Are There Gender Differences in the Propensity to Compete in China? An Empirical Investigation

Authors: Gerald Wu[a], Grace Lordan[a], and Nikita[a]

[a] London School of Economics and Political Science, Houghton St, London, WC2A 2AE, UK

Corresponding author:
Gerald Wu, gerald_wu2000@yahoo.ca

Other authors:
Grace Lordan, G.Lordan@lse.ac.uk
Nikita, nikita1@lse.ac.uk

Declaration of interest statement

None.

ABSTRACT

Evidence from the lab suggests that women are not inclined to compete more than men, but the majority of this evidence relates to Western countries. Our study explores gender differences in the propensity to compete among Chinese individuals. The study uses an online survey distributed to undergraduate and postgraduate degree students in a university located in Shanghai and measures performance among Chinese men and women under different incentive schemes. The results of this study suggest that there are no differences in performance under competitive conditions between Chinese men and women. However, women perform slightly better than men when the element of risk is added in a competitive environment. This study underscores the importance of examining cultural nuances when evaluating gender dynamics in competition and contributes to a more comprehensive understanding of these dynamics in the Chinese context.

Keywords: Competition, China, Gender Differences, Labor Market, Global South, Performance in Competition

1. INTRODUCTION

In the last fifteen years experiments exploring the extent to which there are gender differences in the propensity to compete have been a mainstay in the social science literature. In general, these studies find that women shy away from competition much more often than men, and when given a choice prefer to be compensated in a manner that does not involve competing with other people (e.g. piece-rate) (Gneezy et al., 2003; Niederle & Vesterlund, 2005, 2007; Vandegrift & Yavas, 2009; Ors et al., 2013; Flory et al., 2018). These findings have been corroborated by studies using real work data in a variety of contexts (examinations, compensation schemes, occupational sorting) which highlight that women shy away from competition or perform worse if it is necessary that they compete to be successful or when the context is even more competitive than usual [1], as well as in studies that consider differences in the field.

It is noteworthy that these conclusions are mainly drawn from study samples who reside in Western Educated Industrialised Rich Developed (WEIRD) countries. There is a dearth of evidence that explores differences in the tendency to compete by gender in non-WEIRD countries. Our work, therefore, fills a gap in the literature by conducting an online experiment in China which is one of the fastest-growing economies in the world.

Only three experimental studies that explored this question in China, as we do here. Carlsson et al. (2020) did a replication of Niederle and Vesterlund (2007) in China with a participant pool specific to adult Han Chinese born between 1976 and 1986. Their results show that women perform equally well as men in a piece-rate task and significantly better in a competitive payment environment. Booth et al. (2019) analysed gender differences in across Beijing and Taipei individuals in different birth cohorts (1958, 1966 and 1977) in China. They found that Beijing women growing up during the communist regime are more

---

[1] see Ors et al. (2013) for examinations, Paserman (2007) who consider compensation schemes that depend on relative performance, Lordan and Lekfunagfu who consider occupational sorting (2018). We note also Manning and Saidi (2008), who do not find gender differences tendency to sort into jobs with performance related pay in the UK.

competitively inclined than their men counterparts, their women counterparts growing up during the market regime, and Taipei women. For Taipei, they found no statistically significant cohort or gender differences in willingness to compete. Zhang (2019) also analysed individuals from three distinct ethnic groups in China (Han, Yi and Mosuo) who were born between 1976 and 1986 and found that while there were no differences among the Han group, women had a lower propensity to compete in the Yi and Musuo groups.

In addition, a study by Gneezy et al. (2009) explored gender differences in competitiveness in two distinct societies, namely, the Maasai tribe of Tanzania representing a patriarchal society and the Khasi tribe in India, representing a matrilineal society. Within the patriarchal society, they found that women are less competitive than men, however, their results reversed in the matrilineal society where they found, although not statistically significant, women to be more competitive than Maasai men. These findings suggest the role of culture and context in shaping the tendency for competitive behaviours by gender, highlighting the importance of examining WEIRD findings in non-WEIRD settings.

To test for gender differences in competitiveness in China, we designed an online experiment modelled after Gneezy et al. (2003) and Niederle and Vesterlund (2007). We recruited students drawn from a large business school in China, a group who may intuitively expect to seek to be leaders of business later in their careers. Participants played a series of five-word memory games with varying incentive schemes, including piece rate, risk and competition elements. We investigate how gender interacts with various incentives offered in our experimental games to impact the performance of participants. Based on past studies and the cultural nuances of China, we predicted that women would perform worse than men in competitive settings (games with incentives) in our study.

Our results indicate that, overall, women showed no significant performance differences compared to men in incentivized games, suggesting participants in our study did not notably adjust their behaviour to the incentives. This aligns with similar findings in individuals from Taipei (Booth et al., 2019) and Han (Zhang, 2019) backgrounds, demonstrating no discernible gender-based variations in competitiveness. Notably, women outperformed men in environments with added risk, indicating potential gender differences in incentive responses. This is in line with experimental findings by Carlsson et al. (2020), who found

that, in a task introducing a risk element with payments tied to others' performance, women outperformed men. This contrasts with many Western studies which have reported women performing less favourably than men in competitive settings (Niederle and Vesterlund, 2011).

Our study, contributing to the literature on gender competition tendencies (Azma and Petrongolo, 2014; Gneezy et al., 2003), aligns with broader research exploring explanations for labour market outcomes and gender pay gaps. While prior studies propose that women's lower inclination to compete contributes to the gender gap (Gneezy et al., 2003; Niederle and Vesterlund, 2007), our findings challenge this notion. Despite the pronounced gender pay gap and barriers faced by women in China (Ding, 2022), our results suggest that differences in competitive ability may not be the primary driver of these disparities.

The remainder of this paper proceeds as follows. Section 2 reviews the literature that is relevant to our study. Section 3 explains the methodology employed for the online experiment, encompassing its design and implementation. Section 4 describes the measures used in the experiment, including the analytical framework for the dataset. Section 5 presents the findings from the empirical investigation and Section 6 delves into a detailed discussion of the obtained results and concludes the paper.

2. LITERATURE REVIEW

2.1 Overview of Cultural Influences on The Propensity to Compete

The choice to compete that is ultimately made by the students in our sample could have been shaped by society, evolution or reveal an innate tendency. It is beyond the experimental approach considered here to disentangle the origins of an individual-level tendency to compete. Still, evidence of gender differences in the tendency to compete from experiments can help gain a fuller understanding of why we end up with different outcomes in the labour market if salaries or jobs are decided via tournaments or with competitive pressures[2]. In

---

[2] We note here now an emerging literature that does try to probe further as to why a gender gap in the tendency to compete is observed. For example, a number of studies have highlighted a link between specific hormones and the tendency to behave competitively (for example Andersen et al., 2013; Wozniak et al., 2014).

addition, it is still documenting the reasons why we may expect to find similar and different conclusions as compared to the studies conducted in WEIRD contexts, based on national cultural influences. This is particularly interesting in the case of China where dominant aspects of its culture may lead us to hypothesise that we will find no gender differences in the tendency to compete in this context, whereas others still suggest the opposite.

Chinese culture is influenced by Confucianism, Taoism, Legalism, and Buddhism (Granrose, 2005b). Through depicting the core aspects of Chinese values, we identify three main aspects of Chinese culture that may be most relevant in shaping the competitive behaviours of Chinese individuals. These are harmony and collectivism, giving and saving face, and conformity, hierarchy, and power-distance.

2.1.1 Harmony and Collectivism

One critical value of Confucianism is harmony. Chan (1963) and Hsu (1949) suggested that based on the Confucian Doctrine of the Mean, an individual should attempt to maintain inner harmony at all times. Intuitively, one way to achieve this is to avoid competition so we may expect the Chinese students in our study to compete less than their USA and UK peers.

Chinese societies are often described as "collectivist" (Bond and Hwang, 1986). Evidence of this shows up in differences in individualism scores (Hofstede et al., 2019), which describe the extent to which people prefer to live with a strong sense of personal identity, between China and WEIRD countries commonly featured in this literature base. For example, the UK and US score 89 and 91 respectively indicating high levels of individualism, as compared to China's score of 20. We note that to maintain harmony Chinese people may avoid competition as competitiveness may be viewed as disturbing behaviours of harmony. However, a belief in collectivism may also differ by gender, and we note that Ralston et al. (1999) found that Chinese women tend to value collectivism more highly than Chinese men, implying that Chinese women may have a lower propensity to compete when compared to Chinese men consistent with the studies from WEIRD settings.

However, caution must be applied in drawing such simple conclusions. Fang et al. (1992), Sui and Zhao (2003), and Wang et al. (2008) suggest that in contrast to WEIRD populations,

the concept of cooperation and competition are viewed by the Chinese people as two separate concepts where they are not opposite to each other. This is reinforced by the *yin* and *yan* concept within Taoism, where entities that are opposed to one another are also connected to each other as a whole. Peng and Nisbett (1999) and Chen et al. (2011) argued that this advocate for a compromise approach, where opposing perspectives such as cooperation and competition can co-exist within the same person.

2.1.2 Giving and saving face

The second set of cultural values that may influence the competitive behaviour of Chinese men and women is the concept of giving and saving face. The face is defined as, '*the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact*" (Kirkbride et al., 1991:369). Although the face is applicable universally (Bond and Hwang, 1986; Ho, 1986), Hu (1944) and Hwang (1985) argued that it may be more salient within the Chinese culture, due to a stronger orientation in maintaining harmony, where giving and saving face is a means to maintain harmony and relationships (Kirkbride et al., 1991).

Competitive environments often create winners and losers, where winners may be viewed as not giving face to losers. This may also be perceived as denying that person's (loser) pride and dignity. Therefore, competitive behaviours are disruptive to desired harmonious relationships, which means that Chinese people may be hesitant to engage in competitions and exhibit highly competitive behaviours.

From previous research, there is mixed evidence on whether this competitive tendency is stronger for men or women (Booth et al., 2019; Zhang, 2019; Carlsson, et al., 2020). In their empirical studies, both Booth et al. (2019) and Zhang (2019) found that the competency to compete between men and women varies across different cultural and ethnic groups respectively in China while Carlsson et al., (2020) found that Han Chinese women perform slightly better than men in competitive environments.

2.1.3 Conformity, Hierarchy, and Power-distance

The power-distance score of China (Hofstede et al., 2019), a measurement of the acceptance of a hierarchy of power and wealth in the general population, is significantly higher in China (80) as compared to the UK (35) and the US (40). This may be viewed as related to Confucian values, where society should be ordered hierarchically with the ruler at the top and the youngest daughter at the bottom. Inequalities among people are acceptable, where formal authority and sanctions are accepted; people should not have aspirations beyond their rank (Hofstede et al., 2019).

The role of women within the hierarchical order of Chinese societies is outlined within the doctrine of the "three obedience's (三从四德)", where women are to be loyal to their father before marriage, to their husband after marriage, and to their son(s) after their husband's death. The central message of the Confucian doctrine is the subservient role of women and therefore, all crucial norms, roles, and official positions are given to men (Granrose, 2005). Guisso (1982) went on to argue that Chinese culture traditionally emphasized the interdependence of men and women but also marked their separate spheres of influence, where men are accountable for the exterior world, and women are accountable for the domestic world. This implies that Chinese women may be more sensitive to work-family conflict than men (Yang et al., 2002; Zuo, 2003; Jiang, 2000; Honig and Hershatter, 1988).

Furthermore, under Legalist, women are viewed as the property of men (Granrose, 2005), where women can only gain status through the success of their father or husband. This highly aligns with Confucius values.

Based on the conformity, hierarchy, and power-distance tendency of the Chinese culture, two observations can be drawn, first, competitive behaviours may be influenced by the status of the competitor. The value of conformity is central to the Chinese culture and individuals are expected to conform to prescribed social structures and demonstrate appropriate forms of social behaviour (Kirkbride et al., 1991). An individual may be less inclined to enter or exhibit full efforts when competing against another individual who has a higher hierarchical position, such as an elder or superior. The combination towards conformity and collectivism of Chinese people may lead to the avoidance of competitive behaviours that may harm relationships between parties (ibid). Therefore, while we may expect the students in our sample to compete against each other, they may be less likely to compete with those who are

more senior than them in terms of positionality (for example with their professors). This impacts the external validity of our study, whereby we can only draw conclusions over the peer-to-peer tendency to compete for women as compared to men.

Second, with the influence of Taoism, Confucianism, and Legalism of the Chinese culture, women should be subservient to men implying that to conform to their rank in hierarchy Chinese women may have a lower propensity to compete than Chinese men. This may imply that women have a lower tendency to compete even in a peer-to-peer setting.

This assertion aligns with the empirical findings of Zhang (2019), whose research delved into competitive inclinations across three distinct cultural groups in China. Within the Han Chinese, the largest ethnic group in the nation characterised by a communist-reformed patrilineal society with strong gender egalitarian norms, no significant disparities in competitive tendencies between men and women were observed. However, Zhang's study highlighted that women had a lower inclination to compete among the Yi ethnic group (a non-reformed patrilineal society with weak egalitarian gender norms), as well as the Mosuo ethnic group (a non-reformed matrilineal society with strong egalitarian gender norms).

Overall, the interplay of these cultural influences underscores the complexity of predicting gender differences in competitive tendencies in China. While the shared societal values of harmony and collectivism might lead to lower competitive tendencies, the understanding that cooperation and competition can coexist challenges this assumption. Additionally, the significance of saving face could also deter highly competitive behaviours. It's crucial to account for potential gender-specific variations in how these cultural factors intersect with competitive behaviours. The hierarchical structure of Chinese society, coupled with the traditional subservient role of women, could significantly influence women's propensity to compete such that women may have a lower inclination to compete compared to men.

In line with these considerations, our study seeks to delve into the variations in competitive tendencies between men and women in China. This will be accomplished through an online experiment designed to explore competition and its outcomes in relation to participant characteristics such as gender.

2.2 The Relevance of Exploring Gender Differences in Competitiveness in China

The importance of considering whether there are gender differences in the tendency to compete for a population from China also goes beyond simply being a non-WEIRD context. China is one of the fastest-growing economies in the world with a GDP of $14.4 trillion in 2019, making up 16.38% of the global economy. In 2020, 124 Chinese companies with a combined revenue of $8.3 trillion appeared on the Fortune Global 500 list, representing nearly a quarter of the $33.3 trillion in revenue generated by all 500 companies (China Power Team, 2019).

In addition, many WEIRD countries recruit talent from China for professional services, including senior positions. In the United States, there are 2.1 million individuals of Chinese origin in the workforce (Chui et al., 2020), with 60% of Chinese immigrants engaged in management, business, science, and arts roles in 2021 (Rosenbloom & Batalova, 2023). Similarly, in the United Kingdom, 12.8% of individuals from the Chinese ethnic group held positions in 'higher managerial, administrative, and professional occupations' (UK Government, 2020)

Finally, China has a notable pay gap between men and women as the average monthly salary of Chinese women in the workplace is 12% lower than that of men (Ding, 2022). The majority of women remain concentrated in gender stereotypical occupations that tend to involve less risk and lower visibility and are likely to have little authority and lower pay than those of their men counterparts (Adler, 1993, Ohlott et al., 1994, Van Velsor and Hughes, 1990 and Westwood and Leung, 1999). In 2020, 17.7% of the women in the workforce were in administrative, back office, and secretary roles, contrasting with only 4.7% of men. In a contrasting trend, 24.4% of men in the workforce held roles in technology, while only 7.8% of women were in similar roles (Statista, 2021). Moreover, women face a glass ceiling in the Chinese labour market. A 2022 survey evaluating the current landscape of women in the Chinese workforce shows that 56% of working women have bachelor's degrees or higher, surpassing men at 34%. Interestingly, women's managerial representation is 34%, trailing men's 41%, despite their higher education (Zhaopin, 2022).

Therefore, understanding differences in the propensity to compete by gender for a Chinese population, helps gain an understanding of whether differences in preferences to compete are an important ingredient in explaining the occupational choices of men and women in this country, along with the gender pay gap.

3. METHODS

3.1 Participants

An online survey was distributed to students from the School of Economics and Finance, Shanghai International Studies University (SISU), China in September 2019, after having received ethical approval from the authors' home institution. We focused on students within the same business school to ensure similarity in admission requirements. This reduced the probability of differences in ability impacting the performance of the task (which we test for formally in the first round) while limiting the generalisability of the findings as the sample does not represent the general Chinese population. It does though represent a cohort of future leaders of business given their degree choices to date.

The study relies on the experimental protocol designed by Gneezy et al. (2003) as both studies have similar objectives; namely to determine whether there are gender differences in performance in competitive environments. Some modifications have been made to account for the experiment being conducted virtually versus in person in Gneezy et al. (2003).

Our sample size calculation is based on a similar study conducted by Gneezy et al. (2003). The effect size between men and women was 9.73 and 11.23 under the piece-rate incentive scheme with a standard deviation of 5.65, a type 1 error rate of 5%, and 80% power. The number of participants required per gender group is 223. Hence, the total minimum sample size required was 446.

To ensure participants are students from the university and have a good understanding of what is being asked of them, before participating in the survey, they were provided with an introduction to the study and were required to provide consent by explicitly checking the "*Yes, I want to take part*" box. Should the participant select, "*No, I do not want to take part,*" they exit from the study. Participants were also provided with contact information for the

investigators, task instructions, time requirements, reward structure, and overall objective of the study to ensure informed decisions by the subject. Participants were also required to confirm their SISU student status to confirm that they are students of the university. If they selected "*No*", they were barred from completing the survey. There were no other eligibility or exclusion criteria. To reduce the number of potential incomplete surveys, several tactics were put in place; first, the length of the survey is short with an average completion time of 10 minutes. Second, participants were provided with a small incentive that was sufficient to purchase a meal combo from a local Chinese fast-food place.

The survey had the option to be taken in either Chinese or English to eliminate the potential effect of language on performance. To ensure translation accuracy, an English version of the survey was distributed for translation. Once the Chinese version of the survey was completed, it was then given to a different translator to translate back into English. Both translators were born in China and completed their university education in English-speaking countries to ensure equal fluency in Chinese and English.

The survey was distributed by Professor Zhang Yugui, Dean of the School of Economics and Finance, to the students via "*WeChat*", a Chinese multi-purpose messaging, social media, and mobile payment application. WeChat is the most popular messaging app with over one billion monthly active users in China (Thomala, 2021).

The total response was 480, with a response rate of 35.75%, which is higher than expected. For example, Manfreda et al. (2008) suggest that the response rate for online surveys usually is 11% below other recruitment methods. This heightened engagement rate can possibly be attributed to the messenger effect which highlights individuals' heightened inclination to respond to requests or messages delivered by authoritative figures or trusted sources (Martin & Marks, 2019). In this case, Professor Zhang's involvement leveraged the messenger effect, serving as an incentivising factor for increased participation given, that he is of relatively high status as a professor to these students[3]. This aligns with findings from previous research

---

[3] There are three other potential reasons for achieving a higher response rate: First, two reminder messages were sent, which has proven to be an effective way to increase response rates (Cozby and Bates, 2015; Saleh and Bista, 2017). Second, Fricker and Schonlau (2002) found that university students tend to provide higher response rates for online surveys than other subject groups. Third, a small incentive was offered, given they have shown to be effective in eliciting responses (Saleh and Bista, 2017).

where the distribution of surveys by authoritative figures led to a higher response rate (Saleh & Bista, 2017).

In the total of 480 responses to the survey, 59 did not provide consent, 12 were non-students and 83 did not provide gender information. Hence, these responses were not considered for the analysis, and we focused on the remaining 326 participants.

3.2 Reward Structure

To test the impact of different incentive schemes on performance, a modest incentive reward in the form of a T-Mall (天猫) gift voucher for Tmall.com was provided to participants. Tmall.com, similar to Amazon, is a Chinese-language website for local Chinese and international businesses to sell goods to consumers in mainland China, Hong Kong, Macau, and Taiwan. Participants who achieve a total score below 20 points will receive ¥20 (£2.28), between 21 to 30 points will receive ¥30 (£3.43) and ¥50 (£5.71) for above 31 points.

To help with the distribution of the reward, participants are required to provide their name and email address to collect their award. They were informed that their name and email address will only be used for distribution of the reward and no other purposes, the information will be destroyed once rewards are distributed, and anonymised data will be retained for statistical analysis.

Overall, 78% (n=254) of participants were interested in claiming the award. Of the 254, 72.83% (n=185) are women and 27.17% (n=69) are men. The average payout is ¥23.78 (approximately £2.71). The average payout between men and women is similar, where women received ¥23.78, and men received ¥23.77.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

3.3 Experiment Design

The online survey required participants to complete five rounds of word memory games developed by the authors to examine gender differences in performance under different incentive structures. Specifically, for each round, 20 words were displayed for 15 seconds

and participants were required to memorize as many words as possible. Then on the next screen, 24 words appeared, and participants had 20 seconds to find the words that appeared in the previous screen. Out of the 24 words, only 12 matched the previous 20 words, making the possibility of having 12 as the highest number of correct answers. The format of each round was the same; the only difference was the incentive structure. By having only one change between rounds, we wanted to learn how it modifies the behaviour of the participants. Specifically, each participant faced five rounds of the game with the incentive structure as follows:

3.3.1 Game 1 (G1)

Participants' performance is based only on their inherent ability and effort.

No incentives are provided in this round. This round serves to establish whether there are gender differences in ability with respect to the task in this study. Furthermore, it provides a baseline to measure innate performance and effort.

3.3.2 Game 2 (G2)

Participants receive a piece-rate incentive in addition to their ability and effort.

To determine the effect of incentives based on own performance, a piece-rate incentive was introduced. Under this incentive, rewards are independent of all other participant's performance, where participants will receive one point for each correct answer. The total points achieved will count towards the participant's final score, which will determine the size of the reward. As previously mentioned, the participants who receive below 20 points will receive ¥20 Tmall gift vouchers, 21-30 points will receive ¥30 and above 30 points will receive ¥50.

3.3.3 Game 3 (G3)

Participants receive a piece-rate incentive along with an element of risk, in addition to their ability and effort.

It has been suggested that performance differences between men and women in competitive environments may occur due to risk aversion, as women tend to be more risk-averse than men (Paserman, 2007). To test the effect of risk aversion on performance, a risk element is added to the piece-rate incentive, where participants receive two points for each correct answer, and two points are deducted for each incorrect answer. As previous studies have shown that women are less likely to engage in risky behaviours e.g. Byrns et al., 1999), by introducing a risk element to the incentive scheme, (i.e., two points are being deducted for every wrong answer), we can determine whether there are gender differences due to differential tendencies to shy away from taking a guess when they are not sure of the answer.

3.3.4 Game 4 (G4)

Participants are provided with a competitive incentive coupled with risk, alongside their ability and effort.

To create a competitive condition, a tournament is introduced in the fourth round. Here, the number of points awarded is dependent on the performance of all other participants, i.e., in order for points from Game 4 to be counted toward participants' final score, participants must end up in the Top 10 score when compared to all participants. Participants then receive five points for each correct answer, and five points will be deducted for each incorrect answer.

 The five-point deduction for each incorrect answer remains as part of the incentive scheme to prevent participants from selecting all word options from the provided list to get the highest score possible. Overall, a negative ending had no impact on the participants as all those who scored below 20 points, received a ¥20 Tmall gift voucher.

3.3.5 Game 5 (G5)

Participants' incentives are completely withdrawn. Performance is based only on ability and willingness to exert effort.

In the final round, all incentives were deliberately eliminated to investigate whether any gender differences in performance were a result of the incentives influencing the results over

the course of the study. This is identical to G1, with the exception that students have had the opportunity to practice and gain skills in the game.

At the end of the survey, participants were asked to provide demographics (gender, age, education, etc.), their career aspirations, and self-evaluate their performance compared to others.

The format of the tasks is closely aligned with the design of Gneezy et al. (2003) and Gneezy et al. (2009) in the following ways. First, participants were required to complete the same task under different incentive schemes to allow the impact on performance to be measured. Second, the word memory games were selected as there is no evidence to suggest that there would be a difference in ability between men and women completing the task. We will check for differences in the results found in the first and the last round of the game. Third, the task is relatively easy to explain and conducted via an online survey.

4. MEASURES

4.1 Dependent Variables

The "propensity to compete" is defined as a performance measure, similar to the approach taken by Gneezy et al. (2003). In evaluating participants' performance, the key metric is the participants' scores which becomes the base for creating dependent variables. We have three outcome variables 1) standardised score, 2) top quintile status (a binary variable =1 if a person performs in the top quintile and zero otherwise) and 3) bottom quintile status (a binary variable =1 if a person performs in the bottom quintile and zero otherwise). Together these outcomes enable us to explore if men and women differ in terms of their tendency to compete in responses to our various incentives in terms of their average performance, and also the likelihood of being an exceptional or underperformer.

Table 1 shows the average score of participants in each game as well as the proportion of top quintile and bottom quintile for women and men respectively. While men participants, on average, seem to have a marginally higher scores in G1 and G2, their women counterparts have a higher average score in G3, G4 and G5. In terms of quintile distribution, as depicted in Table 1, in G1, both men and women have equal representation in the bottom quintile,

while in the top quintile, men have a greater share than women in G1, G2, and G5. Conversely, G3 and G4 exhibit a shift with a higher proportion of women in the top quintile and a higher proportion of men in the bottom quintile. Furthermore, G5 once again displays a higher proportion of men in the bottom quintile than women.

Through the series of five-game sets, each featuring varying levels of incentives, this study introduces five experimental groups to examine the impact of incentives on performance levels. By analysing these quintile-based variables alongside the standardised score, we aim to gain a comprehensive perspective on participants' propensity to compete within the context of the game's diverse incentive structure.

4.2 Independent Variables

There are two primary independent variables in this study; first, the gender of the participants, where 0 was provided to participants that are men and 1 to women. All gender status information was based on self-report. As seen from Table 1, of the 326 participants, 73.31% (n=239) were women, and 26.69% (n=87) were men. This is closely representative of the current gender breakdown of the school's student population, namely 70% women and 30% men.

Second, is the set of variables that represent the different incentive schemes. That is, we create a set of variables that are assigned = 1 if an individual is engaged in G1, G2, G3, G4 or G5 when an outcome is being captured, and 0 otherwise.

4.3 Control Variables

In line with Gneezy et al. (2009), we control for key demographics of the participants such as age, current education level, and area of study. We capture this information at the end of the experiment (see Table 1).

Table 1: Summary of Participant Characteristics

	Observation (%) for categorical variables		
Variable	Total	Woman	Man
	(n = 326)	(n = 239)	(n = 87)

Top 20 Quintile	G1	16.9	15.1	21.8
	G2	13.5	13.0	14.9
	G3	13.8	14.2	12.6
	G4	10.1	10.5	9.2
	G5	17.2	15.9	20.7
Bottom 20 Quintile	G1	18.4	18.4	18.4
	G2	17.2	20.1	9.2
	G3	11.7	8.8	19.5
	G4	18.4	17.6	20.7
	G5	11.0	10.0	13.8
Level of Education	Undergraduate	41.6	48.5	23.3
	PG Taught	44.2	37.7	61.6
	PG Research	14.2	13.9	15.1
Academic Subjects	Accounting	21.8	24.7	14.0
	Finance	58.7	51.9	76.7
	International Economics and Trade	7.3	8.7	3.5
	International Trade	9.5	11.3	4.7
	Others	2.8	3.5	1.2
High Career Aspirations	Yes	53.6	56.7	45.3
	No	46.4	43.3	54.7
Confidence	Low	72.9	73.6	70.9
	High	27.1	26.4	29.1

		Mean (SD), Min, Max for continuous variables		
G1	Mean	6.9	6.8	7.3
	(sd)	2.8	2.7	2.8
	Min	0	0	0
	Max	13	13	13
G2	Mean	6.3	6.2	6.6
	(sd)	2.0	2.1	2.0
	Min	0	0	2
	Max	12	12	12

G3	Mean	10.3	10.6	9.2
	(sd)	4.6	4.2	5.5
	Min	-8	-2	-8
	Max	22	20	22
G4	Mean	20.7	20.9	20.2
	(sd)	10.2	9.7	11.4
	Min	-5	-5	-5
	Max	60	45	60
G5	Mean	5.3	5.3	5.2
	(sd)	2.3	2.2	2.6
	Min	0	0	0
	Max	12	12	12
Age	Mean	21.5	21.1	22.7
	(sd)	2.5	2.4	2.4
	Min	18	18	18
	Max	32	32	28

Studies have found that competitiveness preferences may influence career decisions (Dittrich et al., 2014; Leibbrandt and List, 2014; Buser et al., 2014) and therefore, this has been included as one of the controlled variables as career aspirations. More specifically, we measure preferences for long-term career aspirations through career categories based on the International Standard Classification of Occupations by the International Labour Organization (2012). These categories ranged from managers, professionals, armed forces officers, sales workers, and clerical workers to agricultural-based roles, technicians, and manufacturing workers. To the ILO occupation classifications, three additional categories were added to make the categorisation well-rounded: senior executives (e.g. Senior Officials, Managing Directors, and Chief Executives), home keepers and self-employed. For the purpose of this study, those with career aspirations of being a senior executive are further categorised as participants with 'high career aspirations'.

In the data analysis, we treat high career aspirations as a binary variable identifying participants with high career aspirations and those who do not (participants who chose the rest of the career categories), and considering whether this impacts the response to incentives. In Table 1, we can see that 46.4% (n=151) of the sample have high career aspirations of becoming senior executives. There is a higher proportion of men (54.7%) who would like to be senior executives when compared to women (43.3%).

Lastly, we control for the participants' confidence levels following Niederle and Vesterlund (2007). To assess the subject's confidence level, upon completing the five rounds of the task, participants were asked to self-evaluate their overall performance compared to all other participants. The participants were asked to self-estimate their overall score in one of the following five categories: 1) "50% of participants performed better than you", 2) "75% of participants performed better than you", 3) "Your overall score is in the Top 1%", 4) "Your overall score is in the Top 10%", and 5) "Your overall score is in the Top 25%". For ease of interpretation, in the study, we further categorise those participants who self-estimated their overall score to be in the top 1%, 10% or top 25% as participants with a 'high-confidence level'. Those who either stated that 50% of participants performed better than them or 75% of the participants performed better than them have been treated as participants with a 'low-confidence level'.

In the data analysis, we treat confidence level as a binary variable identifying participants with high-confidence levels and low-confidence levels, and considering if this caused variation in the response to incentives. In Table 1, we see that only 27.1% (n=88) of participants showed a high confidence level i.e., self-estimated their overall score to be in the top 1% or 10% or top 25%. 72.9% (n=238) of the participants showed low confidence as they either stated that 50% of participants performed better than them or 75% of the participants performed better than them.

While participants received no feedback on other participants' performance, they did receive feedback on their own performance after each game to mirror the design of Niederle and Vesterlund (2007).

4.4 Hypotheses

We consider four main research questions in this study.

First, we analyse if there are differences between men and women in performance in the games themselves. We have no reason to expect men and women to differ in their ability or effort. Therefore, we do not expect to find performance differences between men and women.

Hypothesis 1: The performance of women is expected to be equal to the performance of men.

That is, we estimate:

$$Y_i = \beta_0 + \beta_1 Woman_i + \gamma X + \varepsilon_i \tag{1}$$

The $'Y_i'$ refers to the outcome variables (correct answers and standardised score) for individual 'i', $'\beta_0'$ is the intercept, $'Woman_i'$ is a dummy variable identifying if a participant is a woman (=1), and = 0 if the participant is a man. $'X'$ is a vector of covariates and 'ε' captures the error term. We will confirm our hypothesis 1 if β_1 is centred around zero and not significant. We estimate this model twice using only the data from G1 and G5, the two rounds of our game where there are no incentives. We note that the only difference between G1 and G5 is that by the time participants are engaging in G5 they have had time to practice the game, so we expect their ability to be higher. This implies that we predict that overall scores are higher, but do not differ between men and women.

Second, to understand if there the gender differences in incentive games that impact the performance, we measure the interaction effect of gender and the games on the outcome variables with the hypothesis:

Hypothesis 2: The effect of gender and incentives will interact with each other such that women are expected to perform lower than men in games with incentives.

That is, we estimate:

$$Y_{ij} = \beta_0 + \beta_1 Woman_i + \beta_2 Game_j + \delta(Woman_i \times Game_j) + \gamma X + \varepsilon_{ij} \tag{2}$$

$'Game_j'$ is a dummy variable, for each game 'j', assigned equal to 1 when the participant faces a particular game (namely G1, G2, G3, G4 or G5) and 0 otherwise. Recall that each game offers the participant a distinct incentive structure. Therefore, $'Woman_i \times Game_j'$ are a vector of interaction terms, whose associated vector coefficients to be estimated explicitly test whether men and women respond differently to the incentives offered in each game.

As described in hypothesis 1, we may expect men and women to perform the same in G1 and G5. In contrast, G2, G3, and G4 present distinct motivators for participants. Specifically, in G2, participants receive a piece-rate incentive for each accurate response. In G3, an element of uncertainty is introduced, where participants earn two points for each correct answer but face a deduction of two points for each incorrect answer. In G5, the stakes are heightened further, with participants gaining five points for every correct response but losing five points for each incorrect response.

We may expect women to perform worse than men if they have a lower tendency to compete in line with previous literature from China (Booth et al., 2019; Zhang, 2019) and WEIRD countries (Gneezy et al., 2003; Niederle & Vesterlund, 2005, 2007; Vandegrift & Yavas, 2009; Ors et al., 2013; Flory et al., 2018). This would imply negative and significant coefficients on the $'Woman_i \times Game_j'$ that relate to G2, G3 and G4. However, as we discussed in Section 2, it is not clear whether women will respond differently in games G2, G3 and G4.

Third, to understand if confidence level impacts how the incentives determine performance, we measure the effect of confidence level on the outcome variables with the hypothesis:

Hypothesis 3: The performance of participants with high confidence levels is expected to be higher than the performance of participants with low confidence levels.

That is, we estimate:

$$Y_{ij} = \beta_0 + \beta_1 Woman_i + \beta_2 Game_j + \beta_3 (Confidence_i) + \delta(Woman_i \times Game_j) + \lambda(Woman_i \times Confidence_i) + \theta(Confidence_i \times Game_j) + \nu(Woman_i \times Game_i \times Confidence_i) + \gamma X + \varepsilon_{ij} \qquad (3)$$

In equation 3 $'Confidence_i'$ is a dummy variable identifying participants with high-confidence level (1) versus low-confidence level (0). $'Woman_i \times Confidence_i'$ is the interaction term whose coefficient tests whether the impact of participants' confidence levels on the dependent variable differs between men and women. $'Confidence_i \times Game_j'$ interaction term investigates whether the relationship between the participants' confidence level and the dependent variable varies depending on the game type. $'Woman_i \times Game_i \times Confidence_i'$ interaction investigates whether the combined influence of game type, confidence level and gender have a distinct effect on the dependent variable.

Third, to understand if career aspirations impact performance, we measure the effect of career aspirations on the outcome variables with the hypothesis:

Hypothesis 4: The performance of participants with high career aspirations is expected to be higher than the performance of participants with low career aspirations.

That is, we estimate:

$$Y_{ij} = \beta_0 + \beta_1 Woman_i + \beta_2 Game_j + \beta_3 (CareerAsp_i) + \delta(Woman_i \times Game_j) + \lambda(Woman_i \times CareerAsp_i) + \theta(CareerAsp_i \times Game_j) + \nu(Woman_i \times Game_j \times CareerAsp_i) + \gamma X + \varepsilon_{ij} \quad (4)$$

$'CareerAsp_i'$ is a dummy variable identifying participants with high aspirations (1) and low aspirations (0). $'Woman_i \times CareerAsp_i'$ is the interaction term that explores whether the relationship between participants' career aspirations and the dependent variable differs based on gender. $'CareerAsp_i \times Game_j'$ interaction term explores whether the relationship between participants' career aspirations and the dependent variable changes depending on the game type. $'Woman_i \times Game_i \times CareerAsp_i'$ aims to determine whether the combined effects of game type and career aspirations on the dependent variable differ between men and women.

In equations 2 through 4 above, $'Y_{ij}'$ is an outcome variable that links to the performance of participant 'i' in game 'j'. When considering each individual score we consider 3 different dependent variables for each measure. The first is the standardised level of the score attained,

the second is a dummy variable that is = 1 if an individual was among the top quintile highest achievers and zero otherwise, and the third is a dummy variable that is = 1 if an individual was among the bottom quintile lowest achievers and zero otherwise.

Initially, we examine all equations without any control variables, followed by a subsequent analysis that incorporates control variables. In addition, we also estimate versions of equations 2 through 4 which include individual fixed effects. For a comprehensive overview of the variable changes made to the baseline models in equations 1 to 4 for various testing purposes, please refer to the regression tables in Section 5.

5. RESULTS

5.1 Hypothesis 1

Table 2 presents the results of multiple regression models examining the impact of gender on standardised scores and score quintiles in two different games: Game 1 (G1) and Game 5 (G5). The table includes various models with different dependent variables: models (1), (2), and (3) focus on standardised scores, the top 20% achievers (Top 20), and the bottom 20% achievers (Bottom 20) in G1, while models (4), (5), and (6) assess the same in G5.

The analysis in Table 2 shows that there are no significant gender-based differences in standardised scores or score quintiles in either G1 or G5. Therefore, based on this, there is no strong evidence to reject Hypothesis 1, i.e. the performance of women is expected to be equal to the performance of men in G1 and G5. This suggests that there is no difference in the ability of men and women to perform the task. Thus, we can assign any differences in performance found in G2, G3 and G4 to the incentives themselves rather than ability in the games, or differential speeds of learning.

Table 2: Effect of gender on standardised scores and score quintiles in G1 and G5

VARIABLES	(1) Std. Score	(2) Top 20	(3) Bottom 20	(4) Std. Score	(5) Top 20	(6) Bottom 20
Woman	-0.17	-0.06	0.00	0.07	-0.05	-0.04
	(0.13)	(0.04)	(0.05)	(0.14)	(0.05)	(0.04)
Constant	0.12			-0.05		

	(0.11)			(0.12)		
Observations	326	326	326	326	326	326
R-squared	0.01			0.00		

Standard errors in parentheses

$^{*} p < 0.10, ^{**} p < 0.05, ^{***} p < 0.01$

Note: Models (1) and (4) employ linear regression models to examine relationships with standardised scores. Models (2), (3), (5), and (6) utilise probit models to analyse the probabilities of being in the top 20% and bottom 20%, and these models provide insights into the marginal effects (dy/dx).

5.2 Hypothesis 2

Table 3 provides insights into Hypothesis 2, which investigates the influence of being a woman versus being a man on standardised scores (models 1, 2, and 3), the likelihood of ranking within the top 20% (models 4, 5, and 6), and the likelihood of ranking within the bottom 20% (models 7, 8, and 9) across different games (G1 to G5). Models 2, 3, 5, 6, 8, and 9 include control variables, while Models 3, 6, and 9 also incorporate individual fixed effects. These models also incorporate an interaction term with a woman dummy and the specific games to understand how gender impacts performance across the various incentives offered with the game.

In column 1, the coefficient for "woman" is not significantly different from zero, indicating on average women do not perform differently from men in the game. We draw similar conclusions when we consider the estimates documented in column 3 and column 5, which relate to the odds of performing in the top and bottom 20% respectively. We note that this coefficient becomes more substantive in model 2 when controls are added to the model that considers the standardised scores, indicating that there may be differences between men and women in performance that interact with the observed control variables. We explore this possibility subsequently.

For the game-specific effects, we mostly do not observe any differences in performance across the games for participants, regardless of whether we consider. This suggests that the participants are mostly not responding to incentives we set. The exception is game G3, where participants receive a piece-rate incentive, along with an element of risk. More specifically, participants receive two points for each correct answer, and two points are deducted for each incorrect answer. Here, the coefficient for "G3" is statistically significant in models 1 to 3. It

is -0.39, suggesting that on average participants score approximately 0.4 standard deviations lower in Game 3 compared to Game 1. This difference is statistically significant at the 1% level. This suggests that on average men in the study are shying away from risk, as compared to their performance in G2 when a simple piece rate was added. For women, they perform slightly better, as depicted by the significant and positive effects on the G3*woman interaction. Overall, our results suggest that women have, on average, standardised scores that are 0.5 standard deviations higher than men, and 0.1 standard deviations. Overall, our results suggest that it is men – not women – who shy away from exerting effort when there is a risk element added to the games, with women performing slightly better.

Table 3: Effect of gender and incentives on standardised scores and score quintiles in all the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Std. Score			Top 20			Bottom 20		
Woman	-0.17	-0.28**		0.05	0.04		-0.02	0.02	
	(0.13)	(0.13)		(0.05)	(0.05)		(0.05)	(0.05)	
G2	0.02	0.00	0.00	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.15)	(0.15)	(0.13)	(0.06)	(0.06)	(0.00)	(0.06)	(0.06)	(0.00)
G3	-0.35**	-0.39**	-0.39***	-0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.17)	(0.17)	(0.13)	(0.06)	(0.06)	(0.00)	(0.06)	(0.06)	(0.00)
G4	-0.17	-0.19	-0.19	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.16)	(0.16)	(0.13)	(0.06)	(0.06)	(0.00)	(0.06)	(0.06)	(0.00)
G5	-0.17	-0.22	-0.22*	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.17)	(0.17)	(0.13)	(0.06)	(0.06)	(0.00)	(0.06)	(0.06)	(0.00)
Woman x G2	-0.03	-0.01	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.18)	(0.18)	(0.15)	(0.07)	(0.07)	(0.00)	(0.07)	(0.07)	(0.00)
Woman x G3	0.47**	0.51***	0.51***	0.00	-0.00	0.00	-0.00	0.00	0.00
	(0.19)	(0.19)	(0.15)	(0.07)	(0.07)	(0.00)	(0.07)	(0.07)	(0.00)
Woman x G4	0.23	0.25	0.25	-0.00	-0.00	0.00	-0.00	0.00	0.00
	(0.19)	(0.18)	(0.15)	(0.07)	(0.07)	(0.00)	(0.07)	(0.07)	(0.00)
Woman x G5	0.24	0.28	0.28*	-0.00	-0.00	0.00	-0.00	0.00	0.00
	(0.19)	(0.19)	(0.15)	(0.07)	(0.07)	(0.00)	(0.07)	(0.07)	(0.00)
Controls		Yes	Yes		Yes	Yes		Yes	Yes
Fixed Effects			Yes			Yes			Yes

Constant	0.12	0.46	0.01		0.20			0.19	
	(0.11)	(0.49)	(0.05)		(0.00)			(0.00)	
Observations	1,630	1,585	1,585	1,630	1,585	1,585	1,630	1,585	1,585
R-squared	0.01	0.04	0.01						

Notes: Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Models (1) and (2) employ linear regression models to examine relationships with standardised scores. Models (4), (5), (7), and (8) utilise probit models to analyse the probabilities of being in the top 20% and bottom 20%, and these models provide insights into the marginal effects (dy/dx). Models (3), (6) and (9) are fixed effects models.

5.3 Hypothesis 3

Table 4 provides insights into Hypothesis 3, which explores the combined effects of gender, incentives, and our participant's confidence levels on standardised scores (models 1, 2, and 3) as well as the probability of ranking within the top 20% (models 4, 5, and 6) and the bottom 20% (models 7, 8, and 9) across different games (G1 to G5). Recall, high confidence is a binary variable, taking a value of 1 when a participant self-assesses their overall performance as being within the top 1%, 10%, or 25%. Conversely, it assumes a value of 0 when a participant's self-assessment indicates that 50% or 75% of the participants outperformed them.

We note in Table 4 that the coefficient on high confidence and the interaction between high confidence and the woman dummy is not identified because of multi-collinearity with the individual fixed effect.

As expected, having high confidence levels improves performance in the standardised scores as well as the probability of being a top or a bottom performer. However, when we consider the probability of being among the top 20% performers it is noteworthy that the confidence gains are attenuated for women as illustrated by the negative coefficient between the woman dummy and the high confidence dummy. More specifically, from columns 4 and 5 men with high confidence are 0.39 percentage points more likely to be among the top 20 per cent performers. For women, the same figure is 0.15.

Adding the high confidence variables to the regressions that seek to explain variation in the standardised score, once again emphasises that it is men, and not women, that perform worse

when a risk element is added to the piece-wise incentives (see G3 coefficients). However, the coefficients that relate to G4 are now significant in Table 4. Recall, that in game G4 participants are provided with a competitive incentive alongside incentives already present in G3. That is, the number of points awarded to each participant is dependent on the performance of all other participants. Interestingly, once we condition on confidence the results in Table 4 imply that men do worse in G4 as compared to both women and baseline. In comparison, women do weekly better. That is the score achieved by men is approximately 0.4 standard deviations lower than the baseline, whereas the achievement for women is roughly equivalent to baseline.

Table 4: Effect of gender, incentives, and confidence level on standardised scores and score quintiles

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Std. Score			Top 20			Bottom 20		
Woman	-0.13	-0.23		0.17**	0.17**		-0.02	0.01	
	(0.14)	(0.14)		(0.08)	(0.07)		(0.05)	(0.05)	
G2	-0.07	-0.10	-0.10	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.17)	(0.16)	(0.16)	(0.10)	(0.10)	(0.00)	(0.06)	(0.06)	(0.00)
G3	-0.38**	-0.44**	-0.44***	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.19)	(0.19)	(0.16)	(0.10)	(0.10)	(0.00)	(0.06)	(0.06)	(0.00)
G4	-0.31*	-0.34**	-0.34**	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.17)	(0.17)	(0.16)	(0.10)	(0.10)	(0.00)	(0.06)	(0.06)	(0.00)
G5	-0.20	-0.27	-0.27*	0.00	-0.00	0.00	0.00	0.00	0.00
	(0.19)	(0.19)	(0.16)	(0.10)	(0.10)	(0.00)	(0.06)	(0.06)	(0.00)
High Confidence	0.44*	0.39		0.39***	0.39***		-0.18*	-0.17*	
	(0.25)	(0.25)		(0.09)	(0.09)		(0.10)	(0.10)	
Woman x G2	0.08	0.12	0.12	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.20)	(0.19)	(0.18)	(0.11)	(0.10)	(0.00)	(0.07)	(0.08)	(0.00)
Woman x G3	0.51**	0.57***	0.57***	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.22)	(0.22)	(0.18)	(0.11)	(0.10)	(0.00)	(0.07)	(0.08)	(0.00)
Woman x G4	0.35*	0.37*	0.37**	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.20)	(0.20)	(0.18)	(0.11)	(0.10)	(0.00)	(0.07)	(0.08)	(0.00)
Woman x G5	0.19	0.26	0.26	-0.00	0.00	0.00	-0.00	-0.00	0.00

	(0.21)	(0.21)	(0.18)	(0.11)	(0.10)	(0.00)	(0.07)	(0.08)	(0.00)
Woman x High Confidence	-0.11	-0.10		-0.24**	-0.25**		0.01	0.03	
	(0.29)	(0.29)		(0.11)	(0.11)		(0.12)	(0.12)	
High Confidence x G2	0.32	0.35	0.35	0.00	0.00	0.00	-0.00	0.00	0.00
	(0.34)	(0.34)	(0.29)	(0.13)	(0.13)	(0.00)	(0.15)	(0.14)	(0.00)
High Confidence x G3	0.11	0.17	0.17	0.00	0.00	0.00	0.00	-0.00	0.00
	(0.38)	(0.37)	(0.29)	(0.13)	(0.13)	(0.00)	(0.15)	(0.14)	(0.00)
High Confidence x G4	0.48	0.51	0.51*	0.00	0.00	0.00	0.00	-0.00	0.00
	(0.38)	(0.37)	(0.29)	(0.13)	(0.13)	(0.00)	(0.15)	(0.14)	(0.00)
High Confidence x G5	0.09	0.16	0.16	0.00	0.00	0.00	-0.00	-0.00	0.00
	(0.38)	(0.37)	(0.29)	(0.13)	(0.13)	(0.00)	(0.15)	(0.14)	(0.00)
Woman x High Confidence x G2	-0.39	-0.44	-0.44	-0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.40)	(0.40)	(0.34)	(0.15)	(0.15)	(0.00)	(0.17)	(0.17)	(0.00)
Woman x High Confidence x G3	-0.15	-0.20	-0.20	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.43)	(0.43)	(0.34)	(0.15)	(0.15)	(0.00)	(0.17)	(0.17)	(0.00)
Woman x High Confidence x G4	-0.40	-0.43	-0.43	-0.00	-0.00	0.00	0.00	0.00	0.00
	(0.42)	(0.43)	(0.34)	(0.15)	(0.15)	(0.00)	(0.17)	(0.17)	(0.00)
Woman x High Confidence x G5	0.17	0.12	0.12	-0.00	-0.00	0.00	-0.00	-0.00	0.00
	(0.42)	(0.42)	(0.34)	(0.15)	(0.15)	(0.00)	(0.17)	(0.17)	(0.00)
Controls		Yes	Yes		Yes	Yes		Yes	Yes
Fixed Effects			Yes			Yes			Yes
Observations	1,630	1,585	1,585	1,630	1,585	1,585	1,630	1,585	1,585
R-squared	0.05	0.08	0.02						

Standard errors in parentheses

$^{*}\ p < 0.10,\ ^{**}\ p < 0.05,\ ^{***}\ p < 0.01$

Note: Models (1) and (2) employ linear regression models to examine relationships with standardised scores. Models (4), (5), (7), and (8) utilise probit models to analyse the probabilities of being in the top 20% and bottom 20%, and these models provide insights into the marginal effects (dy/dx). Models (3), (6) and (9) are fixed effects models.

We note that the coefficients that relate to the triple interaction effects between each game, the woman dummy and the high confidence are never significant. This implies that gender, confidence and the incentives associated with each game do not interact in a way that causes significant differences in performance in the participants. Overall, the findings from Table 4

support Hypothesis 3, which posits that participants with a high confidence level would outperform those with low confidence. In addition, the results in Table 4 suggest that it is men rather than women whose performance declines when faced with incentives that concern increased risk and competitiveness.

5.4 Hypothesis 4

Table 5 documents our estimates which explore the relationship between gender, incentives, and career aspirations. Overall, the conclusions in Table 5 mirror those documented in Table 3. Notably, none of the coefficients that relate to the interactions with career aspirations are significant. This implies that we cannot reject the null hypothesis that the performance of participants with high career aspirations is the same as the performance of participants with low career aspirations.

Table 5: Effect of gender, incentives, and career aspirations on standardised scores and score quintiles

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Std. Score			Top 20			Bottom 20		
Woman	-0.25	-0.34*		0.04	0.02		-0.01	0.02	
	(0.18)	(0.18)		(0.08)	(0.08)		(0.07)	(0.07)	
G2	-0.09	-0.09	-0.09	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.22)	(0.22)	(0.19)	(0.10)	(0.10)	(0.00)	(0.09)	(0.08)	(0.00)
G3	-0.50*	-0.50*	-0.50**	-0.00	-0.00	0.00	-0.00	0.00	0.00
	(0.26)	(0.26)	(0.19)	(0.10)	(0.10)	(0.00)	(0.09)	(0.08)	(0.00)
G4	-0.21	-0.21	-0.21	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.23)	(0.23)	(0.19)	(0.10)	(0.10)	(0.00)	(0.09)	(0.08)	(0.00)
G5	-0.25	-0.25	-0.25	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.26)	(0.26)	(0.19)	(0.10)	(0.10)	(0.00)	(0.09)	(0.08)	(0.00)
High Career Aspiration	-0.14	-0.10		0.07	0.06		-0.01	-0.02	
	(0.22)	(0.22)		(0.09)	(0.09)		(0.08)	(0.08)	
Woman x G2	0.06	0.05	0.05	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.25)	(0.25)	(0.22)	(0.11)	(0.11)	(0.00)	(0.10)	(0.09)	(0.00)
Woman x G3	0.59**	0.59**	0.59***	0.00	0.00	0.00	0.00	-0.00	0.00
	(0.28)	(0.28)	(0.22)	(0.11)	(0.11)	(0.00)	(0.10)	(0.09)	(0.00)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Woman x G4	0.14	0.14	0.14	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.26)	(0.26)	(0.22)	(0.11)	(0.11)	(0.00)	(0.10)	(0.09)	(0.00)
Woman x G5	0.22	0.21	0.21	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.28)	(0.28)	(0.22)	(0.11)	(0.11)	(0.00)	(0.10)	(0.09)	(0.00)
Woman x High Career Aspiration	0.15	0.09		0.04	0.05		-0.03	-0.01	
	(0.26)	(0.25)		(0.10)	(0.10)		(0.10)	(0.10)	
High Career Aspiration x G2	0.21	0.17	0.17	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.31)	(0.30)	(0.26)	(0.13)	(0.13)	(0.00)	(0.12)	(0.12)	(0.00)
High Career Aspiration x G3	0.26	0.20	0.20	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.34)	(0.34)	(0.26)	(0.13)	(0.13)	(0.00)	(0.12)	(0.12)	(0.00)
High Career Aspiration x G4	0.05	0.03	0.03	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.33)	(0.32)	(0.26)	(0.13)	(0.13)	(0.00)	(0.12)	(0.12)	(0.00)
High Career Aspiration x G5	0.13	0.06	0.06	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.34)	(0.34)	(0.26)	(0.13)	(0.13)	(0.00)	(0.12)	(0.12)	(0.00)
Woman x High Career Aspiration x G2	-0.14	-0.10	-0.10	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.36)	(0.36)	(0.31)	(0.15)	(0.15)	(0.00)	(0.14)	(0.14)	(0.00)
Woman x High Career Aspiration x G3	-0.16	-0.10	-0.10	-0.00	-0.00	0.00	-0.00	0.00	0.00
	(0.39)	(0.38)	(0.31)	(0.15)	(0.15)	(0.00)	(0.14)	(0.14)	(0.00)
Woman x High Career Aspiration x G4	0.25	0.27	0.27	-0.00	0.00	0.00	-0.00	0.00	0.00
	(0.38)	(0.37)	(0.31)	(0.15)	(0.15)	(0.00)	(0.14)	(0.14)	(0.00)
Woman x High Career Aspiration x G5	0.08	0.17	0.17	0.00	0.00	0.00	-0.00	0.00	0.00
	(0.38)	(0.38)	(0.31)	(0.15)	(0.15)	(0.00)	(0.14)	(0.14)	(0.00)
Controls		Yes	Yes		Yes	Yes		Yes	Yes
Fixed Effects			Yes			Yes			Yes
Constant	0.20	0.59	0.01			0.20			0.18
	(0.16)	(0.51)	(0.05)			(0.00)			(0.00)
Observations	1,610	1,580	1,580	1,610	1,580	1,580	1,610	1,580	1,580
R-squared	0.01	0.04	0.02						

Standard errors in parentheses

$^{*}\ p < 0.10, ^{**}\ p < 0.05, ^{***}\ p < 0.01$

Note: Models (1) and (2) employ linear regression models to examine relationships with standardised scores. Models (4), (5), (7), and (8) utilise probit models to analyse the probabilities of being in the top 20% and bottom 20%, and these models provide insights into the marginal effects (dy/dx). Models (3), (6) and (9) are fixed effects models.

6. CONCLUSION

Despite the predominant role of China in the global economy, only three research studies have previously been conducted in exploring gender differences in the propensity to compete among Chinese individuals. The prevailing body of literature concerning gender disparities in competitive behaviour predominantly originates from WEIRD contexts. Bridging this gap in the literature, in this study we have attempted to analysed whether there were gender differences in performance in competitive conditions among Chinese individuals. We investigate how gender interacts with various incentives offered in our experimental games, shedding light on the behaviour of Chinese participants when incentivised to compete.

Our findings reveal that, in general, women did not exhibit significant performance differences compared to men in games with incentives. This suggests that the participants in our study did not significantly alter their behaviour in response to the incentives provided. Interestingly, this outcome aligns with similar findings among individuals from Taipei (Booth et al., 2019) and Han (Zhang, 2019) backgrounds, who also exhibited no discernible gender-based variations in their inclination to compete. These findings stand in contrast to Western studies that often report women performing less favourably than men in competitive settings (Niederle and Vesterlund, 2011).

However, a notable exception was observed in the third game where participants received a piece-rate incentive along with an element of risk. In this game, men tended to shy away from exerting effort in response to the risk element, while women performed slightly better. This indicates that gender differences in response to incentives may exist, and in this case, women showed a more positive response in a risk-based incentive setting. This is in line with experimental findings by Carlsson et al. (2020), who introduced a risk element in one of their tasks by making payments dependent on the performance of other participants and found that women outperformed men in that specific task.

We also considered the interplay between gender, participants' confidence levels, and the incentives in the games. We found that high confidence levels generally improved performance in standardised scores and the probability of ranking within the top or bottom

performers. These findings echo broader research showing a strong correlation between confidence and academic performance (Gneezy et al., 2003). However, gender and confidence did not interact significantly in a way that caused differences in performance among the participants. Moreover, our investigation into gender, career aspirations, and performance yielded results where none of the coefficients related to these interactions proved significant.

Our research implies that women, on average, do not significantly differ from men when it comes to competition; in fact, we saw that they can even outperform men when element of risk is introduced in competitive environments. This finding suggests that differences in the ability to compete may not be the primary driver of the gender pay gap or the underrepresentation of women in managerial positions in China.

The external validity of our findings is constrained because our research sample primarily consisted of university students, aged between 18 and 32. Adding older people may have impacted the results as Garrat et al. (2013) found that older individuals are less willing to compete. While this study contributes to the literature by including participants born in and after the 1990s, future research should aim for a more diverse and representative sample to enhance the generalisability of the results.

Moreover, the non-randomised sequence in which participants completed the games may have introduced a sequence effect, impacting results beyond the variables of gender and incentives. To bolster the robustness of findings, future research should consider randomising the order of game completion.

Last, it's worth noting that our study focused on measuring the ability of men and women to compete in terms of performance rather than the willingness to enter a competition. The past experimental evidence on gender differences in competition in China primarily centers on the latter, assessing whether men or women opt to participate in a competitive task. Our study contributes by capturing performance under competitive conditions, but future research could encompass both the propensity and performance dimensions of competition.

Overall, this study underscores the importance of examining cultural nuances when evaluating gender dynamics in competition and contributes to a more comprehensive understanding of these dynamics in the Chinese context.

7. DECLARATIONS

Declaration of interest

None.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used *Grammarly* in order to in order to improve the language and readability of the paper. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Funding Sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability

The data that has been used is confidential.

REFERENCES

Adler N J (1993), Asian women in management, *International Studies of Management and Organization*, 23:4, 3-17

Azmat G and Petrongolo B (2014), Gender and the labour market: What have we learned from field and lab experiments?, *Labour Economics*, 30, October, 32-40

Bajpai P (2020), The 5 Largest Economies in the World and their Growth in 2020, January 22, 2020, Nasdaq. Retrieved August 22, 2022, from https://www.nasdaq.com/articles/the-5-largest-economies-in-the-world-and-their-growth-in-2020-2020-01-22

Booth, A., Fan, E., Meng, X., & Zhang, D. (2019). Gender Differences in Willingness to Compete: The Role of Culture and Institutions. *The Economic Journal*, 129(618), 734–764. https://doi.org/10.1111/ecoj.12583

Carlsson, F., Lampi, E., Martinsson, P., & Yang, X. (2020). Replication: Do women shy away from competition? Experimental evidence from China. *Journal of Economic Psychology*, *81*, 102312. https://doi.org/10.1016/j.joep.2020.102312

China Power Team (2021). How Dominant are Chinese Companies Globally? China Power. May 5, 2021, China Power. Retrieved September 10, 2022, from https://chinapower.csis.org/chinese-companies-global-500/

Chui, M., Rambachan, I., Ellingrud, K., & Wong, J. (2020). Asian Americans in the workplace | McKinsey. McKinsey & Company. https://www.mckinsey.com/featured-insights/diversity-and-inclusion/asian-american-workers-diverse-outcomes-and-hidden-challenges

Ding, Y. (2022). The World of Work for Women in China. Henley Business School. https://www.henley.ac.uk/news/2023/the-world-of-work-for-women-in-china

Flory J A, Gneezy U, Leonard K L, and List J A (2018), Gender, Age, and Competition: A Disappearing Gap? *Journal of Economic Behaviour and Organization*, 150, 256-276

Garratt, R. J., Weinberger, C., & Johnson, N. (2013). The state street mile: Age and gender differences in competition aversion in the field. *Economic Inquiry*, 51, 806-815.

Gneezy U, Niederle M, and Rustichini A (2003), Performance in Competitive Environments: Gender Differences, *The Quarterly Journal of Economics*, August, 1049-1074

Martin, S., & Marks, J. (2019). Messengers: Who We Listen To, Who We Don't, And Why. Random House.

Niederle M and Vesterlund L (2007), Do Women Shy Away from Competition? Do Men Compete Too Much, *Quarterly Journal of Economics*, 122 (2007), 1067-1101

Niederle M, Vesterlund L (2011), 'Gender and Competition', Annual Review of Economics, 3(1), 601–30.

Ohlott P J, Ruderman M N and McCauley C D (1994), Gender differences in manager, developmental job experiences, *Academy of Management Journal*, 37:1, 46-67

Rosenbloom, R., & Batalova, J. (2023, January 9). Chinese Immigrants in the United States. Migrationpolicy.Org. https://www.migrationpolicy.org/article/chinese-immigrants-united-states

Statista (2021), Gender distribution across selected employment sectors among respondents in China in 2020. Retrieved June 3, 2023, from https://www.statista.com/statistics/1116698/china-gender-distribution-in-selected-job-sectors-among-respondents/

Thomala LL (2021), Monthly active users of leading messaging apps in China 2021, Statista, December 6. Retrieved June 15, 2022, from https://www.statista.com/statistics/1062449/china-leading-messaging-apps-monthly-active-users/

UK Government. (2020, January 27). Chinese ethnic group: Facts and figures. GOV.UK. https://www.ethnicity-facts-figures.service.gov.uk/summaries/chinese-ethnic-group#work-and-income

Van Velsor E and Hughes M W (1990), Gender differences in the development of managers: how women managers learn from experience, *Technical Report, 145*, Centre for Creative Leadership, Greensboro, NC

Wang L and Klugman J (2020), How women have fared in the labour market with China's rise as a global economic power, *Asia and the Pacific Policy Studies*, 7, 43-64

Westwood R I and Leung A S M (1999), Women in management in Hong Kong and Beijing: Between pragmatism and patriarchy, in Fosh P, Chan A W, Chow W S, Snape E, and Westwood R (eds), *Hong Kong Management and Labor: Change and Continuity*, Routledge, London, 199-219

Zhang, Y. J. (2019). Culture, Institutions and the Gender Gap in Competitive Inclination: Evidence from the Communist Experiment in China. *The Economic Journal*, *129*(617), 509–552. https://doi.org/10.1111/ecoj.12596

Zhaopin. (2022, May 7). China Female Workplace Status Survey Report. Retrieved April 14, 2023, from https://www.199it.com/archives/1400194.html

SUPPLEMENTARY MATERIAL

This supplementary material contains detailed experimental instructions.

Appendix A

This appendix provides detailed instructions for participant recruitment and survey design.

A.1 Participant Recruitment

The survey was designed on Qualtrics (see Appendix B for survey flow). The survey link was distributed by Professor Zhang Yugui, Dean of the School of Economics and Finance, to the students at Shanghai International Studies University (SISU) via "WeChat", a Chinese multi-purpose messaging, social media and mobile payment application.

On Qualtrics, before participating in the survey, participants were required to provide consent by explicitly checking the "Yes, I want to take part" box. Should the participant select, "No, I do not want to take part," the study ends.

Participants were also provided with information on the investigator, task instructions, time requirements, reward structure, and overall objective of the study to ensure informed decisions by the subject (see Appendix B).

Participants were also required to confirm their SISU student status. If they selected "No", they were barred from completing the survey. There were no other eligibility or exclusion criteria.

A.2 SURVEY DESIGN

The online survey required subjects to complete five rounds of word memory games (see Appendix B), developed to examine gender differences in performance under competitive incentives.

The length of the survey is short allowing completion within 10 minutes and the participants were provided with a small incentive (see Section 1.3).

A.2.1 Translation process

The survey was presented in two languages: Chinese and English to eliminate the potential effect of language on performance. To ensure the accuracy of translations, an English version

of the survey was distributed for translation. Once the Chinese version of the survey was completed, it was then given to a different individual to translate back into English. Both translators were born in China and completed their university education in English-speaking countries to ensure equal fluency in Chinese and English

A.2.2 The Task

The online survey required participants to complete five rounds of word memory games developed by the authors to examine gender differences in performance under different incentive structures. Specifically, for each round, 20 words were displayed for 15 seconds and participants were required to memorize as many words as possible. Then on the next screen, 24 words appeared, and participants had 20 seconds to find the words that appeared in the previous screen. Out of the 24 words, only 12 matched the previous 20 words, making the possibility of having 12 as the highest number of correct answers. The format of each round was the same; the only difference was the incentive structure. By having only one change between rounds, we wanted to learn how it modifies the behaviour of the participants.

Competitive and Non-competitive Incentive Schemes

To test whether women and men react differently to competitive incentives, four different incentive schemes were used. Participants first completed the task under non-competitive incentives followed by competitive incentives. The specific incentive schemes and order of tasks are as follows:

Game 1 (G1)

Participants' performance is based only on their inherent ability and effort.

No incentives are provided in this round. This round serves to establish whether there are gender differences in ability with respect to the task in this study. Furthermore, it provides a baseline to measure innate performance and effort.

Game 2 (G2)

Participants receive a piece-rate incentive in addition to their ability and effort.

To determine the effect of incentives based on own performance, a piece-rate incentive was introduced. Under this incentive, rewards are independent of all other participant's performance, where participants received one point for each correct answer. The total points

achieved counted towards the participant's final score, which determined the size of the reward.

Game 3 (G3)

Participants receive a piece-rate incentive along with an element of risk, in addition to their ability and effort.

To test the effect of risk aversion on performance, a risk element is added to the piece-rate incentive, where participants receive two points for each correct answer, and two points are deducted for each incorrect answer. By introducing a risk element to the incentive scheme, (i.e., two points are being deducted for every wrong answer), we can determine whether there are gender differences due to differential tendencies to shy away from taking a guess when they are not sure of the answer.

Game 4 (G4)

Participants are provided with a competitive incentive coupled with risk, alongside their ability and effort.

To create a competitive condition, a tournament is introduced in the fourth round. Here, the number of points awarded is dependent on the performance of all other participants, i.e., in order for points from Game 4 to be counted toward participants' final score, participants must end up in the Top 10 score when compared to all participants. Participants then received five points for each correct answer, and five points were be deducted for each incorrect answer.

 The five-point deduction for each incorrect answer remains as part of the incentive scheme to prevent participants from selecting all word options from the provided list to get the highest score possible. Overall, a negative ending had no impact on the participants as those with less than 20 points still received a small incentive as detailed in Section 1.3.

Game 5 (G5)

Participants' incentives are completely withdrawn. Performance is based only on ability and willingness to exert effort.

In the final round, all incentives were deliberately eliminated to investigate whether any gender differences in performance were a result of the incentives influencing the results over

the course of the study. This is identical to G1, with the exception that students have had the opportunity to practice and gain skills in the game.

A.2.3 Demographics

At the end of the survey, participants were asked to provide demographics (gender, age, current education level, area of study, etc.), and their career aspirations, and self-evaluate their performance compared to others.

Right after the completion of all the games, to assess the subject's confidence level, upon completing the five rounds of the task, participants were asked to self-evaluate their overall performance compared to all other participants. Then we asked participants for their demographic background such as gender, age, country of birth, type of degree, academic program, year of degree.

Please see Appendix B for the complete survey materials.

A.3 REWARD STRUCTURE

To test the impact of different incentive schemes on performance, an incentive reward in the form of a T-Mall (天猫) gift voucher for Tmall.com was provided to participants. Tmall.com, similar to Amazon, is a Chinese-language website for local Chinese and international businesses to sell goods to consumers in mainland China, Hong Kong, Macau, and Taiwan. Participants who achieved a total score below 20 points received ¥20 (£2.28), between 21 to 30 points received ¥30 (£3.43) and ¥50 (£5.71) for above 31 points.

Payment instructions were provided at the end of the survey (See Appendix B). To help with the distribution of the reward, participants were required to provide their name and email address to collect their award. They were informed that their name and email address will only be used for the distribution of the reward and no other purposes, and the information will be destroyed once rewards are distributed, and only anonymised data will be retained for statistical analysis.

Appendix B

This appendix provides the complete survey materials.

Language Preference:

Please select your preferred language and click the **NEXT** button when you are ready to start.
请选择您的语言，然后在准备开始时单击"下一步"按钮。

Consent form:
同意书：

Thank you for taking the time to participate in this study. I am [Author's name], [Author's title and affiliation]. My research will give insights on preferences for incentive pay. In this study, you will be asked to complete five memory training activities. The study should take no longer than 10 minutes to complete. Reward will be awarded based on performance.
感谢您抽出宝贵时间参与本研究。我是 [Author's name], [Author's title and affiliation]。我的研究将提供有关激励薪酬偏好的见解。在本研究中，您将被要求完成五项记忆训练项目。完成该研究所需时间不会超过 10 分钟。您将根据表现被给予奖励。

If your total score for Game 2, 3 and 4 is:
如果您在第 2,3 和第 4 个游戏的总得分是：

Below 20 points, you will receive one ¥20 Tmall gift voucher. Between 21 - 30 points, you will receive one ¥30 Tmall gift voucher. Above 31 points, you will receive one ¥50 Tmall gift voucher.
20 分以下，您将获得一张 20 元的天猫礼券，在 21-30 分之间，您将获得一张 30 元的天猫礼券，在 31 分以上，您将获得一张 50 元的天猫礼券.

Further information will be provided at the end of the survey. You can withdraw from the study at any stage without explanation.
本问卷结束时将会向您收集进一步个人信息以用于完善本次问卷研究以及奖励发放。您可以在任何阶段无需任何理由地退出该研究。

Your privacy is very important. Only the primary researcher and his supervisor will have access to the data. Results from this study will be presented at conferences and written up in journals as well as in the researcher's Master thesis. Results are normally presented in terms of groups of individuals. No individual data will ever be presented so your privacy will be maintained at all times. This project has received ethical approval from the [Author's institution].
我们注重保护您的隐私。只有主要研究人员和主管才能访问数据。这项研究的结果将在会议、期刊和研究者的硕士论文中发表。结果通常以群体的形式呈现。不会提供任何个人数据，因此您的隐私将始终受到保护。本项目已获得[作者机构]的伦理审核批准。

If you have any questions you'd like to ask before starting the survey, please feel free to contact me at [Author's email]
如果您在开始问卷之前有任何疑问，请随时通过 [Author's email] 与我联系

IMPORTANT: In order to participate in this study, you need to be 18+ and are currently enrolled as a student of the Shanghai International Studies University.

重要提示：为了参加这项研究，您需要年满 18 周岁，并且目前为上海外国语大学的学生。

If you have read all the above, and are happy to participate, please choose 'Yes, I want to take part'.
如果您已阅读以上所有内容，并乐意参加，请选择"是的，我想参加"。

- ☐ No, I do not want to take part (不，我不想参加)

- ☐ Yes, I want to take part (是的，我想参加)

Are you currently a student of the Shanghai International Studies University?

您现在是上海外国语大学的在校生吗？

- ☐ No, I do not want to take part [不是]
- ☐ Yes, I want to take part [是]

Word Memory Game #1
单词记忆游戏#1

In this memory game, 20 **words are displayed** for a 15-seconds during which you should try to memorize as many words as possible. When the counter stops, the words automatically disappear, and you will be provided with 20 seconds to find the right words from a longer list of words by clicking on them.

在这个记忆游戏中，会有 20 个单词将显示共 15 秒，在此期间您应该尝试记住尽可能多的单词。当计数器停止时，单词会自动消失，您将有 20 秒内从较长的单词列表中选出您刚才看到的正确单词。

This is a practice round and there are no rewards for your efforts. Please click the **NEXT** button when you are ready.
这是练习轮，本轮没有奖励。您准备好的时候请单击下一步。

Pay grade	Prestige	Tough	Drive
付款等级	声望	强硬	驾驶
Chief	Benevolent	Strong	**Money**
首要	慈善的	强大	金钱
Edge	Kind	Concerned	**Adore**
边缘	种类	关心	崇拜
Considerate.	Privileged	Winning	**Inclusive.**
周到	特权	赢得	包括
Sympathetic.	**Senior**	**Devoted**	**Helpful**
有同情心的	资深的	献身的	有帮助的

You have 20 seconds to answer this question.
你共有 20 秒来回答这道题.

☐ Considerate 周到	☐ Kind 种类	☐ Blood 血液	☐ Both 两者
☐ Pay grade 付款等级	☐ Court 法院	☐ Strong 强大	☐ Season 季节
☐ Supply 供应	☐ Benevolent 慈善的	☐ Winning 赢得	☐ Drive 驾驶
☐ Chief 首要	☐ Senior 资深的	☐ Devoted 献身的	☐ Economic 经济的
☐ Treatment 治疗	☐ References. 参照	☐ Tomorrow 明天	☐ Helpful 有帮助的
☐ China 中国	☐ Recognized. 公认的	☐ Tough 强硬	☐ Money 金钱

Word Memory Game #2

单词记忆游戏#2

In this memory game, 20 words are displayed for a 15-seconds during which you should try to memorize as many words as possible. When the counter stops, the words automatically disappear, and you will be provided with 20 seconds to find the right words from a longer list of words by clicking on them.
在这个记忆游戏中，20 个单词将会显示 15 秒，在此期间您应该尝试记住尽可能多的单词。
当计数器停止时，单词会自动消失，您将有 20 秒内从较长的单词列表中选出您刚才看到的
正确单词。

You will receive 1 point for each correct answer. The total points achieved in this game will count towards your final score. Further information on how to claim your winnings will be provided at the end of the survey.
每个正确答案会价值 1 分。此游戏中获得的总积分将计入您的最终得分。有关如何领取奖金
的更多信息将在问卷结束时提供。

Please click the **NEXT** button when you are ready.
您准备好的时候请单击下一步。

People 人	**Voracity** 贪婪	**Position** 位置	**Amour** 奸情
Children 孩子们	Sweetheart. 甜心	Rank 排名	**Superior** 高等
Lust 情欲	Romance 浪漫	Buddy 伙伴	**Affluent** 丰富的
Selfishness. 自私	Strength 力量	Mate 同伙	**Greed** 贪心
Infant 幼儿	**Mighty** 有力的	**Fancy** 华丽	**Friend** 朋友

You have 20 seconds to answer this question.
你共有 20 秒来回答这道题.

☐ Rich
富有

☐ People
人

☐ Sweet
甜蜜

☐ Motion
移动

☐ Ask
询问

☐ Child
孩子

☐ Voracity
贪婪

☐ Rank
排名

☐ Home
家

☐ Lust
情欲

☐ Both
两者

☐ Car
汽车

☐ Accommodating.
提供住宿

☐ Children
孩子们

☐ English
英语

☐ Position
位置

☐ Cold
寒冷

☐ Ball
球体

☐ Strength
力量

☐ Musical
音乐的

☐ Riches
财富

☐ Places
地方

☐ Sweetheart.
甜心

☐ Mate
同伙

Word Memory Game #3

单词记忆游戏#3

In this memory game, 20 words are displayed for a 15-seconds during which you should try to memorize as many words as possible. When the counter stops, the words automatically disappear, and you will be provided with 20 seconds to find the right words from a longer list of words by clicking on them.
在这个记忆游戏中，20 个单词将会显示 15 秒，在此期间您应该尝试记住尽可能多的单词。当计数器停止时，单词会自动消失，您将有 20 秒内从较长的单词列表中选出您刚才看到的正确单词。

You will receive 2 points for each correct answer, and 2 points will be deducted for each incorrect answer. The total points achieved in this game will count towards your final score. Further information on how to claim your winnings will be provided at the end of the survey.

每个正确答案将获得 2 分，每个错误答案将扣除 2 分。此游戏中获得的总积分将计您的最终得分。有关如何领取奖金的更多信息将在问卷结束时提供。

Please click the **NEXT** button when you are ready.
您准备好的时候请单击下一步。

Fancy	Cash	Considerate.	Riches
华丽	现金	周到	财富
Fondness	Want	Muscular	Superior
爱好	想要	强健的	高等的
Grade	Like	Drive	Boy
等级	喜欢	驾驶	男孩
Luxurious.	Care	Home	Honey
奢华的	关心	家	蜂蜜
Mighty	Money	People	Senior
有力的	金钱	人	资深

You have 20 seconds to answer this question.

你共有 20 秒来回答这道题.

- ☐ Mighty 有力的
- ☐ Dear 亲爱的
- ☐ Considerate 周到
- ☐ Puzzle 困惑

- ☐ Greed 贪婪
- ☐ Care 关心
- ☐ Welcome 欢迎
- ☐ Serve 服务

- ☐ Fancy 华丽
- ☐ Money 金钱
- ☐ Drive 驾驶
- ☐ Boy 男孩

- ☐ Spite 恶意
- ☐ Accommodation 住宿
- ☐ Beg 乞求
- ☐ Honey 蜂蜜

- ☐ Use 使用
- ☐ Want 想要
- ☐ People 人
- ☐ Currency 货币

- ☐ Pray 祈祷
- ☐ Photograph 照片
- ☐ Please 使人愉快
- ☐ Allow 允许

Word Memory Game #4

单词记忆游戏#4

In this memory game, 20 words are displayed for a 15-seconds during which you should try to memorize as many words as possible. When the counter stops, the words automatically disappear, and you will be provided with 20 seconds to find the right words from a longer list of words by clicking on them.

在这个记忆游戏中，20 个单词将会显示 15 秒，在此期间您应该尝试记住尽可能多的单词。当计数器停止时，单词会自动消失，您将有 20 秒内从较长的单词列表中选出您刚才看到的正确单词。

You will receive 5 points for each correct answer, and 5 points will be deducted for each incorrect answer. In order for p**oints from this game to be counted towards your final score, your score must end up in the Top 10 score when compared to all participants.**

每个正确答案将获得 5 分，每个错误答案将扣除 5 分。与其他参与者相比，您的得分必须达到本轮前 10 名时才能将此轮得分计入总分。

Further information on how to claim your winnings will be provided at the end of the survey. Please click the **NEXT** button when you are ready.

有关如何领取奖金的更多信息将在问卷结束时提供。

Please click the **NEXT** button when you are ready.

您准备好时请单击下一步。

Loved	**Power**	**Home**	**Winning**
受珍爱的	力量	家	赢得
Greed	Ranking	Infant	**Tough**
贪心	排名	幼儿	强硬
Status	Child	Wealth	**Love**
状态	孩子	财富	爱
Family	Tenderness	Grade	**Sensitive**
家庭	柔软	等级	敏感的
Buddy	**Devoted**	**Lavish**	**Praise**
伙伴	献身的	浪费的	表扬

You have 20 seconds to answer this question.

你共有 20 秒来回答这道题.

☐ Dollar 美元 ☐ Dear 亲爱的 ☐ Apply 应用 ☐ Mighty 有力的

☐ Family 家庭	☐ Position 位置	☐ Welcome 欢迎	☐ Serve 服务
☐ Hotel 酒店	☐ Pull 拉	☐ Infant 幼儿	☐ Tough 强硬
☐ Buddy 伙伴	☐ Child 孩子	☐ Lavish 浪费的	☐ Praise 表扬
☐ Use 使用	☐ But 但是	☐ Home 家	☐ Scatter 分散
☐ Pray 祈祷	☐ Ranking 排名	☐ Please 使人愉快	☐ Allow 允许

Word Memory Game #5

单词记忆游戏#5

In this memory game, 20 **words are displayed** for a 15-seconds during which you should try to memorize as many words as possible. When the counter stops, the words automatically disappear, and you will be provided with 20 seconds to find the right words from a longer list of words by clicking on them.

在这个记忆游戏中，20 个单词将会显示 15 秒，在此期间您应该尝试记住尽可能多的单词。当计数器停止时，单词会自动消失，您将有 20 秒内从较长的单词列表中选出您刚才看到的正确单词。

There are no rewards associated with this round of the game.
这一轮比赛没有任何奖励。

Winner 赢家	**Competition** 竞争	**Grade** 等级	**Baby** 宝贝
Teamwork 团队合作	Top 顶尖	Position 位置	**Ranking** 排名
Supportive 有支撑的	Understanding 理解	Affluent 富有的	**Friend** 朋友
Money 金钱	Mate 同伙	Love 爱	**Power** 权力
Conflict 冲突	**Romance** 浪漫	**Affection** 感情	**Success** 成功

You have 20 seconds to answer this question.

你共有 20 秒来回答这道题.

☐ Personnel 人事	☐ Enjoy 享受	☐ Grade 等级	☐ Friendship 友谊
☐ Teamwork 团队合作	☐ Mate 同伙	☐ Welcome 欢迎	☐ Serve 服务
☐ Hotel 酒店	☐ Top 顶尖	☐ Care 关心	☐ Power 权力
☐ Home 家	☐ Child 孩子	☐ Beg 乞求	☐ Friend 朋友
☐ Use 使用	☐ But 但是	☐ Love 爱	☐ Scatter 分散
☐ Conflict 冲突	☐ Photograph 照片	☐ Please 使人愉快	☐ Allow 允许

How did you think you performed overall when compared with all participants?

与所有参与者相比，您认为您的整体表现如何？

☐ Your overall score is in the Top 1%

　您的总得分位居前 1%

☐ Your overall score is in the Top 10%

您的总得分位居前 10%

☐ Your overall score is in the Top 25%

您的总得分在前 25%

☐ 50% of participants performed better than you

50%的参与者表现得比您好

☐ 75% of participants performed better than you

75%的参与者表现得比您好

Background Information:
背景信息

Your Gender (Please select)

您的性别（请选择）

- ☐ Male 男
- ☐ Female 女

What is your age?

您的年龄？

Country of Birth (Please select)

出生国（请选择）

- ☐ China – Mainland
    中国 - 大陆

- ☐ China – Macau
    中国：澳门

- ☐ China - Hong Kong
    中国 - 香港
- ☐ China – Taiwan
    中国：台湾
- ☐ Outside of China – Asia Countries
    中国以外的地区-亚洲国家
- ☐ Outside of China - Non-Asia Countries
    中国以外的地区 - 非亚洲国家

Are you currently studying for (Please select one answer)?

您现在正在攻读的学位（请选择一个答案）

- ☐ Undergraduate Program 本科
- ☐ Postgraduate Taught Program 专业型硕士
- ☐ Postgraduate Research Program 研究型硕士

Which academic program are you currently enrolled in? (Please select one answer)

您目前就读于哪一个专业？（请选择一个答案）

- ☐ Accounting (会计)

- ☐ Adult Education (成人教育)

- ☐ Advertising (广告)

- ☐ Ancient Chinese Literature (中国古代文学)

- ☐ Applied Statistics (应用统计)

- ☐ Arabic Language and Literature (阿拉伯语言文学)

- ☐ Area Studies (地区研究)

- ☐ Asian and African Languages and Literatures (亚洲和非洲语言和文学)

- ☐ Broadcast Journalism (广播新闻)

- ☐ Business English (商务英语)

- ☐ Business Management (商业管理)

- ☐ China Studies (中国研究)

- ☐ Chinese and Foreign Political Institution (中外政治制度)

- ☐ Chinese Language and Philology (汉语言文学)

- ☐ Communication (通讯)

- ☐ Comparative Literature and World Literature (比较文学与世界文学)

- ☐ Corporate Management (公司管理)

- ☐ Curriculum and Teaching Methology (课程与教学方法)

- ☐ Diplomacy (外交)

- ☐ Dutch Language and Literature (荷兰语言文学)

- ☐ Education in Ideology and Politics (荷兰语言文学)

- ☐ Educational Technology (教育技术)

- ☐ English Language and Literature (英语语言文学)

- ☐ European Languages and Literatures (欧洲语言和文学)

- ☐ Finance (金融)

- ☐ Foreign Linguistics and Applied Linguistics (外国语言学与和应用语言学)

- ☐ French Language and Literature (法语语言和文学)

- ☐ German Language and Literature (德语语言和文学)

- ☐ Greek Language and Literature (希腊语言和文学)

- ☐ Hebrew Language and Literature (希伯来语言和文学)

- ☐ Hindi Language and Literature (印地语语言和文学)

- ☐ Hungarian Language and Literature (匈牙利语言和文学)

- ☐ Indonesian Language and Literature (印尼语言和文学)

- ☐ Information Management and Information System (信息管理与信息系统)

- ☐ International Economics and Trade (国际经济与贸易)

- ☐ International Politics (国际政治)

- ☐ International Public Administration (国际公共管理)

- ☐ International Relations (国际关系)

- ☐ International Trade (国际贸易)

- ☐ Italian Language and Literature (意大利语言文学)

- ☐ Japanese Language and Literature (日本语言文学)

- ☐ Journalism Studies (新闻研究)

- ☐ Korean Language and Literature (韩国语言文学)

- ☐ Language Strategy and Policy (语言战略与政策)

- ☐ Law and Legal Studies (法律研究)

- ☐ Linguistics and Applied Linguistics (语言学与应用语言学)

- ☐ Middle Eastern Studies (中东研究)

- ☐ Modern and Contemporary Chinese Literature (中国现当代文学)

- ☐ Online Journalism (线上新闻)

- ☐ Persian Language and Literature (波斯语言文学)

- ☐ Physical Education (体育)

- ☐ Political Science and Public Administration (政治科学与公共行政)

- ☐ Portuguese Language and Literature (葡萄牙语言文学)

- ☐ Public Relations (公共关系)

- ☐ Russian Language and Literature (俄语语言文学)

- ☐ Spanish Language and Literature (西班牙语言文学)

- ☐ Swedish Language and Literature (瑞典语言文学)

- ☐ Teaching Chinese to Speakers of Other Languages (向其他语言的讲者教授汉语)

- ☐ Technology Economics and Management (技术经济与管理)

- ☐ Thai Language and Literature (泰语语言文学)

- ☐ Translation and Interpreting (翻译和口译)

- ☐ Translation Studies (翻译研究)

- ☐ Turkish Language and Literature (土耳其语言文学)

- ☐ Ukrainian Language and Literature (乌克兰语言文学)

- ☐ Vietnamese Language and Literature (越南语言文学)

What year of your degree are you currently in?
您目前在学业的第几年？

- ☐ 1st Year 第一年
- ☐ 2nd Year 第二年
- ☐ 3rd Year 第三年
- ☐ 4th Year 第四年
- ☐ 5th Year 第五年
- ☐ 6thYear + 第 6 年+

Which of the following best describe your long-term career aspiration?

以下哪项最能描述您的长期理想职业？

- ☐ **Senior Executives** (e.g. Senior Officials, Managing Directors, and Chief Executives)
  高级管理人员（例如高级官员，行政总监和首席执行官）

- ☐ **Managers** (e.g. Business Managers, Hotel Managers, and Marketing Managers)
  经理（例如业务经理，酒店经理和营销经理）

- ☐ **Professional** (e.g. Medical Doctors, University and higher education teachers, Finance Professionals, Software Developers, and Lawyer)
  专业人员（例如医学博士，高等教育教师，财务专业人员，软件开发人员和律师)

- **Technicians and associate professionals** (e.g. Medical technicians, Financial associate professionals, Sales agents, and technology operators)
  技术人员和技术相关专业人员（例如医疗技术人员，财务专业人员，销售代理和技术操作员）

- **Clerical support workers** (e.g. General office clerks, tellers, and numerical clerks)
  文职人员（例如一般办公室文员，柜员及数据录入职员）

- **Service and Sales Workers** (e.g. Travel attendants, cooks, Waiters, and Shop salespersons)
  服务和销售人员（例如旅行服务员，厨师，餐厅服务员和商店销售人员）

- **Skilled agricultural, forestry, and fishery workers** (e.g. market gardeners, animal producers, forestry related workers, and farmer)
  农业，林业和渔业技术人员（例如市场园丁，畜牧业，林业相关工人和农业人员）

- **Plant and machine operators, and assemblers** (e.g. Drivers, food and related products machine operators, chemical and photographic products machine operators)
  工厂和机器操作和装配技术人员（例如司机，食品和相关产品机器操作员，化学和影像产品机器操作人员）

- **Elementary occupations** (e.g. Cleaners, food preparation assistants, and manufacturing labourers)
  基本职业（例如清洁工，食品准备员和制造业工人）

- **Armed forces occupations** (e.g. Commissioned armed forces officers)
  武装部队职业（例如特派武装部队人员）

- **Home keepers**
  家务整理

- **Self Employed**
  自雇人士

Payment Instructions and Conditions:
奖励说明和奖励情况

If your total score for Game 2, 3 and 4 is: Below 20 points, you will receive one ¥20 Tmall gift voucher. Between 21 - 30 points, you will receive one ¥30 Tmall gift voucher. Above 31 points, you will receive one ¥50 Tmall gift voucher.
如果您在第 2,3 和 4 个游戏的总得分是: 低于 20 分，您将获得一张 20 元的天猫礼券。 在 21 至 30 分之间，您将获得一张 30 元的天猫礼券。超过 31 分，您将获得一张 50 元的天猫礼券。

Payment will be made in the form of Tmall gift voucher electronically before end of September 2019. The payment will be subject to the following conditions:
在 2019 年 9 月底之前，奖励将以电子天猫礼券的形式付给参与者。奖励将遵守以下条件: 您已完成此问卷.

You have completed this survey. You must be a current student of the Shanghai International Studies University. You must provide your name and your Shanghai International Studies University email address.
您必须是上海外国语大学的在校学生。您必须提供您的姓名和上海外国语大学的电子邮件地址。

Please provide your name and email address below should you wish to collect your financial reward.
如果您希望获得活动奖励，请在下面提供您的姓名和电子邮件地址。

Please note that your name and email address will only be used for distribution of the reward and will not be used for any other purposes. This information will be destroyed once the rewards are distributed. Anonymized data will be retained for statistical analysis.
请注意，您的姓名和电子邮件地址仅用于分发奖励，不会用于任何其他目的。一旦奖励分发，这些信息将被销毁。匿名数据将被保留以进行统计分析。

Your Name:
您的姓名

Your Shanghai International Studies University Email Address:
您的上海外国语大学邮箱