Entrepreneurs Under Uncertainty: An Economic Experiment in China

3 authors, including:

Sonja Opper
Università commerciale Luigi Bocconi
53 PUBLICATIONS   **1,383** CITATIONS

Victor Nee
Cornell University
86 PUBLICATIONS   **13,844** CITATIONS

Entrepreneurs under Uncertainty:
An Economic Experiment

Håkan J. Holm
Sonja Opper
Victor Nee

LUND
UNIVERSITY

ENTREPRENEURS UNDER UNCERTAINTY:

AN ECONOMIC EXPERIMENT[*]

Håkan J. Holm[♦♣] Sonja Opper[♦] Victor Nee[♦♦]

Abstract: This study reports findings from the first large scale experiment investigating whether entrepreneurs differ from other people in their willingness to expose themselves to various forms of uncertainty in decision tasks. A stratified random sample of 700 CEOs from the Yangzi delta region in China is compared to 200 control group members. Our findings suggest that entrepreneurs' seem to be more willing to accept some forms of strategic uncertainty related to multilateral competition and trust. In contrast, entrepreneurs do not seem to differ from ordinary people when it comes to non-strategic forms of uncertainty, such as risk and ambiguity (JEL codes: C93; D21; L21)

Key words: Entrepreneurship, Risk, Ambiguity, Willingness to Compete, Trust.

1 Introduction

The question why some people accept the high uncertainties associated with entrepreneurial activities has fascinated social scientists over centuries. Not only do payoffs of investment take place over time; but prospective payoffs are highly uncertain due to the inherent novelty of entrepreneurial activities (Say, 1803; Knight, 1921; Kirzner, 1973; Kihlstrom and Laffont, 1979). Why do entrepreneurs still favor highly concentrated equity investments in spite of a considerable risk-return trade off (Hamilton, 2000, Moskowitz and Vissing-Jorgensen, 2002)? And why are entrepreneurs willing to accept the considerable uncertainties of market cooperation, if contracting and governance remain inevitably incomplete? (Williamson, 1987). Unsurprisingly, most theories of entrepreneurship and entrepreneurial decision-making emphasize uncertainty as a conceptual cornerstone. One broad set of explanations focuses on the ability to develop adequate strategic responses in the presence of environmental uncertainty (Aldrich 1979; Pich, Loch, de Meyer 2002; Bernstein and Federgruen 2005); an alternative approach emphasizes specific characteristic behavioral traits which distinguish entrepreneurs from non-entrepreneurs in their willingness to accept uncertainty.

While the latter approach has received wide currency in popular account of "entrepreneurial types, evidence confirming greater uncertainty tolerance of entrepreneurs is surprisingly scattered and inconclusive in spite of intensifying research efforts over the last three decades. In reviewing some of the most influential studies published across the social science disciplines, a few observations stand out (see Appendix I for a literature review): First of all, the great majority of empirical research has only explored standard risk situations with known probabilities of different outcomes. Standard risk situations, however, do not represent typical scenarios in entrepreneurial decision-making. More often than not, entrepreneurs act under non-strategic uncertainty with unknown probabilities of different outcomes. Similarly, prior research has almost completely neglected study of behavioral responses under strategic forms of uncertainty (where the outcome is contingent on responses of another individual as typical in any bilateral business contract). Second, methodological limitations in terms of sampling strategy and subject pool do not invite general inferences on behavioral traits of entrepreneurs. Studies confirming higher risk tolerance of entrepreneurs have typically employed relatively small-scale samples of non-randomly selected populations (Begley 1995, Koh 1996; Sarasvathi et al. 1998; Stewart et al. 1999). Confirmatory evidence from randomly sampled survey populations, in contrast, stems almost exclusively from studies comparing self-employed individuals with those who report that they have never been self-employed but do not focus on the more narrowly defined category of entrepreneurs actually employing wage-labor (Van Praag and Cramer 2001; Uusitalo 2001; Cramer et al. 2002; Caliendo et al. 2009). More recent attempts to compare randomly sampled populations of entrepreneurs and non-entrepreneurs have in fact produced very mixed

2

results (Djankov et al. 2006; Djankov et al. 2007; both studies use a comparable survey instrument). Third, experimental studies using incentivized tasks shed further doubt on the assumed behavioral differences between entrepreneur and non-entrepreneurs. Evidence based on relatively small-scale, non-randomly selected populations suggests that entrepreneurs do not behave differently than non-entrepreneurs, when exposed to various situations of standard risk (Elston et al. 2006; Macko and Tyszka 2009; Sandri et al. 2010), although they may be better able to cope with uncertainty (Macko and Tyszka 2009).

Our approach builds on the most recent development in entrepreneurship research and uses controlled incentivized tasks (instead of psychometric survey measures) to elicit behavioral differences between entrepreneurs and non-entrepreneurs (as in Elston et al 2006; Macko and Tyszka 2009). In particular, we exploit well-established methods from experimental economics, namely the multiple price list method (see Binswanger, 1980; Holt and Laury, 2002; Andersson et al., 2006).[1] To take research a step forward, we introduce two central methodological features: First, instead of relying on convenience samples, our study is the first that utilizes large-scale sample of entrepreneurs and non-entrepreneurs randomly selected from firm and household registers. Second, we apply a multi-dimensional analysis incorporating four types of uncertainty, instead of focusing on just one behavioral trait. On the one hand, we cover standard risk and ambiguity, as common forms of non-strategic uncertainty salient in entrepreneurial decision-making. On the other hand, competition (where the uncertainty concerns the individual's performance relative to others) and trust (where there is a "social" risk that another party does not act favorably toward the trustee) exemplify situations involving strategic forms of uncertainty.

Experimental research involving entrepreneurs inevitably faces the important question, whether monetary incentives are high enough to offer participants sufficiently attractive rewards. Research in developing countries with substantively lower per capita income can at least partly alleviate this concern. As our research location, we have therefore chosen China's Yangzi delta region, which is known to be one of the most entrepreneurial regions of the country. Our focus group includes 700 entrepreneurs sampled from local firm registers, who have been in business for at least three years and who employ at least 10 salaried workers. The focus on established business seems most appropriate to capture the "entrepreneurial role" discussed in entrepreneurship theories. 200 randomly sampled non-entrepreneurs located in the same region serve as control group. In particular, we are interested in exploring the question, whether entrepreneurs, once they have survived the first years in business, actually display unique behavioral traits, which distinguish them from non-entrepreneurs. This being said, our study does

---

[1] Harrison and List (2004) use the term "artefactual" field experiments to describe experiments (like this one), which expose uncommon subject categories to experimental procedures normally used in the economic laboratory.

not tackle the equally important question of who actually becomes an entrepreneur, and whether entrepreneurial traits are rather acquired by learning or self-selection.[2]

2 Theory and Hypotheses

Entrepreneurs face many dimensions of uncertainty, both non-strategic and strategic. To represent non-strategic forms of uncertainty, we focus on risk and ambiguity. Risk involves situations in which the decision-maker has information about the probability of different outcomes and can choose between different alternatives. According to neo-classical utility theory such decisions are affected by the curvature of the individual's utility function for money. Ambiguity, in turn, we define in line with Ellsberg (1961) as involving situations where economic actors have information about conceivable outcomes, but not about their probabilities.

The characteristic feature of strategic forms of uncertainty is that the outcome of decision-making is contingent upon other individuals' actions. Here we focus on competition and trust. With both, beliefs about other people are likely to influence individual decisions. To assess tolerance for uncertainty stemming from competition, we ask the participant to choose between a competitive situation and a non-competitive one. Clearly, the choice will depend on the decision-maker's beliefs about his or her own performance relative to others and also to some extent on her preference for competition *per se*. To assess trust, we let participants choose between delegating a distribution task to another person – whom they have not met - and letting the distribution to be determined by a random device. Obviously, decisions will reflect a decision maker's beliefs about the other person's willingness to act favorably in the distribution task.

2.1 Risk

In Kihlstrom and Laffont (1979) economic agents can choose between supplying their labor on the labor market to secure relatively risk-free wage employment, or becoming an entrepreneur facing risky income prospects. In the equilibrium, less risk-averse agents become entrepreneurs and more risk-averse agents become wage-earners. From this theory, we derive our first hypothesis.[3]

H1A: Entrepreneurs differ from others with respect to risk-taking.

---

[2] For this vein of research see for instance Evans and Leighton (1989); Shane (2003) and Lazear (2004).

[3] Although the crucial assumption in Kihlstrom and Laffont (1979) implies a direction of the difference in risk-taking, we prefer to keep our hypotheses open to allow for two-sided tests. The reason for this is that the intention of this paper is not to test isolated theories. Rather, the theories are used to motivate the investigation of different forms of uncertainty without unnecessary restrictions.

4

Prospect theory suggests that people use weighting functions instead of probabilities when choosing between different alternatives (see Kahneman and Tversky, 1979). Except for certain outcomes (with probability one), actors underweigh outcomes not obtained with certainty. This phenomenon—denoted as "subcertainty" or as "certainty effect"—explains risk aversion in choices involving sure gains and drives results like the Allais paradox (Allais, 1953). Since it is plausible that entrepreneurs differ from others in their certainty preference, we compare entrepreneurs with ordinary people when choosing between a certain and a risky alternative (where weights do not sum to one). Potentially, this allows us to separate between differences relating to the shape of the so-called "value function" and differences with respect to the "weighting function."[4] Thus we specify the following hypothesis:

H1B: When facing a risky alternative, the entrepreneurs have a different preference for guaranteed outcomes compared to ordinary people.

2.2 Ambiguity

Frank Knight (1921/2006, p. 231) was one of the first to emphasize that business decisions typically involve unmeasurable risk, because they "deal with situations which are far too unique, generally speaking, for any sort of statistical tabulation to have any value for guidance. The conception of an objectively measurable probability or chance is simply inapplicable." Such uncertainty poses a dilemma for firms, in that economic actors must make investment and production decisions that shape long-term business strategy and performance despite not being able to assess downstream risks. Knight does not claim that entrepreneurs have a higher or lower aversion to uncertainty than others, but asserts that entrepreneurs may have a high "capacity for forming correct judgments" in uncertain situations, implying that entrepreneurs behave differently from others when acting under uncertainty (Knight, 1921/2006, p. 43). In order to reserve "uncertainty" as the more general concept, we use in the following the term "ambiguity" for situations where the probability distributions of the outcomes are completely or partially unknown. Our hypothesis is therefore:

H2: Entrepreneurs have a different degree of ambiguity aversion than others.

2.3 Willingness to compete

An essential feature of entrepreneurship is exposure to competition, which involves a risk contingent on the entrepreneur's performance in comparison to his competitors. There are at least two conceivable mechanisms behind differences in willingness to compete between entrepreneurs and others. The first

---

[4] In addition, it can be noted that this is the more exact test of Kihlstrom and Laffont's (1979) theory, since here individuals chose between a certain and a risky outcome.

5

concerns the beliefs about one's own performance relative to others. It is possible that entrepreneurs are more optimistic than others or may even be overconfident. The theoretical literature draws on this to explain excessive market entry (see e.g., Bernardo and Welch, 2001; Hayward et. al., 2006; Wu and Knott, 2006).[5] The other possible mechanism is that entrepreneurs may have a preference for competition *per se*. For instance, Alfred Marshall (1890/1920, p. 23) claimed that "a manufacturer or a trader is often stimulated much more by the hope of victory over his rivals than by the desire to add something to his fortune." Similarly, Schumpeter interprets the wish to innovate, to succeed, and to prove superiority as an exogenous factor having its roots in a person's *Unternehmergeist*, the entrepreneurial spirit. It is "the will to conquer: the impulse to fight ... to succeed for the sake, not of the fruits of success, but of success itself" (Schumpeter, 1934, p.93), that sets entrepreneurs apart from others. This leads us to our third hypothesis:

H3: Entrepreneurs have a different willingness to compete than others.

2.4 Trust

In the words of James Coleman (1990, p. 91): "Situations involving trust constitute a subclass of those involving risk. They are situations in which the risk one takes depends on the performance of another actor." Trust is the willingness to expose oneself to such uncertainty. Entrepreneurs are constantly exposed to these "social risks" when interacting with suppliers, customers, employees, debtors, and their competitors. A delicate task here is to strike a balance between trust and control, a task entrepreneurs may be particularly good at (see Say, 1803/1855, Section III, VII, p.30). Thus, whether or not trust in general is higher or lower among entrepreneurs compared to average people, entrepreneurs may in a given situation have a different level of trust than others.[6] Our fourth hypothesis states:

H4: Trust behavior among entrepreneurs is different from that among others.

3 Research Strategy and Design

This study combines five features previously not jointly applied to study entrepreneurial behavior under uncertainty: (1) reliance on incentivized behavioral tasks, (2) multidimensional definition of uncertainty, (3) a focus on established entrepreneurs, (4) generation of a large-scale sample, and (5) reliance on random-sampling of participants.

---

[5] It is important to note that overconfidence and optimism are general human tendencies that are not restricted to competitive situations and should be distinguished from the more narrowly defined willingness to compete.
[6] This aspect is also emphasized by Knight (1921, p.43).

3.1 Design

Most of the research so far is based on surveys exploring psychological notions of attitudes towards uncertainty (see table in Appendix I). This makes the economic interpretation of prior results somewhat difficult. The behavioral tasks used in this experiment have a relatively straightforward interpretation. For instance, the behavioral task measuring risk can be directly related to the shape of the utility function. Furthermore, we agree with many experimental economists that the use of monetary incentives in behavioral tasks increases the credibility of the observed data.[7] After all, entrepreneurial decisions involve real stakes. The introduction of monetary incentives therefore increases the external validity of our observations.

Another important feature of our design is the parallel study of different facets of uncertainty. Testing numerous hypotheses with the same research design allows us to better distinguish between different behavioral characteristics. Consider the following example: The decision to trust generates a distribution of uncertain outcomes and the expected utility of this distribution is affected by the curvature of the decision maker's utility function in the same way as for standard risk decisions. In addition, beliefs about others' behavior affect trust. Evidently, the observation that entrepreneurs are more inclined to trust than others is open to two competing explanations. By also testing for risk preferences it is possible to distinguish between the two.

In our study, we formulated each behavioral task in a multiple price list format, where option A was expected to be the most attractive for the first decisions whereas the relative attractiveness of option B grew for decisions further down the list. This was done to minimize the cognitive load of the subjects and to make comparisons between tasks easier. After a number of pilot tests with undergraduates and a pretest with 70 actual entrepreneurs located in the Yangzi delta region, we decided to present each decision separately, which seemed to make the tasks easier to grasp for the entrepreneurs. Below we describe the different tasks and how they were designed.[8]

3.1.1 Risk

Standard risk aversion was elicited according to the multiple price list format (see e.g., Binswanger, 1980; Holt and Laury, 2002), which has become more or less standard in experimental elicitations of risk aversion (see e.g., Andersson et al, 2006, 2008). We used two different lists, one with two lotteries of

---

[7] For a theory of incentives in experiments (see Smith, 1982). There is also evidence that subjects put a higher degree of cognitive effort in decisions when these are incentivized (see e.g., Camerer and Hogarth, 1999). Attitudinal responses may even be unrelated to incentivized decisions even if these are intended to measure the same thing (see Glaeser et al., 2000).

[8] The instructions and forms used are available at www.????.

different relative risk (called task R1) and one with a certain outcome and a risky lottery (called task R2). This was done in order to investigate both the standard risk attitudes and the certainty effect (discussed above). The list for the R1 task is presented in Table 1 (with the decisions in the middle omitted for reasons of space). The R2 task has the same specifications for option A as the A1 task and the same specifications for option B as the R1 task.

TABLE 1

3.1.2 Ambiguity aversion

Ambiguity aversion was elicited by letting outcomes for option A be certain and the probabilities for the outcomes in option B be fully or partially unknown, denoted as the A1 and A2 task, respectively (see Table 1).[9] This means that further information about the risky lottery is removed, which may increase the feeling of uncertainty. To investigate the degree of ambiguity aversion we need some "price" of the ambiguous lottery reflecting the aversion. This method is similar to the one used by Fox and Tversky (1995), who elicited the willingness to pay for some of their ambiguous lotteries. When the subject in our design switches from the certain (option A in the A1 task) to the ambiguous alternative (option B in the A1 task) we take this as an indication that the subject has reached her reservation price. In some business decisions one might know a lower or upper bound on the probability for an event but not the exact probability. To elicit the aversion to such situations we also included a treatment with partially ambiguous lotteries (the A2 task).[10]

3.1.3 Willingness to compete

The willingness to compete may be triggered by many mechanisms and depending on which the subject considers important, there are different methods to elicit it. One method related to the one we used is to let subjects choose between a fixed fee and entering a contest with an unknown endogenously determined number of entrants, in which the winner gets a larger fixed prize (see Camerer and Lovallo, 1999; Elston et. al., 2006). The subjective expected utility of the uncertain alternative will depend on many things, including beliefs about the number of entrants, the shape of the utility function, the belief about the subject's own performance relative to others and, possibly also, on preferences for competition per se (as suggested by Marshall). Since the shape of the utility function is investigated in the standard risk task, the purpose of our willingness to compete elicitation is focussed on getting a more distinct measure of beliefs about relative performance and preferences for competition per se. To dampen the risk element we

---

[9] The only thing that differed between A1 and A2 was that both the uncertain outcomes (i.e., in option B) in the latter task had a probability of at least 25%.

[10] This is also motivated by the finding that ambiguity aversion may differ in various groups depending on the level of ambiguity (see Borghans, Golsteyn, Heckman and Meijers, 2009).

compare two uncertain alternatives, where one involves a competitive element.[11] We also believe that in many situations, the alternative to an entrepreneurial income (at least in the long run) is not a fixed salary, which is the same for all, but rather, a performance based salary, which (like the entrepreneurial income) has an expected value associated to beliefs about absolute performance. The payoff for the winner in the competitive alternative is therefore scaled up from the individual one (see Table 1), which means that beliefs about absolute performance are more or less controlled for. Hence, the willingness to compete measure used here emphasizes the subject's beliefs about his relative performance and potential preferences for competition per se. To get an indication of the subjects' relative performance belief we asked subjects to guess their performance in the task in comparison to their co-participant(s). Since the performance task was a trivia quiz, we asked "If you do the quiz, what percent of the other participants do you think will have more correct answers than you?"

In task C1 (see the Table 1) subjects could choose between being paid a certain sum (from 5CNY to 50 CNY) per correctly answered question (option A) in the quiz or entering a competition with another subject and being paid 50CNY per correctly answered question if the subject had the highest number of correct answers and 5CNY if the competitor had the highest number.[12] We also included a task C2 where competition was multilateral instead of bilateral. In this case the subject could choose between the same option A as in C1, but option B concerned a competition with three other participants, thus making the competition fiercer.

3.1.4 Trust

An individual's aversion to expose herself to the discretion of another person (the trustee) involves both a component of risk (in the sense that more than one outcome is possible) and a belief component (the trustor's subjective belief that the trustee's action will be advantageous to him, or not). These components are seldom separated in the literature on trust behavior, but in this study of different facets of uncertainty it is important to separate them. We have therefore designed an elicitation method (denoted task T) where the trustor chooses between one socially risky option, in which the outcome is conditional upon the trustee's action (option A), and a risky option (B) in the standard "lottery" sense. The trustee can choose between two payments, the first giving the trustor 580 CNY and the trustee 50 CNY and the second payment giving the trustor 15 CNY and the trustee 55 CNY. This is intended to capture those situations where another person at a low personal cost can make a big difference to another person. For instance, an employee that is about to go home might detect that a machine needs lubrication. The employee can

---

[11] This design is partly inspired by Gneezy et al. (2003), Niederle and Vesterlund (2007) and Charness and Villeval (2009).

[12] In the trivia quiz we used the quiz performance from a pre-test group of entrepreneurs as competitors.

choose between lubrication which costs a few minutes extra work or ignore it, which will damage the machine and be very costly for the owner of the firm. Note that the trustor's decision in task T cannot in any obvious way be driven by social preferences.[13]

A small group from the staff at the Shanghai Academy of Social Sciences took the role as trustees. Decisions from this group were recorded for all conceivable contingencies (i.e., the strategy method was used). To participants in our experiment, the other person was intentionally described in general terms (as an anonymous person who was born and lives in China), to capture what Putnam (2001) describes as "thin" trust.

3.1.5 The Distribution of Tasks

Each subject was exposed to four different tasks, one for each type of uncertainty (see Table 2). To have some observations uncontaminated by potential order effects and to check for certain treatment effects, the entrepreneurs were divided into six different treatment groups. The distribution of tasks and their order were decided after several pilots and one pretest. Different issues like cognitive difficulties were taken into account. Each task was placed first in at least one treatment. The exception was task T, since this was the most difficult to grasp. However, it seemed to be easier to understand if the subject had first understood the multiple price list format through some of the other tasks. To minimize the potential influence of order effects in between subjects' comparisons, we made sure to have the control group in their treatments getting the exact same sequences of tasks as the entrepreneurs.

TABLE 2

3.2 Research site and sampling

A large-scale experiment involving 700 randomly selected entrepreneurs would be a demanding undertaking anywhere in the world as business owners and CEOs are rarely willing to devote their scarce time to time-consuming academic studies. Many studies of entrepreneurial characteristics have in fact focused on self-employed individuals. This may be perfectly reasonable for studying characteristics related to some specific forms of activities such as start-up strategies of very small businesses. However, some self-employed are simply pushed towards self-employment for lack of alternatives, which would obviously not reflect the type of entrepreneurship that Say, Marshall, Schumpeter, Knight, Marshall, or Kirzner studied. Others have aimed to secure entrepreneur participation by relying on relatively small-

---

[13] For instance, all standard parameterizations of the Fehr and Schmidt (1999) model would suggest that the trustor prefers the first to the second payment. However, it is quite possible that the trustor's behavior can be guided by his beliefs about the trustee's social preferences, but this is something different and a reasonable component in trust.

scale "convenience samples".[14]   For instance, researchers visit public events attended by the intended survey population, and there potential subjects then self-select into the subject pool. While understandable in practical terms, the use of convenience samples naturally raises concerns over the external validity of findings (Levitt and List, 2007).

To mitigate some of these problems we have chosen China's Yangzi delta region as our research site as it seemed to offer superior conditions to execute a large-scale experiment involving a random sample of established entrepreneurs actually running sizeable enterprises. Most importantly, relatively modest average income levels allow us to offer credible monetary rewards which add to the reliability of the responses. Secondly, the region has gained global recognition as one of China's most entrepreneurial regions, spurring the country's dynamic growth process over the last decades. Already in 2005, the IMD-institute ranked the ability of the legal and regulatory framework of Zhejiang province (at the heart of the region) to encourage enterprise competitiveness as comparable with the USA (IMD 2005: 498). The Forbes magazine has praised the capital of Zhejiang repeatedly as the city with the best business climate in China. Finally, the well documented organizational capabilities, education-level and labor costs in China have facilitated the implementation of a large-scale experiment involving random sampling techniques.

For our study, we use a stratified random sample of firms, stratified according to location (city), industry (type of products) and firm size. We selected seven out of the region's 16 municipalities (Nanjing, Nantong, and Changzhou in Jiangsu province; Wenzhou, Ningbo, and Hangzhou in Zhejiang province, and Shanghai municipality) with the aim of recruiting 100 entrepreneurs per city (thus a total of 700). To take the classical studies exploring the nature of the entrepreneur to a critical test our study focuses on established entrepreneurs who are managing firms of some significance (with a sample average of 130 employees) and who have at least survived the first three years of firm operation (with a sample median of eight years of business operation).[15] To narrow down industrial diversity, we selected five industries reflecting strong local production lines in the Yangzi delta region. These industries range from labor-intensive to technology-intensive productions covering textile, ordinary machinery, vehicle and auto parts, medical and pharmaceutical products, and computer and communication equipment. To reach sizable establishments, we have over-sampled "large" (more than 300 employees) and "medium-size" (100-300) companies.

---

[14] This does not necessarily have to be a problem, since large differences between entrepreneurs and others may be detected also in small samples. What is more problematic is that studies with few observations that do not detect any differences may have a limited value, since the few observations may mask moderate differences. This in turn may lead to a publication bias that favors studies reporting significant differences.

[15] Obviously, there can be more than one mechanism (e.g. learning and selection) explaining any observed difference between established entrepreneurs and ordinary people. However, isolating the correct mechanisms is seen as a natural second step of this research and goes beyond the scope of the present paper.

The recruitment of participants followed a two-stage procedure. In a first step, our local partners have randomly sampled firms from local firm registers of China's Bureau of Industry and Commerce (the official agency in charge of private enterprise registration). The control group consists of individuals randomly selected from local household registers in the same region that matches the entrepreneurs according to specific demographic variables. In a second step, our local survey team contacted the randomly selected firms and households by mail and phone to arrange for interview appointments. In total, our research team invited 2842 entrepreneurs to participate in our study, which yields an overall response rate of 25 %, a ratio generally perceived as an acceptable result for studies targeting CEOs and top managers.[16] On average, the participating firms employ 130 employees and can be regarded as sizeable establishments. Eighty-six percent of these CEOs were owners, and 78 % founders or co-founders of the firm, thereby qualifying as "entrepreneurs" in the most literal meaning. The 200 subjects in the control group broadly resemble the entrepreneur-sample with respect to gender and age. Given the fairly large sample of 700 entrepreneurs and 200 individuals sampled as a control group, observations of potential "no differences" are therefore of great interest, since one can be relatively sure not to overlook substantive differences in the underlying distributions.

Skeptics may still question whether China's unique economic and political system provides appropriate conditions to derive general insights on behavioral differences between entrepreneurs and non entrepreneurs. Generally, however, there is little reason to believe that China's private entrepreneurs differ much from their counterparts in other countries around the world. Entrepreneurs have to organize resources, take decisions under various forms of uncertainty, negotiate, and compete in a highly competitive market economy.[17] These are common qualities generally noted by the classical literature on entrepreneurship, and they are not less valid in China's emerging market economy.

Unique historical features of the recent rise of private entrepreneurship in China even control for some confounding effects usually present in firm samples in developed economies. At any given point in time, the structure of a private firm population naturally depends on a complex set of different determinants. Some firm-owners were simply pushed into entrepreneurship because they lost their job others become second-generation entrepreneurs as they take over their parents' firms. Clearly, these firm-owners bear little resemblance to the entrepreneurial types or *pioneers* envisioned by Say, Marshall or Schumpeter. Ideally, one would like to explore a population of entrepreneurs where individuals actively

---

[16] Based on a survey including 175 different studies published in the years 1975, 1985, and 1995 in top-tier academic journals in management and behavioral studies, Baruch (1999) identifies a norm value of 35.5 % + /-13.3 for studies involving top management, whereas mean values in non-western societies tend to be even lower.

[17] All chosen industries in our study are highly competitive with relatively low concentration ratios. The highest concentration ratios are found in the vehicle and electronics sector with 20 % market share of the top ten producers in the country.

self-select to become entrepreneurs. We claim that China provides an appropriate research site to study such populations of true start-up entrepreneurs. First of all, the history of private entrepreneurship is relatively brief. Before 1988, private entrepreneurship was not even legalized, and full constitutional recognition was not granted before 2004. With this brief history, the current generation of entrepreneurs is truly a generation of founders, not yet diluted by owners of inherited productive assets. Secondly, China's government has not implemented policies aimed at actively promoting private start-up firms. To the contrary, private entrepreneurs are disadvantaged relative to the state-owned enterprises, which benefit from government policies and loans from state-owned banks (see Nee and Opper, 2012). Briefly, China's current generation of private industrialists represent a generation of start-up entrepreneurs who fit fairly well the original idea of entrepreneurship as observed in the rise of modern capitalism in the West (Weber, 1904-05; Schumpeter, 1942).

3.3 Training and execution

All research assistants selected for the implementation of the experiment were familiar with the local dialect and had worked as professional interviewers for several years. Starting on December 7, 2008, all research assistants participated in a three-day training program designed and led by the authors of this paper in order to standardize the implementation of the experiment. Each assistant was trained to do the interviews and all tasks. They also received detailed written instructions and questionnaires for each task (available at the end of this paper). At the end of the training, the authors accompanied teams of research assistants and supervisors to the field to conduct a series of trial experiments to check and test the design and implementation by our research assistants.

To minimize the time and inconvenience for the participating entrepreneurs, the behavioral tasks were conducted at the firm site, usually in a conference room or the entrepreneur's private office with no other people attending the experiment. The session proceeded as follows: The entrepreneurs were asked questions about their background (education, demographics) and the firm (start-up capital, firm revenues, etc). Subjects in the control group, also visited by two research assistants at their private residence, received the same set of questions, except for those about the firm and business. Each subject was then presented with four different behavioral tasks, designed to measure risk aversion, ambiguity aversion, trust, and willingness to cooperate. Afterwards, one task was randomly selected as the money-earning task. The earning was calculated and the entrepreneur received the payment.

4 Results

Table 2 summarizes the descriptive statistics of the 900 participants in our study. The matching of gender and age in the control group worked well with an almost identical composition of subjects with regard to these variables. In addition, the control group came from the same regions as the entrepreneurs. As to educational attainment, entrepreneurs have a somewhat higher level of education than the average control group member. Since education might affect choices in the risk task, we will explore whether potential differences are driven by this factor. Another factor to control for is the income or wealth of the subject. A proxy for this is self-reported annual personal income and as expected, entrepreneurs earn substantially more than the control group members. The median personal income of the entrepreneur was 175,000 CNY per year while the corresponding number was only 21,600 CNY per year among the control group members.[18]

TABLE 3

Our review of the results begins with the analysis of the mean switching points in the different treatment groups. For each task we have omitted a few observations due to incorrectly filled out forms.[19] To mitigate order effect we only compare groups where the groups have received the same treatments before the task under review.[20] A consequence of this is that the number of observations will vary between the tasks and that we pool only those treatment groups of entrepreneurs that have a matching control group.[21].

---

[18] A specific concern in using a high-income group like entrepreneurs in experiments is whether incentives can be considered salient (see Smith, 1982). However, even if the entrepreneurs belong to the high-income group, their median annual personal income is only around USD 25,000 (according to the exchange rate 6.83 in July 2009), as most entrepreneurs reinvest large parts of the company profits. This suggests substantial incentives can still be given at a reasonable cost. The average subject in our experiment earned 289 CNY (or USD 42) on the behavioral tasks that took only 25 minutes. The median entrepreneur's daily income (if he works 300 days a year) is 583 CNY, which suggest that if he received the average experimental earning, he got a half day's earnings in 25 minutes. Another way to look at the incentives is to consider the average hourly experimental earning (which was 763 CNY) and correct for purchasing power (which was 1.95 according to the Big Mac index in July 2009). Using this, the average hourly experimental pay was around USD 200 from a US perspective.

[19] The most common reason for omission is so called "multiple switching points". However, this problem was mitigated by careful instructions and by having the assistants to repeat information when the subjects did not fully understand the task. The share of omitted observations is for no task above five percent.

[20] In a study of the multiple price list method, Andersen et al. (2006) detected that responding to a given task in a list might affect how the subject responded in later tasks.

[21] Thus, if a one treatment group of entrepreneurs received Task X before the task to be studied and another group received tasks YZ, we can pool these groups if and only we can find one treatment group in the control that received X and another that received YZ.

For each task we also conduct a regression analysis to check if the results are robust when we incorporate gender, age, education and annual income. We also control for experimenter effects in these regressions. Even if the interviewers were carefully instructed to act in a standardized way, it is well-known from psychology (see e.g., Rosenthal, 1966) that the experimenter may affect the subject.[22] Finally, we include all subjects that have performed a certain task and we control for order effects by dummy variables.

Definitions of "entrepreneurs" vary. Up to this point we defined entrepreneurs relatively broadly as company CEOs (denoted as "Entrepreneur"). This may appear as a natural choice since CEOs are in charge of most entrepreneurial decisions in everyday business operations. Notwithstanding, a narrower definition of the entrepreneur as the owner or actual founder of a firm may come closer to the classical concept of entrepreneurs as individuals who *undertake* a venture instead of relying on wage employment. To check if our regression results depend on the specific definition of the entrepreneurial role we run the same regressions also for the sub-sample of 604 owner-entrepreneurs (denoted as "Owners" in the regressions) and the group of 546 founders, who have actually started their company (denoted as "Founders").

4.1 Risk

We begin by investigating the R1 task. Table 3 summarizes the mean and standard deviations of the individual switching points. Clearly, both groups exhibit a certain degree of risk aversion, since a risk neutral subject should switch at decision 5 and a risk-lover at an earlier decision. This result is consistent with studies of risk aversion in other groups where the multiple price list method is used (for college students e.g. Holt and Laury, 2002, and for the general population Harrison, Lau, Rutström, 2007 and Gaudecker, Soest and Wengström, 2011). Contrary to what many probably would expect, the entrepreneurs are not more risk-taking than others. In fact, their average switching point (5.98) is slightly higher than the one for the control group (5.77), although the difference is not significant in a Wilcoxon-Mann-Whitney test (henceforth WMN-test). Note, since entrepreneurs have on average substantively higher incomes than the control group, this would reinforce risk-taking in the former group.[23]

---

[22] For each subject we record the interviewer who did the experiment. In the regressions each interviewer is treated as a dummy.

[23] The effect of income on risk aversion in previous studies is not settled, but there is no evidence that it has a substantial impact on the subjects' risk-taking behavior (see e.g., Donkers et al., 2001; Harrison et al., 2007, and von Gaudecker et al., 2010).

When the decision is between a riskless outcome and a risky one, the entrepreneurs show a significantly lower inclination to take risk than the control group (see Table 3). The switching points among the entrepreneurs are significantly higher (MWM, p=0.021). However, this result is not robust in the regression analysis (see Table 4) under inclusion of control variables. Hence, we do not find robust evidence against either of H1a and H1b. In the regressions the sign of the various definitions of entrepreneurs are negative, suggesting the reverse impact (i.e., less risk aversion) but the coefficients are far from significant. Few of the control variables predict the switching point well. Age is negatively correlated to risk aversion whereas education has the reverse sign. However, these coefficients are only marginally significant (p<0.1) and only in one regression equation each. We also observe some indications of experimenter effects, but since there are more than twenty dummies representing different experimenters, this is not unexpected. Thus, we neither find robust predictors of standard risk-taking, nor do entrepreneurs seem to differ from other ordinary people when it comes to these decisions.

TABLE 4

4.2 Ambiguity

The results on the A1 and A2 tasks do not suggest that there are any notable differences on the level of ambiguity aversion between the groups (see Table 3). This is also confirmed by regression analysis (see Table 4). Only age and education have significant effects on ambiguity aversion. Higher education is associated with lower ambiguity aversion in the A1 task when only owners and founder entrepreneurs are included. The effect is however only marginally significant. Age is negatively correlated to ambiguity aversion in the A2 task. This effect is more robust and holds at various levels of significance for all entrepreneurial specifications.

4.3 Willingness to compete

For the C1 and C2 tasks willingness to compete is generally somewhat higher among entrepreneurs (see Table 3). The difference in switching point levels is significant for the C2 task although only at the ten percent level (WMW, p=0.082). There is also a tendency that the entrepreneurs' distribution of switching points has a slightly lower variance. A Kolmogorov-Smirnov test rejects equality of distributions at the ten percent level of significance (p=0.078) for task C1. One possible explanation might be that entrepreneurs have a more distinct evaluation of this type of uncertainty. A natural question to ask is if the somewhat higher willingness to compete among entrepreneurs is connected to the belief that they will have a higher score on the performance task than others. This is not obviously the case, since the average relative

performance beliefs of the entrepreneurs and the control subjects are almost identical.[24] Hence, insofar the higher willingness to compete among entrepreneurs seems to be driven by a preference for competition per se.

Our results are confirmed under inclusion of the standard set of control variables (see Table 5). In the case of multilateral competition (task C2) the entrepreneur variable is robustly significant at the five percent level. In all three samples, entrepreneurs are less averse to multilateral competition than ordinary people. We also find a significant gender effect. Male participants are more willing to compete than females, which is consistent with results reported by Gneezy et al. (2003).[25]

TABLE 5

4.4 Trust

We find that entrepreneurs are more willing to expose themselves to social risks than the control group (see Table 3). The switching points of the entrepreneurs are significantly higher than for the control group (MWM, p=0.012).[26] The magnitude of the effect is moderate. The average difference between the switching points is 19 % of the standard deviation. Since we compare two risky options, it is reasonable to interpret this difference as a higher confidence in another person's willingness to act favorably toward the subject.[27] Entrepreneurs routinely rely on on-going personal ties in upstream and downstream transactions with their suppliers and distributors. Moreover, in industrial clusters the capacity for on-the-fly cooperation between producers is an important source of competitive advantage (Uzzi, 1996). Because business networks provide a ready conduit of fine-grained information on reputation and trustworthiness, trust in relational contracting may be a self-reinforcing feature of entrepreneurial activity.

The regression analysis strongly confirms the robustness of the result (see Table 5). The dummy for entrepreneur is significant with the expected sign at the 1 % level in all three equations. In addition to the order variable, there is a marginally significant negative effect of income in one specification. The

---

[24] In the C1 task both entrepreneurs and control subjects believed that 44.7 % would have a higher score than themselves. In the C2 task entrepreneurs believed that 48.1 % would have a higher score, and the corresponding figure among the control group was 48.9.

[25] The result by Gneezy et al. (2003) is based on student subjects. The present study's results suggest that these gender differences also hold in multilateral competition among more experienced subjects, like CEOs who own or founded their firms.

[26] Note, in contrast to earlier tasks, the switching point is increasing in the subject's willingness to expose himself to this uncertainty (i.e., to trust).

[27] Note also that since we did not detect any significant difference in risk aversion when to risky alternatives were present, it is unlikely that this result is being driven by risk aversion.

non-parametric result and the regression analysis suggest that we can be confident in the finding that entrepreneurs have a higher tolerance of social risks than other people.[28]

4.5 Robustness concerns

One natural question is whether our results are driven by learning from the particular business environment that entrepreneurs encounter. To answer this question we included a control variable for years of business experience since founding of the current venture. However, results of our benchmark models are robust to the inclusion of this variable; moreover, the business experience variable is never even close to being statistically significant. This suggests that the mechanisms behind the results are not strongly related to the individual's learning experience. Rather, selection mechanisms explaining the entry into entrepreneurship seem to better explain the behavioral differences between entrepreneurs and ordinary people.

Skeptics may also worry that the political affiliation of entrepreneurs may affect our results given the unique features of Chinese capitalism. A standard measure to control for political capital is Chinese Communist Party (CCP) membership. Party members typically have better access to government and party networks, and may perceive a higher social and political status, which could in turn affect behavioral choices, particularly when it comes to decisions under uncertainty. To make sure that our results are not driven by the entrepreneurs' political capital, we have excluded the 179 entrepreneurs who had indicated to be party members. However, all results presented in Table 4 and 5 remain intact for this subsample of non-party members. The only difference is that the level of significance in the T-task drops from the 1 % to the 5 % level of significance, which is probably due to the reduced number of observations.[29]

5 Concluding Remarks

This paper reports results from the first large-scale experimental study on a randomly sampled population to investigate whether entrepreneurs are more prone than non-entrepreneurs to expose themselves to various forms of uncertainty. Our multidimensional design of four experimental tasks builds on the observation that uncertainty has both strategic and non-strategic dimensions, which require a separate treatment to better understand the nature of distinct entrepreneurial traits. Results from our stratified random sample of 700 established start-up entrepreneurs and 200 control group members located in the

---

[28] Fehr and List (2004) made congruent observations when they compared CEO:s in the Costa Rican coffee industry with undergraduate students. The CEO:s were more trusting than the students.

[29] Regression results are available from the authors.

Yangzi delta region in China suggest that entrepreneurs do not generally differ from other people when it comes to behavior under uncertainty. When exposed to non-strategic forms of uncertainty such as situations involving standard risk or ambiguity, entrepreneurs act similarly to ordinary people. This observation contradicts the theory by Kihlstrom and Laffont (1979) that selection into entrepreneurship is based on risk-aversion. [30] It does also not support risk-tolerance as a key causal mechanism explaining entrepreneurs' undiversified portfolios (see Moskowitz and Vissing-Jorgensen, 2002).

At the same time, entrepreneurs seem to be more willing to bear uncertainties involving a strategic element. First of all, entrepreneurs are significantly more willing to enter situations involving multilateral competition than members of the control group. This result is not unexpected. An essential feature of entrepreneurship is to compete with other firms in various respects and also to expose others (e.g., upstream firms and employees) to competitive pressure. Established entrepreneurs cannot shy away from competition. It is therefore likely that this group, as suggested by e.g., Marshall and Schumpeter, has a preference for such situations. As a consequence, our results correspond with Hamilton's (2000) observation that entrepreneurs are willing to enter and persist in business even if the pecuniary compensation is low. Secondly, our findings suggest that entrepreneurs are more willing to accept uncertainties related to trusting an anonymous other. Due to our design and results on nonstrategic uncertainty we can rule out lower risk aversion among entrepreneurs as a causal explanation. Still, several alternative explanations remain and further research is needed to disentangle the deeper mechanisms involved. A preliminary but plausible explanation is that entrepreneurship requires a certain amount of trust, and that more trusting individuals are selected into the group of entrepreneurs. These findings are consistent with the important role of private order and relational contracting in everyday business situations (Williamson, 1987; Macauly, 1967). Clearly entrepreneurship is not a purely individualistic endeavor and requires the willingness and ability to cooperate even though complete contracts are typically missing. Trust may therefore provide the glue that makes business networks actually work.

---

[30] It should be noted that our focus on established entrepreneurs may reflect that the market punishes and weeds out less prudent individuals who are willing to take unnecessary risks. This interpretation would be at least partly consistent with the finding that the survival rate among entrepreneurs who score high on risk attitude questionnaires is smaller than the one for entrepreneurs who score at the medium level (see Caliendo et al., 2010).

6 References

Aldrich, Howard E., *Organizations and Environments*, Prentice-Hall, New York, 1979.

Andersson, Steffen, Glenn W. Harrison, Morten I. Lau, and E. Elisabet Ruststrӧm, "Elicitation Using Multiple Price List Formats," *Experimental Economics* 12 (2006), 365-366.

Andersson, Steffen, Glenn W. Harrison, Morten I. Lau, and E. Elisabet Rustrӧm, "Eliciting Risk and Time Preferences," *Econometrica* 76 (2008), 583- 618.

Baruch, Yehua, "Response Rate in Academic Studies – A Comparative Analysis," *Human Relations* 52(1999), 421-438.

Begley, Thomas M., "Using Founder Status, Age of Firm, and Company Growth Rate as the Basis for Distinguishing Entrepreneurs from Managers of Smaller Businesses," *Journal of Business Venturing* 10 (1995), 249-263.

Begley, Thomas M. and David P. Boyd, "A Comparison of Entrepreneurs and Managers of Small Business Firms," *Journal of Management* 13 (1987), 99-108.

Bernardo, Antonio and Ivo Welch, "On the Evolution of Overconfidence and Entrepreneurs," *Economic Management Strategy* 10 (2001), 301-331.

Bernstein, Fernando and Awi Federgruen. 2005. "Decentralized Supply Chains with Competing Retailers under Demand Uncertainty," *Management Science* 51(1): 18-29.

Binswanger, Hans P., "Attitudes Toward Risk: Experimental Measurement in Rural India," *American Journal Agricultural Economics* 62 (1980), 395-407.

Borghans, Lex, James Heckman, Bart Golsteyn and Huub Meijers, "Gender Differences in Risk Aversion and Ambiguity Aversion", *Journal of the European Economic Association* 7 (2009), 649-658.

Brockhaus, Robert H., "Risk Taking Propensity of Entrepreneurs," *Academy of Management Journal* 23 (1980), 509-520.

Caird, Sally, "The Enterprise Tendency of Occupational Groups," *International Small Business Journal* 9 (1991), 75-91.

Caliendo Marco, Frank Fossen and Alexander Kritikos, "The Impact of Risk Attitudes on Entrepreneurial Survival," *Journal of Economic Behavior and Organization* 76 (2010), 45-63.

Camerer, Colin and Robin M. Hogarth, "The Effects of Financial Incentives in Economic Experiments: A Review and Capital-Labor-Production Framework," *Journal of Risk and Uncertainty* 19 (1999), 7-42.

Camerer, Colin and Dan Lovallo, "Overconfidence and Excess Entry: an Experimental Approach," *American Economic Review* 89 (1999), 306-318.

Charness, Gary and Marie-Claire Villeval, "Cooperation and Competition in Intergenerational Experiments in the Field and the Laboratory," *American Economic Review* 99 (2009), 956-978.

Coleman, James S., *Foundations of Social Theory*, (Cambridge, Mass.: The Belknap Press of Harvard University Press), 1990.

Cramer, J.S., Joop Hartog, Nicole Jonker and, Mirjam Van Praag, "Low Risk Aversion Encourages the Choice for Entrepreneurship: an Empirical Test of a Truism," *Journal of Economic Behavior and Organization* 48 (2002), 29-36.

Djankov, Simeon, Yingyi Qian, Gérard Roland and Ekaterina Zhuravskaya, "Who Are China's Entrepreneurs?" *American Economic Review* 96(2006):348-352.

Djankov, Simeon, Yingyi Qian, Gérard Roland and Ekaterina Zhuravskaya, "What Makes a Successful Entrepreneur? Evidence from Brazil," September 2007. Working Papers from Center for Economic and Financial Research (CEFIR), working paper # 0104.

Donkers, Bas, Bertrand Melenberg, and Arthur van Soest, "Estimating Risk Attitudes Using Lotteries: a Large Sample Approach," *The Journal of Risk and Uncertainty* 22 (2001), 165-195.

Ellsberg, Daniel, "Risk, Ambiguity, and the Savage Axioms," *The Quarterly Journal of Economics* 75 (1961), 643-669.

Elston, Julie A., Glenn W. Harrison and E. Elisabet Rutström, "Experimental Economics, Entrepreneurs and the Entry Decision," UCF Economics Department, working paper, 2006:6.

Evans, David S. and Linda S. Leighton, "Some Empirical Aspects of Entrepreneurship," *American Economic Review* 79(2): 519-535.

Fehr, Ernst and John List, "The Hidden Costs and Returns of Incentives: Trust and Trustworthiness among CEOs," *Journal of the European Economic Association* 2 (2004), 743-771.

Fehr, Ernst and Klaus M. Schmidt, "A Theory of Fairness, Competition, and Cooperation," *Quarterly Journal of Economics* 114(1999), 817-68.

Glaeser, Edward, David Laibson, José Scheinkman and Christine Soutter, "Measuring Trust," *Quarterly Journal of Economics* 115 (2000), 811-846.

Gneezy, Uri, Muriel Niederle, and Aldo Rustichini, "Performance in Competitive Environments: Gender Differences," *Quarterly Journal of Economics* 118 (2003), 1049-1074.

Hamilton, Barton, "Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment"; *Journal of Political Economy* 108 (2000), 604-631.

Harrison, Glenn W., Morten Igel Lau, and E. Elisabet Rutstrom, "Estimating Risk Attitudes in Denmark: a Field Experiment," *Scandinavian Journal of Economics* 109 (2007), 341-68.

Harrison, Glenn W., and John List, "Field Experiments," *Journal of Economic Literature* 42 (2004), 1009-1055.

Hayward, Mathew L.A., Dean A., Shepherd, and Dale Griffin, "A Hubris Theory of Entrepreneurship," *Management Science* 52(2006), 160-172.

Holt, Charles A. and Susan K. Laury, "Risk Aversion and Incentive Effects," *American Economic Review* 92 (2002), 1644-1655.

Hull, D., J. Bosley and G. Udell, "Renewing the Hunt for Heffalump: Identifying Potential Entrepreneurs by Personality Characteristics," *Journal of Small Business* 18 (1980), 11-18.

IMD 2005. *IMD World Competitiveness Yearbook 2005*, Lausanne: IMD.

Kahneman, Daniel and Amos Tversky, "Prospect Theory: an Analysis of Decision under Risk," *Econometrica* 47 (1979), 263-291.

Kihlstrom, Richard E., and Jean-Jacques Laffont, "A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion," *The Journal of Political Economy* 87 (1979), 710-748.

Kirzner, Israel, *Competition and Entrepreneurship*, (Chicago, IL: Chicago University Press), 1973.

Knight, Frank, *Risk, Uncertainty and Profit*, (Mineola, NY.: Dover Publications, Inc.), 1921, (2006).

Koh, Hian C., "Testing Hypotheses of Entrepreneurial Characteristics: a Study of Hong Kong MBA students," *Journal of Managerial Psychology* 11 (1996), 12-25.

Lazear, Ewdard P., "Balanced Skills and Entrepreneurship," *American Economic Review: Papers and Proceedings*, 94 (2): 208-211.

Levitt, Steven D., and John A. List, "What Do Laboratory Experiments Measuring Social Preferences Reveal about the Real World?" *Journal of Economic Perspectives* 21(2007), 153-174.

Macaulay, Stewart. 1963. "Non-Contractual Relations in Business: A Preliminary Study." *American Sociological Review* 28:55-67.

Marshall, Alfred, *Principles of Economics*, 8th ed., (London, UK: Macmillan & Co.: London), 1890/1920.

Moskowitz, Tobias and Annette Vissing-Jorgensen, "The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle?" *The American Economic Review* 92 (2002), 745-778.

Nee, Victor and Sonja Opper, *Capitalism from Below: Markets and Institutional Change in China*, Harvard University Press, forthcoming, 2012.

Niederle, Muriel, and Lise Vesterlund, "Do Women Shy Away from Competition? Do Men Compete too Much?" *Quarterly Journal of Economics* 122 (2007), 1067-1101.

Pich, Michael T., Christoph H. Lock and Arnoud de Meyer. 2002. "On Uncertainty, Ambiguity, and Complexity in Project Management," M*anagement Science* 48 (8): 1008-1023.

Putnam, Robert, D., *Bowling Alone. The Collapse and Revival of the American Community*, (New York, NY: Simon & Schuster), 2001.

Rosenthal, Robert, *Experimenter Effects in Behavioral Research*, (East Norwalk, CT: Appleton-Century-Crofts), 1966 .

Sandri, Serena, Christian Schade, Oliver Musshoff and Martin Odening, "Holding on for too Long? An Experimental Study on Inertia in Entrepreneurs' and Non-Entrepreneurs' Disinvestment Choices," *Journal of Economic Behavior and Organization* 76 (2010), 30-44.

Sarasvathy, D. K., Herbert Simon and Lester Lave, "Perceiving and Managing Business Risks: Differences Between Entrepreneurs and Bankers," *Journal of Economic Behavior and Organization* 33 (1998), 207-222.

Say, Jean-Baptiste, *A Treatise on Political Economy*, (Philadelphia, PA.: Lippincott, Grambo &Co.), 1803/1855.

Schere, Jean, "Tolerance of Ambiguity as a Discriminating Variable Between Entrepreneurs and Managers," *Academy of Management Best Paper Proceedings* 42 (1982), 404-408.

Schumpeter, Josef A. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, (New Brunswick, NJ: Transaction Publishers), 1934/ 1983

_____ *Capitalism, Socialism and Democracy*,2nd ed. (London, UK: Allen and Unwin), 1942/ 1947.

Shane, Scott A., *A General Theory of Entrepreneurship: The Individual – Opportunity Nexus*, (Northampton, MA.: Edward Elgar Publ. Inc.), 2003.

Smith, Vernon L., "Microeconomic Systems as an Experimental Science," *American Economic Review* 72(1982), 923-955.

Stewart, Wayne H., Warren E. Watson, Joann C. Carland, and James W. Carland, "A Proclivity for Entrepreneurship: A Comparison of Entrepreneurs, Small Business Owners, and Cooperate Managers," *Journal of Business Venturing* 14 (1999), 189-214.

Uusitalo, Roope, "Homo Entreprenaurus?" *Applied Economics* 33 (2001), 1631-1638.

Uzzi, Brian, "The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect." *American Sociological Review* 61 (1996), 674-698.

Van Praag, Mirjam and J. S. Cramer, "The Roots of Entrepreneurship and Labour Demand: Individual Ability and Low Risk Aversion," *Economica* 68 (2001), 45-69.

von Gaudecker, Hans-Martin, Arthur van Soest and Erik Wengström, "Heterogeneity in Risky Choice Behaviour in a Broad Population," *American Economic Review* 101 (2011), 664-694.

Williamson, Oliver E., *The Economic Institutions of Capitalism, Firms, Markets, Relational Contracting*, New York: The Free Press, 1987.

Wu, Brian and Ann-Marie Knott, "Entrepreneurial Risk and Market Entry," *Management Science* 52 (2006), 1315-1330.

Tables

Table 1. Decision Tasks.

	Task R1		Task A1	
Decision	Option A (probabilities of payoffs)	Option B (probabilities of payoffs)	Option A	Option B (probabilities of payoffs)
1	10% of ¥ 300	10% of ¥ 580	¥ 360	?% of ¥ 580
	90% of ¥ 240	90% of ¥15		?% of ¥ 15
2	20% of ¥ 300	20% of ¥ 580	¥ 330	?% of ¥ 580
	80% of ¥ 240	80% of ¥ 15		?% of ¥ 15
....	....	....	....	....
9	90% of ¥ 300	90% of ¥ 580	¥ 120	?% of ¥ 580
	10% of ¥ 240	10% of ¥ 15		?% of ¥ 15
10	100% of 300 ¥	100% of ¥ 580	¥ 90	?% of ¥ 580
				?% of ¥ 15

	Task C1		Task T	
Decision	Option A (Amount earned per correct answer)	Option B (amount earned per correct answer if you/your co-participant have/has the highest number of points)	Option A (X decides between Payment I and II.	Option B (probabilities of Payment I and II)
1	¥ 50	¥ 50 / ¥ 5	X decides	10% of I
				90% of II
2	¥ 45	¥ 50 / ¥ 5	X decides	20% of I
				80% of II
......	......	....	....	....
9	¥ 10	¥ 50 / ¥ 5	X decides	90% of I
				10% of II
10	¥ 5	¥ 50 / ¥ 5	X decides	100% of I

Table 2. Treatment Design.

	Entrepreneurs							Control group			
Treatment	1	2	3	4	5	6	Treatment	7	8	9	10
1st task	A1	A2	R1	R2	C1	C2	1st task	A1	R2	R1	C1
2nd task	R2	R1	A2	A1	T	T	2nd task	R2	A1	A2	T
3rd task	T	T	T	T	A1	A2	3rd task	T	T	T	A1
4th task	C1	C2	C1	C2	R2	R1	4th task	C1	C2	C1	R1
# subjects	117	117	117	117	116	116	# subjects	50	50	50	50

Table 3. Descriptive characteristics of subjects and mean switching points in the experimental tasks.

Variable/Task	Entrepreneurs	Control group	Hypothesis
Gender (% males)	83.3	85.5	
Age (median, 2009)	41.5	40.5	
Junior high school or lower	13.9	30.5	
Vocational school/high school	28.6	32.5	
Junior college	32.1	26	
University	25.4	11	
Income (annual, median, 1000¥)	175	21.6	
Mean switching points (std; #observations)			
R1 task	5.98 (1.69; 111)	5.77 (2.36; 48)	H1a not rejected
R2 task	5.86 (1.80; 234)	5.30 (1.86; 98)	H1b rejected[**]
A1 task	6.25 (2.05, 347)	6.11 (2.45; 147)	H2 not rejected
A2 task	6.22 (2.10; 115)	6.28 (2.43; 49)	H2 not rejected
C1 task	6.21 (1.69; 344)	6.39 (1.91; 147)	H3 not rejected
C2 task (std)	6.10 (1.71; 116)	6.76 (1.97; 50)	H3 rejected[*]
T task (std)	5.10 (2.00; 464)	4.79 (1.95; 197)	H4 rejected[**]

* Statistically significant at the 10 % level. ** Statistically significant at the 5 % level.

Table 4. Non-strategic uncertainty: Ordered probit regressions of switching points.

	Risk						Ambiguity					
	R1 task Coeff (se)			R2 task Coeff (se)			A1 task Coeff (se)			A2 task Coeff (se)		
Entrepreneur	-.153 (.243)			-.003 (.253)			-.064 (.234)			-.173 (.284)		
Owner		-.087 (.025)			-.011 (.267)			.026 (.248)			-.016 (.291)	
Founder			-.092 (.253)			-.050 (.288)			.093 (.265)			-.026 (.0298)
Male	-.096 (.133)	-.096 (.145)	-.074 (.149)	-.005 (.146)	-.058 (.160)	-.024 (.172)	.079 (.139)	.031 (.151)	.034 (.0161)	-.053 (.140)	-.132 (.152)	-.082 (.157)
Age	-.010 (.006)	-.010 (007)	-.012* (.007)	-.002 (.007)	-.002 (.007)	-.005 (.008)	.002 (.006)	.003 (.007)	-.002 (.007)	-.013* (.007)	-.015** (.007)	-.017** (.008)
Education	.015 (.019)	.014 (.021)	.005 (.021)	.028 (.020)	.033 (.022)	.044* (.024)	.030 (.019)	.035* (.021)	.041* (.022)	.005 (.021)	.006 (.022)	.002 (.023)
Log Income	.009 (.061)	-.005 (.063)	-.010 (.064)	.003 (.073)	.016 (.076)	.018 (.082)	-.037 (.068)	-.040 (.070)	-.017 (.075)	.006 (.064)	-.031 (.067)	-.046 (.069)
Task 2	-.071 (.133)	-.156 (.141)	-.087 (.145)	.084 (.120)	-.006 (.127)	-.015 (.134)	.075 (.120)	.156 (.127)	.137 (.134)	-.009 (.137)	.026 (.145)	-.012 (.149)
Task 3							.030 (.119)	.033 (.126)	.029 (.134)	-.008 (.136)	.021 (.147)	-.012 (.153)
Task 4	-.170 (.119)	-.201 (.126)	-.174 (.130)	.117 (.135)	-.007 (.147)	.095 (.158)						
Interviewer[a]	YES	YES	YES	YES*	YES*	YES*	YES*	YES*	YES**	YES	YES	YES
Prob>Chi2	.009	.019	.012	.002	.008	.019	.005	.009	.003	.048	.033	.039
Pseudo R2	.032	.032	.035	.037	.037	.038	.030	.031	.037	.028	.032	.033
Observations	429	382	362	430	381	344	466	418	381	391	346	326

[a] Dummy variables indicate the main interviewer conducting the experiment; level of significance reflects highest level of significance found for at least one dummy variable. * Statistically significant at 10 % level; ** statistically significant at 5 % level, *** statistically significant at 1 % level.

Table 5. Strategic Uncertainty: Ordered probit regressions of switching points.

	Competitiveness C1 task Coeff (se)			C2 task Coeff (se)			Trust T task Coeff (se)		
Entrepreneur	-.192 (.229)			-.731** (.283)			.534*** (.170)		
Owner		-289 (.238)			-.639** (.294)			.564*** (.177)	
Founder			-.213 (.255)			-.641** (.299)			.560*** (.184)
Male	-.014 (.135)	.049 (.145)	.035 (.152)	-.228 (.145)	-.354** (.162)	-.411** (.170)	.066 (.096)	.024 (.105)	.099 (.111)
Age	-.003 (.006)	-.006 (.007)	-.007 (.007)	-.012* (.006)	-.010 (.007)	-.013* (.007)	.000 (.004)	.001 (.005)	-.002 (.005)
Education	-.005 (.019)	-.009 (.020)	.006 (.021)	-.032 (.021)	-.030 (.023)	-.030 (.024)	.013 (.014)	.019 (.015)	.0173 (.0153)
Log Income	-.006 (.061)	.0132 (.062)	-.001 (.065)	.082 (.074)	.070 (.078)	.081 (.082)	-.077* (.046)	-.078 (.047)	-.050 (.050)
Task 3							.136* (.076)	.163** (.081)	.180** (.086)
Task 4	-.217** (.103)	-.184* (.110)	-.184 (.117)	-.293** (.119)	-.176 (.131)	-.127 (.137)			
Interviewer	YES**	YES**	YES***	YES**	YES***	YES***	YES*	YES*	YES**
Prob>Chi2	.000	.000	.000	.000	.001	.000	.000	.000	.000
Pseudo R2	.040	.042	.050	.049	.047	.052	.025	.028	.028
Observations	467	425	390	391	337	317	862	766	708

[a] Dummy variables indicate the main interviewer conducting the experiment; level of significance reflects highest level of significance found for at least one dummy variable. * Statistically significant at 10 % level; ** statistically significant at 5 % level, *** statistically significant at 1 % level

Appendix I: Entrepreneurship an Uncertainty

	Focus Group (FG)	Comparison Group (CG)	Region	Method Survey = S Experiment =E	Sampling Random =R; Non-Random=NR	FG more prone to accept uncertainty than CG
Risk						
Hull et al. (1980)	Owner-managers (n=57)	Business School Alumni (n=250)	USA	S	NR	YES
Brockhaus (1980)	Start-up entrepreneurs (n = 31)	Business managers (n = 62)	USA	S	R	NO
Caird (1991)	Owner managers (n=73)	Professional groups (n=189)	USA	S	NR	YES
Begley (1995)	Firm founders (n = 114)	Business managers (n = 114)	USA	S	NR	YES
Koh (1996)	Entrepreneurially inclined MBA students (n = 22)	Not entrepreneurially inclined MBA students (n = 32)	Hong Kong	S	NR	YES
Sarasvathy et al. (1998)	Entrepreneurs participating in Education program (n = 4)	Bankers participating in same Education program (n = 4)	USA	S	NR	YES
Stewart et al. (1999)	Entrepreneur (n = 428)	Corporate manager (n = 239)	USA	S	NR	YES
Van Praag and Cramer (2001)	Currently or before self-employed (n= 258)	Never before self employed (n = 1505)	Netherlands	S	R	YES
Uusitalo (2001)	Self-employed (n = 2,418)	Not self-employed (n = 23,551)	Finland	S	R	YES
Cramer et al. (2002)	Self-employed at some point in life (n = 330)	Never self-employed (n = 1,567)	Netherlands	S	R	YES
Elston et al. (2006)	Entrepreneurs (n = 42)	Non entrepreneurs (n = 38)	USA	E	NR	NO

Study	Entrepreneur group	Comparison group	Country	Type	Sampling	Result
Djankov et al. (2006)	Entrepreneurs (n= 414)	Non entrepreneurs (n = 561)	China	S	Stratified RS	YES
Djankov et al. (2007)	Entrepreneurs (n = 400)	Non-entrepreneurs (n = 550)	Russia	S	Stratified RS	NO
Caliendo et al. (2009)	Individual who transfer into self-employment (n = 147)	Individuals who remain employed (n = 8,561)	Germany	S	RS	YES
Macko and Tyszka (2009)	Entrepreneurs (n = 40)	Students (n = 86)	Poland	E	NR	NO
Ambiguity						
Schere (1982)	Firm founders (n=52)	Managers (n=65)	USA	S	NR	YES
Koh (1996)	Entrepreneurially in-clined students in (n= 22)	Not entrepreneurially inclined students (n = 32)	Hong Kong	S	NR	YES
Macko and Tyszka (2009)	Entrepreneurs (n = 40)	Students with (n = 86)	Poland	E	NR	YES
Willingness to compete						
Begley and Boyd (1987)	Business founders (n = 268)	Non-founding chief executives (n = 203)	USA	S	NR	YES
Begley (1995)	Firm founders (n = 114)	Business managers (n = 114)	USA	S	NR	NO
Elston et al. (2006)	Entrepreneurs (n = 42)	Non entrepreneurs (n = 38)	USA	E	NR	NO
Trust						
Fehr and List (2004)	CEOs (n= 76)	Undergraduate students (n = 126)	Costa Rica	E	NR	YES

SUPPLEMENTARY MATERIAL FOR ONLINE PUBLICATION

Experimental Instructions and Tasks to Subjects

QID |__|__|__|__|

Firm name: _____

Interviewer name:_____

General information (GI)

The purpose of this part of the study is to gain additional insights into economic behavior. You will make choices in different situations that will be explained later. To make it more interesting, realistic and fun, we will, at random let participants in this study earn some real money. One of your choices made will be selected at random to determine a "money-earning decision" and you will be paid today according to your choice in this task. Hence, the amount of money you earn will depend on the choices made. This means that you may earn money on any of the decisions made, but you will not know how much you will earn, before you have made all choices. The maximum amount you can earn is 580 CNY and the minimum is 0 CNY.

You should know the possibility to earn real money is important in economic experiments and that there are strict rules against deceiving persons that participate. Hence, all information given here about money and other aspects are true and will be carried out according to the information given. Please, note also that there are no "right" or "wrong" choices in the decisions you are going to make. Therefore, make decisions according to what you think is best. Your answers will only be used for research purposes and will be kept strictly confidential.

Read the instructions to each task carefully. Ask the Interviewer if there is anything you do not understand. In each task you will make ten decisions where you choose between two options.

(A1)

We offer you two different options. Please choose the option that seems preferable to you (to be described below:

Option A: You receive a given sum of money.

Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are unknown.

The exact probabilities of the outcomes in Option B will be determined afterwards, which means that right now they are also unknown to the Interviewer.

Decision 1: (Circle your choice of Option below):

Option A   I would like to get 360 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 2: (Circle your choice of Option below):

Option A   I would like to get 330 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 3: (Circle your choice of Option below):

Option A   I would like to get 300 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 4: (Circle your choice of Option below):

Option A   I would like to get 270 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 5: (Circle your choice of Option below):

Option A   I would like to get 240 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 6: (Circle your choice of Option below):

Option A   I would like to get 210 CNY for sure.

Option B	I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 7: (Circle your choice of Option below):

Option A	I would like to get 180 CNY for sure.

Option B	I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 8: (Circle your choice of Option below):

Option A	I would like to get 150 CNY for sure.

Option B	I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 9: (Circle your choice of Option below):

Option A	I would like to get 120 CNY for sure.

Option B	I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

Decision 10: (Circle your choice of Option below):

Option A   I would like to get 90 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known.

(A2)

We offer you two different options. Please choose the option that seems preferable to you (to be described below):

Option A: You receive a given sum of money (as specified in the table below).

Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are unknown. However, the probability of the high and low payoff is at least 25%.

The exact probabilities of the outcomes in Option B will be determined afterwards, which means that right now they are also unknown to the Interviewer.

Decision 1: (Circle your choice of Option below):

Option A   I would like to get 360 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 2: (Circle your choice of Option below):

Option A   I would like to get 330 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 3: (Circle your choice of Option below):

Option A   I would like to get 300 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 4: (Circle your choice of Option below):

Option A   I would like to get 270 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 5: (Circle your choice of Option below):

Option A   I would like to get 240 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 6: (Circle your choice of Option below):

Option A   I would like to get 210 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 7: (Circle your choice of Option below):

Option A   I would like to get 180 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 8: (Circle your choice of Option below):

Option A   I would like to get 150 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 9: (Circle your choice of Option below):

Option A   I would like to get 120 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

Decision 10 (Circle your choice of Option below):

Option A   I would like to get 90 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY though the winning probabilities are not known. However, the probability of the high and low payoff is at least 25%.

(R1)

We offer you two different options. Please choose the option that seems preferable to you (to be described below:

Option A: You either receive a high payoff (300 CNY) or a low payoff (240 CNY). The probabilities of the high payoff and the low payoff are given below.

Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are given below.

Decision 1: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 10% and the probability of 240 CNY is 90%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 10% and the probability of 15 CNY is 90%.

Decision 2: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 20% and the probability of 240 CNY is 80%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 20% and the probability of 15 CNY is 80%.

Decision 3: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 30% and the probability of 240 CNY is 70%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 30% and the probability of 15 CNY is 70%.

Decision 4: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 40% and the probability of 240 CNY is 60%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 40% and the probability of 15 CNY is 60%.

Decision 5: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 50% and the probability of 240 CNY is 50%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 50% and the probability of 15 CNY is 50%.

Decision 6: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 60% and the probability of 240 CNY is 40%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 60% and the probability of 15 CNY is 40%.

Decision 7: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 70% and the probability of 240 CNY is 30%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 70% and the probability of 15 CNY is 30%.

Decision 8: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 80% and the probability of 240 CNY is 20%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 80% and the probability of 15 CNY is 20%.

Decision 9: (Circle your choice of Option below):

Option A   I would like to have a random draw: I either get 300 CNY or 240 CNY. The probability of 300 CNY is 90% and the probability of 240 CNY is 10%.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 90% and the probability of 15 CNY is 10%.

Decision 10: (Circle your choice of Option below):

Option A   I would like to get 300 CNY for sure.

Option B   I would like to get 580 CNY for sure.

 (R2)

We offer you two different options. Please choose the option that seems preferable to you (to be described below:

Option A: You receive a given sum of money.

Option B: You either receive a high payoff (580 CNY) or a low payoff (15 CNY). The probabilities of the high payoff and the low payoff are given below.

Decision 1: (Circle your choice of Option below):

Option A   I would like to get 360 CNY for sure.

Option B   I would like to have a random draw: I either get 580 CNY or 15 CNY. The probability of 580 CNY is 10% and the probability of 15 CNY is 90%.

Decision 2: (Circle your choice of Option below):

Option A   I would like to get 330 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 20% and the probability of 15 CNY is 80%.

Decision 3: (Circle your choice of Option below):

Option A   I would like to get 300 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 30% and the probability of 15 CNY is 70%.

Decision 4: (Circle your choice of Option below):

Option A   I would like to get 270 CNY for sure.

Option B   I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 40% and the probability of 15 CNY is 60%.

Decision 5: (Circle your choice of Option below):

Option A   I would like to get 240 CNY for sure.

Option B I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 50% and the probability of 15 CNY is 50%.

Decision 6: (Circle your choice of Option below):

Option A I would like to get 210 CNY for sure.

Option B I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 60% and the probability of 15 CNY is 40%.

Decision 7: (Circle your choice of Option below):

Option A I would like to get 180 CNY for sure.

Option B I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 70% and the probability of 15 CNY is 30%.

Decision 8: (Circle your choice of Option below):

Option A I would like to get 150 CNY for sure.

Option B I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 80% and the probability of 15 CNY is 20%.

Decision 9: (Circle your choice of Option below):

Option A I would like to get 120 CNY for sure.

Option B I would like to have a random draw where I either get 580 CNY or 15 CNY. The probability of 580 CNY is 90% and the probability of 15 CNY is 10%.

Decision 10: (Circle your choice of Option below):

Option A I would like to get 90 CNY for sure.

Option B I would like to get 580 CNY for sure.

(T)

In this situation one of two payments is possible. Each payment will give you and a person you probably do not know (say person X) a certain payoff:

Payment I: you get 580 CNY and X gets 50 CNY.

Payment II: you get 15 CNY and X gets 55 CNY.

You can <u>not</u> choose payment, but you can choose between two options (A, B) of how the payment is to be decided:

Option A: You let X decide about the payment of money. (See further explanation below.)

Option B: Payment I and II are chosen according to the probabilities below.

Further explanation: X has already made his/her decisions, but we will not tell you about them. So you have to make your own decision based on what you think X has decided.

We have information about X:s decisions in an envelope. This envelope will be opened only if one of the decisions below is randomly selected as your "money-earning decision". X has been informed that you will be asked to choose between the two options (A, B). X made his/her choice contingent on you choosing Option A in each of the decisions below. X does not know your identity and you will not learn the identity of X either. However, you should know that X is borne and lives in China.

Decision 1: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to get Payment II for sure.

Decision 2: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 10% and the probability of Payment II is 90%.

Decision 3: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 20% and the probability of Payment II is 80%.

Decision 4: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 30% and the probability of Payment II is 70%.

Decision 5: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 40% and the probability of Payment II is 60%.

Decision 6: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 50% and the probability of Payment II is 50%.

Decision 7: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 60% and the probability of Payment II is 40%.

Decision 8: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 70% and the probability of Payment II is 30%.

Decision 9: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 80% and the probability of Payment II is 20%.

Decision 10: (Circle your choice of Option below):

Option A   I let X decide between Payment I (I get 580 CNY and X gets 50 CNY) and Payment II (I get 15 CNY and X gets 55 CNY).

Option B   I would like to have a random draw where we either get Payment I or Payment II. The probability of Payment I is 90% and the probability of Payment II is 10%.

(C1)

This decision concerns a little 10-item trivia quiz. The topic could be anything from "sports" to "movie stars". The task is to answer as many questions correctly as possible, but we will only actually ask you these questions, if this task is randomly selected as your "money-earning-decision". You will then be paid according to the number of correct answers. At this stage you must choose between two options of how to be paid (see below).

Option A: A certain amount per correct answer.

Option B: You choose to be randomly matched with another participant in this study (who already has answered the questions).

You will earn 50 CNY per correct answer, if you have the highest number of correct answers.

You earn 5 CNY per correct answer if your co-participant answers more questions correctly than you.

In case of a tie, a random draw determines if you receive 50 CNY or 5 CNY per correct answer.

The interviewer has an envelope with results from other participants. If this task is randomly selected (as your "money-earning-decision")，you will be asked to draw a co-participant to be matched with at random.

Decision 1: (Circle your choice of Option below):

Option A   I would like to earn 50 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 2: (Circle your choice of Option below):

Option A   I would like to earn 45 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 3: (Circle your choice of Option below):

Option A   I would like to earn 40 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 4: (Circle your choice of Option below):

Option A   I would like to earn 35 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 5: (Circle your choice of Option below):

Option A   I would like to earn 30 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 6: (Circle your choice of Option below):

Option A   I would like to earn 25 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 7: (Circle your choice of Option below):

Option A   I would like to earn 20 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 8: (Circle your choice of Option below):

Option A   I would like to earn 15 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 9: (Circle your choice of Option below):

Option A   I would like to earn 10 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

Decision 10: (Circle your choice of Option below):

Option A   I would like to earn 5 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

You are now asked to guess how good your performance in the quiz will be in comparison to all other participants that have taken the quiz.

If you do the quiz how many percent of the other participants do you think will have more correct answers than you? _____ (a number between 0 and 100).

(C2)

This decision concerns a little 10-item trivia quiz. The topic could be anything from "sports" to "movie stars". The task is to answer as many questions correctly as possible, but we will only actually ask you these questions, if this task is randomly selected as your "money-earning-decision". You will then be paid according to the number of correct answers. At this stage you must choose between two options of how to be paid (see below).

Option A: A certain amount per correct answer.

Option B: You choose to be randomly matched with three other participants in this study (who already have answered the questions).

You will earn 50 CNY per correct answer, if you have the highest number of correct answers in this group.

You earn 5 CNY per correct answer if any of these three co-participants answers more questions correctly than you.

In case of a tie, a random draw determines if you receive 50 CNY or 5 CNY per correct answer.

The interviewer has an envelope with results from other participants. If this task is randomly selected (as your "money-earning-decision"), you will be asked to draw three co-participants to be matched with at random.

Decision 1: (Circle your choice of Option below):

Option A   I would like to earn 50 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 2: (Circle your choice of Option below):

Option A   I would like to earn 45 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 3: (Circle your choice of Option below):

Option A   I would like to earn 40 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 4: (Circle your choice of Option below):

Option A   I would like to earn 35 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 5: (Circle your choice of Option below):

Option A   I would like to earn 30 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 6: (Circle your choice of Option below):

Option A   I would like to earn 25 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 7: (Circle your choice of Option below):

Option A   I would like to earn 20 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 8: (Circle your choice of Option below):

Option A   I would like to earn 15 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 9: (Circle your choice of Option below):

Option A   I would like to earn 10 CNY per correct answer..

Option B   I would like to be matched with other participants and earn 50 CNY if I have the higher number of correct answers and 5 CNY if a co-participant has the higher number of correct answers.

Decision 10: (Circle your choice of Option below):

Option A   I would like to earn 5 CNY per correct answer..

Option B   I would like to be matched with another participant and earn 50 CNY if I have the higher number of correct answers and 5 CNY if my co-participant has the higher number of correct answers.

You are now asked to guess how good your performance in the quiz will be in comparison to your co-participants in this study.

If you do the quiz how many percent of the other participants do you think will have more correct answers than you? _____ (a number between 0 and 100).

Quiz-form (C1 and C2 task)

10 trivia Quiz (Yes / or no questions/statements)

1. Shanghai World Financial Center (SWFC) has more than 105 floors?

2. As a young boy, Barack Obama's lived more than three years in Malaysia and went to local schools in Kuala Lumpur?

3. China won most gold medals in the summer Olympics game in Beijing.

4. China won less than 25 silver medals in the Olympic games in Beijing.

5. Abba was a pop group from from Sweden.

6. Zhang Yimou is 55 years old.

7. In 2006, Beijing's officially registered population was more than 18 million.

8. Gong Li acted in the movie House of Flying Daggers (**Shí Miàn Mái Fú**)

9..Deng Xiaoping was born in 1901 in Guangan.

10. According to information from China's statistical yearbook, China has produced more than 500 million mobile phones in 2006.

Instructions to Interviewers

This part contains instructions to interviewers. For each task there are instructions and a list of material needed (forms, decks of cards etc).

Task: General Information (GI):

Instruction for conversation:

Interviewer, please note, don't read sentences in 【】

Instruction:

1. Please read the General Information page. Please do not turn pages. I will explain it to you after you finish reading.

2. Each of the following pages describes different tasks and there are 4 different tasks. Each task has ten decisions for you to make and these different tasks are independent of each other.

3. Next I will explain how the payment works. After you have made all decisions, we will have a deck of cards 【Interviewer, please show the envelope of cards that will be used – envelope marked "Money earning decisions"】. Each of your decision is represented with one card in this deck. We will ask you to draw one card from the deck and that card will determine the money earning decision.

4. Do you have any questions?

5. 【Interviewer，answer the questions until you are sure that the subject understands.】

6. now please turn to the next page.

Material: GI-form, Envelope marked "Money earning decisions", Questionnaire with experimental tasks in proper order (one for each of the eight treatments), pen (do not use pencils).

Task A1, A2

1. Please read the form.

2. 【Interviewer, please observe whether the subject has finished reading】Let me explain it to you. You have read in the General Information that we will ask you to randomly select one of your decisions as the money earning decision. If any of the decisions in this task is randomly selected as the money earning decision, the payment proceeds as follows.

If you have chosen option A, you will receive the specified amount.

If you have chosen option B, a draw of cards decides about your payment.

3. The draw of cards will proceed as follows: First I will ask you to choose a deck of cards. 【Interviewer, show the subject the two envelopes marked "Deck 1" and "Deck 2" 】. These two decks contain different proportions of red and black cards. Secondly, when you have chosen a deck, I will ask you to draw a card from this deck. If the color of the card is red you will receive the high payoff; if it is black you will receive the low payoff.

4. Do you have any questions 【Interviewer, answer the questions until you are sure that the subject understands. 】

5. Please fill in the A1-form (or A2-form).

6. 【Interviewer, please look at the questionnaire, if you see that the subject has chosen the same option for all decisions or made some suspected mistakes such as switching in the "wrong" order (i.e., from B to A) explain again. If this is the case】
May I explain to you again?
[If you have offered additional explanation, mark Yes in the corresponding box in the questionnaire.]
【Explanation….Be careful to point out that, compared to Option A, B gets increasingly attractive as (s)he moves down to later decisions.】
【Interviewer note, let the subjects change his/her decisions if (s)he wants, and mark the form with an "X" if the subject changed any decision. If (s)he does not want to change decision move on.】

Material: A1 or A2-form, two envelopes marked "Deck 1" and "Deck 2", "Deck 1" contains 4 red and 6 black cards. "Deck 2" contains 3 red and 7 black cards.

Task R1

1. Please read the form.

2. 【Interviewer, please observe whether the subject has finished reading】 Let me explain it to you. You have read in the General Information that we will ask you to randomly select one of your decisions as the money earning decision. If any of the decisions in this task is randomly selected as the money earning decision, the payment proceeds as follows.

We will ask you to draw a card from a deck of cards that is prepared such that the probability of getting the high and low payoff is consistent with the description in the money earning decision.

3. The draw of cards will proceed as follows: 【Interviewer, show the subject the envelope marked "20".】 We will prepare a deck of ten cards. A red card stands for the high payoff and a black card stands for the low payoff. The probability a red card would be chosen will be equal to the probability of the high payoff in the money earning decision and the probability a black card would be chosen will be equal to the probability for the low payoff in the money earning decision. We will then ask you to draw a card. If the color of the card is red you will receive the high payoff; if it is black you will receive the low payoff.

4. Do you have any questions 【Interviewer, answer the questions until you are sure that the subject understands. 】

5. Please fill in the R1-form.

6. 【Interviewer, please look at the questionnaire, if you see that the subject has chosen the same option for all decisions or made some suspected mistakes such as switching in the "wrong" order (i.e., from B to A), or chosen Option A for decision 10, explain again. If this is the case】
May I explain to you again?
[If you have offered additional explanation, mark Yes in the corresponding box in the questionnaire.]
【Explanation….Be careful to point out that, compared to Option A, B gets increasingly attractive as (s)he moves down to later decisions.】
【Interviewer note, let the subject change his/her decisions if (s)he wants, and mark the form with an "X" if the subject changed any decision. If (s)he does not want to change decision move on.】

Material: R1 -form, Envelope marked "20" with 10 red and 10 black cards.

Task R2

1. Please read the form.

2. 【Interviewer, please observe whether the subject has finished reading】 Let me explain it to you. You have read in the General Information that we will ask you to randomly select one of your decisions as the money earning decision. If any of the decisions in this task is randomly selected as the money earning decision, the payment proceeds as follows.

If you have chosen option A, you will receive the specified amount.

If you have chosen option B, a draw of cards decides about your payment.

3. The draw of cards will proceed as follows: 【Interviewer, show the subject the envelope marked "20".】 We will prepare a deck of ten cards. A red card stands for the high payoff and a black card stands for the low payoff. The probability a red card would be chosen will be equal to the probability of the high payoff in the money earning decision and the probability a black card would be chosen will be equal to the probability for the low payoff in the money earning decision. We will then ask you to draw a card. If the color of the card is red you will receive the high payoff; if it is black you will receive the low payoff.

 4. Do you have any questions 【Interviewer, answer the questions until you are sure that the subject understands. 】

5. Please fill in the R2-form.

6. 【Interviewer, please look at the questionnaire, if you see that the subject has chosen the same option for all decisions or made some suspected mistakes such as switching in the "wrong" order (i.e., from B to A) or chosen Option A for decision 10, explain again. If this is the case】
May I explain to you again?
[If you have offered additional explanation, mark Yes in the corresponding box in the questionnaire.]
 【Explanation….Be careful to point out that, compared to Option A, B gets increasingly attractive as (s)he moves down to later decisions.】
 【Interviewer note, let the subject change his/her decisions if (s)he wants, and mark the form with an "X" if the subject changed any decision. If (s)he does not want to change decision move on.】

Material: R2 -form, Envelope marked "20" containing 10 red and 10 black cards.

Task (T)

1. Please read the form.

2. 【Interviewer, please observe whether the subject has finished reading】Let me explain it to you. Here is the envelope with X:s Payment decisions 【show the subject the envelope marked "X:s decisions in T" for T】.

3. X:s decision will be revealed if any of these decisions are randomly selected as the money earning decision. If any of the decisions in this task is randomly selected as the money earning decision, the payment proceeds as follows.

If you have chosen option A, X's payment decision decides the payoff.

If you have chosen option B, a draw of cards decides about your payment.

4. The draw will proceed as follows: 【Interviewer, Show the subject the envelope marked "20".】We will prepare a deck of ten cards from this envelope such that the probability of you drawing a red card will be equal to the probability of Payment I (with the higher payoff for the respondent) in the money earning decision and the probability of you drawing a black card is equal to the probability for Payment II (lower payoff for respondent) in the money earning decision. If the color of the card you have drawn is red, you will receive payoff according to Payment I (the high payoff); if it is black you will receive payoff according to Payment II (the low payoff).

5. Do you have any questions 【Interviewer, answer the questions until you are sure that the subject understands.】

6. Please fill in the T-form.

7. 【Interviewer, please look at the questionnaire, if you see that the subject has chosen the same option for all decisions or made some suspected mistakes such as switching in the "wrong" order (i.e., from B to A), or chosen Option B for decision 1 explain again. If this is the case】
May I explain to you again?
[If you have offered additional explanation, mark Yes in the corresponding box in the questionnaire.]
【Explanation….Be careful to point out that, compared to Option A, B gets increasingly attractive as (s)he moves down to later decisions.】
【Interviewer note, let the subject change his/her decisions if (s)he wants, and mark the form with an "X" if the subject changed any decision. If (s)he does not want to change decision move on.】

Material: T -form, Envelope marked "X:s decisions in T" (containing a form with X:s decisions for T), Envelope marked "20" with 10 red and 10 black cards.

Task (C1 and C2)

1. Please read the form.

2. 【Interviewer, please observe whether the subject has finished reading】Let me explain it to you. You can either be paid independently of others or you can choose to compete with other co-participant(s) in C1 (C2). You will earn more if you are better in answering the questions than the co-participant(s) or earn less if you are worse than the co-participant(s). 【Interviewer, please show the subject the envelope marked "Quiz results" with results from co-participants performances】This envelope has quiz results for other co-participants.

3. I want to explain that, at this moment, you will not be asked quiz questions. As you have read in the General Information, we will ask you to randomly select one decision as your money earning decision. If one of these decisions is randomly selected as your money earning decision, we will then ask you these questions.

4. Do you have any questions 【Interviewer, answer the questions until you are sure that the subject understands. 】

5. Please fill in the C1 or C2 -form.

6. 【Interviewer, please look at the questionnaire, if you see that the subject has chosen the same option for all decisions or made some suspected mistakes such as switching in the "wrong" order (i.e., from B to A), or chosen Option B for decision 1, or Option A for decision 10 explain again. If this is the case】
May I explain to you again?
[If you have offered additional explanation, mark Yes in the corresponding box in the questionnaire.]
【Explanation….Be careful to point out that, compared to Option A, B gets increasingly attractive as (s)he moves down to later decisions. 】
【Interviewer note, let the subjects change his/her decisions if (s)he wants, and mark the form with an "X" if the subject changed any decision. If (s)he does not want to change decision move on.】

Material: Envelope with a co-participants results marked "Quiz results", C1 or C2 form.

Instructions to procedure after all tasks are completed:

Random selection of money earning decision:

1. Take out the deck of card from the envelope denoted "Money earning decision".

2. Inform the subject that (s)he will now draw a card representing one decision previously made. Money will be paid according to this selected decision. Remind the subject that many decisions will result in rather small amounts of money.

3. Ask the subject to draw a card.

4. Write down the decision drawn and the option chosen on the Earnings-form.

5. Circle the money earning decision with a pen on the subject's questionnaire. (Example: if the subject draws a card with "T4" go to Decision 4 on the T-form.) Point it out to the subject so that (s)he understands, which decision was chosen to determine the payoff and which option the respondent has selected.

6. The continuing procedure will depend on the decision drawn:

Material: Envelope marked "Money earning decisions", Deck representing the 40 decisions marked: A1-A10, R1-R10, T1-T10, C1-C10, Earnings-form.

I. Look at the subject's decision at the A1 or A2 form.

- If the subject has chosen Option A for this decision, inform the subject that (s)he has chosen the secure payment and write down the sum the subject earns on the Earnings-form. Pay him/her the amount earned and fill out the receipt form.

- If the subject has chosen Option B for this decision pick out the envelopes labelled "Deck 1" and "Deck 2" and proceed as follows:

The draw for A1 and A2:

i). Ask the subject to choose a deck ("Deck 1" or "Deck 2"). Remind the participant that this draw decides about the probabilities to win either the high or low payoff.

ii) Take the chosen deck point at it and explain to the subject that if (s)he draws a red card (s)he gets the large amount 580 and if he draws a black card he gets the small amount 15.

iii) Ask the subject to draw one card from the chosen deck. Remind her/him that only one draw will be made and that there is a risk that (s)he will only earn a small amount.

iv). Ask the subject to show you the color of his card and write down on the Earnings-form if the cards was red or black.

v). Show the subject the color of the cards in the deck that was not drawn.

vi) Pay the subject and ask her/him to fill out the receipt form.

II. Thank the subject for participating.

Material: A1 or A2-form, Envelopes labeled "Deck 1" and "Deck 2". "Deck 1" contains 4 red and 6 black cards. "Deck 2" contains 3 red and 7 black cards, Earnings-form.

I. Look at the subject's money earning decision at the R1 form.

- If the money earning decision is Decision 10 pay the subject the amount attached to the chosen option. Write down the sum the subject earns on the Earnings-form and ask her/him fill out the receipt form.

- For all other options on decision 1 to 9 proceed as follows:

i) Prepare a deck of cards containing 10 cards from the envelope marked "20". The number of red cards in the deck should correspond to the probability of the higher amount described in the money earning decision. The number of black cards should correspond to the probability of getting the small amount. Examples:

If R3 is chosen and if Option B is chosen so that the probability for winning 580 CNY and 15 CNY is 30% and 70%, respectively, prepare a deck with three red cards and seven black cards.

If R6 is chosen and if Option A is chosen so that the probability for winning 300 CNY and 240 CNY is 60% and 40%, respectively, prepare a deck with six red cards and four black cards.

ii) Explain to the subject that if he draws a red card (s)he gets the larger amount and if he draws a black card he gets the smaller amount.

iii) Reshuffle the cards so that it is not possible for the subject to find out or see the color of the cards.

iv) Ask the subject to draw one card from the prepared deck. Remind her/him that only one draw will be made and that there is a risk that (s)he will only earn a small amount.

v). Ask the subject to show you the color of his card and write down on the Earnings-form whether the cards was red or black.

vi). Show the subject the color of the cards in the deck that was not drawn.

vii) Pay the subject, write down the sum the subject earns on the Earnings-form and ask her/him fill out the receipt form.

II. Thank the subject for participating.

Material: R1-form, envelope to deck of cards labeled "20" (containing 10 red and 10 black cards) , Earnings-form.

I. Look at the subject's money earning decision at the R2 form.

- If the subject has chosen Option A, inform the subject that (s)he has chosen the secure payment and write down the sum the subject earns on the Earnings-form. Pay him/her the amount earned and fill out the receipt form.

- If the money earning decision is Decision 10 pay the subject the amount attached to the chosen option (90 CNY for option A; 580 CNY for option B). Write down the sum the subject earns on the Earnings-form. Pay him/her the amount earned and fill out the receipt form.

- If the subject has chosen Option B on decision 1 to 9 proceed as follows:

i) Prepare a deck of cards containing 10 cards from the envelope marked "20". The number of red cards in the deck should correspond to the probability of the higher amount described in the money earning decision. The number of black cards should correspond to the probability of getting the small amount. Examples:

If R3 is chosen and if Option B is chosen so that the probability for winning 580 CNY and 15 CNY is 30% and 70%, respectively, prepare a deck with three red cards and seven black cards.

ii) Explain to the subject that if he draws a red card (s)he gets the larger amount and if he draws a black card he gets the smaller amount.

iii) Reshuffle the cards so that it is not possible for the subject to find out or see the color of the cards.

iv) Ask the subject to draw one card from the prepared deck. Remind her/him that only one draw will be made and that there is a risk that (s)he will only earn a small amount.
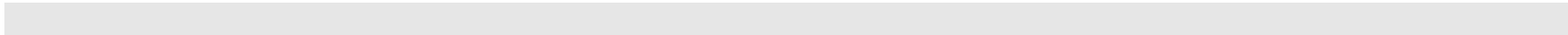
v). Ask the subject to show you the color of his card and write down on the Earnings-form if the cards was red or black.

vi). Show the subject the color of the cards in the deck that was not drawn.

vii) Write down the sum the subject earns on the Earnings-form. Pay the subject and ask her/him fill out the receipt form.

II. Thank the subject for participating.

Material: R2-form, envelope to deck of cards labeled "20" (containing 10 red and 10 black cards) , Earnings-form.

I. Look at the subject's decision at the T form.

II. Take out X:s decision sheet ("X:s decision in T" for T). Show it to the subject and look up, which decision X made in the money earning decision. Point at the decision made by X and show it to the subject.

- If the subject chose Option A and X chose Payment I, inform the subject that (s)he did earn the large amount of 580 CNY.
- If the subject chose Option A and X chose Payment II, inform the subject that regretfully (s)he did only earn the small amount of 15 CNY.
- If the subject chose Option B and the money earning decision is 1, inform the subject that (s)he has earned 15 CNY. Write down the sum the subject earns on the Earnings-form. Pay him/her the amount earned and fill out the receipt form.
- If the subject chose Option B and the money earning decision is 2-10, pick out the deck of cards in the envelope marked "20" and proceed as follows:

i) Prepare a deck of cards containing 10 cards. The number of red cards in the deck should correspond to the probability of Payment I described in the money earning decision. The number of black cards should correspond to the probability of getting the small amount. Examples:

If T3 is chosen and if Option B is chosen so that the probability for Payment I and Payment II is 20% and 80%, respectively, prepare a deck with two red cards and eight black cards.

ii) Explain to the subject that if he draws a red card (s)he gets Payment I (and the larger amount) and if he draws a black card he gets Payment II (the smaller amount).

iii) Reshuffle the cards so that it is not possible for the subject to find out or see the color of the cards.

iv) Ask the subject to draw one card from the prepared deck. Remind her/him that only one draw will be made and that there is a risk that (s)he will only earn a small amount.

v). Ask the subject to show you the color of his card and write down on the Earnings-form if the cards was red or black.

vi). Show the subject the color of the cards in the deck that was not drawn.

vii) Write down the sum the subject earns on the Earnings-form. Pay the subject and ask her/him fill out the receipt form.

III. Thank the subject for participating.

Material: T -form, Envelope marked "X:s decisions in T" (containing a form with X:s decisions for T), Envelope marked "20" with 10 red and 10 black cards, Earnings-form.

. Look at the subject's decision at the C1 or C2-form.

II. Take out the Quiz-form. Inform the subject that you will ask 10 quiz questions where the respondent is asked whether the stated information is correct or false. Inform the subject that the more questions that are correctly answered the more he earns.

III. Ask the subject the quiz questions and mark each question (s)he is correct in the Quiz-form

IV. When the subject has finished. Count the number of correct answers and write down this number on the Earnings-form.

V. Determine the earnings. This depends on the Option chosen by the subject:

-If Option A is chosen, multiply the number of correct answer by the amount earned per correct number in the money earning task (5-50) and write down this number on the Earnings-form (amount earned).

- If Option B is chosen. Take out the envelope marked "Quiz results" and let the subject draw one (in the case of C1) or three (in the case of C2) co-participant(s) result(s).

    -If the subject has the best result (subject answered more questions correctly than any of the co-participant(s)), multiply the number of correct answers by 50 and write down this number on the Earnings-form (amount earned).

    - If at least one co-participant has a better result multiply the number of correct answers by 5 and write down this number on the Earnings-form (amount earned).

    -If the subject has the same result as his co-player (C1) or as the best one of his co-players (C2). Inform the subject that in this case it will randomly determined if he will earn 5 or 50 per correctly answered question. Take out envelope marked "20". Inform the subject that there are 10 black and 10 red cards in the deck. Reshuffle. Inform the subject that (s)he will earn 5 per correct question if (s)he draws a black card and 50 if (s)he draws a red card. Ask the subject to draw one card from the deck. Remind her/him that only one draw will be made. Ask the subject to show you the color of his card and write it down on the Earnings-form if the card was red or black.

    -If black card, multiply the number of correct answers by 5 and write down this number on the Earnings-form (amount earned).

-If red card, multiply the number of correct answers by 50 and write down this number on the Earnings-form (amount earned).

VI) Pay the subject and ask her/him fill out the receipt form.

VII). Thank the subject for participating.

Material: Earnings-form, Quiz-form, Envelope marked "Quiz results", C1 or C2-form, Envelope marked "20" with 10 red and 10 black cards.