

# **Young Talents' Settlement Decisions in China's Metropolises: An Integrated Prospect Theory Framework**

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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 Beijing, Shanghai, Shenzhen and Guangzhou. 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 affordability. 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 in urban areas, but also provide practical guidance for metropolitan governance. Our findings suggest that effective urban talent retention requires cities to strengthen institutional ties and guarantee stable career development rather than relying

primarily on economic incentives. This approach ensures cities maintain the human capital essential for innovation and competitiveness in an era of increasing inter-urban competition.

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

## 1. Introduction

In the context of the knowledge-based economy, human capital is widely recognized as a key driver of regional growth and development (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; Martin et al., 2025; Naik, 2024; Osutei and 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<sup>1</sup> exhibit a similar trend of talent outflow. Multiple data sources provide evidence for this trend. First, official statistics indicate declining floating populations in all first-tier cities since 2018 (Figure 1.a). Second, authoritative talent flow reports from major recruitment platforms offer direct evidence, with Ren (2024) documenting first-tier cities' talent inflow share decreasing from 22% (2016) to 17% (2022) (Figure 1.b). This decline appears across all first-tier cities, most notably in Beijing (from 7% to 4%), with Shanghai, Guangzhou, and Shenzhen following similar patterns at varying rates. Third, official reports indicate a declining trend in Beijing's graduate retention rates, with fewer graduates choosing to remain in the city over time (Beijing Municipal Education Commission, 2019). Fourth, independent analyses by the Economist indicate second-tier cities' increasing attractiveness while first-tier cities lose competitive advantage in talent attraction (The Economist, 2024a, 2024b). Finally, recent academic research confirms this trend, demonstrating how elevated housing prices in first-tier cities have significantly reduced their appeal to skilled professionals (Chen et al., 2019; Gu and Jie, 2024; Wen et al., 2024).

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

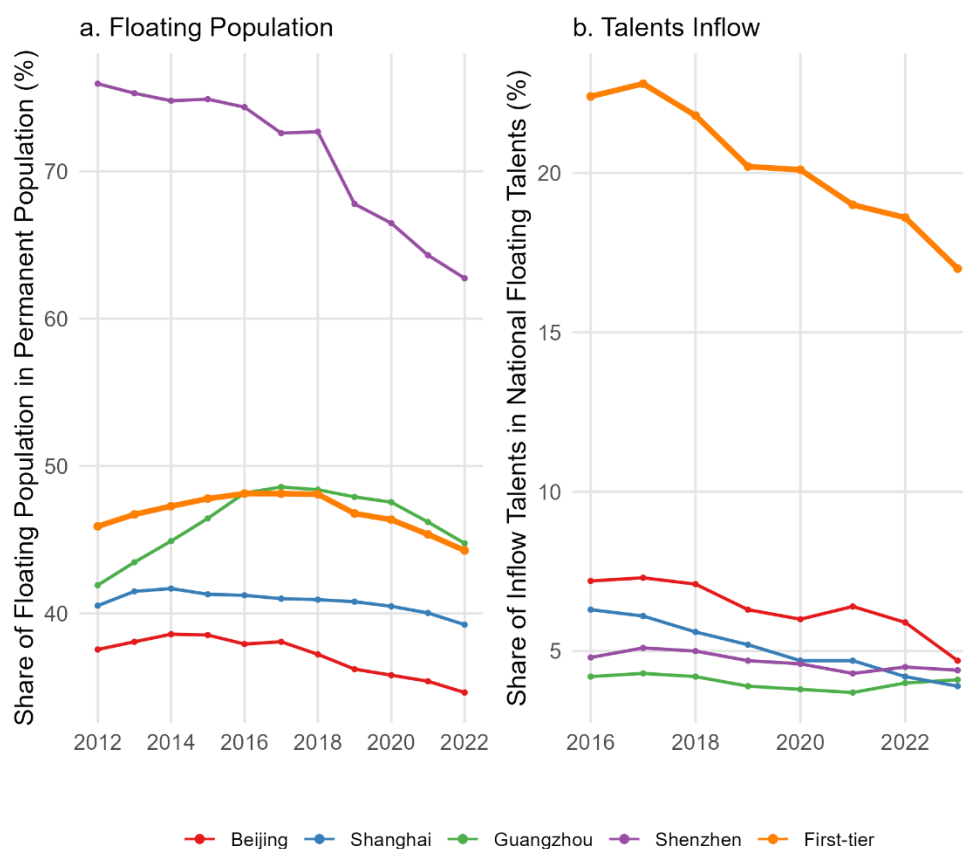


Figure 1. Decreasing floating population and talent inflow in China's first-tier cities

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 and 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 warrant special migration research attention due to their distinctive attributes. Their high human capital provides enhanced labor market bargaining power and mobility (Fratesi, 2014). They demonstrate complex preferences spanning economic and non-economic factors, including amenities and quality of life (Florida, 2002; Gu et al., 2024). 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 characteristics, coupled with their capacity to generate positive externalities through knowledge spillovers and industrial agglomeration (Gu et al., 2024), make their settlement intentions vital for urban development.

Understanding such complex settlement decisions requires appropriate theoretical frameworks. Traditional approaches—push-pull, neoclassical, and human capital theories—have established foundational insights into migration behavior. The push-pull model highlights economic, environmental, and demographic factors at origin and destination (Lee, 1966). Neoclassical theory emphasizes wage disparities as migration's primary driver (Castles and Miller, 1998), while human capital theory frames migration as knowledge and skills investment (Sjaastad, 1962). However, these approaches can be further enriched by incorporating behavioral economic perspectives, especially when considering migration choices under uncertainty. As scholars have increasingly recognized, individuals making high-stakes migration decisions with ambiguous, multidimensional outcomes may not always follow strict rational utility maximization. Complementing traditional frameworks with behavioral insights allows for a more comprehensive understanding of the psychological dimensions in migration decision-making.

Prospect theory (Kahneman and Tversky, 1979) offers a complementary behavioral economics framework for understanding decision-making under uncertainty, recognizing reference-point evaluations and loss aversion. While prospect theory has been applied to migration research (Bocquého et al., 2023; Clark and Lisowski, 2017; Czaika, 2015; O'reilly and Boyd, 2020), these applications remain fragmented, examining only isolated components like loss aversion (Aoki, 2024; Czaika, 2015), endowment effects (Clark and Lisowski, 2017; Hao and He,

2022) or risk aversion (Clark et al., 2023; Jaeger et al., 2010) without developing a comprehensive framework. This integration is crucial as migration decisions involve simultaneous evaluation of multiple dimensions, where these psychological mechanisms interact rather than operate in isolation, providing a more realistic representation of the decision-making process. Moreover, existing research has primarily focused on general populations (Clark et al., 2023; Clark and Lisowski, 2017), refugees (Bocquého et al., 2023), or rural households (Hao and He, 2022; Zheng and Li, 2024), neglecting how prospect theory might explain the unique decision-making patterns of young talents with their distinct migration opportunities and constraints (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 an Integrated Prospect Theory Model. Specifically, we integrate key elements of prospect theory—reference dependence, loss aversion, risk attitudes, and endowment effects—into a unified framework that accounts for human cognitive biases when analyzing migration decisions under uncertainty and risk. We employ a survey specifically designed to capture migration-specific gains and losses, risk perceptions, and both tangible and intangible endowments. This research contributes to the growing literature applying behavioral economic principles to migration studies while also providing practical insights for urban policymakers seeking to retain talent in competitive environments.

## **2. Literature Review and Theoretical Framework**

### **2.1. Traditional Theoretical Frameworks for Migration Decision-Making**

Early theories emphasized economic drivers, with Ravenstein (1885) proposing labor market-driven mobility and Lee (1966) developing the push-pull framework through four dimensions: origin/destination factors, intervening obstacles, and personal traits. Neoclassical theory posits migration as rational utility maximization in labor market differentials (Harris and Todaro, 1970; Sjaastad, 1962; Todaro, 1969), assuming individuals make decisions with consistent risk preferences and evaluate outcomes in absolute terms rather than relative to reference points. However, this view oversimplifies reality by assuming complete information and ignoring institutional/social barriers (Boelhouwer, 2011). The value-expectancy model addressed this gap by incorporating subjective evaluations (De Jong and Fawcett, 1981), while opening avenues for further exploration of migration's inherent uncertainties (Jaeger et al., 2010).

In talent migration studies, neoclassical foundations evolved through human capital theory (Sjaastad, 1962) and contemporary extensions examining innovation ecosystems (Kerr et al., 2016), urban amenities (Gu et al., 2024; Liu et al., 2025), and organizational-regional interactions (Latukha et al., 2022). These valuable frameworks provide important economic and institutional perspectives, while behavioral approaches can further enhance our understanding of human agency in young talents' migration decisions. This complementary approach is particularly relevant as talented individuals with high human capital—advanced education and professional skills—tend to be more mobile and adaptable (Fratesi, 2014). They better capitalize on opportunities in alternative locations, manage risks effectively, and make decisions aligned with personal preferences (Wang et al., 2024).

The complexity of young talent migration has led recent studies to incorporate psychological perspectives into their research frameworks. Niraula and Triandafyllidou (2022) identified key psychological factors in migration choices, including aspirations, future imaginaries, and self-development needs. Building on this, Jin et al. (2022) applied the Theory of Planned Behavior (TPB), showing psychological constructs significantly influence graduates' migration intentions. While TPB advances understanding of psychological mechanisms, it can be further enhanced in addressing uncertainty evaluation, and factors related to cognitive biases in risk assessment.

Prospect Theory (Kahneman and Tversky, 1979) directly addresses complementary aspects to TPB by examining how individuals evaluate prospects relative to reference points, value current endowments, and exhibit asymmetric preferences to gains and losses under risk. These features are particularly relevant for young talents' migration decisions because they: (1) evaluate opportunities relative to current situations rather than absolutely; (2) are influenced by accumulated experiences in current locations; and (3) make decisions involving complex trade-offs across multiple dimensions. Therefore, Prospect Theory can be integrated with existing approaches to provide a more comprehensive framework for analyzing the interplay between psychological factors, uncertainty, and decision-making in migration choices.

## **2.2. Prospect Theory: A Behavioral Economic Lens on Decision-Making**

### **2.2.1. Core concepts of prospect theory**

Unlike Expected Utility Theory (EUT), which assumes rational decision-making under uncertainty where individuals maximize their expected utility based on stable risk preferences,

Prospect Theory recognizes context-dependent risk attitudes, reference points, and asymmetric evaluations of gains and losses.

First, reference dependence suggests individuals evaluate outcomes relative to a reference point rather than absolutely, as shown by the value function's inflection point at the origin in Figure 2. Second, prospect theory emphasizes loss aversion as a fundamental psychological principle. Loss aversion is captured by the asymmetric steepness of the S-shape in value function. Figure 2 shows the function is steeper in the loss domain than the gain domain, suggesting individuals are more sensitive to losses than gains of equivalent magnitude. Third, as an indirect measurement of loss aversion, we examine the endowment effect. Thaler (1980) introduced the "endowment effect" wherein individuals value owned possessions higher than identical unowned items. As Kahneman (2006: 247) demonstrates, this effect fundamentally represents a manifestation of loss aversion: ownership transforms potential transactions into perceived losses rather than gains. The psychological impact of losses outweighing equivalent gains creates valuation asymmetries. Current research (Morewedge and Giblin, 2015; Yan and Bao, 2018) interprets the endowment effect primarily as indirect loss aversion. Fourth, risk attitudes are also crucial, with individuals typically showing risk aversion for gains but risk-seeking behavior for losses.

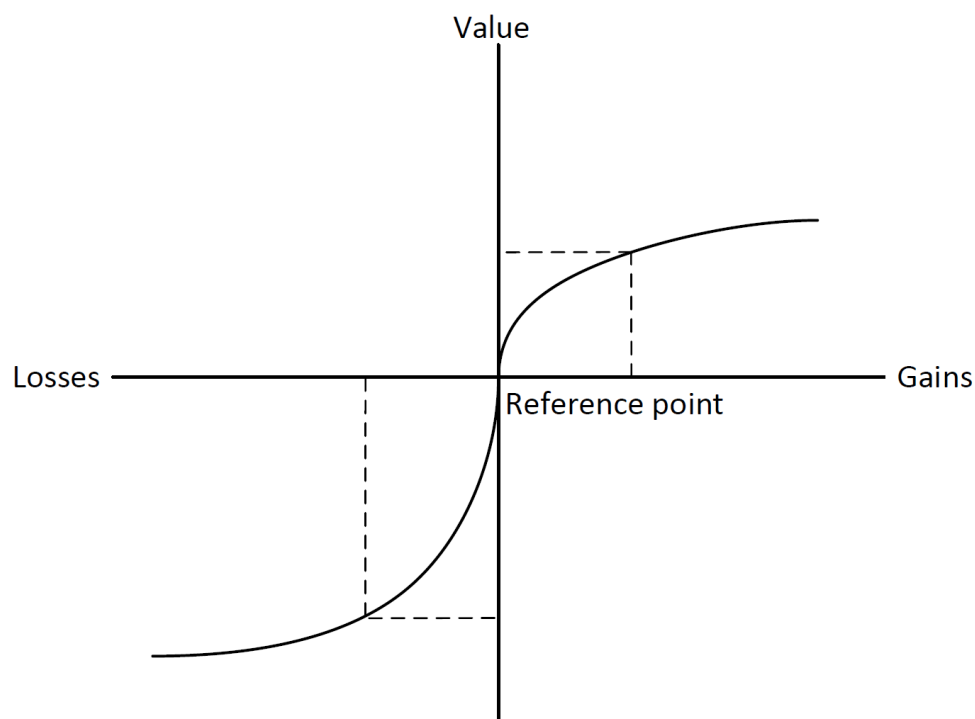


Figure 2. Schematic of the value equation



Source: Kahneman and Tversky (1979)

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

$$v(x) = \begin{cases} (x - Re)^\alpha & x \geq Re \\ -\lambda(Re - x)^\beta & x < Re \end{cases} \quad (1)$$

Where  $Re$  represents the reference point,  $\lambda > 1$  captures loss aversion (indicating losses have a greater psychological impact than equivalent gains), and  $\alpha, \beta < 1$  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  $\lambda$  - will guide our hypothesis development and empirical model specification in Section 3.

This framework offers valuable insights for understanding migration decisions. Individuals evaluate potential gains (e.g., higher wages, better opportunities) and losses (e.g., leaving familiar surroundings, social connections) relative to their current situation. The value function's asymmetric nature suggests potential losses might outweigh equivalent gains, explaining why many remain in suboptimal situations rather than risk migration's uncertainties.

### **2.2.2. Applications of the components of Prospect Theory in Migration Research**

Scholarly applications of prospect theory in migration research have demonstrated its considerable potential and provided important foundations for further development. Studies examining loss aversion's role in migration have shown its significant influence on migration decisions. For example, Czaika (2015) applied "migration prospect theory" to analyze EU migration to Germany (2001-2010), finding negative economic prospects in origin countries more influential than positive conditions in destinations. O'reilly and Boyd (2020) examined historical migration fevers, showing that facing certain living standard declines led to riskier migration choices, explaining sudden mass migrations during crises. Aoki (2024) analyzed migration intentions in shrinking cities, revealing stronger loss aversion towards transportation and medical facilities than community factors. Zheng and Li (2024) extended the application to environmental migration contexts, showing how loss aversion influences adaptation behaviors despite environmental risks.

Research on endowment effects has also yielded valuable insights into migration behavior. Clark and Lisowski's (2017) investigation revealed significant relationships between endowments like housing tenure and length of residence and residential stability, acknowledging limitations by not incorporating job-related endowments. Hao and He (2022) used the concept of endowment effect to analyze rural-urban migration in China, demonstrating how land ownership and local resource access influence mobility. While these studies have effectively examined tangible material endowments, there remains an opportunity to reconceptualize factors such as social integration and place attachment as forms of intangible psychological endowments that could similarly influence migration decisions through loss aversion mechanisms. Such reconceptualization would extend endowment effect analysis beyond physical assets to include psychological and social capital.

The relationship between risk attitudes and migration propensity represents another crucial research area. Some studies indicate risk-averse individuals are less inclined to migrate. For instance, Heitmueller (2005) explored the intersection of unemployment benefits and risk during EU enlargement, finding risk-averse individuals avoid migration. Jaeger et al. (2010) confirmed this by studying risk attitudes' influence on internal migration in Germany, showing risk-takers more prone to migrate. Clark et al. (2023) established significant correlations between personality traits, risk preferences, and migration propensity. Other studies argue risk is irrelevant or has mixed effects on migration decisions. For example, Hao et al. (2014) conducted a field experiment in China, finding no differences in risk and ambiguity preferences between migrants and non-migrants. Ayhan et al. (2020), using a four-wave panel from the Ukrainian Longitudinal Monitoring Survey (2003-2012), observed mixed impacts of risk attitudes, encouraging rural-to-urban migration but discouraging rural-to-town migration. While these studies provide important insights on risk attitudes in migration, they predominantly rely on existing databases (i.e., German SOEP, US PSID, Australian HILDA), which typically measure general or financial risk attitudes, suggesting potential value in developing more context-specific measures for migration research.

Building on this valuable literature, we identify several areas where an integrated approach could further enhance our understanding of migration decisions. First, previous studies have made significant contributions by examining individual components, offering opportunities to develop a comprehensive framework integrating prospect theory components, as studies examine loss aversion (Czaika, 2015; O'reilly and Boyd, 2020) or endowment effects (Clark and Lisowski, 2017)

typically focus on specific elements. Second, prior literature like Czaika (2015) provides important economic insights, which can be expanded to include other factors such as housing, amenities, and quality-of-life considerations. Third, current research uses proxy variables and general measures that could be complemented with migration-specific psychological factors. General risk attitude measures (Clark et al., 2023; Jaeger et al., 2010) obscure migration-specific risk perceptions and responses. Fourth, endowment effect literature offers valuable insights on tangible factors, presenting opportunities to further explore psychological and social dimensions. Studies cover housing tenure (Clark and Lisowski, 2017) and land ownership (Hao and He, 2022), but ignore occupation-related endowments, social integration, and place attachment—factors potentially crucial for understanding migration decisions. Finally, there remains potential to apply prospect theory to young talent migration in competitive urban environments. Despite their crucial economic role, how their unique characteristics—emphasis on career development, sensitivity to urban soft environments, and greater choice freedom (Jin et al., 2022)—interact with prospect theory could benefit from further exploration. This study builds on these foundations by developing a comprehensive framework integrating multiple prospect theory aspects while focusing specifically on young talent migration in urban contexts.

### **2.3. Theoretical Framework of the Study**

Building upon the core concepts of prospect theory and existing research, this study proposes an integrated theoretical framework to examine young talents' long-term settlement intentions in China's first-tier cities (Figure 3). The framework synthesizes three key theoretical mechanisms: reference dependence, loss aversion, and risk attitudes. This integrated framework enhances our understanding of young talents' migration decision-making under uncertainty in several key ways. First, by distinguishing between general and domain-specific risk attitudes, the framework can capture the complexity of risk evaluation in migration contexts, where individuals may have different risk tolerances across various life domains. Second, through reference-point dependent evaluations, the framework provides insights into why individuals with similar objective circumstances may make different migration decisions based on their current situations as reference points. Third, by incorporating loss aversion mechanisms, the framework explains why potential losses may have disproportionate influence on migration decisions compared to equivalent gains. Fourth, by conceptualizing various factors as endowments that manifest indirect

loss aversion, the framework provides a unified theoretical explanation for previously observed but theoretically fragmented findings, such as why homeownership, public sector employment, and place attachment consistently influence migration decisions across different studies.

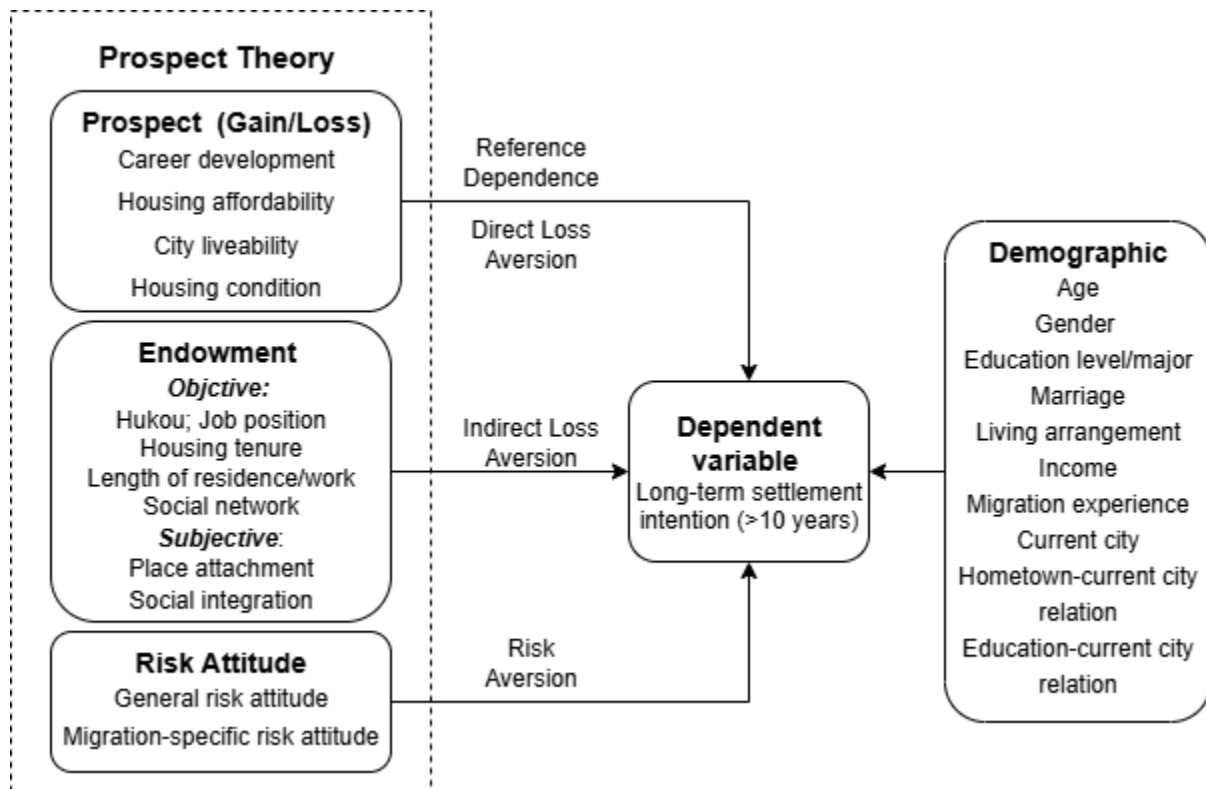


Figure 3. A Holistic Theoretical Framework of Prospect Theory in Migration Decision-Making  
Source: Developed by authors

### 2.3.1. Prospect evaluation

A contribution of our research is identifying the key dimensions through which migrants evaluate potential gains and losses when making settlement decisions under Prospect Theory. We focus on four core aspects—career advancement opportunities, city livability, housing conditions, and housing affordability—representing fundamental trade-offs in location decisions. This dimensional framework builds upon and extends Spatial Equilibrium Theory (Glaeser and Gottlieb, 2009), particularly the Rosen-Roback model (Roback, 1982; Rosen, 1979) and the Alonso-Muth-Mills model (Alonso, 1964; Mills, 1967; Muth, 1969). Our approach adapts these classical models to better reflect contemporary migration complexities and Chinese context specificities.

Career advancement fundamentally shapes migration choices. While traditional models focus on wage differentials, we contend that career development opportunities—encompassing income growth, professional advancement, and occupational status—better capture migrants' long-term considerations. This is especially relevant in China, where career progression may prioritize job stability and professional status over immediate income. Agglomeration economies (Glaeser et al., 1992) reinforce this, as large urban centers provide diverse career paths beyond pure wage considerations.

City livability constitutes our second dimension. The Rosen-Roback model suggests individuals choose locations based on compensating differentials between wages, housing costs, and urban amenities. We adopt 'city livability' instead of urban amenities for two reasons: it provides a more structured, measurable framework integrating economic, social, and environmental dimensions; and livability (宜居性) is widely recognized in Chinese-speaking societies, from Singapore's urban policies (Teo, 2014) to mainland China's talent retention strategies (He et al., 2022)—making it culturally well-understood for survey research in Chinese urban contexts.

The Alonso-Muth-Mills model emphasizes housing costs relative to income as a key determinant of residential choice (Alonso, 1964; Mills, 1967; Muth, 1969). Housing affordability—measured as income proportion spent on housing costs (including mortgage payments and/or rent)—is crucial in determining perceived gains or losses. While this model primarily addresses economic aspects, we extend our analysis to include housing conditions, defined as physical living space quality. Including both dimensions is essential as migration decisions evaluate both financial burden and physical living quality (Xie and Chen, 2018).

### **2.3.2. Endowment effect**

Endowment effects influence migration through indirect loss aversion, assessed via objective dimensions (i.e., hukou status, job position and housing tenure) and subjective dimensions (place attachment and social integration). This framework applies endowment effect concepts to the Chinese context by incorporating both institutional factors (hukou status, public sector employment) and psychological attachments (place attachment, social integration) that shape young talents' settlement decisions.

Local hukou represents a valuable institutional endowment in Chinese cities, determining access to education and housing qualifications (Song, 2014; Wang et al., 2017). Its value is pronounced in first-tier cities with rich educational resources, functioning as a crucial asset residents resist relinquishing (Chan and Buckingham, 2008).

Job position and length of working time constitute key career-related endowments that shape mobility decisions through accumulated professional capital and workplace embeddedness. Public sector employment, requiring competitive examinations, is valued for stability and benefits compared to private sector employment (Méziade and Qiang, 2015). These positions represent significant career capital that individuals resist forfeiting. Working duration reflects location-specific capital through professional networks and local business understanding.

Housing tenure and residence length determine mobility decisions, with homeowners and long-term residents showing stronger endowment effects due to their reluctance to relinquish accumulated place-based advantages (Clark et al., 2023; Clark and Lisowski, 2017). Owned housing serves as a psychological anchor reinforcing loss aversion (Clark and Lisowski, 2017), while longer residence intensifies emotional and practical ties to locations (Clark et al., 2023).

Social networks, measured by the number of friends and relatives in the current city, represent another crucial endowment. Research shows larger local networks reduce mobility intentions by the psychological and social costs of relocation (Blumenstock et al., 2025; Munshi, 2020). Gong et al. (2023, 2024) confirm that social networks are closely associated with highly skilled migrants' location choices. Hao and He's (2022) characterization of social networks as "soft endowment" that restricts mobility similar to financial constraints. These social ties act as location-specific capital difficult to transfer.

Place attachment and social integration constitute crucial subjective dimensions of endowment effects. These effects extend beyond economic considerations to represent social and emotional capital (Clark and Lisowski, 2017). Place attachment creates inertia in migration decisions (Clark and Lisowski, 2017), while social integration increases perceived migration costs (Z Liu et al., 2017; Vezzoli, 2023). This perspective aligns with Vezzoli's (2023) concept of "relative endowment," which highlights how community ties shape migration aspirations.

Our contribution lies in reconceptualizing local hukou, place attachment, and social integration as endowments, extending beyond conventional economic perspectives and providing a more holistic framework for understanding young talents' migration decisions in China.

### **2.3.3. Risk attitude**

Our framework integrates both general and migration-specific risk attitudes, challenging the conventional assumption of consistent cross-domain risk preferences in migration literature. Previous research primarily used general risk measures, employing broad self-assessments that assume uniform risk preferences across contexts (Heitmueller, 2005; Jaeger et al., 2010). For example, Clark and Lisowski (2017) and Clark et al. (2023) confirmed that higher general risk aversion significantly reduced mobility. However, Weber et al. (2002) demonstrated that risk attitudes vary across domains, shaped by perceived risks and benefits rather than stable traits. Their domain-specific scale revealed significant variations in risk-taking across financial, health/safety, recreational, ethical, and social contexts. Consequently, general risk measures may miss important variations and inadequately predict domain-specific behaviors. Our framework thus incorporates migration-specific risk attitudes, responding to scholarly calls to address migration-related uncertainties (Morrison and Clark, 2016).

### **2.3.4. Demographic controls**

The framework also accounts for demographic characteristics that may influence settlement intentions, including age, gender, educational level, major, marriage status, living arrangements, income, migration experience, current city of residence, the relationship of hometown and current city, and the relationship of education place and current city, control variables were informed by key migration studies, with representative works by Cui et al. (2016), Mu et al. (2025) 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.

### **3. Research Hypotheses and Empirical Model**

Based on the theoretical framework established in Section 2, this Section develops specific research hypotheses and presents the empirical model for examining young talents' settlement intentions in China's first-tier cities.

#### **3.1 Research hypotheses**

Based on the theoretical framework developed in Section 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.

This hypothesis builds upon Weber et al.'s (2002) finding that risk attitudes vary significantly across decision domains, with individuals showing inconsistent risk preferences across different content areas. In migration research, Morrison and Clark (2016) suggested that existing risk measures could be improved by developing more context-specific measures suited to migration decisions, rather than relying on general financial risk questions that may not capture the particular uncertainties inherent in geographic mobility choices. Similarly, Williams and Baláz (2014) developed migration-specific risk measures including health risks, crime concerns, and family relationship impacts, demonstrating the importance of context-specific risk evaluation in understanding migration behavior. Building on this body of work, which has focused on specific risk factor assessments, our study extends the domain-specific approach by directly measuring individuals' risk-taking attitudes in migration contexts rather than evaluating particular risk components.

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 affordability, and career development opportunities. Reference dependence will be supported if both gains and losses from current conditions show significant effects on stay intentions.

This hypothesis builds upon Kahneman and Tversky's (1979) foundational principle that individuals evaluate outcomes relative to reference points rather than in absolute terms. In migration contexts, this principle has been partly demonstrated by Czaika (2015), who provided support by demonstrating that EU migration to Germany was significantly influenced by both positive and negative deviations from economic reference points in origin countries, with individuals responding to changes rather than absolute economic levels.

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 ( $|\beta_{\text{loss}}| > |\beta_{\text{gain}}|$ ) or if losses are significant while equivalent gains are not.

This hypothesis is rooted in the fundamental principle of prospect theory that losses loom larger than equivalent gains (Kahneman and Tversky, 1979). Empirical support for loss aversion in migration contexts has been demonstrated by Czaika (2015), who found that negative economic prospects in origin countries had stronger effects on migration decisions than equivalent positive conditions in destination countries. Aoki (2024) extends this evidence to residential relocation contexts, showing that when residents evaluate potential environmental changes associated with moving, they demonstrate asymmetric sensitivity to potential deterioration versus improvement in living conditions, particularly for essential services such as transportation and healthcare accessibility.

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.

This hypothesis draws upon Thaler's (1980) original conceptualization of the endowment effect and its theoretical connection to loss aversion as demonstrated by Kahneman (2006), who showed that ownership transforms potential transactions into perceived losses rather than gains. In migration research, Clark and Lisowski (2017) provided empirical support by demonstrating significant relationships between housing tenure and length of residence with residential stability, while Hao and He (2022) extended this to rural-urban migration contexts, showing how land ownership and local resource access influence mobility through endowment mechanisms. Vezzoli (2023) further conceptualized social ties and community connections as "relative endowments" that create migration inertia through the psychological costs of relinquishing accumulated social capital.

### 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:

$$Pr(S_i = 1) = \frac{1}{1+e^{-Z_i}} \quad (2)$$

where

$$Z_i = \beta_0 + \beta_1 R_i + \beta_2 G_i + \beta_3 L_i + \beta_4 E_i + \beta_5 D_i + \varepsilon_i \quad (3)$$

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  $\varepsilon_i$  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 (1), we specify how individuals evaluate potential gains and losses. While the original prospect theory incorporates both loss aversion ( $\lambda$ ) and diminishing sensitivity ( $\alpha, \beta$ ), 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:

$$V_{ij} = \begin{cases} \beta_{j1}(x_{ij} - Re_{ij}) & \text{if } x_{ij} \geq Re_{ij} \text{ (Gains)} \\ \beta_{j2}(Re_{ij} - x_{ij}) & \text{if } x_{ij} < Re_{ij} \text{ (Losses)} \end{cases} \quad (4)$$

where  $x_{ij}$  represents individual  $i$ 's evaluation of dimension  $j$  (career development, housing affordability, 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);  $\beta_{j1}$  and  $\beta_{j2}$  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 ( $\beta_{j1}$ ) and losses ( $\beta_{j2}$ ) are significant (H2);
- 3) Direct loss aversion is demonstrated through either  $|\beta_{j2}| > |\beta_{j1}|$  or  $\beta_{j2}$  being significant while  $\beta_{j1}$  is not (H3);
- 4) The coefficients for endowment effects ( $\beta_4$ ) are significant (H4).

## 4. Research Design and Data

### 4.1. Questionnaire design and variables

The questionnaire for this study consists of two main sections: socio-demographic information collection and an examination of young talents' future migration intentions and decision factors under uncertainty and risk. The dependent variable is a binary indicator of long-term stay intention (1 = planning to stay in the first-tier city for  $\geq 10$  years; 0 = shorter stay plans). Independent variables (socio-demographic controls, prospects, endowments, and risk attitudes<sup>2</sup>) are presented in Figure 3 and Table 1. The complete questionnaire is provided in Appendix A.

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2. General risk attitude was measured using a single-item self-assessment question adapted from the German Socio-Economic Panel (SOEP): "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?" Responses were recorded on an 11-point scale ranging from 0 (unwilling to take risks) to 10 (fully prepared to take risks). Migration-specific risk attitude was measured using a similar question format but specifically contextualized to migration decisions: "When you consider moving, are you a person who is fully prepared to take risks or do you try to avoid taking risks?" This domain-specific approach follows Weber et al.'s (2002) framework demonstrating that risk attitudes vary across decision domains, allowing us to distinguish between general risk preferences and those specific to migration contexts.

## 4.2. Data collection

The research data were collected via online survey (September-October 2022) with approval from the Human Research Ethics Committee of Delft University of Technology. This study examines four first-tier Chinese cities (Beijing, Shanghai, Guangzhou, Shenzhen) characterized by significant economic, social, and cultural advancement. These cities experience intensive urbanization and migration (Zheng and Yang, 2016) and attract young talent through competitive salaries and superior urban amenities (Liu and Shen, 2014), making them ideal for talent-focused research. This study defines young talents as individuals aged 20-40 with bachelor's degrees or higher, national vocational qualifications, or who work as managers and professionals.

For questionnaire development, we followed established migration studies practices (Z Liu et al., 2017; Liu and Wang, 2020) using single-item measures for key constructs. Rather than reliability tests like Cronbach's alpha typically used for multi-item scales, we ensured validity through multiple steps. To ensure content validity, three domain experts in prospect theory and migration research verified the questionnaire's construct coverage, relevance, and accuracy. Subsequently, a pilot study with six young talents in early September 2022 improved clarity and corrected errors such as spelling mistakes and ambiguous phrasing.

We then distributed the formal questionnaire via virtual snowball sampling on WeChat and QQ, chosen for geographical scalability and control over responses, offers control over response types and numbers through referral management (Baltar and Brunet, 2012). Starting with our research team's social networks, we identified eligible respondents to initiate the referral network, then developed some into referrers based on criteria including residence/workplace in a first-tier city, relevant social networks, and social media engagement. We selected 46 referrers distributed across the four cities: 13 in Beijing, 10 in Shanghai, 11 in Guangzhou, and 12 in Shenzhen, while tracking questionnaire quantity and distribution to ensure response quality.

In total, we received 1152 responses and applied rigorous data cleaning to remove: a) non-target respondents (e.g., under 20 or over 40 years old, school students); b) responses completed in less than 3 minutes; and c) responses with obvious errors (e.g., claiming 100 years of work experience). This yielded 1065 valid responses (92.45% valid response rate). Following Field's (2009: 647) recommendation that sample size should be at least 15 times the number of predictor variables, our sample size (1065) substantially exceeds the minimum threshold ( $1065 > 26 * 15 = 390$ ), ensuring robust analysis.

After data collection, independent t-tests on all continuous variables confirmed predictive validity, with differences in key constructs—place 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 aligning with theoretical expectations regarding settlement intention (detailed in Appendix B).

### 4.3. Descriptive statistics

Table 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 1 shows that nearly 51.55% of young talents intend to stay in the current first-tier city for at least 10 years. Among the 516 respondents (48.45%) who do not intend to stay in their current first-tier city for at least 10 years, we examined their likely destinations to better understand talent mobility patterns. The results show that 110 respondents (21.3%) plan to return to their hometown city, while 95 respondents (18.4%) consider moving to the capital city of their home province. Additionally, 85 respondents (16.5%) are considering other cities, and notably, 226 respondents (43.8%) remain uncertain about their future destination. This pattern reveals a predominant tendency toward return migration rather than forward migration to other competitive urban centers, which aligns with Du's (2017) observation that attachment to native places remains influential in destination choices among educated young adults. The high proportion of uncertain destinations also reflects the complexity and fluidity of migration decision-making processes, particularly when individuals face trade-offs between multiple life domains.

Table 1. Sample characteristics and variable description

Category	Variable	Description and coding	Percentage/ Mean (S.D.)
<b>Dependent variable</b>	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%
<b>Socio-demographics</b>	Age	Continuous variable	28.85(3.60)
	Gender	0 = Male	45.16%

	1 = Female	54.84%	
Educational level	0 = Bachelor's degree and below	27.32%	
	1 = Master's degree and above	72.68%	
Educational background	0 = Arts & Humanities	10.99%	
(major)	1 = Engineering & Technology	57.18%	
	2 = Natural & Life Sciences	8.83%	
	3 = 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)	0 = Less than 10000yuan	17.65%	
	1 = 10000-20000yuan	30.42%	
	2 = 20000-40000yuan	35.31%	
	3 = Over 40000	16.62%	
Current live city	0 = Beijing	24.98%	
	1 = Shanghai	24.60%	
	2 = Guangzhou	25.54%	
	3 = Shenzhen	24.88%	
Hometown-current city relation	0 = Different province	76.06%	
	1 = Same city	5.63%	
	2 = Same province	18.31%	
Education-current city relation	0 = Different city	49.58%	
	1 = Same city	50.42%	
Number of previous cross-province migration	Continuous variable	1.12 (0.68)	
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 affordability (the ratio of income to housing price)	0 = remain the same	30.42%
		Loss domain: 1 = “much more/more” (spending more income on housing)	36.71%
		Gain domain: 2 = “much less/less” (spending less income on housing)	32.86%
<b>Endowments</b>	Length of residence(years)	Continuous variable	7.40(7.53)
	Length of working time(years)	Continuous variable	3.58(3.24)
	Job position	0 = Private sector employees	12.68%
		1 = Public sector employees	87.32%
	Hukou status	0 = Hukou of first-tier cities	65.35%
		1 = Hukou of other cities	34.65%
	Current housing tenure	0 = Owner	32.8%
		1 = Non-owner	67.2%
	Social network (number of relatives)	Continuous variable	8.53(17.23)
	Social network (number of friends)	Continuous variable	3.47(16.71)
	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)
<b>Risk attitudes</b>	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)

## 5.Results

Our nested logistic regression models reveal relatively strong empirical support for prospect theory in explaining young talents' stay intentions in first-tier cities. The model results can be seen in Table 2. The theoretical framework demonstrates substantial explanatory power even before incorporating demographic controls, with Pseudo R<sup>2</sup> reaching 0.259 Model 3 and the AIC decreasing significantly from 1435 in Model 1 to 1133 in Model 3.

Table 2: Logistic Regression Results of Stay Intention

	Model 1 (Risk attitude)	Model 2 (Model 1+ prospect)	Model 3 (Model 2+ endowment)	Model 4 (Model 3 + demographics)
Variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
(Intercept)	0.561 (0.205)***	0.394 (0.242)	-0.784 (0.414)*	-1.779 (1.188)
<b>Risk attitude (risk aversion)</b>				
General risk attitude	0.17 (0.043)***	0.145 (0.044)***	0.04 (0.051)	0.041 (0.052)
Migration risk attitude	-0.249 (0.039)***	-0.241 (0.04)***	-0.2 (0.046)***	-0.193 (0.047)***
<b>Prospect (direct loss aversion)</b>				
The prospect of livability (ref. = remain the same)				
<i>Loss</i>		-0.54 (0.287)*	-0.348 (0.334)	-0.326 (0.34)
<i>Gain</i>		0.683 (0.142)***	0.262 (0.167)	0.316 (0.177)*
The prospect of housing conditions (ref. = remain the same)				
<i>Loss</i>		-0.422 (0.317)	-0.165 (0.357)	-0.07 (0.368)
<i>Gain</i>		-0.089 (0.149)	0.11 (0.176)	0.049 (0.187)



	Model 1 (Risk attitude)	Model 2 (Model 1+ prospect)	Model 3 (Model 2+ endowment)	Model 4 (Model 3 + demographics)
Variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
The prospect of career development (ref. = remain the same)				
<i>Loss</i>		-0.769 (0.311)**	-0.736 (0.354)**	-0.682 (0.366)*
<i>Gain</i>		-0.238 (0.15)	-0.037 (0.176)	-0.001 (0.185)
The prospect of housing affordability (ref. = remain the same)				
<i>Loss</i>		0.423 (0.159)***	0.544 (0.184)***	0.504 (0.19)***
<i>Gain</i>		0.43 (0.164)***	0.253 (0.194)	0.23 (0.203)
<b>Endowment (indirect loss aversion)</b>				
Length of residence (years)			0.064 (0.016)***	0.059 (0.019)***
Length of working (years)			0.09 (0.03)***	0.079 (0.043)*
Job positions (ref. = private sector employees)			0.6 (0.227)***	0.646 (0.248)***
Hukou status (ref. = hukou of first-tier cities)			-0.81 (0.163)***	-0.89 (0.185)***
Current housing tenure (ref. = owner)			-0.764 (0.191)***	-0.465 (0.214)**
Social network (number of relatives)			0.026 (0.018)	0.027 (0.019)
Social network (number of friends)			0.002 (0.007)	0.002 (0.007)
Social integration			0.064 (0.053)	0.064 (0.055)

	Model 1 (Risk attitude)	Model 2 (Model 1+ prospect)	Model 3 (Model 2+ endowment)	Model 4 (Model 3 + demographics)
Variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Place attachment			0.133 (0.048)***	0.157 (0.05)***
<b>Demographics</b>				
Age				-0.031 (0.036)
Gender (ref. = male)				0.212 (0.162)
Marital status (ref.=single/divorced/widowed)				
<i>Cohabiting/     in a relationship</i>				0.372 (0.23)
<i>Married</i>				0.661 (0.305)**
Living arrangement (live with a partner) (ref. = no)				-0.271 (0.252)
Living arrangement (live with children) (ref. = no)				0.506 (0.31)
Educational level (ref. = bachelor's degree and below )				-0.254 (0.218)
Educational background (major) (ref. = Art & Humanities)				
<i>Engineering &amp; Technology</i>				0.753 (0.268)***
<i>Natural &amp; Life Sciences</i>				0.512 (0.356)
<i>Social Sciences &amp; Management</i>				0.557 (0.292)*
Family income per month (ref. = less than 10000 yuan)				
<i>10000-20000 yuan</i>				0.045 (0.238)

	Model 1 (Risk attitude)	Model 2 (Model 1+ prospect)	Model 3 (Model 2+ endowment)	Model 4 (Model 3 + demographics)
Variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
<i>20000-40000 yuan</i>				0.452 (0.246)*
<i>over 40000 yuan</i>				0.671 (0.309)**
Current live city (ref. = Beijing)				
<i>Shanghai</i>				-0.429 (0.225)*
<i>Guangzhou</i>				-0.664 (0.242)***
<i>Shenzhen</i>				-0.778 (0.248)***
Hometown-current city relation (ref. = different province)				
<i>Same city</i>				0.516 (0.552)
<i>Same province</i>				0.333 (0.379)
Education-current city relation (ref. = different city)				0.589 (0.273)**
Number of previous cross-province migration				0.504 (0.272)*
Pseudo R <sup>2</sup>	0.032	0.07	0.259	0.299
AIC	1435	1394	1133	1115
BIC	1449	1449	1233	1314
Observations	1065	1065	1065	1065

Notes: Standard errors in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1; Variance Inflation Factor (VIF) tests were conducted to assess multicollinearity among predictor variables in all Models. All  $GVIF^{(1/(2 \cdot Df))}$  values were below 5, indicating acceptable levels of collinearity. Taking results of Model 4 as an example, the highest values were

observed for previous migration (2.41) and education-city relationship (1.78). These results confirm that multicollinearity does not substantially impact our coefficient estimates or interpretations.

Hypothesis 1, regarding the domain-specificity of risk attitudes, finds strong support through a nuanced pattern of effects. Initial analysis (Model 0, not listed in table 2) showed no significant effect of general risk attitude 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 indicates a suppression effect, as documented by MacKinnon et al. (2000). To ascertain this effect, we conducted a mediation analysis (see Appendix C). Results revealed that 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. Specifically, the direct effect of general risk attitude 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.

Critically, as additional variables are introduced in subsequent models, migration-specific risk attitude maintained its robust negative effect ( $\beta = -0.199$ ,  $p < 0.001$  in Model 4), while general risk attitude became non-significant in the full model ( $\beta = 0.041$ ,  $p > 0.1$ ), strongly supporting H1's prediction about domain-specific risk attitudes' superior explanatory power.

Hypothesis 2, concerning reference dependence, receives support with varying patterns of significance across different dimensions. Career development prospects consistently show significant effects for losses in all models ( $\beta = -0.769$ ,  $p < 0.05$  in Model 2; remaining significant in Models 3-4), as do housing affordability ( $\beta = 0.423$ ,  $p < 0.01$  in Model 2, with stable significance through Model 4). City livability initially shows significant effects for both gains ( $\beta = 0.683$ ,  $p < 0.01$ ) and losses ( $\beta = -0.54$ ,  $p < 0.05$ ) in Model 2, but becomes non-significant when endowment variables are introduced in Models 3. Housing physical conditions show no significant effects for either gains or losses across models. This pattern suggests reference dependence operates most strongly in domains tied to economic considerations (job prospects and housing affordability),

while its influence on quality-of-life factors (livability and housing conditions) appears to be explained away by accumulated city investments and demographic characteristics.

Hypothesis 3, predicting direct loss aversion, finds support across multiple dimensions in Models 3 and 4. Loss aversion is most clearly demonstrated in career development, where only losses show statistical significance ( $\beta = -0.682$ ,  $p < 0.1$ ) while gains are not significant ( $\beta = -0.001$ ). For housing affordability, both gains and losses are significant, with losses showing larger absolute coefficients ( $\beta = 0.504$  vs.  $\beta = 0.230$ ), supporting the loss aversion pattern. Housing conditions also supports loss aversion through coefficient magnitude, with losses ( $\beta = -0.07$ ) exceeding gains ( $\beta = 0.049$ ) in absolute value, though neither reaches statistical significance. City livability presents the only exception to the loss aversion pattern, where gains achieve significance ( $\beta = 0.316$ ,  $p < 0.1$ ) while losses do not ( $\beta = -0.326$ ), despite losses having larger absolute coefficients.

Interestingly, while housing affordability demonstrate larger coefficients for losses than gains, the positive sign of the loss coefficient ( $\beta = 0.504$ ,  $p < 0.001$ ) suggests that expected lower housing affordability enhances stay intentions rather than deterring them. To understand this counterintuitive finding, we conducted additional analyses (Appendix D). First, we tested interaction effects between expected housing affordability and housing tenure status. However, these interaction terms proved statistically non-significant (Appendix D1), indicating that expected housing affordability' impact on migration behavior remains consistent across tenure categories. Second, separate analyses of homeowners ( $n=349$ ) and renters ( $n=716$ ) revealed distinct patterns: homeowners showed no significant relationship between expected housing affordability and stay intentions, likely due to fixed mortgage costs, while renters demonstrated a significant positive relationship ( $\beta = 0.602$ ,  $p < 0.01$ ), with those anticipating lower housing affordability (namely higher expenses) showing stronger stay intentions. Third, we examined the relationship between expected housing affordability and home purchase intentions among renters using ANOVA analysis (Appendix D2). Using three purchase intention measures (7-point Likert scale), we found a strong positive correlation ( $F = 26.47$ ,  $p < 0.001$ ), with renters expecting lower housing affordability demonstrating significantly stronger purchase intentions (mean = 5.02 vs. 4.14). These findings show that renters expecting lower housing affordability demonstrate significantly stronger purchase intentions and stay intentions, while homeowners show no such relationship.

The systematic pattern of larger loss coefficients across three of four dimensions (career development, housing conditions, and housing affordability), combined with the clear statistical

significance of losses in career development and the unique dynamics observed in housing affordability, provides substantial support for the loss aversion hypothesis, while revealing the complex ways young talents evaluate different types of potential losses in their settlement decisions.

Hypothesis 4, testing indirect loss aversion through endowment effects, is strongly supported as endowment variables significantly improve model fit ( $\Delta R^2 = 0.189$ ). Two institutional endowments are most influential: hukou status, with non-local hukou holders ( $\beta = -0.89$ ,  $p < 0.01$ ) showing lower stay intentions than local hukou holders; and public sector employment, with public sector employees ( $\beta = 0.646$ ,  $p < 0.01$ ) exhibiting higher stay intentions than private sector employees. Housing tenure demonstrates significant effects ( $\beta = -0.465$ ,  $p < 0.05$ ), with non-owners showing lower stay intentions than homeowners. Time-based investments also prove significant, with length of residence ( $\beta = 0.059$ ,  $p < 0.01$ ) and working time ( $\beta = 0.079$ ,  $p < 0.1$ ) positively affecting stay intentions. The psychological dimension of endowment is captured through place attachment, which shows significant positive effects ( $\beta = 0.157$ ,  $p < 0.01$ ), while social integration shows a positive but non-significant effect ( $\beta = 0.064$ ). Contrary to expectations, neither the number of friends ( $\beta = 0.002$ ) nor relatives ( $\beta = 0.027$ ) significantly influence stay intentions, suggesting institutional, physical, and psychological investments outweigh social networks in stay decisions.

Given the prominent role of institutional endowments, we further examined how these factors interact with traditional economic drivers to influence settlement decisions. We examined interactions between job position, hukou status, and three key economic factors: income levels, career development prospects, and housing affordability (the complete interaction analysis is presented in Appendix E). While most interactions prove non-significant, we find two notable moderating effects. Job position significantly moderates the relationship between expected lower housing affordability (namely housing expense increases) and settlement intentions ( $\beta = -1.033$ ,  $p < 0.1$ ), with public sector employees showing reduced settlement intentions compared to private sector workers when facing affordability pressures. Additionally, hukou status moderates the relationship between expected housing affordability improvements and settlement intentions ( $\beta = 0.730$ ,  $p < 0.1$ ), with non-local hukou holders showing stronger increases in settlement intentions when expecting housing to become more affordable.

Demographic controls in Model 4 only moderately improve explanatory power ( $\Delta R^2 = 0.04$ ), indicating prospect theory components capture primary determinants of stay intentions. Nevertheless, several demographic factors show significance. Most notably, significant city differences emerge, with all three cities showing lower stay intentions compared to Beijing. This pattern shows increasing magnitude from Shanghai ( $\beta = -0.429$ ,  $p < 0.05$ ), through Guangzhou ( $\beta = -0.664$ ,  $p < 0.001$ ), to Shenzhen ( $\beta = -0.778$ ,  $p < 0.001$ ), suggesting substantial variation in city-specific factors affecting retention. Educational background impacts with Engineering & Technology ( $\beta = 0.753$ ,  $p < 0.001$ ) and Social Sciences & Management graduates ( $\beta = 0.557$ ,  $p < 0.1$ ) showing higher stay intentions than Arts & Humanities graduates. Income demonstrates a gradient effect with households earning >40000 yuan monthly showing significantly higher stay intentions ( $\beta = 0.671$ ,  $p < 0.01$ ) and those earning 20000-40000 yuan showing marginally significant effects ( $\beta = 0.452$ ,  $p < 0.1$ ). Married individuals demonstrate higher stay intentions ( $\beta = 0.661$ ,  $p < 0.01$ ) than single/divorced/widowed individuals. Additionally, individuals who received education in their current city show higher stay intentions ( $\beta = 0.589$ ,  $p < 0.01$ ), and those with more previous cross-province migration experience demonstrate higher stay intentions ( $\beta = 0.504$ ,  $p < 0.1$ ). Age, gender, living arrangements, educational level, and hometown-current city relation show no significant effects.

## **6. Discussion**

This study examines factors influencing young talents' settlement intentions in first-tier Chinese cities through prospect theory—the first comprehensive application of multiple prospect theory elements to young professionals' migration decisions. Analysis of 1065 questionnaires from four first-tier Chinese cities revealed that migration decisions are influenced by asymmetric psychological evaluations, with institutional factors (homeownership, local hukou, public employment) and psychological attachments significantly enhancing settlement intentions. Our findings highlight the stronger influence of migration-specific risk attitudes. These insights advance behavioral economic understanding of talent mobility.

### **6.1. The role of general and domain-specific risk attitude**

Our risk attitude analysis offers novel insights into migration decision psychology. Beyond general risk measures used in previous research (Clark et al., 2023; Clark and Lisowski, 2017), we

identified a suppression effect (MacKinnon et al., 2000). When controlling for migration risk attitude, higher general risk tolerance positively correlates with intentions to stay in first-tier cities, as these individuals may be more willing to face local challenges. However, these same risk-tolerant individuals typically exhibit higher migration risk tolerance, reducing their stay intentions. This reveals competing pathways (direct positive versus indirect negative effects) requiring non-linear models to capture. The relationship grows more nuanced when considering broader socioeconomic factors. While migration-specific risk attitude maintains its negative effect consistently, general risk attitude's influence diminishes in the full model, suggesting socioeconomic variables may already capture non-migration risk-taking aspects. This highlights the importance of distinguishing between general and domain-specific risk attitudes in understanding mobility decisions of young talents in first-tier cities—a distinction potentially overlooked in previous research using only general risk measures.

## **6.2. The role of reference dependence and loss aversion**

Our findings demonstrate reference dependence in young talents' urban settlement decisions, with mixed evidence for loss aversion across different dimensions. Career development prospects clearly exhibit direct loss aversion, with negative expectations more strongly influencing migration intentions than positive ones. This aligns with Czaika's (2015) findings that potential international migrants show greater sensitivity to negative economic prospects in origin countries than to positive prospects in destination countries.

Housing affordability significantly affects stay intentions in a complex manner. While maintaining the loss aversion pattern, the positive loss coefficient indicates that expectations of decreased housing affordability enhance rather than deter stay intentions. Additional analyses reveal that renters expecting lower housing affordability demonstrate significantly stronger purchase intentions (see Appendix D2), suggesting that anticipated housing cost increases may signal homeownership aspirations among renters, explaining their increased willingness to stay. This finding is consistent with Huang and Chen's (2022) research showing that homeowners generally have higher propensity to stay. Separate analyses reveal prospect theory has stronger explanatory power for renters (Appendix D1), reflecting their greater uncertainty exposure compared to homeowners who have made location-specific investments.



Prospects regarding housing conditions lose significance in our final models, while city livability presents an unexpected pattern where only gains achieve significance. This contrasts with previous findings such as Xie and Chen (2018), who found migrant workers in better housing conditions showed stronger stay intentions. The discrepancy likely reflects our focus on young talents rather than migrant workers, as higher-income young talents' current housing conditions show minimal variation, making this factor less critical.

The finding that livability gains outweigh losses for young talents presents an interesting departure from standard loss aversion patterns, suggesting that loss aversion may be domain-specific in migration contexts. This pattern may reflect the unique characteristics of young talents who, despite urban difficulties, remain motivated by career opportunities and thus develop greater tolerance for current limitations while being especially responsive to the prospect of environmental improvements.

### **6.3. The role of endowment effect**

Our findings on traditional endowment measures—housing tenure and residence duration—align with previous research (Clark et al., 2023; Clark and Lisowski, 2017), confirming homeowners and long-term residents show stronger stay intentions. Our study expands endowment effects in the Chinese context by identifying the strong impact of institutional endowments—hukou status and public sector employment—revealing how China's unique institutional arrangements create retention mechanisms through administrative privileges. Consistent with most previous studies (Tang and Hao, 2018), our research found that local hukou status also has a positive effect on the settlement intentions of high-skilled migrants. Public sector employment also positively influences young talents' intentions to stay, which may be due to the career stability that public sector employment provides for young talents (Wang and Shen, 2022), creating an endowment effect toward their current location. These institutional effects suggest traditional conceptualizations of endowment in migration research should incorporate context-specific institutional factors.

Our interaction analysis also reveals how institutional factors create differential responses to economic factors. Public sector employees show reduced settlement intentions when facing housing affordability pressures ( $\beta = -1.033$ ,  $p < 0.1$ ), likely because their fixed incomes make them less able to absorb additional housing expenses compared to private sector workers with more

variable income potential (Zhu and Kong, 2025). Non-local hukou holders demonstrate stronger increases in settlement intentions when expecting improved affordability ( $\beta = 0.730$ ,  $p < 0.1$ ), as affordable housing represents a critical pathway to permanent urban integration and access to urban welfare that is typically restricted to local hukou holders (Cui and Arundel, 2025). These findings suggest that institutional status fundamentally shapes how individuals interpret housing market signals, indicating that traditional economic models of migration need to account for administrative and employment status in understanding settlement decisions.

We also extend endowment effects by examining subjective endowments, finding place attachment significantly influences stay intentions even after controlling for demographics, indicating psychological bonds constitute a meaningful endowment affecting migration decisions. Unlike Huang and Chen's (2022) finding that local dependent relatives and friends enhance migrant stay intentions, we found the number of friends and relatives in first-tier cities had no significant effect. The significant effect of place attachment versus the non-significant role of social networks may reflect fundamental differences in capital transferability: while psychological attachment represents location-specific emotional capital that cannot be replicated elsewhere, social networks constitute interpersonal capital that is less geographically constrained, particularly with digital communication technologies facilitating long-distance relationship maintenance (Dekker and Engbersen, 2014). For young talents specifically, their high human capital reduces dependence on local social networks for information and support, allowing them to prioritize personal fulfillment and identity considerations over instrumental social connections, highlighting the distinctive decision-making processes of highly skilled individuals in competitive urban environments (Jin et al., 2022).

#### **6.4. The role of socio-demographic characteristics**

Our findings also indicate demographic factors influence young talents' settlement decisions. Most notably, significant city differences emerge, with young professionals in Beijing exhibiting stronger settlement intentions compared to those in Shanghai, Guangzhou, and Shenzhen. This partially corroborates Zhang & Yan (2022), who identified higher settlement intentions among skilled migrants in Beijing versus Shenzhen. As Zhang & Yan (2022) note, this may reflect Beijing's capital status and position as China's political-cultural center, offering superior institutional resources including education and healthcare. Educational background significantly

impacts settlement decisions, with individuals having Engineering & Technology and Social Sciences & Management backgrounds showing higher retention rates than Arts & Humanities graduates. This aligns with Storper and Scott's (2009) "production system-driven theory," which posits industrial agglomeration and specialized labor division drive urban growth through business clusters and localized knowledge spillovers in first-tier cities. Limited opportunities for arts and humanities practitioners reflect the mismatch between non-technology-intensive positions and these cities' industrial structures. Higher-income households demonstrate greater retention rates, consistent with previous research (Hu et al., 2022; Liu et al., 2018, 2025), suggesting first-tier cities better retain economically successful individuals who have maximized returns on human capital investments. Marital status significantly impacts stay intentions, with married individuals demonstrating stronger retention tendencies. Life course theory provides theoretical support. Mulder and Wagner (1993) identified marriage's effect on migration through "event dependence," where synchronous events increase migration opportunity costs by strengthening dependence on local resources. Additionally, our results reveal that young talents who received their education in their current city demonstrate significantly higher settlement intentions. This finding is indeed consistent with previous research indicating that highly educated individuals are more likely to remain in the city where they attended university (Jin et al., 2022; Y Liu et al., 2017). This effect may be particularly pronounced in our study context of China's first-tier cities, as Faggian & McCann (2009) suggest that the strength of university-local connections depends largely on the robustness of the local economy, and first-tier cities represent China's strongest economic centers. Contrary to some migration theories that suggest highly mobile individuals are less likely to settle, our finding shows that previous cross-province migration experience actually increases settlement intentions in first-tier cities. This aligns with Wang et al.'s (2023) conclusion that highly educated migrants tend to settle in large cities, suggesting that experienced migrants may view first-tier cities as optimal destinations after exploring alternatives, making them more committed to long-term settlement once they arrive.

However, several demographic factors show no significant effects on settlement intentions. For example, gender shows no significant impact, which is consistent with Zhang and Yan's (2022) quantitative research on skilled migrants' settlement intentions in Beijing and Shenzhen, as well as Gong et al.'s (2023) qualitative study on highly skilled migrants in Shenzhen. This may suggest that in China's current developed first-tier cities, urban development has promoted further

advancement in gender equality, and the male-dominated phenomenon in skilled migration (Bailey and Mulder, 2017) no longer reflects China's current reality. Hometown-current city relationship also shows no significant effects. We believe possible explanations may be: first, many young talents may have already relocated their parents to live with them in first-tier cities, as Gong et al. (2022; 2023) found that highly skilled migration to first-tier cities is often driven by the presence of relatives already residing there, making their previous hometown location less relevant; second, as highly skilled individuals with strong economic capacity, they are better able to cope with transportation costs, psychological costs, and uncertainties (Liu and Shen, 2017), and thus can afford flexible arrangements to balance career development with family responsibilities without necessarily returning to their hometowns.

## **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—within a unified analytical framework, building upon previous studies that have explored these components individually. 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. These contributions also have broader implications for understanding skilled migration globally: our integrated prospect theory framework can be adapted to analyze talent mobility in other competitive urban environments worldwide, while the domain-

specific risk attitude measurement and expanded endowment conceptualization provide universally applicable tools for migration research across different institutional and cultural contexts.

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.

While this study provides valuable theoretical and practical insights, several limitations should be acknowledged for future research. First, given the absence of a comprehensive sampling frame for young talents in first-tier cities, we employed snowball sampling through social networks, which introduces potential sampling bias including over-representation of digitally engaged individuals and homophily effects. The non-probability nature of our sampling limits generalizability, and our findings should be interpreted with caution when applied to the broader population of young talents. Future research would benefit from employing probability sampling methods when comprehensive sampling frameworks for this population become available. Second, our survey conducted during September-October 2022 coincided with China's COVID-19 control measures and real estate market adjustments, potentially influencing settlement decisions through various channels (e.g., urban governance capacity, job market conditions, risk perceptions). This unique timing provides distinctive value for understanding decisions under extraordinary circumstances and creates opportunities for future longitudinal research on evolving settlement intentions as contextual factors change. Third, as a cross-sectional study, our findings should be cautiously interpreted as correlational rather than strictly causal relationships. While we controlled various demographic and socioeconomic characteristics, there may still be unobserved factors simultaneously influencing risk attitudes, endowment effects, and settlement intentions. Future research could consider longitudinal data or quasi-experimental designs to further examine the causal nature of these relationships. Fourth, our loss aversion analysis focused exclusively on expectations within current cities, omitting potential destination cities' influence. This approach differs from traditional migration destination choice studies that typically employ multinomial logit models to simultaneously evaluate multiple destination alternatives (see for example (Liu and Xu, 2017; Wang et al., 2024)). Our descriptive analysis of destination preferences among those not planning to stay reveals a predominant return migration pattern: 39.7% plan to return either to their hometown city (21.3%) or their home province's capital city (18.4%), while a substantial proportion (43.8%) remain uncertain about their future destination. This pattern aligns with emerging research on return migration, where attachment to origin places continues to influence mobility decisions among educated populations (Du, 2017). However, the high level of destination uncertainty and our focus on current city evaluations across multiple prospect theory dimensions preclude comprehensive multi-destination comparative analysis. Future research could incorporate comparative evaluations between current and potential destination cities across multiple

dimensions to enable more comprehensive understanding of migration decision-making processes. Finally, while our logistic regression controls for city-level differences, the limited number of cities prevented employing multilevel modeling, which could better capture hierarchical dependencies. Future research with more cities could explore multilevel modeling's advantages for capturing city-level heterogeneity more comprehensively.

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