September 14 to October 15, 2022. The research was approved by the Human Research Ethics Committee (HREC) of the Delft University of Technology. This study focuses on four first-tier Chinese cities: Beijing, Shanghai, Guangzhou, and Shenzhen, renowned for their economic, social, and cultural progress. They witness substantial urbanization and migration (Z. Zheng & Yang, 2016), attracting young talent with lucrative salaries and superior urban amenities (Y. Liu & Shen, 2014). These cities provide a conducive environment for researching young talent. In academic terms, the definition of talent is often defined by educational attainment, vocational skills, and the creativity of the work. Young talents in this study refer to people aged 20-40 who with bachelor's degrees or higher, or who have national vocational qualifications, or who are managers and professionals.

For questionnaire development, we followed established practices in migration studies (T. Liu & Wang, 2020; Z. Liu et al., 2017) by employing single-item measures for key constructs. Since single-item measures do not require reliability tests such as Cronbach's alpha that are typically used for multi-item scales, we focused on ensuring validity through multiple steps. To ensure content validity, three domain experts specializing in prospect theory and migration research reviewed the questionnaire content to verify its construct coverage, relevance, and accuracy in studying migration decisions. Subsequently, a pilot study with six young talents was conducted in early September 2022 to improve questionnaire clarity and usability, helping rectify questionnaire errors like spelling mistakes, unclear terms, and ambiguous phrasing. We then distributed the formal questionnaire via virtual snowball sampling on platforms like WeChat and QQ. This method, chosen for its geographical scalability and lack of on-site visits, offers control over response types and numbers through referral management (Baltar and Brunet, 2012). Initially, we utilized the research team's social networks to identify eligible respondents, kickstarting the referral network. Subsequently, we nurtured some of these respondents to become referrers. Selection criteria for referrers included residence or workplace in a first-tier city, social networks within the target group, and engagement on social media. We selected 46 participants as referrers, strategically allocated across the four cities: 13 in Beijing, 10 in Shanghai, 11 in Guangzhou, and 12 in Shenzhen. Throughout, we also carefully tracked the quantity and distribution of questionnaires from referrers to ensure the quality of the responses.

In total, received 1152responses, which underwent rigorous data cleaning. After cleaning, 1065 valid responses remained, yielding a 92.45% valid response rate. The data cleaning primarily focused on removing responses: a) not aligning with the

target group (e.g., under 20 or over 40 years old, school students); b) completed in less than 3 minutes; and c) containing obvious errors (e.g., claiming 100 years of work experience in the current first-tier city). As a rule of thumb, when conducting regression analyses, it's recommended the sample size be at least 15 times or, minimally, 10 times the number of predictor variables (Field, 2009, p. 647). With an initial 25 predictor variables, our sample size (1065) exceeds the recommended threshold (1065 > 23 * 15 = 375), ensuring robust data analysis support.

After data collection, we conducted independent t-tests on all continuous variables to assess their predictive validity. The results (detailed in Appendix 5.1) indicated that the differences in key constructs—such as city attachment (Cohen's $d = 0.586$, $p < 0.001$), social integration (Cohen's $d = 0.588$, $p < 0.001$), length of residence (Cohen's $d = 0.848$, $p < 0.001$), and migration risk attitude (Cohen's $d = -0.337$, $p < 0.001$)—between groups were in line with theoretical expectations regarding settlement intention.

5.4.3 Descriptive statistics

Table 5.1 summarizes the respondents' characteristics and variables. Young talents are evenly distributed across the four first-tier cities, each comprising about 25% of the sample. However, without country-level or panel data on young talents for comparison, we cannot determine the extent to which our dataset represents the broader population residing in all first-tier cities. Table 5.1 shows that nearly 51.55% of young talents intend to stay in the current first-tier city for at least 10 years.

TABLE 5.1 Sample characteristics and variable description

Category	Variable	Description and coding	Percentage/ Mean(S.D.)
Dependent variable	Long-term settlement intention	0 = staying in the current city for less than 10 years	48.45%
		1 = staying in the current city for more than 10 years	51.55%
Socio-demographics	Age	Continuous variable	28.85(3.60)
	Gender	0 = male	45.16%
		1 = female	54.84%
	Indigenous people (born in first-tier cities)	0 = no	87.14%
		1 = yes	12.86%
	Number of previous cross-province migration	Continuous variable	1.12 (0.68)
	Educational level	0 = bachelor's degree and below;	27.32%
		1 = master's degree and above	72.68%
	Educational background (major)	Arts & Humanities	10.99%
		Engineering & Technology	57.18%
		Natural & Life Sciences	8.83%
		Social Sciences & Management	23.00%
	Marital status	0 = single/ divorced/widowed	41.31%
		1 = cohabiting/in a relationship;	26.01%
		2 = married	32.68%
	Living arrangement (live with a partner)	0 = no	57.09%
		1 = yes	42.91%
	Living arrangement (live with children)	0 = no;	85.35%
		1 = yes	14.65%
	Income (family)	1 = less than 10000yuan;	17.65%
		2 = 10000-20000yuan;	30.42%
		3 = 20000-40000yuan;	35.31%
		4 = over 40000	16.62%
	Current live city	Beijing	24.98%
		Shanghai	24.60%
		Guangzhou	25.54%
		Shenzhen	24.88%

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TABLE 5.1 Sample characteristics and variable description

Category	Variable	Description and coding	Percentage/ Mean(S.D.)
Prospects	Livability	0 = remain the same;	52.39%
		Loss domain: 1 = much worse and worse;	7.14%
		Gain domain: 2 = better and much better	40.47%
	Housing condition	0 = remain the same;	40.28%
		Loss domain: 1 = much worse and worse;	5.54%
		Gain domain: 2 = better and much better	54.18%
	Career development	0 = remain the same;	34.18%
		Loss domain: 1 = much worse and worse;	5.82%
		Gain domain: 2 = better and much better	60.00%
	Housing expenses (the ratio of income to housing price)	0 = remain the same;	30.42%
		Loss domain: 1 = higher and much higher;	36.71%
		Gain domain: 1 = much lower and lower	32.86%
Endowments	Length of residence(years)	Continuous variable	7.40(7.53)
	Length of working time(years)	Continuous variable	3.58(3.24)
	Hukou status	0 = hukou of first-tier cities	65.35%
		1 = other urban Hukou	19.72%
		2 = other rural Hukou	14.93%
	Social network (number of relatives)	Continuous variable	8.53(17.23)
	Social network (number of friends)	Continuous variable	3.47(16.71)
	Job position	Civil servants/Public institution staff	12.68%
		Enterprise managers	9.77%
		Enterprise professional/technical staff	34.37%
		General staff	38.78%
		Others	4.41%
	Current housing tenure	0 = owner	32.8%
		1 = non-owner	67.2%
	Place attachment	Continuous variable (0 ~10, no attachment at all ~ very much attached)	6.17(2.45)
	Social integration	Continuous variable (0 ~ 10, no integration at all ~ very high integration)	6.37(2.29)
Risk attitudes	General risk attitude	Continuous variable (0 ~ 10, unwilling to take risks ~ fully prepared to take risks)	5.28(2.10)
	Risk attitude in the migration domain	Continuous variable (0 ~ 10, unwilling to take risks ~ fully prepared to take risks)	5.27(2.37)

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5.5 Results

Our nested logistic regression models reveal strong empirical support for prospect theory in explaining young talents' stay intentions in first-tier cities. The model results can be seen in Table 5.2. The theoretical framework demonstrates substantial explanatory power even before incorporating demographic controls, with Nagelkerke R^2 reaching 0.404 in Model 3 and the AIC decreasing significantly from 1434 in Model 1 to 1138 in Model 3.

Hypothesis 1, regarding the domain-specificity of risk attitudes, finds strong support through a nuanced pattern of effects. Our preliminary analysis (Model 0, not shown) reveals that general risk attitude alone has no significant impact on stay intentions ($\beta = -0.020$, $p = 0.501$). When paired with migration-specific risk attitude in Model 1, an interesting phenomenon emerges: general risk attitude becomes significantly positive ($\beta = 0.17$, $p < 0.001$), while migration-specific risk attitude shows a strong negative effect ($\beta = -0.249$, $p < 0.001$). This phenomenon may be indicative of a suppression effect, as documented by MacKinnon et al. (2000). To better ascertain the presence and mechanisms of the suppression effect, we further conducted a mediation analysis (see Appendix 5.2). The results revealed a significant suppression effect, where the total effect of general risk attitude on stay intention was non-significant ($\beta = -0.004$, $p = 0.59$), but the direct effect became significant when migration risk attitude was included as a mediator in the model. Specifically, the direct effect of general risk attitude on stay intention was significantly positive ($\beta = 0.040$, $p < 0.001$, 95% CI [0.020, 0.060]), while the indirect effect through migration risk attitude was significantly negative ($\beta = -0.044$, $p < 0.001$, 95% CI [-0.058, -0.030]) . These opposing effects nearly cancelled each other out, resulting in the non-significant total effect.

Most importantly, as additional variables are introduced in subsequent models, migration-specific risk attitude maintains its robust negative effect ($\beta = -0.199$, $p < 0.001$ in Model 4), while general risk attitude's influence diminishes and becomes non-significant in the full model ($\beta = 0.041$, $p > 0.1$). This pattern strongly supports H1's prediction about the superior explanatory power of domain-specific risk attitudes.

Hypothesis 2, concerning reference dependence, receives strong support with varying patterns of significance across different dimensions. Career development prospects consistently show significant effects for losses across all models ($\beta = -0.769$, $p < 0.05$ in Model 2; remaining significant in Models 3-4), as do housing

expenses ($\beta = 0.423$, $p < 0.01$ in Model 2, with stable significance through Model 4). City livability initially shows significant effects for both gains ($\beta = 0.683$, $p < 0.001$) and losses ($\beta = -0.54$, $p < 0.05$) in Model 2, but these effects become non-significant when endowment variables are introduced in Models 3 and 4. Housing physical conditions show no significant effects for either gains or losses across all models. This varied pattern suggests that reference dependence operates most strongly and consistently in domains directly tied to economic considerations (job prospects and housing expenses), while its influence on quality-of-life factors (livability and housing conditions) may be moderated by accumulated investments in the city.

Hypothesis 3, predicting direct loss aversion, finds compelling support particularly in the more comprehensive Models 3 and 4. A notable pattern emerges where across all four dimensions - city livability, housing conditions, career development, and housing expenses - the absolute values of loss coefficients consistently exceed those of gain coefficients. This systematic pattern aligns with prospect theory's core prediction about loss aversion. The most pronounced difference appears in career development, where losses show both stronger magnitude and statistical significance ($\beta = -0.769$, $p < 0.05$) compared to gains ($\beta = -0.238$, not significant).

Interestingly, while housing expenses demonstrate larger coefficients for losses than gains, the positive sign of the loss coefficient ($\beta = 0.423$, $p < 0.01$) suggests that expectations of increased housing expenses actually enhance stay intentions rather than deterring them. To understand this counterintuitive finding, we conducted additional analyses (see Appendix 5.3). First, we introduced interaction terms of expected housing expenses and housing tenure status to test whether these variables interact in affecting migration behavior. However, the results indicated that these interaction terms were not statistically significant (see Appendix 5.3.1). This finding suggests that the impact of expected housing expenses on migration behavior does not significantly differ by housing tenure status(Appendix 5.3.1). Second, we conducted separate analyses for homeowners (n=349) and renters (n=716), revealing distinctly different patterns. For homeowners, expected housing expenses showed no significant relationship with stay intentions, possibly because their housing costs are largely fixed through mortgages. However, for renters, we found a significant positive relationship ($p<0.001$), with those anticipating higher expenses showing a stronger intention to stay (45.64% vs. 29.49% for those expecting unchanged expenses).

Third, to further investigate this pattern, we analyzed the relationship between expected housing expenses and home purchase intentions among renters (Appendix 5.3.2). Using three measures of purchase intention on a 7-point Likert

scale, we found a strong positive correlation ($F = 26.47$, $p < 0.001$), with renters expecting higher expenses showing significantly stronger purchase intentions (mean = 5.02) compared to those expecting unchanged expenses (mean = 4.14). These additional analyses suggest that anticipated housing expense increases may signal homeownership aspirations among renters, explaining their increased willingness to stay, as previous research like Huang and Chen's (2022) findings shows that homeowners generally have a higher propensity to stay.

The systematic pattern of larger loss coefficients across dimensions, combined with the statistical significance of losses particularly in career development and housing expenses, provides strong support for the loss aversion hypothesis, while also revealing nuanced dynamics in how young talents evaluate different types of losses in their settlement decisions.

Hypothesis 4, examining indirect loss aversion through endowment effects, receives strong support with endowment variables substantially improving model fit. Two institutional endowments emerge as the most significant factors. First, hukou status shows strong effects, with both non-local urban hukou ($\beta = -0.731$, $p < 0.001$) and rural hukou holders ($\beta = -0.949$, $p < 0.001$) demonstrating significantly lower stay intentions compared to those with local hukou. Second, public sector employment represents a powerful institutional endowment, with both professional/technical staff ($\beta = -0.679$, $p < 0.01$) and general staff ($\beta = -0.568$, $p < 0.05$) in enterprises showing significantly lower stay intentions compared to public sector employees. Time-based investments also demonstrate robust effects, with length of residence ($\beta = 0.065$, $p < 0.001$) and working time ($\beta = 0.087$, $p < 0.01$) both positively influencing stay intentions. Housing tenure shows significant effects ($\beta = -0.756$, $p < 0.001$), indicating homeownership as another important form of endowment. The psychological dimension of endowment is captured through city attachment, which shows significant positive effects ($\beta = 0.133$, $p < 0.01$), while social integration shows a positive but non-significant effect. Interestingly, contrary to conventional expectations, neither the number of friends nor relatives in the city significantly influences stay intentions, suggesting that social networks may play a less crucial role than institutional, physical, and psychological investments in shaping stay decisions.

The addition of demographic controls in Model 4 only modestly improves the model's explanatory power ($\Delta R^2 = 0.05$), suggesting that prospect theory components capture the primary determinants of stay intentions. Nevertheless, several demographic factors show significant effects:

Most notably, significant city differences emerge, with all three cities showing lower stay intentions compared to Beijing. This pattern shows increasing magnitude from Shanghai ($\beta = -0.459$, $p < 0.05$), through Guangzhou ($\beta = -0.667$, $p < 0.01$), to Shenzhen ($\beta = -0.946$, $p < 0.001$), suggesting substantial variation in city-specific factors affecting retention. Educational background emerges as another important factor, with Engineering & Technology graduates showing significantly higher stay intentions ($\beta = 0.817$, $p < 0.01$) compared to those from Arts & Humanities, followed by Social Sciences & Management ($\beta = 0.578$, $p < 0.05$). Income level shows a clear gradient effect, with higher income categories associated with stronger stay intentions. Households earning over 40000 yuan monthly show significantly higher stay intentions ($\beta = 0.681$, $p < 0.05$), while those in the 20000-40000 yuan range show marginally significant effects ($\beta = 0.458$, $p < 0.1$). Marital status shows some influence, with married individuals demonstrating higher stay intentions ($\beta = 0.667$, $p < 0.05$) compared to single/divorced/widowed individuals. However, other demographic factors including age, gender, indigenous status, living arrangements (with a partner or with children), and educational level show no significant effects on stay intentions.

TABLE 5.2 Logistic regression results of stay intention

Variables	Model 1 (Risk attitude)		Model 2 (Model 1+ prospect)		Model 3 (Model 2+ endowment)		Model 4 (Model 3 + demographics)	
	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio
Risk attitude (risk aversion)								
(Intercept)	0.561** (0.205)	1.753	0.394 (0.242)	1.483	-0.168 (0.451)	0.845	-0.062 (1.105)	0.940
General risk attitude	0.17*** (0.043)	1.185	0.145** (0.044)	1.156	0.04 (0.051)	1.041	0.041 (0.053)	1.042
Migration risk attitude	-0.249*** (0.039)	0.779	-0.241*** (0.04)	0.786	-0.202*** (0.046)	0.817	-0.198*** (0.047)	0.820
Prospect (direct loss aversion)								
The prospect of livability (ref. = remain the same)								
Loss			-0.54+ (0.287)	0.583	-0.341 (0.337)	0.711	-0.362 (0.344)	0.697
Gain			0.683*** (0.142)	1.979	0.257 (0.168)	1.293	0.289 (0.177)	1.336
The prospect of housing conditions (ref. = remain the same)								
Loss			-0.422 (0.317)	0.655	-0.187 (0.358)	0.829	-0.08 (0.37)	0.923
Gain			-0.089 (0.149)	0.915	0.098 (0.177)	1.103	0.059 (0.187)	1.061
The prospect of career development (ref. = remain the same)								
Loss			-0.769* (0.311)	0.463	-0.753* (0.356)	0.471	-0.767* (0.37)	0.465
Gain			-0.238 (0.15)	0.788	-0.048 (0.177)	0.953	-0.015 (0.186)	0.985
The prospect of housing expenses (ref. = remain the same)								
Loss			0.423** (0.159)	1.527	0.554** (0.184)	1.741	0.531** (0.191)	1.701
Gain			0.43** (0.164)	1.536	0.26 (0.195)	1.297	0.232 (0.203)	1.261

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TABLE 5.2 Logistic regression results of stay intention

Variables	Model 1 (Risk attitude)		Model 2 (Model 1+ prospect)		Model 3 (Model 2+ endowment)		Model 4 (Model 3 + demographics)	
	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio
Endowment (indirect loss aversion)								
Job positions (ref. = civil servants/public institutions)								
Enterprise managers					-0.308 (0.334)	0.735	-0.312 (0.355)	0.732
Enterprise professional/technical staff					-0.679** (0.248)	0.507	-0.864** (0.273)	0.422
Enterprise general staff					-0.568* (0.244)	0.567	-0.6* (0.263)	0.549
Others					-0.736+ (0.429)	0.479	-0.6 (0.453)	0.549
Length of residence (years)					0.065*** (0.017)	1.067	0.066*** (0.019)	1.068
Length of working (years)					0.087** (0.031)	1.090	0.081+ (0.043)	1.084
Hukou status (ref. = hukou of first-tier cities)								
Other urban hukou					-0.731*** (0.197)	0.482	-0.908*** (0.219)	0.403
Other rural hukou					-0.949*** (0.223)	0.387	-0.961*** (0.244)	0.382
Social network (number of relatives)					0.025 (0.018)	1.025	0.021 (0.019)	1.021
Social network (number of friends)					0.001 (0.007)	1.001	0.004 (0.007)	1.004
Current housing tenure (ref. = owner)					-0.756*** (0.192)	0.470	-0.481* (0.215)	0.618
Social integration					0.065 (0.053)	1.067	0.064 (0.055)	1.066
City attachment					0.133** (0.048)	1.143	0.161** (0.05)	1.175

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TABLE 5.2 Logistic regression results of stay intention

Variables	Model 1 (Risk attitude)		Model 2 (Model 1+ prospect)		Model 3 (Model 2+ endowment)		Model 4 (Model 3 + demographics)	
	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio
Demographics								
Age							-0.042 (0.036)	0.959
Gender (ref. = male)							0.216 (0.163)	1.241
Indigenous (ref. = no)							0.012 (0.323)	1.012
Marital status (ref.=single/divorced/widowed)								
Cohabiting/ in a relationship							0.375 (0.231)	1.454
Married							0.667* (0.306)	1.948
Living arrangement (live with a partner) (ref. = no)							-0.252 (0.252)	0.777
Living arrangement (live with children) (ref. = no)							0.44 (0.31)	1.552
Educational level (ref. = without bachelor's degree)							-0.125 (0.214)	0.882
Educational background (major) (ref. = Art & Humanities)								
Engineering & Technology							0.817** (0.272)	2.263
Natural & Life Sciences							0.516 (0.357)	1.676
Social Sciences & Management							0.578* (0.292)	1.782

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TABLE 5.2 Logistic regression results of stay intention

Variables	Model 1 (Risk attitude)		Model 2 (Model 1+ prospect)		Model 3 (Model 2+ endowment)		Model 4 (Model 3 + demographics)	
	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio	Estimate (SE)	Odds Ratio
Family income per month (ref. = less than 10000 yuan)								
10000-20000 yuan							0.042 (0.237)	1.043
20000-40000 yuan							0.458+ (0.245)	1.582
over 40000 yuan							0.681* (0.31)	1.977
Number of previous cross-province migration							0.097 (0.142)	1.102
Current live city (ref. = Beijing)								
Shanghai							-0.459* (0.226)	0.632
Guangzhou							-0.667** (0.242)	0.513
Shenzhen							-0.946*** (0.24)	0.388
AIC	1434.576		1394.207		1138.842		1119.707	
BIC	1449.488		1448.885		1258.139		1328.478	
Nagelkerke R^2	0.057		0.123		0.404		0.451	
Number of observations	1065		1065		1065		1065	

*Notes: + p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001*

TOC

5.6 Discussion

This study aims to explore the influencing factors of young talents' settlement intentions in first-tier cities from prospect theory. To our knowledge, this is the first study to comprehensively employ multiple prospect theory elements to study young professionals' migration decisions. We utilized 1065 questionnaire responses collected from four first-tier cities in China as empirical data. Logistic regression results indicate that hukou status, family income, and current city of residence significantly explain settlement intentions. Additionally, our study confirmed the research hypotheses of reference dependence, loss aversion, and risk attitude in prospect theory. Thus, this study provides a novel perspective on applying prospect theory in migration decisions.

5.6.1 General and domain-specific risk attitude

First, our analysis of risk attitudes provides novel insights into the psychology of migration decisions. Unlike previous studies that relied solely on general risk measures (Clark et al., 2023; Clark & Lisowski, 2017), we discovered a complex suppression effect (MacKinnon et al., 2000). This suppression pattern reveals a more complex relationship between general risk attitude and stay intentions than initially apparent. When migration risk attitude is controlled for, individuals with higher general risk tolerance are more likely to intend to stay in first-tier cities, presumably because they are more willing to face local uncertainties and challenges. However, these same risk-tolerant individuals also tend to have more positive attitudes toward migration (reflected in higher migration risk tolerance), which reduces their intention to stay. This finding highlights how general risk attitudes influence behavior through competing pathways (direct positive vs. indirect negative effects), requiring non-linear models to capture these complex mechanisms.

The relationship becomes even more nuanced when considering broader socioeconomic factors. While migration-specific risk attitude maintains its robust negative effect throughout all models, the influence of general risk attitude dissipates in the full model, suggesting that other socioeconomic variables may already capture the non-migration aspects of risk-taking propensity. This pattern underscores the importance of distinguishing between general and domain-specific risk attitudes in understanding young talents' mobility decisions in first-tier cities, a crucial distinction that previous research using only general risk measures may have overlooked.

5.6.2 Reference dependence and loss aversion

Our findings provide strong evidence for both reference dependence and loss aversion effects in young talents' urban settlement decisions. Career development prospects demonstrate a particularly clear manifestation of loss aversion, with negative expectations having a stronger impact on migration intentions than positive ones. This aligns with Czaika's (2015) findings on international migration, where potential migrants showed greater sensitivity to negative economic prospects in origin countries than to positive prospects in destination countries.

Housing expense expectations also significantly influence stay intentions, but in a more complex way. While maintaining the larger coefficient pattern characteristic of loss aversion, the positive sign of the loss coefficient suggests that expectations of increased housing expenses actually enhance rather than deter stay intentions. Our analyses suggest this counterintuitive finding might be related to renters' homeownership aspirations, as we find those expecting higher housing expenses also demonstrate significantly stronger purchase intentions (see Appendix 5.3.2), though this mechanism requires further investigation in future research. Our separate analyses for renters and homeowners reveal that prospect theory generally shows stronger explanatory power for renters (Appendix 5.3.1), likely reflecting their greater overall exposure to uncertainty in urban settlement decisions compared to homeowners who have already made significant location-specific investments.

Notably, prospects regarding housing physical conditions and city livability lose significance in our final models, which appears to contradict previous findings. For instance, Xie and Chen (2018) found that migrant workers living in better housing conditions showed stronger intentions to stay. This discrepancy likely reflects our focus on young talents rather than migrant workers. Given young talents' significantly higher income levels, their current housing conditions are generally acceptable with less variation, making this factor less critical in their decision-making process.

5.6.3 Endowment effect

Endowment effects have been extensively studied in migration research through the lens of prospect theory (Clark et al., 2023; P. Hao & He, 2022; Vezzoli, 2023). Our findings regarding traditional endowment measures - housing tenure and length of residence - align with previous studies (Clark et al., 2023; Clark & Lisowski, 2017), confirming that homeowners and those with longer residence durations demonstrate

stronger stay intentions. However, our study makes several important contributions by expanding the scope of endowment effects in the Chinese context. Most notably, we identify strong effects of institutional endowments – hukou status and public sector employment – revealing how China's unique institutional arrangements create powerful retention mechanisms through administrative privileges. This aligns with Wang and Guo (2023), who also emphasize the hukou system's role in shaping migration. The significant impact of these institutional endowments suggests that traditional conceptualizations of endowment effects in migration research may need to be broadened to account for context-specific institutional factors.

We further extend the boundaries of endowment effects by incorporating subjective endowments, finding that city attachment significantly influences stay intentions even after controlling for demographic factors. This suggests that psychological bonds with cities constitute a meaningful form of endowment that shapes migration decisions. Interestingly, contrary to Huang and Chen's (2022) finding that migrants with dependent relatives and friends in the local area enhances their stay intentions, we find that the number of friends and relatives in the current first-tier city has no significant effect on stay intentions. This unexpected finding may suggest that for young talents in first-tier cities, institutional and psychological endowments play a more crucial role than traditional social networks in shaping settlement decisions.

5.6.4 The role of socio-demographic characteristics

According to our findings, demographic characteristics provide additional insights into young talents' settlement decisions. High income households are more likely to stay, aligning with previous studies (Hu et al., 2022; Y. Liu et al., 2018), which may imply that first-tier cities are more effective at retaining economically successful young talents who have achieved higher returns on their human capital investments. Additionally, our study revealed that young professionals in Beijing exhibit a higher willingness to settle compared to those in Shanghai, Guangzhou, and Shenzhen. This partially matches Zhang & Yan (2022), who found higher settlement intentions among skilled migrants in Beijing than in Shenzhen. As explained by Zhang & Yan (2022), this may be attributed to Beijing's status as the capital and political-cultural center of China, providing better opportunities and resources such as education and the healthcare system. The primacy of Beijing in young talents' settlement preferences suggests that beyond economic opportunities, institutional resources and cultural capital continue to play decisive roles in location choices.

The influence of marital status on stay intentions is significant, with married individuals showing stronger tendencies to stay. Life course theory provides theoretical support for this pattern. Mulder and Wagner (1993) found that marriage affects migration decisions through "event dependence," where synchronous events (such as joint home purchases and children's schooling) increase the opportunity costs of migration by strengthening dependence on local resources. An interesting finding is that those with educational backgrounds in Engineering & Technology and Social Sciences & Management are more likely to stay than those from Arts & Humanities. This pattern strongly aligns with Storper and Scott's (2009) "production system-driven theory." They argue that industrial agglomeration and specialized division of labor drive urban growth, where business clusters and localized knowledge spillovers form a positive feedback loop in first-tier cities. Conversely, the limited opportunities for arts and humanities practitioners reflect the mismatch between non-technology-intensive positions and these cities' industrial structure. Our finding that young talents' previous migration frequency does not affect their intention to stay in their current first-tier cities aligns with Wang et al.'s (2023) conclusion that highly educated migrants are more likely to settle in large cities.

5.6.5 Limitations

Several contextual and methodological factors warrant consideration. Our survey was conducted between September and October 2022, a period when China was implementing COVID-19 control measures and the real estate market was entering an adjustment phase. These contextual factors might have influenced young professionals' settlement decisions through various channels (e.g., urban governance capacity, job market conditions, risk perceptions). However, this unique timing provides our study with distinctive value in understanding settlement decisions under extraordinary circumstances, creating an opportunity for future longitudinal research to examine how settlement intentions evolve as these contextual factors change.

Additionally, our analysis of loss aversion focused solely on young talents' expectations of gains and losses within their current cities, neglecting the influence of potential destination cities. This decision was based on several considerations. First, 51.7% of our respondents indicated long-term settlement intentions in their current cities, rendering comparisons with alternative destinations less relevant for this group. Second, among respondents who planned to leave within 10 years, 43.8% were uncertain about their future destination, making it difficult for them to provide meaningful comparisons between their current city

and potential destinations. We acknowledge that migration decisions often involve evaluating conditions across different locations, and this limitation may constrain the analysis. Future research could adopt a two-stage survey design to capture clearer destination preferences and allow for more comprehensive comparisons.

Furthermore, while our use of logistic regression with city fixed effects appropriately accounts for city-level differences given our data constraints, the limited number of cities (level-2 units) prevents us from employing a multilevel model, which could better capture hierarchical dependencies in a larger dataset. Future research with a more extensive hierarchical structure and a greater number of cities could explore the advantages of multilevel modeling in capturing city-level heterogeneity more comprehensively.

5.7 Conclusion

This study makes significant theoretical and empirical contributions to both migration research and behavioral economics. First, we advance the application of prospect theory in migration research by developing an integrated analytical framework that simultaneously considers reference dependence, loss aversion, endowment effects, and risk attitude. Unlike previous studies that examined these components in isolation, our approach reveals how these behavioral elements together influence migration decisions. By examining these psychological elements as an interconnected system rather than isolated components, our framework provides novel insights into the complexity of migration decision-making that traditional theories have not fully captured. Second, our domain-specific measurement of risk attitudes reveals how individuals evaluate migration risks differently from general economic risks, challenging the assumption of uniform risk preferences in previous migration research. Third, the measurement of gains and losses, grounded in spatial equilibrium theory, provides a nuanced understanding of how individuals weigh different aspects of urban life in their decision-making process, going beyond mere economic prospects. Fourth, by expanding the conceptualization of endowment effects to include both China's unique institutional elements and subjective attachments, we offer a more comprehensive framework for understanding how accumulated resources and connections shape people's migration choices, while also offering insights specific to the Chinese context.

Our findings have significant implications for urban governance and talent retention policies. Most notably, our discovery of the domain-specificity in risk attitudes and the suppression effect challenges conventional approaches to talent retention. Our findings underscore the multidimensionality of risk attitudes in migration decisions. While general risk tolerance promotes retention by enhancing resilience to urban challenges, it simultaneously incentivizes exploration of external opportunities through heightened migration risk appetite—a duality reflecting the tension between "enduring localized risks" and "pursuing migration-driven gains." Policymakers aiming to retain talents must address this duality: strengthening megacities' risk-reward parity (e.g., entrepreneurial incentives) to amplify the direct positive effect, while mitigating migration pull factors (e.g., improving local welfare) to neutralize the indirect negative pathway. The strong influence of institutional endowments (hukou and public sector employment) reveals how administrative privileges create powerful retention mechanisms through institutional embeddedness. This suggests that talent retention strategies should prioritize strengthening institutional bonds over purely economic incentives. Furthermore, the pronounced loss aversion in career prospects, demonstrated by talents' heightened sensitivity to potential career deterioration, has particularly crucial implications in the current economic context. When economic conditions are challenging, any perceived decline in career prospects could trigger accelerated talent outflow. Therefore, cities should prioritize maintaining the stability and quality of existing professional opportunities – protecting established career paths, supporting existing enterprises, and preserving innovation ecosystems – rather than pursuing ambitious but uncertain new development initiatives.

This study ultimately demonstrates that talent retention in metropolitan areas requires a fundamental shift in policy approach. Instead of competing purely on economic terms or relying on traditional administrative measures, cities must develop sophisticated strategies that recognize both the psychological complexity of migration decisions and the crucial role of institutional attachments. In an era of increasing talent mobility and economic uncertainty, the key to talent retention lies in maintaining stable career development paths while strengthening the institutional bonds between talents and cities.

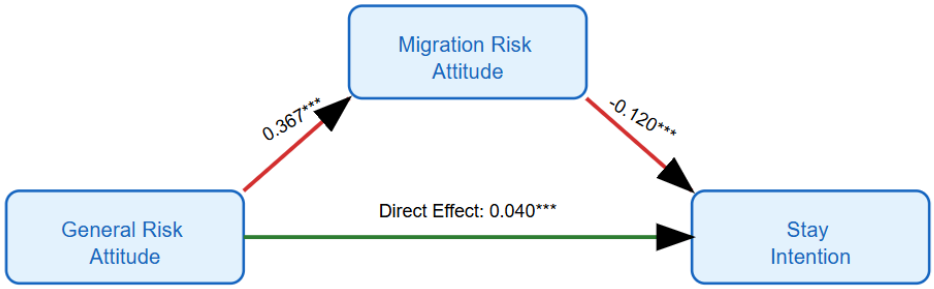
Appendices

Appendix 5.1. Predictive validity analysis: results of independent t-tests (continuous independent variables with dependent variable)

Variable	t_value	p_value	mean_less_10y	mean_more_10y	cohens_d
Age	-7.2402	***	28.0446	29.5993	0.443
Previous migration	3.4191	***	1.1919	1.0492	-0.2097
City attachment	-8.9656	***	5.3958	6.5281	0.5856
Social integration	-9.0765	***	5.5738	6.6695	0.5878
Length of residence	-13.949	***	4.3878	10.2294	0.8484
Length of working time	-9.715	***	2.6331	4.4628	0.5925
Migration risk attitude	5.2759	***	5.595	4.9299	-0.3365
General risk attitude	0.8419		5.2776	5.1815	-0.053

*Significance: * p < 0.05, ** p < 0.01, *** p < 0.001*

Appendix 5.2: Supplementary suppression effect analyses of risk attitude



Direct Effect: 0.040***
Indirect Effect: -0.044***
Total Effect: -0.004 (ns)

Effect Type	Estimate	95% CI Lower	95% CI Upper	p-value
Indirect Effect (control)	-0.04432	-0.05801	-0.03	<0.001
Indirect Effect (treated)	-0.04385	-0.05741	-0.03	<0.001
Direct Effect (control)	0.04009	0.01942	0.06	<0.001
Direct Effect (treated)	0.04056	0.02008	0.06	<0.001
Total Effect	-0.00376	-0.01753	0.01	0.59
Proportion Mediated (control)	11.78491	-79.79303	83.86	0.59
Proportion Mediated (treated)	11.65977	-79.39675	83.90	0.59
Indirect Effect (average)	-0.04409	-0.05773	-0.03	<0.001
Direct Effect (average)	0.04033	0.01979	0.06	<0.001
Proportion Mediated (average)	11.72234	-79.59489	83.99	0.59

Note: Control and treated conditions refer to different levels of the independent variable.
Indirect Effect: Effect of general risk attitude on stay intention through migration risk attitude
Direct Effect: Effect of general risk attitude on stay intention controlling for migration risk attitude
Total Effect: Sum of direct and indirect effects
Proportion Mediated: Percentage of total effect accounted for by indirect effect

Appendix 5.3: Supplementary analyses by tenure status

Appendix 5.3.1: Heterogeneous effects of expected housing expenses by housing tenure

	Full Sample	House Owners	House Renters
(Intercept)	0.155 (1.124)	2.152 (2.461)	-0.578 (1.272)
General risk attitude	0.041 (0.053)	0.103 (0.110)	0.035 (0.063)
Migration risk attitude	-0.200*** (0.048)	-0.285** (0.098)	-0.197*** (0.057)
The prospect of livability (ref. = remain the same)			
Loss	-0.374 (0.345)	-1.180 (0.758)	-0.280 (0.410)
Gain	0.282 (0.177)	0.141 (0.371)	0.292 (0.214)
The prospect of housing conditions (ref. = remain the same)			
Loss	-0.082 (0.370)	0.494 (0.987)	-0.342 (0.444)
Gain	0.051 (0.188)	0.032 (0.373)	0.047 (0.230)
The prospect of job development (ref. = remain the same)			
Loss	-0.786* (0.371)	-0.103 (0.730)	-1.260* (0.520)
Gain	-0.025 (0.186)	0.266 (0.373)	-0.204 (0.226)
The prospect of housing expenses (ref. = remain the same)			
Loss	0.261 (0.403)	0.198 (0.452)	0.658** (0.228)
Gain	-0.074 (0.348)	-0.050 (0.389)	0.402 (0.263)
Current tenure (ref = homeowner)	-0.757* (0.332)		
Job positions (ref. = civil servants/public institutions)			
Enterprise managers	-0.300 (0.355)	-0.327 (0.743)	-0.390 (0.425)
Enterprise professional/technical staff	-0.881** (0.274)	-0.922 (0.596)	-0.964** (0.323)
Enterprise general staff	-0.612* (0.264)	-0.228 (0.606)	-0.677* (0.303)
Others	-0.584 (0.453)	-1.503+ (0.879)	-0.346 (0.546)
Length of residence (years)	0.067*** (0.019)	0.015 (0.033)	0.090*** (0.026)
Length of working (years)	0.081+ (0.043)	0.176* (0.088)	0.071 (0.058)
Number of relatives	0.020 (0.019)	0.116* (0.046)	0.000 (0.011)
Number of friends	0.003 (0.007)	-0.011 (0.010)	0.010 (0.010)
Current housing tenure (ref. = owner)	0.064 (0.055)	0.101 (0.124)	0.067 (0.065)
Social integration	0.159** (0.050)	0.113 (0.111)	0.162** (0.059)
Age	-0.041 (0.036)	-0.130 (0.080)	-0.035 (0.043)
Gender (ref. = male)	0.207 (0.163)	-0.906* (0.386)	0.511** (0.195)
Indigenous (ref. = no)	0.030 (0.323)	-0.023 (0.625)	0.017 (0.402)
Hukou status (ref. = hukou of first-tier cities)			
Other urban hukou	-0.901*** (0.219)	-0.763 (0.519)	-0.994*** (0.256)
Other rural hukou	-0.961*** (0.244)	-0.751 (0.748)	-1.072*** (0.282)
Marital status (ref.=single/divorced/widowed)			

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	Full Sample	House Owners	House Renters
Cohabiting / in a relationship	0.379 (0.232)	0.011 (0.659)	0.485+ (0.257)
Married	0.668* (0.307)	0.237 (0.767)	0.750* (0.361)
Live with a partner (ref. = no)	-0.245 (0.253)	-0.071 (0.626)	-0.421 (0.292)
Live with children (ref. = no)	0.447 (0.310)	0.925+ (0.502)	0.141 (0.466)
Educational level (ref. = without bachelor's degree)	-0.131 (0.214)	0.352 (0.479)	-0.321 (0.259)
Educational background (ref. = Art & Humanities)			
Engineering & Technology	0.817** (0.273)	0.904+ (0.479)	0.848* (0.348)
Natural & Life Sciences	0.522 (0.358)	2.001* (0.797)	0.282 (0.438)
Social Sciences & Management	0.584* (0.293)	1.389* (0.650)	0.366 (0.365)
Family income per month (ref. = less than 10,000 yuan)			
10,000-20,000 yuan	0.028 (0.238)	0.811 (0.699)	-0.015 (0.264)
20,000-40,000 yuan	0.438+ (0.246)	1.152+ (0.677)	0.446 (0.278)
over 40,000 yuan	0.676* (0.311)	1.951** (0.752)	0.616 (0.397)
Number of previous cross-province migration	0.098 (0.142)	-0.428 (0.319)	0.220 (0.168)
Current live city (ref. = Beijing)			
Shanghai	-0.452* (0.226)	0.772 (0.543)	-0.736** (0.272)
Guangzhou	-0.668** (0.242)	-0.091 (0.476)	-0.893** (0.301)
Shenzhen	-0.944*** (0.241)	-0.720 (0.457)	-1.002*** (0.294)
Expense comparison loss × current tenure	0.375 (0.462)		
Expense comparison gain × current tenure	0.466 (0.431)		
AIC	1122.4	349.6	805.4
Nagelkerke R^2	0.444	0.398	0.378
Number of observations	1065	349	716

*Notes: + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Appendix 5.3.2. ANOVA results: renters' housing expense prospect and their home-buying intention

Housing expense prospect (renters)	N	Home-buying intention Mean (SD)
Same	217	4.14 (1.76)
Loss	298	5.02 (1.66)
Gain	201	3.98 (1.88)

F = 26.47, p = 0.000

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TOC

6 Conclusion

In the era of the knowledge economy, talent serves as the driving force behind the social and economic development of cities (Qian, 2010). Cities around the world are actively seeking to attract and retain young talents. However, some megacities are losing talent due to exorbitant housing costs and poor living conditions, as seen in China's first-tier cities. Therefore, examining the factors influencing talent migration and housing choices is a crucial and timely topic that can contribute to solutions for cities to better attract and retain talent, as well as improve their living conditions.

Existing research in this area often operates under the assumptions of rational actors and perfect information, overlooking the irrational aspects of human decision-making, such as agency and cognitive biases. This study adopts a series of psychological and behavioral economics theories to explore, at a micro-level, the factors influencing young talent's decisions to move to, remain in, purchase housing in, and navigate housing pathways in China's first-tier cities. The findings aim to provide insights that can inform better policies for attracting and retaining talent and improving the housing conditions of young professionals.

The following content will detail the key findings of this study.

6.1 Research questions and the key findings

6.1.1 Driving factors for university graduates to develop their careers in first-tier cities

The first research question examined the factors influencing the intention of university students—an important source of talent—to choose to develop their careers in first-tier cities after graduation. Using the Theory of Planned Behavior as the theoretical framework, we designed a survey and collected data on 1242 university students.

The findings indicated that individuals' attitudes toward first-tier cities have the most significant influence on their intentions to migrate to first-tier cities, followed by perceived social support/pressure (subjective norms) and perceived behavioral control (PBC). The study further explored the underlying beliefs that shape these attitudes, subjective norms, and PBC. Results showed that the more individuals believe that moving to first-tier cities can help them realize their future dreams, and the more they believe these cities offer better job opportunities and higher salaries, the more positive their attitudes toward migrating. Interestingly, we also found that those who perceive greater work pressure and a faster pace of life in first-tier cities tend to have a more positive attitude toward migrating there. A possible explanation is that first-tier cities may attract more ambitious individuals who view work pressure and a fast-paced environment as drivers of career growth. However, factors such as social networks, healthcare, and educational resources for future children—often found to be significant in other migration studies—were not significant in this study. This may be because our sample consists of young, healthy university students who are still enrolled in school. Regarding normative beliefs, the study found that the more individuals feel supported by family, friends, and teachers, the stronger their intentions to migrate to first-tier cities. Moreover, individuals who believe that most of their peers plan to migrate to first-tier cities are also more likely to have similar intentions. As for control beliefs, individuals who believe that first-tier cities offer opportunities to achieve their dreams perceive stronger control over their decision to migrate, thus increasing their intentions to migrate. In contrast, perceived high living costs, expensive housing prices, and ties to parents in their hometown weaken their intentions to migrate to first-tier cities. This finding is particularly intriguing, as the abstract notion of "first-tier cities as places where dreams can be realized" appears to outweigh more practical considerations such as living and housing costs,

playing a significant role in young talent's migration decisions. This insight further underscores the importance of not overlooking psychological and non-rational factors in migration research.

The study also revealed the influence of background factors on migration intentions. Four factors were found to have a significant impact: attending university in a first-tier city, attending a higher-ranked university, being a non-only child, and being male were all associated with a greater intention to migrate to first-tier cities compared to their counterparts. Furthermore, the model results directly illustrate why young talents with different backgrounds have varying intentions. For example, the analysis indicated that students from higher-ranked universities are more inclined to migrate to first-tier cities because they believe more strongly in their ability to afford the housing prices in these cities, thus possessing a higher sense of perceived behavioral control.

6.1.2 Housing pathways and migration plans of young talents

The second research question identified the housing pathways of young talents in Shenzhen and investigated the reasons behind the formation of these pathways. The study also revealed the relationship between these housing pathways and future migration plans. Using the housing pathways approach and Bourdieu's theory of practice as the methodological and theoretical frameworks, semi-structured interviews were conducted with 18 young talents in Shenzhen.

The research finally identified four distinct housing pathways for young talents: "Staying at Parents' Home (SPH)", "Private Renting to Owning in Shenzhen (PRTO)", "(Private Renting to) Talented Renting (PRTTR)", And "Progressive Private Renting (PPR)". The primary distinctions among these pathways lie in the predominant housing tenure, housing stability, move frequency, and underlying reasons for moving. Additionally, it was found that these differences resulted from the interplay between varying habitus and forms of capital within the housing field. Given the abstract nature of habitus, the analysis focused on its outcomes—particularly individuals' attitudes toward housing tenure and the strategies they employ as alternatives. The following will introduce the main characteristics of these pathways and the factors contributing to their formation.

Specifically, young talents following the SPH pathway primarily reside with their parents or anticipate homeownership in the future. They seldom relocate, and when relocations occur, they are typically associated with (future) marriage or childbirth. Their main

forms of capital include economic capital, such as financial support from parents, and cultural capital, often represented by a deep knowledge of the local housing market, along with a Shenzhen Hukou. These forms of capital, combined with their deep-seated beliefs in homeownership and strategies for building close relationships with their parents, function within the housing fields to shape this particular housing pathway.

Young talent following the PRTO pathway often move from private commercial rental to buying their own homes. They also relocate infrequently, with moves generally occurring after marriage or the birth of a child. Their habitus reflects a strong commitment to homeownership, primarily accumulating economic capital through saving or borrowing money. Additionally, some utilize social capital to access resources and information to fulfill their homeownership aspirations, including entering the informal housing market or purchasing homes in other cities. Like those in the SPH pathway, individuals on this pathway often possess a Shenzhen Hukou, ensuring their eligibility to buy property.

Young talents on the PRTTR pathway usually move directly or after a period into talented renting accommodations or company-provided rental housing (hereafter all referred to as "talented housing"). The type of employer for whom one works determines the opportunity to access such housing, thus this access is identified as a form of special capital typically available to employees in government sectors, state-owned enterprises, and universities. Young talents on this pathway enjoy stable tenures in talented housing and seldom relocate, with job changes being the primary reason for any moves. They primarily leverage their employment with specific companies, combined with other forms of capital such as cultural capital (educational level), to secure housing.

Those following the PPR pathway are characterized by frequent moves, starting with rentals in urban villages and potentially progressing to commercial leases. Their housing situation may gradually improve or remain the same. Compared to young talents on other pathways, individuals on these pathways lack various forms of capital, especially economic capital. Their attitudes towards homeownership vary; some view owning a home as essential and choose to buy in less expensive areas outside first-tier cities, while others value the flexibility and economic benefits of renting.

Additionally, the research findings indicated a clear association between the future migration plans of young talents and the type of housing pathway they follow. For instance, young talents adhering to stable housing pathways such as SPH and PRT have expressed definite plans to continue residing in Shenzhen. Conversely, those following the PPR pathway, which involves experiencing unstable housing conditions, are more likely to leave Shenzhen.

6.1.3 Determinants of young talents' decisions to purchase housing in first-tier cities

The third research question explored the factors influencing the intention of young talents to purchase homes in first-tier cities over the next five years. Using the Theory of Planned Behavior as the theoretical framework, a questionnaire survey was designed and data were collected from 1065 young talents in China's four first-tier cities.

The results indicated that attitudes had the most significant impact on the intention of young talents to purchase homes in first-tier cities, followed by subjective norms and perceived behavioral control. This suggested that young talents with more positive attitudes towards homeownership, stronger social support/pressure, and greater perceived control over purchasing are more likely to buy homes in first-tier cities within the next five years.

The results also uncovered the specific beliefs about home buying that ultimately affected their intentions. Firstly, behavioral beliefs, including the perceptions that buying a home is a good investment, provides better educational resources for children, and offers a sense of belonging, were found to enhance the intention to buy. Normative beliefs, such as stronger support from parents and partners, were associated with higher purchasing intentions. Additionally, the views of peers who had already purchased homes also influenced people's buying intentions. Control beliefs, including being more likely to afford down payments and monthly installments, being more likely to receive financial support from family, and being more likely to plan on settling in a first-tier city, enhance the perceived control over purchasing and, consequently, increase the intention to buy.

Seven background factors were found to significantly influence purchasing intentions. The model results further elucidated how differences in attitudes, subjective norms, perceived behavioral control, and their corresponding beliefs among young talents with varying backgrounds led to differences in their home-buying intentions. Specifically, female young talents had stronger intentions to buy than males, partly because they believed more strongly that homeownership would provide better educational opportunities for their children, thus holding more positive attitudes. For the same reason, young talents with children also displayed higher buying intentions. Young talents employed in public enterprises had higher intentions than those in private sectors, partly because they were more inclined to settle in first-tier cities long-term, thus possessing stronger perceived control over buying. Similarly, individuals with a first-tier city hukou also had relatively higher buying intentions. Young talents with higher levels of education are more likely

to believe they can receive support from parents and partners and thus are more willing to buy homes in first-tier cities. Young talents who were already homeowners in a first-tier city had higher intentions than those without homes, as they were more convinced of the investment merits of purchasing. Higher-income young talents also had stronger buying intentions, as they believed more confidently in their ability to afford the housing prices, thus possessing greater perceived control over purchasing.

6.1.4 Influential factors of young talents' settlement intentions in first-tier cities

The fourth research question explored the impact factors on the long-term settlement intentions of young talents in first-tier cities. Using prospect theory as the theoretical framework, a questionnaire was developed to survey 1065 young professionals across four first-tier cities in China. This survey was conducted alongside the third research question within the same questionnaire.

Risk attitudes demonstrated nuanced effects on migration decisions, with domain-specific risk attitudes proving more influential than general risk attitudes. Specifically, while general risk attitudes showed limited impact in the final model, migration-specific risk attitudes consistently demonstrated a robust negative relationship with stay intentions, suggesting that those with lower tolerance for migration-related risks were more likely to remain in their current first-tier cities.

The study uncovered distinct patterns in how young talents evaluate different aspects of city life relative to their reference points. Career development prospects and housing expenses emerged as particularly influential factors, showing consistent significance across models. Interestingly, while anticipated increases in housing expenses might typically be expected to deter settlement, they instead enhanced stay intentions, particularly among renters. Further analysis revealed this counterintuitive finding may be linked to homeownership aspirations, as renters expecting higher housing expenses showed significantly stronger home purchase intentions.

The research highlighted the crucial role of various endowments in shaping settlement decisions. Institutional endowments proved particularly influential, with both hukou status and employment sector emerging as key determinants. Those holding local hukou showed significantly higher stay intentions compared to non-local urban and rural hukou holders. Similarly, public sector employment appeared

to anchor young talents to their current cities more strongly than private sector positions. Time-based investments, including length of residence and working time, positively influenced stay intentions, while homeownership emerged as another crucial factor enhancing settlement intentions. Psychological attachment to the city also showed significant positive effects, though interestingly, social networks (measured by number of friends and relatives) played a less crucial role than expected.

Demographic factors revealed several notable patterns, particularly regarding city differences. Beijing demonstrated the strongest retention power among first-tier cities, followed by Shanghai, while Guangzhou and Shenzhen showed lower stay intentions. Educational background also proved significant, with Engineering & Technology graduates showing the highest stay intentions, followed by those from Social Sciences & Management backgrounds. Income levels showed a clear gradient effect, with higher-earning households demonstrating stronger stay intentions. Additionally, married individuals showed higher propensity to stay compared to their single counterparts.

6.2 Policy implications based on findings

The findings of this research have some policy implications. Based on the primary results, this research offers policy recommendations from two perspectives: “cities” and “talent.”

How to Attract and Retain Young Talents for cities?

The first set of policy recommendations focuses on how cities can attract and retain young talent. This research emphasizes the micro-level factors related to “people” rather than the macro-level factors associated with “places.” The findings reveal that psychological and behavioral factors significantly influence the migration decisions of young talents. Therefore, this study does not focus on the traditional recommendations of improving a city’s hard infrastructure, such as increasing job opportunities and raising income levels, or soft infrastructure, such as enhancing public amenities (Esmaeilpoorarabi et al., 2016). While these measures remain important and necessary, this research instead emphasizes psychological and behavioral interventions as the primary focus of its policy suggestions. For

instance, interventions such as public campaigns, education, or persuasion can directly influence young talent's perceptions and attitudes toward first-tier cities, thereby affecting their migration decisions (De Jong & Fawcett, 1981b). Compared to physically improving a city's infrastructure, these policies might be more cost-effective and less time-consuming (De Jong & Fawcett, 1981b).

Based on the findings of this study, the first recommendation is to strengthen city branding. The research revealed that the more young talents believed moving to a first-tier city would help them realize their dreams, the stronger their intention to migrate. Therefore, cities could position themselves as "stages for realizing dreams" to attract talent. Additionally, the study found that individuals who believed the city offered more job opportunities and higher income also demonstrated a stronger willingness to move. Hence, when building a city's brand, information, and promotion related to job opportunities and income potential should be given priority. The research also showed that high living costs and housing prices deterred individuals from moving to or staying in first-tier cities. To address this, it is recommended that cities provide transparent and straightforward information about living and housing costs, along with corresponding subsidy policies. This could help prevent or reduce misconceptions—such as the belief that living costs in first-tier cities are "exorbitantly high"—and ensure that young talents do not miss opportunities for subsidies, which might lead them to not migrate to or leave the city.

The second recommendation is to influence young talent's migration decisions by indirectly targeting those in their social circles. The study revealed that support or pressure from social networks—such as parents, friends, and teachers—had a significant impact on young talent's migration decisions. For instance, city promotions aimed at the parents of young talent, along with family support policies, might yield unexpected results. Given that China has a strong tradition of filial piety (Xu, 2012), strengthening parents' positive perceptions of a city could influence their children's migration decisions. Additionally, enhancing cooperation between cities and schools or teachers, and utilizing school promotions, could positively shape university students' perceptions of the city. Furthermore, cities could leverage social networks such as alumni associations and peer groups with similar backgrounds to promote the city.

The third recommendation focuses on leveraging multiple aspects of loss aversion to retain young talents in first-tier cities. This strategy can be implemented through several key dimensions: First, regarding housing considerations, the government could assist talents in securing homeownership through relaxed buying restrictions, subsidies, and favorable loan conditions. However, given the high housing prices in first-tier cities, it is unrealistic to ensure universal homeownership. Therefore,

enhancing the rental experience through stable leasing options and improved housing conditions is equally crucial, as potential deterioration in housing quality could trigger talents' loss aversion and lead to outflow. Second, strengthening place attachment can increase young talents' reluctance to leave. This could be achieved by improving overall quality of life in the city and fostering stronger community ties, which creates emotional bonds that talents would be hesitant to break. Third, the strong influence of public sector employment reveals how administrative privileges create powerful retention mechanisms. This suggests that utilizing institutional bonds through public sector opportunities can be more effective than purely economic incentives in talent retention. Finally, talents demonstrate pronounced sensitivity to potential career deterioration, which becomes particularly crucial during economic downturns. Therefore, cities should prioritize maintaining the stability and quality of existing professional opportunities by protecting established career paths, supporting enterprises, and preserving innovation ecosystems, rather than pursuing uncertain new initiatives. This focus on preventing perceived career losses can effectively prevent accelerated talent outflow during challenging economic conditions. the place.

How to improve the housing situation of young talents?

These set of policy recommendations focuses on improving the housing conditions for young talents in cities. The findings on the housing pathways of young talents showed that those on the Progressive Private Renting (PPR) pathway experienced the most unstable living conditions, frequently moving between substandard rental accommodations in urban villages. Their housing issues required further attention. The research found that rental housing in urban villages, due to its affordability, played a crucial role in the housing transitions of young talent. The debate over whether to demolish urban villages and pursue radical gentrification has been highly contentious (Pan & Du, 2021). This study proposed that a more sustainable policy approach would be to improve the living conditions of rental housing and upgrade community infrastructure in urban villages but maintain the cheap advantages. By doing so, these areas could become affordable and practical transitional housing options for young talent, achieving a win-win situation for both the city and its talent. Additionally, the “talent housing” policy, which has been actively promoted, was found to be highly favored by young talents. Young talents on the Private Renting to Talented Renting (PRTTR) pathway enjoyed more stable and satisfactory living conditions. Therefore, the study recommended further expansion of talent housing construction and supply, along with extending the coverage of this policy.

The study also explored the homeownership aspirations of young talents in first-tier cities. The findings revealed that the decision-making mechanism behind young

talent's home-buying behavior was primarily driven by investment considerations, as well as the desire for a sense of belonging and the belief that homeownership would provide better educational resources for their children. While the study did not encourage emphasizing the investment attributes of housing, it suggested that, from the perspective of young talent's needs, cities could further enhance renters' living experiences to strengthen their sense of belonging, and ensure educational resources for renters' children.

6.3 Reflections on the theoretical framework of the research

This thesis employed the Theory of Planned Behavior, Prospect Theory, the Housing Pathways Approach, and Bourdieu's Theory of Practice as its primary theoretical frameworks. The dissertation will reflect on the application of these frameworks in the study of housing and migration, aiming to offer insights that may inform future research utilizing these theories/approaches.

Theory of planned behavior

Our research empirically demonstrates the applicability of the Theory of Planned Behavior (TPB) in the context of housing tenure and migration choices. After applying this theory to address the two research questions in the thesis, several aspects warrant reflection.

Firstly, the role of beliefs is worth reconsidering. In many past studies, the focus has been on the influence of attitudes, subjective norms, and perceived behavioral control on intentions and behaviors (see, for example, the review of TPB by (Han & Stoel, 2017)). However, the role of beliefs has often been directly overlooked. Attitudes, subjective norms, and perceived behavioral control are relatively abstract concepts, whereas beliefs provide more concrete information about decision-making processes. Our empirical investigation explored the roles of behavioral beliefs, normative beliefs, and control beliefs in individuals' housing and migration decisions. The findings indeed offer specific insights into how people make housing and migration choices. Therefore, future research is encouraged to incorporate

beliefs into the TPB model to capture more detailed information about behavioral decision-making. This is especially critical for studies aiming to design behavioral interventions and formulate policy recommendations based on the research findings.

Secondly, the issue of measuring beliefs requires further consideration. In Chapter 2, we employed the product of belief strength and the importance/value/power of the belief as a measurement method, following the approach suggested by Ajzen (1991). However, in Chapter 4, we measured beliefs solely using the belief strength. This adjustment was made because we encountered several issues with using the product. First, the meaning of the product term is difficult to interpret. For example, it is challenging to understand how to interpret the product of the likelihood of achieving one's dreams in a first-tier city(belief strength) and the perceived value or quality of achieving those dreams(belief value). Furthermore, it becomes even more difficult to grasp how this product influences intention. Second, using the product term increases the number of questions in the survey, which can reduce response rates, as Li (2023, p. 233) also noted in his doctoral dissertation. Third, applying the product approach may lead to issues with statistical techniques, such as instability in the results. For instance, Evans (1991) highlighted that even when measuring behavioral beliefs using a 7-point Likert scale with identical wording, merely changing the coding (e.g., from -3 to +3 to a 1-7 scale) can alter the correlation results between the product term and attitudes. The correlation coefficient shifted from 0.3 to 0.46. Although we did not encounter this issue due to our predetermined coding approach, we raise it here as a reflection to guide future research in avoiding similar problems. For future studies, we recommend measuring beliefs using either strength or importance/value/power independently, rather than as a product. By doing so, research can yield clearer, interpretable insights into the impact of beliefs and their corresponding constructs. Additionally, this approach would reduce the number of survey questions, thereby improving response rates and avoiding the instability often associated with multiplicative models.

Finally, the inclusion of background variables warrants attention. In many previous studies using the Theory of Planned Behavior (TPB) as a theoretical framework, background variables were often excluded from model analysis (Ajzen, 2011). However, in research on housing tenure and migration choices, the role of background variables in decision-making is evidently crucial and cannot be easily overlooked. Numerous studies have demonstrated the importance of these factors in such decisions, including Plane (1993), South & Deane (1993), and Y. Wang & Otsuki (2015). For example, theoretical approaches like Rossi's (1955) family life-cycle model, as described in the Introduction section of this thesis, outline the importance of the background variables in the field of housing. We found that one major advantage of incorporating background variables into the TPB model is that it allows the model to illustrate how individuals from different backgrounds form distinct

beliefs, which in turn shape their attitudes, subjective norms, perceived behavioral control, and behavioral intentions. In other words, the model clearly demonstrates why individuals with different backgrounds may have varying intentions and behaviors. As Ajzen (2011) suggests, the selection of specific background variables should be tailored to the particular research domain. However, introducing background variables also presents a challenge: including too many background variables can result in an overly complex model, which in turn requires a larger sample size. In situations where the sample size is limited, one solution we employed was to conduct bivariate correlation analyses between background variables and the final dependent variable. Only those background variables that showed significant correlations were included in the final model. This approach may serve as a useful reference for future research.

Prospect theory

Our research is not the first to apply Prospect Theory to migration decision-making research. However, unlike previous studies that focused on a single factor or leaned toward qualitative descriptions (e.g., Spencer et al., (2016); O'Reilly & Boyd, (2020)), this thesis employed a quantitative approach, comprehensively examining the roles of reference dependence, loss aversion, endowment effect, and risk attitude. In doing so, it revealed more nuanced insights into the behavioral mechanisms underlying migration decisions. There are several issues related to the application of this theory that require further reflection.

First, the issue concerns how to measure gains and losses in Prospect Theory through general survey methods. Some studies applying Prospect Theory typically use experimental survey methods. For instance, different gain and loss scenarios are set up in experiments, and participants' choices across various contexts are compared (see studies such as Gurevich et al., (2009); Abdellaoui et al., (2013); Lude & Prügl, (2019)). Based on the results of these choices, researchers analyzed whether loss aversion exists in the decision-making process. Alternatively, some studies utilize available historical data. These studies define gains and losses from historical data and calculate the parameters for gains and losses in the equations to determine if loss aversion exists in the decision-making process (see for example Czaika, (2015); Ebrahimigharehbaghi et al., (2022); Lamorgese & Pellegrino, (2022)). Our research differs from both of these approaches. The focus of our research is on the future intentions of young talents to remain in first-tier cities and the influencing factors, rather than on behaviors that have already occurred. We believe that using hypothetical scenarios would create a gap between the survey context and the real-world factors young talents actually consider when planning their future, making it difficult to accurately capture their true intentions to remain in first-tier cities. Hypotheticals may not fully represent the complexity of their real

circumstances, preferences, or the constraints they face. Therefore, we followed the general survey method adopted by Yan & Bao (2018) to collect data. However, unlike their approach, we did not define gains and losses by comparing individuals' actual outcomes with their previous expectations or others' outcomes. Instead, in our questionnaire, we captured gains and losses by comparing respondents' future expectations with their current status. We then compared the absolute values of the coefficients of gains and losses in the model to assess whether loss aversion exists. The advantage of our approach is that it allows us to capture loss aversion in potential future choices. Future research, especially in cases where historical data is unavailable or scenario-based simulations are not feasible, or where the focus is on future behavior choices, can reference the methodology used in our study. However, the limitation of this approach lies in the potential for omitted variable bias, as it is impossible to control for all variables. We recommend that future studies carefully select control variables based on existing research to minimize the risk of omitted variable bias.

Second, our research, using data collected with a questionnaire survey, was unable to capture the diminishing sensitivity effect in the value function and to measure the decision weight in the utility function. During the data analysis process, we employed several methods, such as following the approach of Czaika (2015), by including squared terms for gains and losses in the model to attempt to capture diminishing sensitivity. However, we found that this method only allowed us to fix the coefficient representing diminishing sensitivity at 2 or other values, whereas, in the value function, this coefficient is not a fixed one and typically less than 1 to indicate the presence of diminishing sensitivity. Currently, we have not found an appropriate way to resolve this issue, and we hope that with the development of new nonlinear data analysis techniques, this problem can be addressed.

Another issue that needs to be specifically addressed is the rationale for using different theoretical frameworks in our study of migration intentions. Readers might wonder why we used the Theory of Planned Behavior as the theoretical framework in Chapter 2, but Prospect Theory in Chapter 5, despite both chapters focusing on migration intentions. We did this for two main reasons. First, the selection of theories was based on the specific research questions. The research question in Chapter 2 focuses primarily on which factors influence individuals' intention to migrate to first-tier cities. The Theory of Planned Behavior was chosen to address the gap in previous migration studies, which often overlooked seemingly irrational psychological factors. In contrast, the research question in Chapter 5 centers on which factors influence individuals' intention to stay in their current first-tier city. Prospect Theory was better suited for capturing the essence of "staying," as it relates to loss aversion and risk avoidance. Second, our approach aimed to enrich

the theoretical frameworks employed in the study. By demonstrating the applicability of both theoretical models in migration decision-making, our research provides a more comprehensive understanding of the factors influencing migration choices.

Housing pathways approach and Bourdieu's theory of practice

This thesis employed the Housing Pathways approach as the framework for analyzing the housing experiences of young talents. The following issues warrant reflection.

One question that needs further consideration is how to categorize and summarize different housing pathways in diverse contexts. Given the significant differences between China's housing system and those in Western countries, it would be inappropriate to directly apply the typology of housing pathways for young people in the UK as outlined by Clapham et al. (2014). In our study, to find a proper way to classify the housing pathways of young talents in Shenzhen, we integrated Bourdieu's theory of practice. Based on the distinct interactions between their habitus and forms of capital, four different types of housing pathways were identified. This incorporation provides a theory basis for analyzing and categorizing housing pathways, which can be used in future related studies. However, there is a challenge: the concept of habitus is inherently abstract and subjective, which can lead to difficulties in analysis. In our research, we utilized the outcomes of habitus as a proxy for the concept. Future research could use the same method or develop alternative approaches to address this challenge.

Another reflection, or perhaps more of a recommendation, concerns the visualization of housing pathways. Initially, it was difficult to fully grasp and understand the Housing Pathways approach. However, when the various housing pathways were mapped out using diagrams, the visual representation greatly enhanced the understanding of the approach. Furthermore, this visualization process clarified my thinking when finalizing the classification of pathway types. Thus, the use of visualization techniques is recommended for other researchers intending to apply the Housing Pathways approach in their work.

6.4 Contributions of the research

Academic contribution

This doctoral dissertation makes several significant contributions to the field of urban studies. First, it addresses a gap in the literature by exploring the micro-level psychological and behavioral economic drivers behind migration and housing choices among young talents in major cities, a topic that has been under-researched, particularly in the context of China. For instance, Chapter 2 explores how university students' intentions to migrate to first-tier cities after graduation are shaped by psychological factors. It highlights the role of imperfect information and how individuals respond differently to such information, offering new insights into the decision-making process. Similarly, Chapter 4 goes beyond traditional economic factors to explain how psychological factors, such as beliefs, shape young talents' intentions to purchase housing in first-tier cities. Chapter 3 provides an in-depth analysis of the dynamic processes of housing choices of young talents in Shenzhen. This chapter not only examines structural factors, such as housing markets and policies, but also, for the first time, systematically investigates the often-overlooked role of agency factors, including personal attitudes, preferences, and strategies, in shaping the housing pathways of young talents in a first-tier city. Chapter 5 further explores the mechanisms influencing the migration decisions of young talents in first-tier cities under conditions of risk and uncertainty. Last but not least, this thesis fills the gap left by previous studies, which largely examined residential mobility and migration behavior in isolation. It reveals the interconnections between these two phenomena. For example, the findings from Chapter 5 indicate that young talents who own homes in first-tier cities are more likely to express a stronger intention to remain in these cities in the future.

Secondly, this dissertation introduces innovative applications and extensions of theoretical frameworks. By integrating multiple theoretical perspectives, such as the Theory of Planned Behavior (TPB), the Housing Pathways Approach, and Prospect Theory, it offers new insights into understanding the migration intentions, housing pathways, home-buying intentions, and settlement decisions of young talents. These multidimensional theoretical frameworks go beyond traditional assumptions of economic rationality by incorporating psychological and behavioral economic factors, providing a more comprehensive understanding of migration and housing choices. Specifically, Chapters 2 and 4 utilize the TPB to demonstrate how psychological factors influence the migration and housing decisions of young talents. Unlike previous scattered applications of the TPB to migration and housing

studies, studies in this thesis delve deeper into the role of beliefs in shaping decision-making and explore how individuals with different backgrounds develop varying attitudes, subjective norms, perceived behavioral control, and behavioral intentions through distinct beliefs. Overall, this dissertation's application of the TPB offers a more detailed explanatory framework than previous studies (e.g. Yazdanpanah & Zobeidi, (2017); Zhang et al., (2020)). Chapter 3 develops the Housing Pathways Approach by integrating Bourdieu's theory of practice, specifically the concepts of habitus, capital, and field, to provide a more nuanced explanation of how different housing pathways are shaped by the interaction between structural and agency factors. Chapter 5, grounded in Prospect Theory, challenges the rational decision-making assumptions of traditional neoclassical migration economics, highlighting the complexity of individual decision-making behavior under uncertainty and risk. By incorporating key elements of Prospect Theory, such as reference dependence, loss aversion, and the endowment effect, this study offers a more comprehensive explanatory framework for understanding decision-making in talent migration.

Societal contribution

This dissertation also makes several additional societal contributions:

The findings of this dissertation provide valuable insights for the formulation of talent attraction and retention strategies, as well as housing policies. For instance, Chapter 2 identifies the psychological factors influencing university graduates' intentions to migrate to first-tier cities after graduation, while Chapter 5 highlights the behavioral economic factors that affect young talents' decisions to remain in their current first-tier cities. These findings offer guidance for policymakers to design strategies for attracting and retaining talent. Although the study focuses on first-tier cities, some of the findings can also inform policy decisions in other regions aiming to attract and retain talent. For example, in urban branding campaigns, other cities could also attract more young talents by shaping an image as a "stage where young talents can realize their dreams." Chapter 3 explores the housing pathways of young talents in Shenzhen, revealing how the interplay between agency factors and structural factors influences housing choices. This has direct practical implications for urban planners and government agencies in developing housing policies tailored to the needs of young professionals, thereby helping to alleviate housing pressure in large cities like Shenzhen. For example, our research suggests that improving infrastructure in urban villages could enhance the housing conditions of young talents on the PPR housing pathway. Chapter 4 provides psychological insights into the homeownership aspiration of young talents for the Chinese government and real estate developers to better understand the housing demands of young talents. By uncovering how different behavioral beliefs shaped by varying backgrounds influence

housing purchase intentions, this research can aid the government in developing policies to encourage homeownership, especially in the context of China's current sluggish real estate market. For example, real estate developers could increase people's willingness to purchase housing by strengthening the belief that housing provides a sense of belonging, such as by emphasizing this aspect in their marketing strategies. Furthermore, understanding why young talents choose to buy homes can help the government explore alternative ways to meet their housing needs. For instance, the study finds that individuals who believe homeownership provides better educational opportunities for their children are more likely to buy homes, suggesting that providing access to education resources for their children could be a viable strategy for talent retention.

This dissertation also offers solutions to address societal issues such as talent loss and housing instability in major cities. For example, the findings in Chapter 3 reveal how structural factors (e.g., housing markets, household registration systems, and family financial support) and agency factors (e.g., personal attitudes, preferences, and strategies) jointly shape young talents' housing pathways. This research provides a reference for addressing housing instability among young professionals. Specifically, the study identifies that young talents on the Progressive Private Renting (PPR) pathway face the most unstable housing conditions. Therefore, improving the living conditions of this group should be a key focus in addressing housing challenges. Chapter 5 illustrates how Prospect Theory helps explain young talents' settlement decisions under conditions of uncertainty and risk, particularly how loss aversion and the endowment effect influence settlement intentions. By deepening the analysis of psychological mechanisms, strengthening the effects of loss aversion and the endowment effect on talent offers guidance for tackling the problem of talent loss in cities.

Moreover, this dissertation contributes to raising public awareness of the migration and housing issues faced by young talents. It specifically highlights the importance of non-rational psychological and behavioral economic factors in influencing migration and housing choices. While traditional perspectives often assume that decisions are made based on purely rational economic considerations, this research demonstrates how individuals are influenced by psychological factors, beliefs, and subjective perceptions when facing uncertainty and incomplete information. These insights enable the public to gain a more comprehensive understanding of the complexities behind young talents' home-buying and migration decisions. Not only does this foster a greater societal understanding of the challenges this group faces, but it also encourages broader discussions and helps society recognize the critical role of these micro-level individual factors in addressing housing and talent mobility issues.

6.5 Limitations and recommendations for future research

This study innovatively explores the roles of psychological and behavioral economic factors in the decision-making mechanisms of migration and housing choices among young talents. However, there are still some limitations. Based on these limitations, this thesis also proposes several directions for future research.

First, as the research focused on four first-tier cities in China, with Shenzhen as the sole case study in Chapter 3, the findings may not be fully representative of all four cities, let alone other non-first-tier cities. However, the theoretical frameworks and methodologies employed in this study can serve as references for researchers investigating other countries or cities. Future research could apply the same frameworks and methodologies to study second-tier or lower-tier cities, which could help these cities attract and retain talents, thus fostering more balanced regional development. Moreover, another limitation concerns treating all first-tier cities as a homogenous group, overlooking the differences between them. This issue is partially due to the limited sample size for each city. For instance, Chapter 4 did not specifically examine housing market differences, such as housing policy variations, across the four first-tier cities. This limitation may result in some biases in the findings due to the unique characteristics of each city. Future studies could use larger datasets that cover each first-tier city to capture the variations in migration and housing choices arising from inter-city differences.

Second, there are limitations regarding the representativeness of the data. The data in Chapter 2 were constrained by an underrepresentation of students from universities in China's western and northeastern regions. Additionally, our data focused solely on students from higher education institutions, meaning it may not fully represent the broader population of university students across China. The interviews in Chapter 3 were conducted using a convenience sample, recruited through the researchers' personal networks and recommendations from respondents, which could introduce selection bias (Etikan et al., 2016). Furthermore, the interview sample size was limited to 18 participants, so caution must be exercised when generalizing the findings. Consequently, a viable new research direction could involve exploring the housing pathways of young talents in the other three first-tier cities and attempting to determine whether a common housing pathway pattern applicable to all four first-tier cities can be summarized. In Chapters 4 and 5, respondents were selected using a virtual snowball sampling

method, which relies on the initial sample. Although efforts were made to select initial participants with diverse sociodemographic characteristics and those active on social media who could reach different types of young talent, this sampling method might still introduce bias (Baltar & Brunet, 2012), potentially undermining the representativeness of the final findings. Therefore, caution is advised when generalizing the results to all young talents in Chinese cities.

Third, Chapters 2, 4, and 5 examined people's intention to migrate or purchase housing, rather than their actual behavior. This limitation stems from the specificity of the study's target population, the theoretical framework used, and the availability of data. Existing longitudinal microdata databases do not provide specialized surveys targeting this study's population, nor do they include the core variables from the theoretical frameworks. As a result, the study employed questionnaire surveys. However, due to resource constraints, large-scale longitudinal surveys could not be conducted to further investigate actual behavior. Prior research has demonstrated that intention is a strong predictor of behavior and intention is often used as a proxy variable for actual behavior (Morwitz & Munz, 2021). However, a gap often exists between intention and actual behavior, especially in the real estate market, where some variables are beyond individual control, such as external factors like housing supply and bank interest rates. For instance, individuals with a strong desire to purchase a home may ultimately be unable to do so due to high interest rates. Future studies could conduct longitudinal surveys of the same sample to explore their actual housing and migration behavior when time and resources permit.

Fourth, both Chapters 2 and 4 employ the Theory of Planned Behavior (TPB) as the research framework. A limitation within their TBP models is their ability to identify only whether the salient beliefs selected by researchers influence intention, leaving no room to account for other beliefs not included by the researchers. Although selecting salient beliefs requires substantial preliminary work, such as interviews and qualitative analyses, it remains possible that significant beliefs may still be overlooked. Additionally, in their final model analysis, due to sample size limitations and the need for model simplicity, not all relevant contextual variables were included. This may have prevented the study from capturing the mechanisms through which background variables influence individuals' intentions, as identified in other related studies. However, it is important to note that the core of TPB is individuals' attitudes, subjective norms, perceived behavioral control, and their corresponding beliefs. If interested, future research could use larger sample sizes to explore the effects of additional background variables.

In addition to the proposed research directions, future studies could also incorporate the constantly evolving economic and social contexts that influence young talent's choices. For instance, China's intensified "talent war" since 2017 has spurred various cities to update their talent attraction and retention policies continually. While this thesis focuses on the psychological and behavioral economic factors behind housing and migration choices, these policies set the broader context and could be an area for further exploration. Integrating these policies into future research could deepen our understanding of how external influences align with the internal drivers explored in this study, offering a more comprehensive view of young talents' housing and migration decisions.

This thesis also acknowledges that the rise of remote work, accelerated by the pandemic, introduces an additional layer of complexity to these decisions. Since remote work was still emerging during the early stages of this research, its specific effects were not fully integrated into the study's framework. Nevertheless, the findings offer a foundational understanding of young talent's housing and migration intentions, which future studies could expand upon by examining how remote work interacts with the factors identified here, especially as it becomes a more established element of professional life.

6.6 Final remarks

This thesis uses China's first-tier cities as a case to explore how these cities attract and retain talent. However, its ultimate goal is broader. The aim is not to advocate for all young talents to be concentrated in first-tier cities but rather to provide a theoretical framework, analytical methods, and research processes that can help understand the phenomenon of population mobility in urban contexts, specifically with regard to young talents. These methods and approaches are equally applicable to analyzing population flows and housing issues in other regions and cities, whether they are smaller cities or developing areas. Therefore, the value of this study lies not only in the analysis of first-tier cities but also in offering a reference framework that can be used for different types of cities.

Furthermore, this research specifically focuses on the mobility of young talents, given their key role in driving innovation and economic growth in cities. However, this does not imply the exclusion or neglect of other types of target groups. In the process of cities competing to attract highly skilled talent, limitations in resources

and policies may inadvertently marginalize other groups. This raises important questions of social equity: as cities attract specific talent, does this result in unequal access to resources for other segments of the population? This issue brings to light the need for cities to adopt inclusive and equitable policies. Future research should further explore how cities can attract talent while ensuring the fair distribution of resources, so as not to exacerbate social inequality.

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Curriculum Vitae

Chi Jin **(金赤)** was born in Suizhou City, Hubei Province, China in 1992. She received her Bachelor's degree in Engineering Management from Yangtze University (2011-2015), graduating with honors. Subsequently, she pursued her Master's degree in Architecture and Civil Engineering at Chongqing University (2015-2018). Following graduation, she joined a real estate development company in Shenzhen.

Driven by her passion for academic pursuits, she left her position in industry to commence doctoral studies at Delft University of Technology in 2020. Her doctoral research examines young talents' migration and housing decisions from psychological and behavioral perspectives. Her primary research lies at the intersection of Housing Studies, Migration Studies, and Behavioral Economics. Her research interests extend to Private Rental Housing, Residential satisfaction, Urban Sustainability, and the impact of Climate Change on Housing Markets.

List of published articles contained in this dissertation

1 **Jin, C.**, Li, B., Jansen, S. J., Boumeester, H. J., & Boelhouwer, P. J. (2023). Understanding the housing pathways and migration plans of young talents in metropolises–A case study of Shenzhen. Housing, Theory and Society, 40(4), 435-462.

2 J**in, C.**, Li, B., Jansen, S. J., Boumeester, H. J., & Boelhouwer, P. J. (2022). What attracts young talents? Understanding the migration intention of university students to first-tier cities in China. Cities, 128, 103802.

3 **Jin, C.**, Li, B., Jansen, S. J., Boumeester, H. J., & Boelhouwer, P. J. Beyond economics: unravelling the psychological and socio-demographic factors shaping home purchase intentions among young talents in China's first-tier cities. Under review.

4 **Jin, C.**, Li, B., Jansen, S. J., Boumeester, H. J., & Boelhouwer, P. J. Prospect theory in migration: understanding young talents' settlement intention in China's first-tier cities. Under Review.

Other publications

1 **Jin, C.**, Li, B., Ye, Z., & Xiang, P. (2021). Identifying the non-traditional safety risk paths of employees from Chinese international construction companies in Africa. International Journal of Environmental Research and Public Health, 18(4): 1990.

2 Chen, M., Chen, C., **Jin, C. ***, Li, B., Zhang, Y., & Zhu, P. (2024). Evaluation and obstacle analysis of sustainable development in small towns based on multi-source big data: A case study of 782 top small towns in China. Journal of Environmental Management, 366, 121847.

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6 Luo, W., **Jin, C.***, & Shen, L. (2022). The evolution of land resource carrying capacity in 35 major cities in China. Sustainability, 14(9), 5178.

7 Luo, W., Shen, L., Zhang, L., Liao, X., Meng, C., & **Jin, C.** (2022). A load-carrier perspective method for evaluating land resources carrying capacity. International Journal of Environmental Research and Public Health, 19(9), 5503.

25#08

Aspire, Adapt, Anchor

Young Talents' Migration and Housing Decisions in China's Metropolitan Cities

Chi Jin

Human Creative Capital has become a key driver of urban competitiveness in the knowledge economy. However, metropolitan areas worldwide are experiencing diminishing appeal to young talents, with both high housing prices and poor housing quality being key contributing factors. This study investigates the decision-making mechanisms underlying young talents' intercity migration and housing choices in China's first-tier cities. While previous research has largely relied on neoclassical economic theories assuming rational decision-making, this study employs behavioral economics (Prospect Theory), psychological framework (Theory of Planned Behavior), and sociological perspective (Bourdieu's Practice Theory) to examine how human agency shapes migration and housing decisions under uncertainty. Through mixed methods combining surveys and interviews, the research explores four questions following an "Aspire—Adapt—Anchor" narrative, investigating why young talents are drawn to these cities, how they navigate the housing market, and what influences their housing purchase and long-term settlement decisions. The findings extend conventional economic models in three significant ways. First, beyond traditional economic factors, the aspiration for self-actualization emerges as a key driver attracting young talents to first-tier cities, mediated through distinct psychological mechanisms. Second, their housing pathways reflect the dynamic interaction between structural constraints and individual agency, with different combinations of habitus and capital leading to diverse housing strategies. Third, while these young talents are initially drawn to first-tier cities, they show heightened sensitivity to potential losses in career prospects and housing costs, with their settlement intentions significantly anchored by institutional endowments such as public sector employment and housing tenure. Current housing situations and future migration prospects mutually shape their decision-making in metropolitan areas. By illuminating these psychological mechanisms in young talents' major life decisions, this research suggests that policy interventions targeting psychological factors may be more cost-effective than traditional infrastructure-based approaches in talent retention.

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