Migrations, risks, and uncertainty: A field experiment in China

Li Hao\(^a,\)\(^*,\) Daniel Houser\(^b,\) Lei Mao\(^c,\) Marie Claire Villeval\(^d,\)\(^e\)

\(^a\) Sam M. Walton College of Business, University of Arkansas, Fayetteville, AR 72701, USA
\(^b\) George Mason University, 4400 University Drive, MSN 182, Fairfax, VA 22030 USA, USA
\(^c\) School of Insurance, Central University of Finance and Economics, 39 South College Road, Haidian District, Beijing 100081, China
\(^d\) Université de Lyon, F-69007, CNRS-GATE, 93 Chemin des Mouilles, F-69130 Ecully, France
\(^e\) IZA, Bonn, Germany

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**ABSTRACT**

We report data from the first incentivized artefactual field experiment conducted in China to understand whether Chinese migrants differ from non-migrants in terms of preferences regarding risk and uncertainty in various contexts. We find that, compared to non-migrants, migrants are significantly more likely to enter competitions when they expect competitive entries from others; however, migrants are not different from non-migrants in risk and ambiguity preferences where strategic uncertainty is absent. Our results suggest that migration may be driven more by a stronger belief in one’s chance of succeeding in an uncertain competitive environment than by differences risk attitudes related to state uncertainty.

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1. Introduction

Migration plays a critical role in efficiently re-allocating labor to where it is valued the most; it is the “grease for the wheel of the labor market” (Borjas, 2001). The past few decades have witnessed a burgeoning interest in understanding the determinants of migration decisions, including expected income differences (Harris and Todaro, 1970; Brucker and Jahn, 2011); rank in the local income distribution (Stark and Taylor, 1991); age and education (Sjaastad, 1962; Schwartz, 1976; Chiswick, 1986 Malamud and Wozniak, 2012); family and personal networks (Boyd, 1989; Pedersen et al., 2008; Munshi, 2003); concentration of peers in the area of destination (Mora and Taylor, 2005); asymmetric information on skills (Katz and Stark, 1987; Chen, 2005).

\(^*\) Corresponding author.

E-mail addresses: lhao@walton.uark.edu (L. Hao), maolei3518@sina.com (L. Mao), villeval@cnrs.fr (M.C. Villeval).

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This paper investigates whether Chinese migrants differ from non-migrants in terms of preferences under uncertainty, and we report results from the first incentivized artefactual field experiment (as classified in Harrison and List, 2004) on this topic. Imagine an aspiring migrant who considers the possibility to move to a big city for employment. She must make a series of decisions, explicitly or implicitly, such as, should she move to a city? Which city? The answers in turn depend on her assessment of the likelihood of finding a job in the city, how much money does this job allow her to earn and save, in which cities does she have social networks, and many others questions. These decisions involve both risk and ambiguity, as she may or may not have enough information to assess the probabilities of the outcomes related to these questions. Moreover, her job prospects also depend on the level of competition from other migrants, an entirely different source of uncertainty that involves other people’s strategic behavior.

Nonetheless, and although early theoretical literature has recognized its importance (Stark, 1981; Stark and Levhari, 1982; Katz and Stark, 1986), few empirical studies on migration have measured the role of preferences towards risk and uncertainty (Williams and Baláž, 2012). Moreover, the empirical evidence in the literature has largely relied on census or survey data with self-reported risk preferences that were not elicited in an incentive-compatible way (David, 1974; Stark and Levhari, 1982; Guiso and Paella, 2006; Gibson and McKenzie, 2009; Jaeger et al., 2010; Czaika, 2012; Akgüç et al., 2016). For example, using survey data from Germany,1 Bonin et al. (2009) show that first generation migrants are more risk averse than natives, while Jaeger et al. (2010) provide evidence that migration propensity is positively associated with willingness to take risks. Other studies also use hypothetical vignettes (as an example, see Batista and Umblijis, 2014). To the best of our knowledge, we are the first to conduct an incentivized field experiment to measure risk preferences directly and investigate the relationship between risk preferences and migration propensity.2

We chose to conduct our experiment in China since the country has experienced the largest rural-urban labor migration in the history of humanity (Meng et al., 2010). For instance, in the year 2013, the number of migrants surpassed 289 million.3 In our study, “migrants” are defined as those who have a rural Hukou but live and work in an urban location different from their hometown as listed in the Hukou system (i.e., Household Registration System).4 “Non-migrants,” or “stayers,” are those who have a rural Hukou and live in their hometowns. We contribute to the literature on migration and risk attitudes also by considering two types of stayers: (i) those living in locations where there is little out-migration; and (ii) those in locations where there is substantial out-migration.6

By means of incentivized elicitation methods we measured migrants’ and non-migrants’ preferences toward risk and ambiguity in various contexts, by differentiating uncertainty that depends only on random events and uncertainty that also depends on others’ decisions. State uncertainty refers to unknown outcomes, with or without information regarding the probability distributions (Ellsberg, 1961; Fox and Tversky, 1995). To study state uncertainty, we use incentivized lottery choices. Strategic uncertainty, on the other hand, is caused by the purposeful behavior of other players in an interactive decision situation (Brandenburger, 1996). To study strategic uncertainty, we elicit the willingness to compete for a limited number of prizes when others’ decisions are simultaneous, by means of a market entry game inspired by Camerer and Lovallo (1999). This may proxy the fact that migration exposes individuals to competition from other migrants and local residents.7

Our main hypotheses are the following:
Hypothesis 1a. Migrants exhibit different preferences under state uncertainty than non-migrants.
Hypothesis 1b. The two types of stayers exhibit different preferences under state uncertainty.
Hypothesis 2a. Migrants exhibit different preferences under strategic uncertainty (i.e., different degrees of competitiveness) than non-migrants.
Hypothesis 2b. The two types of stayers exhibit different preferences under strategic uncertainty.

If migration is indeed a self-selection process in which risk-seeking individuals migrate and risk-averse individuals stay (Umblijis, 2012), then stayers in locations with substantial out-migration should be relatively more risk-averse people in the population, and migrants should be relatively more risk seeking. These stayers are also possibly less competitive as large-scale migration can improve the situation of stayers through less competition for jobs at the local level (Mishra, 2007; McKenzie and Yang, 2012).

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1 Both studies used survey data from the German Socio-Economic Panel (SOEP) where risk preferences are measured on an eleven-point scale with the question “willingness to take risk in general,” with no monetary incentives provided to survey respondents.
2 More generally, see McKenzie and Yang (2012) on the advantages of using experiments to study migration.
3 We use the terms “migrants” and “migrant workers” interchangeably. The number is obtained from the 2013 annual report of migrant workers published by the National Bureau of Statistics of China: http://www.stats.gov.cn/english/PressRelease/201402/t20140224_515103.htm
4 This rural-urban labor migration is characteristically different from labor migration in developed countries. First, it is a recent phenomenon, with only three decades of history since China’s transition to a market economy and alleviation of the suppression of labor mobility in the early 1980’s (Lin et al., 1998; Zheng et al., 2003). Second, most of migration flows are directed toward low-skill manufacturing jobs and the scale is large, as extremely abundant labor in rural areas (80% of China’s population in early 1980’s) began to move to urban areas in search of job opportunities in the rapidly growing manufacturing and service sectors. Third, these low-skilled migrant workers often move to cities for jobs alone while their children and spouses stay in hometowns. Many of them treat the migration as temporary, and plan to return to their hometowns after saving for a few years from their factory jobs.
5 This is the generally agreed upon definition, which is used by the Chinese Census Bureau.
6 The main reason that we distinguish the two types of stayers and separate them in experiment is that stayers live and interact with the same type of stayers in their everyday life. Thus we chose a setting that was most natural to them. In contrast, migrants living in cities have the opposite experience as they interact with a diverse background of other migrants. Therefore, we did not separate migrants into two types.
7 This is even more the case when countries use visa lotteries to select among applicants (like the U.S. Green Card Lottery) (see examples in McKenzie and Yang, 2012).
Therefore, we conjecture that stayers in locations with significant out-migration are more risk-averse, followed by stayers in locations with little out-migration; finally, migrants are the most risk seeking.

Our main findings are that in the presence of strategic uncertainty, migrants are significantly less risk averse than non-migrants in locations with significant out-migration flows. They are more willing to enter a competition with a limited number of prizes although they also expect more competitiveness from the other players even beyond the market capacity. We interpret this finding as indicating a higher competitiveness of migrants but it may also reveal a higher degree of optimism on their chance to succeed compared to others. In contrast, migrants are not different from stayers in their preferences under state risk and ambiguity, where strategic uncertainty involving others’ decisions is absent. Interestingly, we also find that stayers in locations with no out-migration have preferences towards strategic risk and uncertainty that are closer to those of migrants than to those of stayers living in locations with significant out migration. This confirms that migration is a selective process involving attitudes towards risk and uncertainty.

Our findings are consistent with Akgüç et al.’s (2016) result that Chinese migrants score higher than non-migrants in non-incentitized self-reported risk attitudes. They are also in line with the results of Holm et al. (2013) who conducted a field experiment in China to compare the preferences toward uncertainty of 700 entrepreneurs against 200 ordinary people, using incentivized elicitation methods similar to ours. They found that entrepreneurs are less risk averse in the presence of strategic uncertainty related to multilateral competition and trust, whereas they do not differ from ordinary people with respect to attitudes toward nonstrategic forms of uncertainty. Taken together, these findings highlight the importance of understanding different contexts of uncertainty: risk and ambiguity resolved by die rolls and strategic uncertainty due to other people’s beliefs and actions. This suggests that better characterizing individuals’ preferences toward risk and uncertainty requires examining alternative contexts of uncertainty in addition to the standard procedure of measuring preferences under state uncertainty only (i.e., lottery-type elicitation), which is often found to have quite weak predictive power (Dohmen et al., 2005, 2011).

The rest of paper proceeds as follows. Section 2 briefly reviews the related literature. Section 3 describes our experimental design. Section 4 reports our results. Section 5 discusses these results and Section 6 concludes.

2. Related literature

Our paper contributes to two related literatures. The first is the literature on risk attitudes as a determinant of migration decisions, and the second is the literature on the methodology of eliciting risk attitudes.

In the theoretical literature on the determinants of migrations, Stark (1981) was among the first to recognize risk preferences as a major cause of the migration decision. Stark and Levhari (1982) have shown that risk aversion may explain why rural families in developing countries may push one member to migrate to the urban sector in order to diversify their income portfolio. Katz and Stark (1986) have considered intertemporal risk and uncertainty and demonstrated that migrants may accept an immediate higher risk against the perspective of a great improvement of their future status and a subsequent lower risk. Dustmann (1997) has shown how uncertainty affects the length of migrations and the re-migration decision. In contrast to the previous studies based on the expected utility theory, Czaika (2012) has modeled the migration decision under the prospect theory of Kahneman and Tversky (1979): potential migrants update their expectations about their future prospects when deviating from their reference point and migration flows react more to negative than equivalent positive economic prospects.

The empirical literature on risk attitudes and migrations has developed more recently. An early exception is Sahota (1968) who evokes the higher dynamism and greater tolerance for risk of migrants in Brazil. It is interesting to note that contrary to the early theoretical literature, most empirical studies have identified a negative link between risk aversion and migration propensity. Heitmuller (2005) found that risk-averse individuals have a lower propensity to migrate. In a field experiment conducted in Bangladesh, Bryan et al. (2014) found that the migration decision is positively influenced by the provision of insurance in addition to a loan. This is an indirect measure of the impact of risk attitudes. Direct measures include self-reported risk preferences. Many studies have used the data from the German Socio-Economic Panel (SOEP) to study migration propensities. In particular, respondents reported their “willingness to take risks, in general” on a scale from 0 to 10, where 0 indicates “unwilling to take risks” and 10 indicates “very willing to take risks.” Using SOEP data and defining migrants as individuals who changed region at least once between 2000 and 2006, Jaeger et al. (2010) provided the first direct evidence that individuals who are more willing to take risks are more likely to migrate. Bonin et al. (2009) found more risk aversion in the first generation migrants compared to natives whereas Constant et al. (2011) observed that

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8 The reason that out-migration occurs in some locations, but not in others, is largely due to history-dependence. Chinese migrants rely heavily on their social networks to learn about their job prospects in new locations (see, e.g., Zhao, 2003; Giles, 2006; Chen et al., 2010). As long as a first group of people migrated, people who stayed have better information about migration, which leads to decreased uncertainty. But if almost no one migrated before, uncertainty on job prospects remains large.
second generation migrants are more willing to take risks than natives. Finally, Dohmen et al. (2005, 2011)\textsuperscript{9} considered self-reported willingness to take risks in specific domains/contexts and found that the only risk measure that has predictive power on respondents' decision to move from East Germany to West Germany, as well as from West to East Germany is the global self-assessment of risk. Using survey data from three Pacific countries, Gibson and McKenzie (2009) also found that migration propensity is positively associated with willingness to take risks. Measuring non-incentivized self-reported risk attitudes of migrants and non-migrants in China, on a scale from 0 to 10, Akgüç et al.'s (2016) show that migrants show less risk aversion than non-migrants.

In contrast, Conroy (2009) reported opposing results for Mexico: more risk-averse women are more likely to migrate from countryside to urban areas than less risk-averse women, whereas risk preferences have no predictive power of men's migration decisions. Risk-averse women might use migration as a means to escape from environments with higher income variability.

However, the risk preference measures from survey responses used in these studies were not given any incentives for accurate reporting. In addition to the survey data, Dohmen et al. (2005, 2011) also studied the measurement of risk attitudes using incentivized lottery-type elicitation commonly used in experimental research (see e.g., Holt and Laury, 2002; Andersen et al., 2008). Their experiment was conducted in subjects' homes, where subjects first completed the SOEP questionnaire, and then participated in a paid lottery experiment (similar to our risk elicitation under state uncertainty). The authors found that the global self-assessment of risk attitudes is an overall better predictor of behavior than risk attitudes elicited using incentivized lotteries. A potential concern with the use of incentivized lottery-type elicitation methods is a risk of confusion. However, Charness and Viceisza (2015) indicate that both incentivized lottery-type risk elicitation and non-incentivized willingness-to-take-risk scale are at the cost of diminished level of comprehension in the rural developing world. They reported a low level of comprehension under both elicitation approaches. Aware of these difficulties, we did our best to facilitate our subjects' understanding of the instructions. In our experiment, we used monetary incentives to elicit preferences towards strategic uncertainty; to be consistent we decided to use incentivized methods also for measuring attitudes towards state risk and ambiguity.

Our study differs from the previous literature in two perspectives. First, we distinguish between two different sources of uncertainty: state uncertainty and strategic uncertainty.\textsuperscript{10} Second, we consider migrants and two types of stayers: those living in locations where there is little out-migration; and those living in locations where there is substantial out-migration.

3. Experimental procedures and design

3.1. Subjects recruitment and experiment locations

In this study, migrants are individuals who moved from rural to urban areas for work opportunities, and non-migrants are those who stayed in their hometown in rural areas. Among non-migrants, we differentiate between those who live in areas with significant out-migrations versus areas with almost no out-migration. Hence, we study three types of subjects:

1. Migrants who work and live in urban locations
2. Stayers in rural areas with almost no out-migrations (below 5%) and
3. Stayers in rural areas with significant out-migrations (above 30%).\textsuperscript{11}

Due to the fact that migrants in cities and comparable stayers in rural areas are not living in the same location, it would have been highly impractical to conduct our experiment sessions with mixed types of subjects. Hence, each location in our experiment consisted of a single type. For each type, we had two locations: one in East China, and one in West China. Therefore, we had a total of six experiment locations. These locations are described in Table 1 and by the map in Fig. 1.\textsuperscript{12}

The same group of three experimenters conducted 12 sessions in total, involving 144 subjects. At each location, we conducted two sessions, with 12 subjects per session. As shown in Table 1, migrants were recruited in the cities of Beijing (East) and Chengdu (West). Stayers in rural area with nearly no out-migrations were located in Village 1 (Xindai, Jiangsu Province—East) and Village 3 (Dandunzi, Gansu Province—West). Stayers in rural areas with significant out-migration were Village 2 (Yancheng, Jiangsu – East) and 4 (Xianyang, Shaanxi—West). All sessions were conducted in the summer of 2010.

\textsuperscript{9} Dohmen et al. (2005) is the discussion paper version of the published paper Dohmen et al. (2011). The former reports more comprehensive results than the latter. Hence, some of the results we discuss here are only available in Dohmen et al. (2005).

\textsuperscript{10} Strategic uncertainty is connected to the notion of competitiveness. We have found only one paper considering Chinese migrants in a competitive situation (Farzana et al., 2015). That paper studies the impact of identity on performance, showing that making salient one's Hukou identity has an insignificant impact on tournament performance.

\textsuperscript{11} We consider a village where more than 30% of the population out-migrated as having significant out-migration. This fraction is understandably high as children and elderly generally do not migrate. According to Chinese 2010 Census, less than one third of villages in China had out-migration rate higher than 30%.

\textsuperscript{12} These locations were chosen for two reasons: First, the local migration flow had to satisfy our requirements based on the type of subjects we wanted to recruit. Second, there were local contacts that we could trust.
Table 1
Details of Experiment Locations.

<table>
<thead>
<tr>
<th>City 1</th>
<th>City 2</th>
<th>Village 1</th>
<th>Village 2</th>
<th>Village 3</th>
<th>Village 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>Chengdu</td>
<td>Xindai Village</td>
<td>Nanyang Village</td>
<td>Dandunzi Village</td>
<td>Yangjiatai Village</td>
</tr>
<tr>
<td>N. of sessions</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>N. of subjects</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Province</td>
<td>Beijing</td>
<td>Sichuan</td>
<td>Jiangsu</td>
<td>Jiangsu</td>
<td>Gansu</td>
</tr>
<tr>
<td>East/West</td>
<td>East</td>
<td>West</td>
<td>East</td>
<td>East</td>
<td>West</td>
</tr>
<tr>
<td>Fraction of out-migrants</td>
<td>–</td>
<td>–</td>
<td>5%</td>
<td>31%</td>
<td>4%</td>
</tr>
<tr>
<td>Population (persons)</td>
<td>20 million</td>
<td>14 million</td>
<td>278</td>
<td>2945</td>
<td>157</td>
</tr>
</tbody>
</table>

City/Village name in Chinese  
北京市  成都市  安镇新戴村  通镇南洋村  单墩子村  乡杨家台村

Fig. 1. Experiment Locations.

We included both an East and a West location for each type of subjects for two reasons: First, to control for the gap in income and economic environments between East and West China. The East coast offers a much greater exposure to market-oriented economic activities as well as higher income than West China. Indeed, a market economy was first introduced in East China, and then gradually extended to West China (Lin et al., 1998; Zheng et al., 2003). Hence, East Chinese are more experienced with the market economy, and thus more accustomed to wage and price differences and volatilities. Second, migrating from rural to urban areas within West China has become a new trend, so it is important to include migrants in West China in our study. Historically, the main pattern was migrating from rural inland areas to big cities in East and South China, such as Beijing, Shanghai, and Guangzhou. In recent years, manufacturers have gradually moved their factories from the coast to inland provinces, due to the more abundant, hence cheaper, labor.

To ensure random sampling, we recruited subjects using various methods: flyers, door-to-door, and face-to-face recruitments. This is relatively easy to accomplish in village locations. However, in Beijing and Chengdu with more than 10 million people, it is would be extremely difficult, and perhaps impossible, to draw a random and representative sample from the vast and fluid migrant population. Hence, we took a practical approach by recruiting among migrant employees working at two large and adjacent restaurants in Haiding district (海淀区) in Beijing, and three large restaurants, also in close proximity to each other, in Jinjiang district (锦江区) in Chengdu. Each of these restaurants was estimated to have at least 80 rural-urban migrant employees.
Recruitment involved handing out flyers, and announcing that one must have rural Hukou to be eligible to participate. Sessions were conducted at a subject’s work place, between the restaurants’ business peak hours (lunch and dinner) so that most employees were able to take a break from work. This practical arrangement helped to minimize transaction costs and opportunity costs for migrant participants.

How well does our migrant sample represent the migrant population in China? Meng and Zhang (2010) analyze large data sets of urban labor from 152 cities in China, using 1990, 2000, and 2005 Censuses. In particular, Meng and Zhang’s (2010) Table 2 offers detailed distributional information of rural-urban migrants on two attributes: education and occupation. This presents an opportunity for us to examine how our sample compares to large survey data. We focus our comparison against 2005 Census, as it is the closest to our sample in time.

First, the educational achievements by migrants were comparable between the 2005 Census of 54,967 rural-urban migrants and our sample of 48 migrants in 2010. In both cases, the modal educational achievement was junior middle school (9th grade): 62% in 2005 Census and 65% in our sample. The fraction of high school degree (or equivalent) earners was 21% in our sample, just slightly higher than 16% in 2005 Census. The fraction of migrants with six or fewer years in school was 20% in 2005 Census and 9% in our sample.13

Second, due to our targeted recruitment among restaurants workers, the variety of occupations in our sample was indeed limited, as all of the migrant subjects were from the service industry. According to the 2005 Census, the two main occupations among rural-urban migrants were service and production workers, 35% and 54% of the population, respectively.

Potential participants were informed that they had the opportunity to earn cash if they participated in a study at the given location and time, which is convenient for them, including migrants working in cities. As subjects arrived, they first completed a short survey (see Appendix A in Supplementary material) regarding their migration experience. Their survey answers were used to determine whether they would qualify for the experiment. To qualify as a migrant in Beijing and Chengdu, one’s domicile residence (Hukou) could not be within the city, and the person must have resided in the city for at least 6 months. In the four rural locations, participants must not have had any migration experience at all.

Qualified subjects were invited to stay and participate in the main experiment that immediately followed the survey. Those who did not hold the desired migration status for the session received show-up compensation in the form of a gift bag worth eight Yuan.14 The participation criterion was not made common knowledge. Subjects did not know any details about the experiment until the session began. No qualified subjects declined the opportunity to participate in the experiment; nor did anyone quit in the middle of the experiment. The two sessions in each location were conducted immediately back-to-back to minimize communication among subjects about the experiment. A typical session lasted about 90 min. Mean earnings for subjects were 25.71 Yuan (about $4.90) (Standard Deviation = 6.82), which is a half day’s income for an average migrant, and a full day’s income for an average non-migrant.

13 Frijters et al. (2015) reports that Chinese migrants who choose to participate in artefactual field experiments also tend to be more educated, more likely to lend money to friends, and to work fewer hours than migrants who do not show up for experiments. Our targeted recruitment and practical session arrangements help alleviate this type of selection bias.

14 The gifts included everyday household necessities such as toothpaste, laundry detergent, etc. These are usually preferred over a small amount of cash. Of course, qualified participants in our experiment received cash payments.
3.2. Experimental design

The goal of our experimental design is to investigate whether migrants and stayers exhibit different preferences under state uncertainty and strategic uncertainty. The traditional preference elicitation approach only focuses on state uncertainty resolved via randomization devices. Here, we broaden the traditional approach by eliciting attitudes towards risk and uncertainty under state uncertainty, as well as willingness to compete in an environment with strategic uncertainty. The strategic element is especially important for migration decisions, because other job seekers’ decisions immediately affect the prospect of getting a job in a new location.

In the main part of our experiment, we first elicit risk and ambiguity preferences under state uncertainty. We then elicit preferences under strategic uncertainty, using a variant of the market entry game in Camerer and Lovallo (1999). At the beginning of each part, subjects were given very detailed instructions (see Appendix B Supplementary material).

Indeed, we did our best to keep the instructions as simple as possible, given our subject pool. Subjects were also required to complete comprehension tests. In case of wrong answers, we explained again carefully and individually the rules of the game. They proceeded in the experiment only after demonstrating that they understood all the rules. In addition to careful and detailed instructions, we had a practice round at the beginning of each part of the experiment, and made sure all subjects understood the decisions. All decisions were made on paper.

3.2.1. Part I: risk attitudes under state uncertainty

To elicit attitudes towards risk and ambiguity in a non-strategic environment, we used a multiple price list approach following a procedure similar to that of Fox and Tversky (1995). Each subject was presented with a set of choices between two options, A and B, as shown in Table 2.

For risk elicitation, there were a total of 10 decisions, one in each row, as shown in the first 10 rows in Table 2. For example, in the first row, Option A offered a certain payoff of 1 Yuan, while Option B was a lottery that paid 10 Yuan with 50% chance and 0 otherwise. To facilitate comprehension, we illustrated Option B using an urn with 10 balls, 5 black and 5 white. Subjects were told that if a black ball was drawn they would receive 10 Yuan, and if a white ball was drawn they would receive nothing. As the subject moved down the list of 10 decisions, the lottery in Option B remained the same, while the certain payoff in Option A increased by 1 Yuan each row (ending at 10 Yuan).

To elicit preferences under ambiguity, we followed the same procedure with the exception that the composition of the urn (i.e., the probability of winning 10 Yuan in Option B) was unknown to subjects. After each subject submitted all 20 decisions in Table 2, only one out of the 20 decisions was randomly selected for payment. For this payment–binding decision, if Option A was chosen, the subject received the corresponding cash amount. If Option B was chosen, the subject drew a ball from the corresponding urn and was paid according to its color. Decisions were made at the beginning of the sessions but the random draws and payment were made only at the end of the session to avoid contamination of decisions across games.

3.2.2. Part II: risk attitudes under strategic uncertainty

To investigate preferences under strategic uncertainty, we employed a variant of Camerer and Lovallo’s (1999) market entry game. In this game, after receiving a fixed initial endowment of 6 Yuan, subjects decided whether to enter a market with limited capacity or stay out. If the subject stayed out, she neither gained nor lost (she only keeps the initial endowment). If she entered, she would either gain or lose, depending on the capacity of the market (i.e., the number of positive prizes, “c”), the number of entrants and her rank among them. In our experiment, the ranks of entrants were determined by a random number generator. All 12 subjects in a session made their entry decisions simultaneously, so subjects had to take into account how many of their fellow participants they thought would enter to determine their chance of success. The fact that other people’s decisions could affect one’s earnings generates strategic uncertainty. To help make the game easier to understand, we framed the market as a fishing pond, and the number of positive prizes was referred to as pond capacity in terms of fish.

Before each subject made her entry decision for a given known capacity in a round, they had to predict how many of the 11 other subjects would enter in that round. These beliefs indicate whether individuals adjust their behavior to their perception of other players’ competitiveness. If subjects decide to enter despite predicting that the number of others entering exceeds the market capacity, this gives us information on their degree of competitiveness or optimism (more on the distinction in the discussion section). Belief elicitation was incentivized with a simple rule such that the subject earned 2 Yuan if her prediction equaled the actual number of entrants for that round. This was in addition to their earnings from the game.

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15 Between these two parts, we also elicited inequality aversion from subjects, as detailed in our experiment’s instructions. However, in an effort to focus our discussion, we have included results related to inequality aversion in Appendix 3 in the Supplementary material.

16 Our design, like many other price list experiments including the early risk elicitation by Holt and Laury (2002), leaves open the possibility of multiple switching. An advantage to requiring many choices is that it increases the likelihood that participants are attending to the decisions, and further helps to reveal if they are not (say, by the presence of seemingly random and scattered choices). We note below that our results are not substantively affected by the way we treat those participants who displayed multiple switch points.
There were a total of 12 rounds of entry games, where the number and the size of prizes available varied, as illustrated in Table 3. For example, in the first round (the first column in Table 3), the number of prizes, or capacity, was 4 (indicated by “c=4” in Table 3), and the top 4 entrants earned 9 Yuan each. Any entrant ranked 5th place or lower lost 6 Yuan each. This is in contrast to their opportunity cost of earning or losing nothing (and keeping their initial endowment of 6 Yuan) if they chose to stay out. If the number of entrants was smaller than the number of prizes, then every entrant won a prize.

The number of prizes and payoffs at each rank varied from round to round. In the first 8 rounds, top ranks earned positive amounts that were either the same for all or decreasing with ranks. While the number of the prizes and the amounts changed, the sum of all prizes was always 36 Yuan. Next, the 9th (10th) round offered prizes of 6 (12) Yuan to top ranks, and losses of 6 Yuan to bottom ranks, but the total number of prizes was unknown to subjects. Hence, the degrees of ambiguity in rounds 9 and 10 were higher than in the first eight rounds. Up until round 10, staying out always yielded an earning of zero. However, net loss was not possible in this game because (i) all subjects received an initial endowment of six Yuan and (ii) only one round in the game was selected for payment.

Subjects did not receive any feedback until all 12 rounds were finished, and they were clearly informed that only one out of all 12 rounds would be randomly selected for payment at the end of the session.

4. Results

We first present key demographic characteristics. We then show that migrants and stayers do not exhibit any difference regarding their preferences under state uncertainty. Finally, we investigate their preferences under strategic uncertainty using the entry game. Our main results are that compared to stayers in locations with significant out-migration, (i) migrants predict significantly higher number of entries from other players, and are more willing to enter competition despite expecting more entries from others; (ii) stayers in locations with no out-migration also predict higher number of entries, and are more likely to enter competition despite expecting entries from others.

4.1. Demographic statistics

Table 4 summarizes some key demographics variables of the three groups of subjects in our experiment.

First, regarding age, migrants were younger; stayers with no out-migration were older; and stayers with out-migration were the oldest. This is consistent with the observation that younger people migrate, and older people stay in their hometown. Locations with no out-migration have more balanced age groups, so the average is in between. Income is ordered in exactly the opposite direction of subjects’ ages, due to the fact that people migrate for better pay in urban areas. In all three groups, we had more men than women. Subjects, on average, were either middle school graduates or high school dropouts who spent 9–10 years in school. Naturally, the number of elderly dependents (as grown children in China are expected to support their elderly parents and grandparents) is negatively correlated with subjects’ age; it is also positively correlated with their

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12 Rounds 11 and 12 explored the domain of negative earnings to capture attitudes towards losses in the presence of strategic uncertainty. In these rounds, staying out generated a loss of 4 Yuan, while entering and ranking among the top ranks resulted in a loss of less than 4 Yuan. Entering and ranking near the bottom resulted in a loss of 6 Yuan.
income. Migrants reportedly support more elders on average than stayers, suggesting that greater family responsibility is a major motivation for young people to migrate for job opportunities.

4.2. Preferences regarding risk and ambiguity under state uncertainty

In this subsection, we report data on preferences towards risk, ambiguity under state uncertainty.

In Part I, a rational decision maker should switch at most once from the lottery (Option B) to the certain payoff (Option A) in both the risky and the ambiguous lotteries. The switch points in the two sets of decisions are informative about the individual’s attitudes towards risk and uncertainty, respectively. We measure preferences using the number of risky or ambiguous Option B chosen by the subject. Option B has an expected payoff of 5 Yuan. Subjects will switch to the “safe” Option A when it is attractive enough. Switching at decision 5 or 6 indicates neutrality; switching earlier (later, respectively) indicates risk aversion (risk loving, respectively). Hence, the number of Choices B indicates a subject’s willingness to take risk; the greater this number, the more willing the subject is to take risk.

Fig. 2 summarizes the mean and standard errors of the preferences by subject types. The first set of three bars indicates their risk preferences; the next sets of bars are for the attitudes towards ambiguity and towards inequality in the gain and the loss domains. None of the pair-wised comparisons between subject types is significant (two-tailed mean comparison tests with each subject giving one independent observation, \( p > 0.10 \)) (see Table A4.2 in Appendix D in Supplementary material).

Table 5 reports multivariate OLS regressions with robust standard errors for four dependent variables: subjects’ preferences for risk, ambiguity, inequality in the gain domain, and inequality in the loss domain. These preferences are measured as the number of risky (or equal) options subjects chose. There are two regressions for each dependent variable: in odd-

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Table 4
Demographic Statistics.

<table>
<thead>
<tr>
<th>Status</th>
<th>Migrants</th>
<th>Stayers with no out-migration</th>
<th>Stayers with out-migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>32.2 (1.73)</td>
<td>37.3 (1.62)</td>
<td>45.12 (2.26)</td>
</tr>
<tr>
<td>Income/day (Yuan)</td>
<td>62.4 (10.3)</td>
<td>40.4 (3.80)</td>
<td>28.4 (3.80)</td>
</tr>
<tr>
<td>Male</td>
<td>0.60 (0.07)</td>
<td>0.51 (0.07)</td>
<td>0.75 (0.06)</td>
</tr>
<tr>
<td>Education</td>
<td>9.8 (0.31)</td>
<td>8.5 (0.31)</td>
<td>10 (0.40)</td>
</tr>
<tr>
<td>Elderly dependents</td>
<td>2.27 (0.25)</td>
<td>2.02 (0.23)</td>
<td>1.36 (0.20)</td>
</tr>
<tr>
<td>Observations</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
</tbody>
</table>

Notes: Means are reported, with standard errors in parentheses.

***, **, * indicate 1%, 5% and 10% significance level, respectively.

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18 Precisely, we take the midpoint of the decision numbers before and after the switch. For example, if a participant switches over to Option A from Option B at Decision #5, then we record 4.5 as his risk preference. For people who switch back and forth, we count the frequency of the risky option (Option B) chosen, and add 0.5 for the precision adjustment. In fact, 32 and 30 subjects switched more than once in the risk game and the ambiguity game, respectively. These values are high, but the frequency of multiple switching does not differ significantly between our groups of subjects (see Table A4.1 in Appendix 4 in the Supplementary material), and frequent multiple switching is typical of experiments conducted in the field (see notably Charness and Viceiszla, 2015).
numbered columns, we exclude subjects who multi-switched in the elicitation task; in even-numbered columns, we include an indicator variable Multi-switcher that takes value 1 if the subject switched more than once in the elicitation task, and is 0 otherwise. Our main interests are the coefficients of “Migrant” and “Stayer with no out-migration”, which indicate whether these two groups behave differently from the omitted category “Stayer with out-migration.” Other control variables are gender, age and income. We also include the variable East, a dummy variable that takes value 1 if the subject was located on the East coast, and is 0 otherwise.

Our first result is the following.

**Result 1.** (Preference under State Uncertainty). **Under state uncertainty, migrants and stayers do not exhibit any difference in preferences over risk and ambiguity.**

**Support for Result 1.** Table 5 shows that regarding preferences towards risk and ambiguity, migrants do not differ from stayers with out-migration and stayers with no out-migration do not differ from stayers with out-migration. This result is in contrast with our Hypotheses 1a and 1b, as well as previous literature that suggest migrants tend to be more willing to take risks.

The control variables, such as gender and age, are significant in the direction we expected (Croson and Gneezy, 2009 Mather et al., 2012). Males are significantly more risk/ambiguity-seeking than females, while younger individuals are more risk/ambiguity-seeking than older ones, controlling for migration status. The variable East is worth noting here. It is statistically significant at 10% level in all regression models, indicating that those who reside in the east part of China, regardless of being migrants or not, are more willing to take risks even in an ambiguous environment.

### 4.3. Preferences under strategic uncertainty

We report in this subsection results from the first eight rounds of the entry game, where there is no uncertainty about the payoff distribution (excluding rounds 9 and 10), and there are always some positive prizes (excluding rounds 11 and 12). In these rounds, there are several asymmetric Nash equilibria in pure strategy, under the assumption of risk neutrality. A market equilibrium is reached when no one has incentives to move in or out of the market. In other words, the last risk-neutral rational agent who enters the competition is indifferent between being in and out of the market. Recall that “c” (for capacity) refers to the number of positive prizes in the market, and it varies from round to round (see Table 3 for details).

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19 In other specifications (available from the authors upon request), we also included education level as an independent variable. Since it was never significant at conventional levels, we dropped it from the analysis.

20 As a robustness check, we also report Poisson regressions of risk and ambiguity in Table A4.3 in Appendix 4 in the Supplementary material. The statistical results are largely consistent with OLS results, with the exception that migrants are even more risk and ambiguity averse than stayers in location without out-migration, significant at 10% level. This suggests that our OLS results reported in Table 5 are rather conservative.

21 Regression specifications of rounds 9 through 12 where pond capacity is either unknown, or prizes are negative earnings have very low pseudo R2; some of these even fail to hold overall model significance. Hence, we only report these results in Table A4.4 in Appendix 4 in the Supplementary material.
In the first 8 rounds, no matter how the number and the size of the positive prizes vary, they all sum up to 36. This is in contrast to the fixed negative payoff at −6. Therefore, the total possible earnings of 36 can accommodate up to 6 additional entrants beyond c entrants in each round such that the expected earnings reach 0, which is same as what one would earn staying out of the market. Above c + 6 entrants (i.e. six entrants beyond the capacity), entering the market leads to negative expected payoffs. Hence, c + 6 (or sometimes c + 5) is the equilibrium number of entrants. In special cases of c̅=9, all the players should enter the market. A higher expected number of entrants above the market capacity should reduce the entry of risk-neutral individuals (except when c > 4). Naturally, risk and ambiguity aversion should lead players to be indifferent between entering and staying out at lower ranks above the capacity.

Fig 3 summarizes the mean and standard errors of the preferences and beliefs under strategic uncertainty, by migration status. The first set of three bars indicates the subjects’ entry probability by migration status. The second set of bars is for the ratio of the predicted number of entries from his co-participants over the market capacity. The third set represents the probability of entry when the subjects believe that the number of entries from co-participants is equal or exceeds the market capacity. At first sight, migrants differ from the two other categories both by a higher willingness to enter the market and by higher beliefs about the competitiveness of others (see also non-parametric tests in Table A4.2 in Appendix D in Supplementary material).

Table 6 reports marginal effects of six probit regressions with robust standard errors clustered at the individual level in parentheses.\(^{22}\) First, we investigate whether the decision to enter competition is associated with one’s migration status. In models (1) and (2), the dependent variable “entry” is 1 if the subject entered the competition, 0 otherwise. In models (3) and (4), the dependent variable “competitiveness” is 1 if the subject entered the competition despite predicting that the number of entrants was greater than the number of prizes, and 0 otherwise. Again, our main interests are the coefficients of “Migrant” and “Stayer with no out-migration”, which indicate whether these two groups behave differently from the omitted category “Stayer with out-migration.” In odd-numbered columns, we exclude subjects who multi-switched in the risk elicitation task; in even-numbered columns, we include an indicator variable Risk multi-switcher that takes value 1 if the subject switched more than once in the risk elicitation task, and 0 otherwise. We also include the control variables such as male, age, income, East location, risk preferences (measured by the switching point from the risky to the safe option). This leads to Results 2a and 2b that support Hypotheses 2a and 2b.

**Result 2a.** (Preference under Strategic Uncertainty). Among those who believe that there are more entrants than prizes, migrants are significantly more likely to compete than stayers with out-migration.

**Result 2b.** (Preference under Strategic Uncertainty). Among those who believe that there are more entrants than prizes, stayers with no out-migration are significantly more likely to enter the market competition than stayers with out-migration.

**Support for Result 2.** Model (1) in Table 6 shows that the probability of entry by migrants is 18 percentage points higher than stayers with out-migration, although this effect is not statistically significant (p-value = 0.106). However, models (3) and (4) show that, conditional on predicting greater entries than number of prizes, the probability of entry by migrants is between 19 (model (4)) and 24 (model (3)) percentage points significantly higher than stayers with out-migration. This result suggests that migrants have a higher degree of competitiveness and a greater confidence in their ability to win. It is robust regardless of whether multi-switchers are included or not in the analysis.

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\(^{22}\) Our results remain unchanged using linear probability models clustered at the individual level. We do not cluster at the session level since players do not receive any feedback on others’ decisions before the end of the session.
Table 6
Determinants of the Probability of Entry, Competitiveness and Predicted Entry of Others in the Entry Game (Probit regressions with standard errors clustered at the subject level in parentheses; point estimates are marginal effects at means).

<table>
<thead>
<tr>
<th></th>
<th>Entry</th>
<th>Competitiveness</th>
<th>Predicted Entry of Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Migrant</td>
<td>0.184</td>
<td>0.143</td>
<td>0.240**</td>
</tr>
<tr>
<td></td>
<td>(0.114)</td>
<td>(0.089)</td>
<td>(0.101)</td>
</tr>
<tr>
<td>Stayer w. no out-migration</td>
<td>0.172*</td>
<td>0.136*</td>
<td>0.172**</td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.079)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>Male</td>
<td>0.079</td>
<td>0.104</td>
<td>-0.070</td>
</tr>
<tr>
<td></td>
<td>(0.094)</td>
<td>(0.077)</td>
<td>(0.075)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.002</td>
<td>-0.001</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Income</td>
<td>0.001</td>
<td>0.002</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.001)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>East</td>
<td>-0.029</td>
<td>-0.053</td>
<td>-0.014</td>
</tr>
<tr>
<td></td>
<td>(0.079)</td>
<td>(0.063)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>Risk</td>
<td>0.005</td>
<td>0.006</td>
<td>0.018</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.014)</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Risk Multi-switcher</td>
<td>excluded</td>
<td>-0.118*</td>
<td>excluded</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>(0.065)</td>
<td>–</td>
</tr>
<tr>
<td>N. of Obs.</td>
<td>775</td>
<td>1031</td>
<td>776</td>
</tr>
<tr>
<td>Clusters</td>
<td>97</td>
<td>129</td>
<td>97</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.0483</td>
<td>0.0433</td>
<td>0.0544</td>
</tr>
</tbody>
</table>

Notes: These regressions include decisions and beliefs in the first eight rounds of the fishing game where payoffs have no ambiguity nor in the loss domain (see Table 3 for details). Even-numbered columns include subjects who answered all questions related to the regressors in the table. Odd-numbered columns exclude subjects who are “Multi-switcher” (that is equal to 1 if the subject switched more than once and 0 otherwise), and thus a 20%-30% loss of data.

***, **, and * indicate 1%, 5% and 10% significance level, respectively.

Similarly, stayers with no out-migration are significantly more likely to enter the competition (models (1) and (2)) and more likely to compete when they predict a high level of competition to win a prize, compared to stayers in location with significant out-migration (p = 0.032, two-sided t-test in model (3)). The difference is between 12 and 17 percentage points in models (4) and (3), respectively (depending on whether multi-switchers are included or not). Interestingly, in contrast, we find that stayers in locations with no out-migration are similar to migrants (p = 0.411, two-sided Chi-squared test between the coefficients of migrants and stayer with no out-migration in model (3)). The evidence that stayers in locations with little out-migration are on average more similar to migrants than to stayers in locations with substantial out-migration suggests that those who stay in locations with large out-migration have very different characteristics in terms of risk preferences, despite having many examples of migration around them.

Models (2) and (4) shows that multi-switchers are significantly less likely to enter competition, especially when predicting that the number of co-participants entering is equal to or exceeds the market capacity, holding everything else constant.

To refine our analysis, we analyze next whether migrants and stayers differ in their predicted rate of entry of others. The dependent variable in models (5) and (6) is “predicted market competitiveness”, which is 1 if the subject’s predicted number of entrants is greater than the number of prizes for the round, and 0 otherwise. Our next set results follows.

**Result 3a.** (Prediction of the Degree of Competition). **Migrants are significantly more likely to predict a number of entries in excess of the pond capacity than stayers with out-migration.**

**Result 3b.** (Prediction of the Degree of Competition). **Stayers with no out-migration are significantly more likely to predict a number of entries in excess of the pond capacity than stayers with out-migration.**

**Support for Result 3.** Models (5) and (6) show that, keeping all control variables at their median values, migrants are more likely to predict over-entry (i.e. in excess of the pond capacity) than stayers with out-migration (20–21 percentage points higher). Similarly, stayers with no out-migration are more likely to predict over-entry than stayers with out-migration (18–19 percentage points higher). We also observe that those who are more risk-loving under state uncertainty are marginally more likely to expect higher competitiveness.

Results (2) and (3) suggest that migrants are not only more willing to take strategic risks; they also expect competitiveness from others. Indeed, they are both more likely to predict the competitiveness of others and more likely to enter the competition when they predict a tougher competition.²³

²³ For a robustness check, we conducted all the regressions from Results 2 and 3 using a subset of data where pond capacity is either 2 or 4, meaning that the number of entrants in equilibrium is smaller than 12. Summarizing Table A4.5 in Appendix 4 in the Supplementary material, most results remain qualitatively unchanged, although stayers with no out-migration no longer differ from other stayers.
5. Discussion

We have investigated preferences between three groups of subjects: migrants, stayers with and without out-migration, considering two sources of uncertainty: state and strategic uncertainty. Three key issues are raised by our investigation.

5.1. Migrants and over-entry

We find that migrants are less averse to strategic uncertainty than non-migrants. We interpret this finding as indicating a higher competitiveness of the migrants, as they enter more when the others’ willingness to compete is expected to be higher. We acknowledge that this can also capture a higher degree of optimism of these individuals about their likelihood to succeed even in a highly competitive and adverse environment. In our game context (a competition for a prize), we favor the first interpretation. Moreover, if this behavior was driven by optimism, we should have observed that migrants are also more willing to take risk under state uncertainty, which is not what we observe. However, our design does not allow us to disentangle between these two notions. This is left for further investigation.

If there is always risk and uncertainty associated with migrating to a new location in terms of access to jobs and to housing, our migrant subjects are working in an economic activity that is not especially risky (restaurants). This suggests that our findings could be a lower bound estimate.

Finally, we note that the migrants do not make more rational decisions than the non-migrants. Indeed, the higher risk taking of migrants in our games leads them to earn less on average than the other categories of subjects. Indeed, migrants earned on average 42.32 Yuan, significantly less than the average earnings of 44.45 Yuan of the non-migrants (two-sided t-test, \(p = 0.035\)).

5.2. Two types of stayers

We use stayers at locations with out-migration as the base group to compare with the other two groups. These stayers are the people who choose not to migrate despite having easier access to information regarding migration (from their migrating neighbors) than stayers in locations where only very few people have migrated. Our results confirm the hypothesis that stayers with out-migration are less willing to enter a competition with strategic uncertainty than stayers without out-migration. In contrast, no difference has been found across groups in attitudes towards risk and ambiguity under state uncertainty.

5.3. East China vs. West China

An interesting and robust finding in our data is that people who reside in East China are significantly more willing to take risks under state uncertainty, regardless of whether they are migrants or local residents. As shown in Tables 5 and 6, the goodness-of-fit of all regression models improves dramatically after including the control variable East, indicating the variable’s significance in explaining the data. When the economic reform started three decades ago, it was focused in East and South coasts of China (mainly Shanghai and Shenzhen), while the reform occurred at a much slower pace in West China. Therefore, people in East China have been exposed to market economy longer, and more comprehensively. We speculate that people in East China are more used to higher variance in opportunities and wealth, and migrants who moved from inland to East China are self-selected to be similar, or have adapted to the norms. This result is in line with prior findings that economic regime could reshape individuals’ preferences (Ockenfels and Weimann, 1999; Alesina and Fuchs-Schundeln, 2007; Brosig-Koch et al., 2011; Nguyen et al., 2012). Finally, it is important to note that this East-West difference does not change our main findings regarding migrants vs. non-migrants differences as regards strategic uncertainty, as shown in Table 6.

6. Conclusion

We conducted the first incentivized field experiment to study Chinese migrants’ preferences under uncertainty. We find that in our experiment migrants have a significantly lower risk aversion in a strategic environment compared to non-migrants living in out-migration areas, as they are more willing to enter a competition when the number of competitors in unknown; in contrast, there is no difference in their preferences under risk and ambiguity when the resolution of uncertainty depends on a random draw.\(^{24}\) These findings echo those of Holm et al. (2013) on Chinese entrepreneurs. This may not be so surprising, as migration involves risk taking like launching a new business. Interestingly, we also found that among non-migrants, those living in areas without out-migration are more similar to the migrants than to the non-migrants living in areas with large out-migration. This corroborates the notion that migration is highly selective, as the second category of non-migrants are people who are probably much more reluctant to take the risk of leaving their hometown for an uncertain future.

\(^{24}\) We acknowledge that our conclusions are drawn based earnings about half a day to a full day’s wage. These are not life-changing stakes, but decent amount of incentives that give us insights about subjects’ preferences. A possible extension is to vary the monetary stakes.
Our contributions are twofold. First, our results contribute to the debate on the relationship between risk preferences and migration propensity. As our results show, the answer is not straightforward, as it depends on (i) how the uncertainty is generated, i.e. whether or not it involves other people’s decisions, and (ii) how we characterize non-migrants. Competing with other participants seems to resonate with migrants well, as they take significantly more risk in this environment than non-migrants with out-migration when they expect a tough competition, whereas no behavioral difference is found between the two groups when the risks are generated via die rolls. Intuitively, this finding is consistent with the fact that when migrants move to urban locations they have to compete in the labor market.

Second, our results suggest that the conventional methodology of eliciting risk preferences using lists of lotteries is not one-size-fits-all. As a complementary tool, the market entry game used in this paper—and other games involving strategic uncertainty—seems quite suitable when the outcome variables of interest involve human interactions, and especially competition. Our paper takes a first step towards enriching the toolbox of incentivized preference elicitation methods in a way that might be useful for better understanding migration decisions.

With a quarter billion Chinese people migrating from rural to urban areas in the year 2013 alone, there is clearly significant policy importance tied to understanding determinants of migration decisions. Large-scale migration not only provides rich labor resources to businesses in more developed regions, but also contributes to reduce unemployment and enables rural populations to escape poverty. At the same time, the influx of large migrant populations into cities raises widespread concerns regarding the adequacy of health care, education and housing. An improved understanding of migration decisions, and the preferences of migrants, is a step towards designing policies that enable communities to realize the substantial benefits of migration at minimum social cost. Natural extensions of this paper would consist, for example, at investigating whether risk preferences can also explain return migrations or remittance behavior.

Acknowledgements

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jebo.2016.08.008.

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