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Gender and other determinants of trust and reciprocity in an experimental labour market amongst Chinese students

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Abstract

Due to economic and demographic changes highly educated women play an important role on the Chinese labour market. Gender has been shown to be an important characteristic that influences behaviour in economic experiments, as have, to a lesser degree, academic major, age and income. We provide a study looking at trust and reciprocity and their determinants in a labour market laboratory experiment. Our experimental data is based on two games, the Gift Exchange Game (GEG) and a variant of this game (the Wage Promising Game, WPG) where the employer's wage offer is non-binding and the employer can choose the wage freely after observing the workers effort. We find that women are less trusting and reciprocal than men in the GEG while this cannot be found in the WPG. Letting participants play the GEG and the WPG, allows us to disentangle reciprocal and risk attitudes. While in the employer role, it seems to be that risk attitude is the main factor, this is not confirmed analysing decisions in the worker role.

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1 Introduction

The one child policy in China has two consequences for the labour market. On the one hand there is a shortage of skilled or educated labour, one the other hand, the importance of women in the educated labour force increased dramatically (Zhang et al., 2012). Gender differences in behaviour observed in economic experiments have been studied in many experimental games. Croson and Gneezy (2009) provide a recent comprehensive survey of results of these experiments. Other aspects that have been related to differences in behaviour is the academic major of participants in experiments and their age. In this paper we address these issues using Chinese subjects in an experimental labour market. While it is interesting to see whether experimental results using Chinese subjects are the same as those in the existing literature (that mainly builds on experimental findings from Western countries), China's recent economic growth, in particular with respect to a changing labour market, makes this an important question in itself: China's development is characterised by an increase in the importance of highly educated labour as well as an increase of female labour force participation in this segment (Zhang et al., 2012). Furthermore, the importance of Business graduates in the labour force is increasing as the economy has changed from an engineering-based planned regime to a market-oriented one with a significant services sector. One reason to think that Chinese employees may behave different is that the one-child policy may not only have changed the composition of the educated labour force - as parental investments are forced to focussed on the single child independent of its gender, while before the introduction parents could choose to investments primarily in males but also affect the behaviour on an individual level. If differences in behaviour based on characteristics such as gender and academic major do exist, policy makers as well as company managers may want to take these factors into account.

In this paper we implement an experimental labour market in which participants interact in the roles of employers and workers based on the Gift Exchange Game (GEG, Fehr et al., 1993) and a variant thereof, the Wage Promising Game (WPG). The latter game changes the role of trustors (the employer in the GEG) and trustees (the worker in the GEG) by starting with a non-binding wage promise by the employer, followed by an effort decision by the worker and then an unrestricted wage determination by the employer. These two games can be seen a simplified archetypes of labour market interactions between employers and workers. Furthermore, the two games allow us to disentangle reciprocity or pro-social motives and risk attitude in determining behaviour. Participants kept their role (as employers or workers), but played both games, while varying the order of the games over sessions.

In our study, which uses decisions of 216 participants (40% female, average age 20.63) who study in economics-based (112) and technical or engineering-based (104) degrees. Divergent from much of the literature we find that women are less trusting and that this finding is driven by lower willingness to reciprocate, and not necessarily by risk attitudes. The students with economics and

business majors seem to be less trusting and less willing to reciprocate at first impression, but this effect is likely due to the gender composition of students of these majors. In our subject pool 62.5% of economics and business majors are female, while of the engineering students only 15.4% are female. Controlling for major and gender jointly renders academic major insignificant.

We also investigate other characteristics of participants that have been identified as variables influencing behaviour in experiments, i.e., age, employment status and income. Our results confirm the results from existing research and replicate them in a Chinese context, although our age effect seems to be quantitatively stronger than usually found in other studies that use a relatively homogeneous student population.

2   Related literature

Gender is probably the best studied determinant of decisions in economic experiments. Eckel and Grossman (2008) and Croson and Gneezy (2009) summarise most experimental evidence of gender differences in behaviour in risk and social preferences. Both conclude that differences between the decisions of men and women are observable in some cases while not in others. A mixed picture, with no or vanishing statistical differences based on gender can particularly be found in social preferences, which various experiments have studied. Ortmann and Tichy (1999) look at cooperation between individuals in dictator games and observe higher cooperativeness of women, although initial differences vanish over time of the experiment. Croson and Buchan (1999), Chaudhuri and Gangadharan (2007), Buchan et al. (2008) and Garbarino and Slonim (2009) study gender differences in trust, finding a tendency of lower trust by women, and a higher willingness to reciprocate, but the picture is not always the same across studies. Cox and Deck (2007) and Andreoni and Vesterlund (2001) further look at gender differences in altruism, finding that whether men or women are more altruistic is dependent on the cost or price of altruism, with men being more responsive to changes in prices and costs. Croson and Gneezy (2009) summarise much of this and other literature, concluding that there are differences between men and women in terms of risk attitudes, with women being more risk averse then men, and that social preferences are more context-dependent for women than for men. They also conclude that men are more willing to compete than women.

Furthermore, other determinants of decisions have been studied in experiments, although not being reflected in the literature to a similar degree as gender. Age, one other demographic factor has been investigated in a number of studies, mainly looking at risk attitudes (e.g. Harbaugh et al., 2002) and social preferences (e.g., altruism (Martinsson et al., 2011), trust and trustworthiness (Sutter and Kocher, 2007) and cooperative behaviour (Charness and Villeval, 2009)). These studies mostly investigate social preferences between different age groups, mainly finding that pro-social behaviour increases with age, but that these changes are relatively gradual effects, with differences observable between

cohorts or generations rather than within relatively homogeneous age groups.

Another variable linked to pro-social behaviour that has been discussed in the literature is academic major.[1] Marwell and Ames (1981) observed over a series of experiments that economists are often more selfish than others. Carter and Irons (1991) and Frank et al. (1993) also found that students in economics majors are more selfish, and that this effect is potentially further strengthened over the length of studying. Dasgupta and Menon (2011) come up with similar results in a more recent study, showing that economics majors are less reciprocal than others.

In our study we include these 3 potential variables linked to pro-social decisions, that is, academic major, gender and age (the last although our experimental participants are all in the same cohort). We also consider other variables potentially important for decisions in our experiment. We include income as a proxy for the socio-economic background of our participants as the (ranking in) income of our student subjects is mainly based on received transfers. Furthermore, we consider their job experience (i.e. whether participants currently have a job or not) to reflect that our experiment is framed in an experimental labour market and as prior research has found that individuals more experiences in work environments tend to be more cooperative than undergraduates without work experience in such a framework (Hannan et al., 2002).

We hypothesise that the determinants found in previous studies have effects in our experimental labour market as well. However, we are aware that decision patterns of students in China might be different from those found elsewhere, as cultural factors might be different in China. Bu and McKeen (2001) provide evidence that social behaviour may be different in China, especially in working environments, in a study comparing questionnaire answers about work attitudes of Canadian and Chinese business students. Wang and Yamagishi (2005) also found Chinese women to be less trusting when engaging in social relationships which require counterparts to be reciprocal. We therefore hypothesise women to be less trusting than men in our experiment, while recognising that gender differences might be context-dependent.

With regard to other factors we hypothesise older participants to be more trusting and reciprocal based on findings of the studies described above, but not necessarily in a significant way, given the small age range of our participants. We also expect job status and higher income to be positively related to trust and reciprocity levels, due to experienced mutually beneficial reciprocity on the job and due to a greater ability to be generous with rising income, respectively.

3 Experimental design and implementation

For our experiment we used the gift exchange game (GEG) as introduced by Fehr et al. (1993) and the wage promising game (WPG), an adaptation of the

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[1]The potential causal relationship of academic major is not the same as for gender and age, as it is selected by the students and potentially further influenced by what is learned over the course of studying.
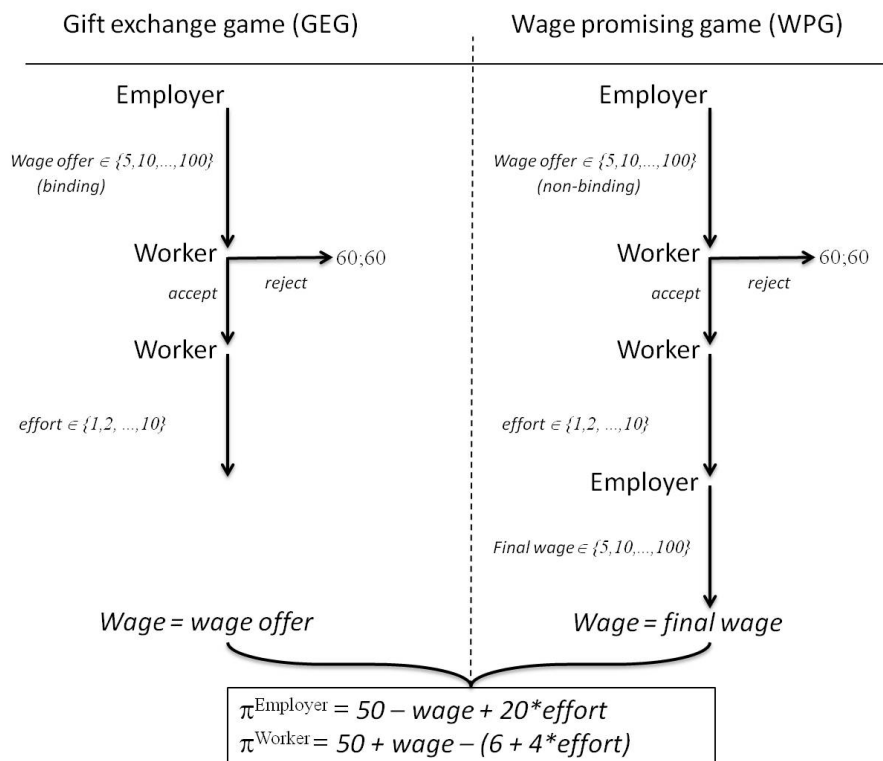
GEG as described further below. We use these two games also in Dulleck et al. (2012), with a subject pool of household aids (ayis) studying discrimination in labour markets. This paper provides a more detailed discussion of the two games and the relationship of the WPG to other, similar games in the literature.[2] In the two games participants are assigned the roles of employers and workers and interact in (stylised) labour market relationships. In both games the employer first makes a transfer (called the wage offer) between 5 and 100 experimental dollars (in steps of 5), which is communicated to the worker and which the worker can accept or reject. If the worker rejects, the game ends and both the employer and the worker receive an outside option of 60 experimental dollars. If the worker accepts, he or she has to choose a return transfer (called the level of effort) between 1 and 10 (in steps of one). In the GEG the game ends at this point and both players get paid based on the payoff function (see below). In the WPG the effort is observed by the employer who can consequently determine the final wage paid, which is again a back-transfer between 5 and 100 experimental dollars and represents the realised wage in this game. This final wage does not have to depend in any way on the wage offer made previously. Figure 1 describes the sequential structure of the two games. In both games the payoff functions are $\pi^{Employer} = 50 \quad wage + 20 \cdot$ effort and $\pi^{Worker} = 50 + wage \quad (6 + 4 \cdot$ effort), whereas the *wage* is the wage offer in the GEG and the final wage in the WPG.

The two games allow us to study trust and reciprocity of our participants. Employers will only make high wage offers in the GEG if they trust workers to send efforts in return and workers will return high efforts in the GEG if they are reciprocal. In the WPG the wage offer is (strategically) just cheap talk; high efforts will only be chosen by workers that trust in employers to return high final wages; and high final wages in reaction to high effort show that employers are behaving reciprocal. Using the two games also allows us to determine what drives trusting decisions, which are influenced by pro-social attitudes as well as by beliefs about the likelihood of the counterpart to reciprocate. This risky element is present for employers in the GEG wage offer, but not in the WPG wage decisions. Hence, comparing between the games allows us to get an idea about whether it is the risk or the reciprocal element of decisions that explains differences based on gender or academic major. Similarly, for worker decisions efforts returned are based on reciprocity motives in the GEG, while being risky in the WPG, Comparisons of decisions across the two different games can therefore provide interesting insights in our setting.

The experiment was implemented in a computer laboratory using z-tree (Fischbacher, 2007) with university students as participants. For the games we used a labour market framing, describing the roles of participants as employers and workers, and decisions as wage offers, efforts and final wages, although all choices were coded into number values. Upon arrival in the laboratory participants were randomly assigned the role of either a worker or an employer and remained in that role throughout the experiment. The experiment included 8 rounds of the

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[2]For example, Fehr et al. (2007) use experiments in which bonuses can be paid to workers.

Figure 1: Sequential structure of the GEG and the WPG

Gift exchange game (GEG)   Wage promising game (WPG)

Employer   Employer

Wage offer $\in$ {5,10,...,100}   Wage offer $\in$ {5,10,...,100}
(binding)   (non-binding)

Worker ————→ 60;60   Worker ————→ 60;60
accept   reject   accept   reject

Worker   Worker

effort $\in$ {1,2, ...,10}   effort $\in$ {1,2, ...,10}

                                            Employer

                                            Final wage $\in$ {5,10,...,100}

Wage = wage offer   Wage = final wage

$$\pi^{\text{Employer}} = 50 - wage + 20*effort$$
$$\pi^{\text{Worker}} = 50 + wage - (6 + 4*effort)$$

GEG and 8 rounds of the WPG; the order of which game was played first was randomly changed between sessions in order to be able to control potential order effects. In our analysis below we did not find any order effects for any decision variable (regressions available from the authors upon request). Participants received instructions for each game just before the first round of the respective game, i.e., before rounds 1 and 9, respectively. Employer-worker pairs were randomly rematched each round (stranger matching). At the end of the experiment 2 rounds of each game were chosen randomly for payment (random incentive mechanism) to avoid wealth effects, while keeping the probability of a single round to be paid at 25%, i.e. it is reasonable likely that a single round is payoff relevant. At the end of the experiment experimental dollars were transformed to Chinese Yuan at a rate of 50 experimental dollars = 1 Yuan, which had been announced at the beginning of the experiment; this allowed participants to earn between 3 and 12 Yuan (on average around 8 Yuan) for about one hour of participation in the experiment, which compares to 7 to 8 Yuan paid per hour for other student work opportunities on campus. The experiment was also followed by a short experimental questionnaire, asking students for their gender, age, and other personal and demographic information, as well as their job market

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experience, job attitudes and origin within China, income and expenditures, and their trusting attitudes.

The experiment was run with a total of 216 participants (60% male, average age 20.63 years), which composed of 112 students in economics-based majors and 104 studying in technical or engineering related majors. Participants interacted in sessions with other students that had similar majors than themselves. However, participants were not informed about this or any other characteristic of their counterpart; hence, all comparisons described in the following are based on covariate analysis of decisions collected in the post-experimental questionnaire.

4 Experimental results

In our experiment participants made decisions in different roles, employers and workers, and played in two different games, the GEG and the WPG. Decision patterns are therefore different based on the role taken and the game played. Figure 2 shows the average decisions based the games. In the GEG wage offers are lower, but realised (final) wages are higher than in the WPG (t-tests show that all these differences are statistically significant), although efforts are higher in the WPG.[3] This indicates that (as common in many other experiments) reciprocal patterns can be observed, but that the player with the last move tends to allocate more to him or herself than the other player would have done.

Figure 2: Average decision variables for employers and workers

(a) Average employer decisions   (b) Average worker decisions
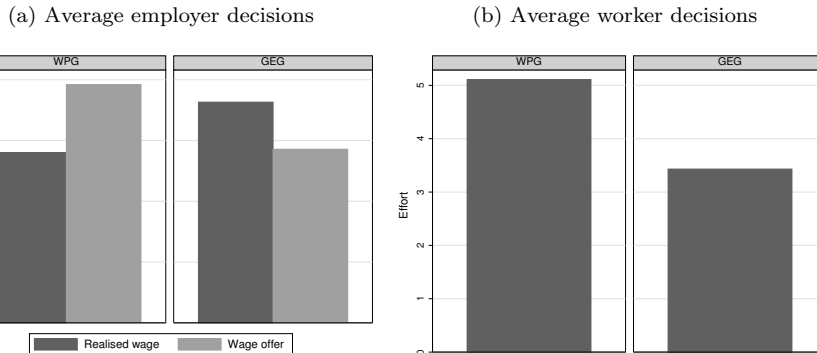
We examined determinants of decisions for both employers and workers in our experiment and separated by decision variables. In the following analysis figures and simple t-tests are used to describe general tendencies and regressions were used to introduce more controls and have more robust results. Results presented in the following were also scrutinised for game order effects (which we

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[3]Differences in average wage offers in the GEG and realised wages come from the possibility of workers to decline wage offers.

did not find), as well as including further controls (e.g. the student's origin within China) and performing further robustness checks on the functional specification of the analysis (for example using tobit models instead of the ordinary least squares (OLS) models used in the following). Furthermore, OLS regressions used standard errors clustered by individual (qualitative results are the same when using clustering by session instead). We did not find any qualitative changes based on any alternative specification and hence report OLS results in the following.

4.1 Determinants of employer decisions

Figures 3a and 3b show employer decisions based on the game played and separated by gender as well as academic major. As can be seen in these figures, the level of decisions (that is, transfers) appears to be less for females and for students in economics-related degrees. Using t-tests over all periods of a game these differences are significant for all decision variables, except for differences between wage offers by academic major in the WPG. However, given the differences in gender composition between the two academic majors and the potential influence of other variables, we introduce more covariates in the following regression analysis.

Figure 3: Average decision variables for employers

(a) Average employer decisions by gender   (b) Average employer decisions by ac. major

Table 1 shows OLS estimation results of employer decisions, and reports the effects of (potential) determinants of the three choice variables, i.e. binding wage offers in the GEG, non-binding wage offers in the WPG and final wages in the WPG. Candidates for determinants of decisions are academic major, gender, age, employment status and income. Furthermore, a time control is included to reflect potential developments over the duration of the game.[4] The variables included in the regression do not necessarily have the same influence

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[4]Another experiment-inherent dynamic are game order effects. However, as game order was not statistically significant in any regression (neither for employer nor worker decisions), it is not further reported in the following analysis.

on the three decision variables. There is no statistically significant effect of academic major on any of the decision variables and in neither of the games. With regard to gender, there is evidence that female students are less trusting than male students in the GEG, as they make significantly less generous wage offers to workers. With females in the employer, role wage offers are lower by 27% ($\frac{16}{57}$ given the average wage offer of 57), an also economically large difference. This indicates that females as employers are less trusting. Comparing employer decisions across games indicates that risk attitudes might drive lower trust, as females' lower level of wage offers and final wages is mediated once the risky element is removed from the trusting decision and the wage paid can be determined after observing the effort in the WPG.

Table 1: Determinants of employer decisions

	Wage offer (GEG)	Wage offer (WPG)	Final wage (WPG)
Econ./Business student	-4.753	6.525	-2.502
	(6.640)	(5.365)	(5.766)
Female	-15.690**	-4.418	-8.754
	(6.374)	(4.843)	(5.509)
Age	-4.877**	-4.991**	0.785
	(2.155)	(2.082)	(1.998)
Currently employed	17.885***	0.726	13.093***
	(5.682)	(4.427)	(4.629)
Income	0.008**	-0.002	0.003
	(0.003)	(0.003)	(0.002)
Period	-1.600***	2.619***	-0.333
	(0.554)	(0.404)	(0.535)
Wage offer			-0.035
			(0.098)
Effort			6.846***
			(0.653)
N	784	784	614
R^2	0.16	0.12	0.32

The table shows OLS regression results of employer decisions on potential determinants. *** indicates significance at the 1% level, ** at the 5% level and * at the 10% level; standard errors are clustered by individual.

Besides gender, there are also other significant determinants of employer decisions. The results indicate that older students are significantly less trusting towards workers than younger students. This is observable in the wage offer decision both in the GEG and the WPG. However, the effect disappears in the final wage decision of the WPG, which indicates that lower trust in workers rather than lower reciprocity drives the difference. While older subjects appear to be less trusting in our experiment, job market experience, reflected in own

employment, has a significantly positive effect on wages paid, both for wage offers made in the GEG as well as final wages in the WPG, while the effect is insignificant for the wage offer in the WPG.[5] Again, the fact of being employed oneself and hence having workplace experience leads to a statistically and economically strong effect in both games and indicates that current employment and hence job experience actually increases reciprocal behaviour in our experimental labour market.[6] We also include income as a potential control variable in the regressions. The estimation shows that income has a significant positive effect on wage offers in the GEG, but not on other decision variables of employers. The size of the income coefficient (0.008) is noticeable (given that the standard deviation of income is 506). As parental transfers are the major source of income for most students, this indicates that students from higher-income families are more trusting.

Finally, we also include game-inherent controls in our regression analysis. There appears to be a decline in trusting attitudes over time in the GEG. This is surprising when considering that the analysis of worker decisions indicates that (in an expectations-based equilibrium) it would be profitable for employers to increase their wage offers.[7] On the contrary in the WPG there is a positive time trend for wage offers, which indicates that employers increasingly make use of the positive effect that the (costless and cheap talk) wage offer has on worker decisions. For the last employer decision variable, final wages, there is no significant time trend observable; for this decision two other factors, wage offers and received efforts are included due to their potential importance. As can be seen in the last column of Table 1, wage offers were just cheap talk, having no influence on the final wage decision. However, employers positively reciprocate the efforts by workers by more than workers' extra cost of effort.[8]

4.2 Determinants of worker decisions

As for workers, we first made simple comparisons of worker decisions based on gender and academic major. Figures 4a and 4b show an overview of these comparisons, indicating that efforts by female workers and by students in economics-related degrees were lower in both games. Again, using simple t-tests over all periods show that these differences are statistically significant. For the same reason as for employer decisions we introduced more controls in the following regression analysis in order to obtain more robust results and read these overviews with caution.

Table 2 shows OLS estimation results of potential determinants on efforts

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[5]We also tested whether age and job status are counteracting effects. However, they appear to be independent and (qualitatively and quantitatively) remain when dropping either variable from the regression.

[6]As such, our results align with the findings of Hannan et al. (2002) who compare the decisions of undergraduates and (job-experienced) MBA students.

[7]Increasing the wage offer by one unit has an effect of $\Delta \pi^{Employer}$ = -1+0.07·20 = 0.4 given the coefficient on wage offers by workers (see Table 2).

[8]One extra unit of effort reduces worker payoff by 4 experimental dollars, but is reciprocated with 6.8 experimental dollars by employers.

Figure 4: Average decision variables for workers

(a) Average worker decisions by gender   (b) Average worker decisions by ac. major
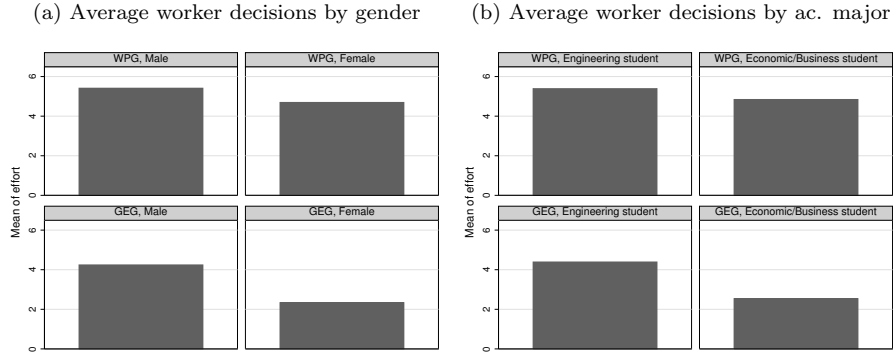
chosen by participants in the worker role. One first observation from this analysis is that workers respond positively to wage offers and that the level of their reaction is high in both games. The coefficient on wage offers implies that it would even be profitable for employers to further increase their offers given the responsiveness of workers to these offers. Furthermore, and somewhat surprisingly, workers react to wage offers in almost the same way in the two games, despite the fact that in the GEG wage offers are binding while they are just cheap talk in the WPG.

We considered the same determinants of decisions for workers as we did for employers. Again we did not find any significant difference in decisions based on academic major. This observation was true both for the decision to reciprocate binding wage offers in the GEG as well as for the decision to trust employers by providing effort in the WPG. With regard to the effect of gender we find that females are less reciprocal in the GEG, while there is no significant difference based on gender in the WPG. This result is somewhat divergent to the finding based on gender in the employer role, as it indicates that female workers were significantly less reciprocal, but not significantly less trusting, although in both roles the directional effect was the same (and the same as for employer decisions).

Controls for age and employment status do not significantly affect decisions for individuals in the worker role. Furthermore, higher income leads individuals to be less trusting in the WPG, while there is no significant difference in the GEG, the first of which is contrary to the finding in the analysis of employer choices. Finally, there is again a significant time trend, indicating that workers are increasingly reciprocal in the GEG, but become less trusting over time in the WPG, which is roughly in line with the time trends observable for employer decisions.[9]

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[9]Again, however, and similar to participants in the employer role, workers underestimate the positive reciprocal effect of employer decisions, which would indicate that they should further increase their level of effort in the WPG.

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Table 2: Determinants of worker decisions

	Effort (GEG)	Effort (WPG)
Wage offer	0.072***	0.070***
	(0.004)	(0.005)
Econ./Business student	-0.511	0.154
	(0.381)	(0.502)
Female	-0.702**	-0.593
	(0.345)	(0.514)
Age	-0.010	-0.070
	(0.123)	(0.168)
Currently employed	-0.340	-0.625
	(0.769)	(0.627)
Income	-0.000	-0.002**
	(0.000)	(0.001)
Period	0.103***	-0.148***
	(0.032)	(0.046)
N	792	792
R^2	0.60	0.28

The table shows OLS regression results of worker decisions on potential determinants. *** indicates significance at the 1% level, ** at the 5% level and * at the 10% level; standard errors are clustered by individual.

4.3 Overall implications

Overall, these results yield a number of interesting insights for our subject pool. In line with the literature, we observe reciprocity in both games, while pure own payoff-maximizing motives seem to have only a limited, second-order effect (participants, when making the last decision in a given round, tend to allocate a larger share of the surplus to themselves a result which is in line with the literature).

Compared to the GEG the strategic meaning of the wage offer changes in the WPG and becomes a cheap talk promise. Employers use the opportunity to make a promise, but do not feel committed to this promise (the coefficient on the wage offer in the WPG is far from significant). Instead the final wage paid in the WPG is only determined by workers' effort. However, workers react to the non-binding wage offer (on average) almost as strongly as to the binding wage offer. This indicates that workers overestimate the value of the non-binding wage offers they receive.

With regard to the (individual-based) determinants of trusting behaviour in our games, we find that academic major does not play a significant role for our Chinese subject pool once the gender effect is taken into account. This is the case for both games and both roles, i.e. workers and employers. We

find a significant gender effect for decisions in the GEG. However, the effect was not significant in the WPG. The comparison across the games based on decisions in the employer role indicates that females were less trusting in their wage offer and that this might be due to risk attitudes. However, the same comparison between the two games looking at worker decisions implies that females are less reciprocal, as they return significantly less than males in the GEG, but do not provide significantly different efforts when facing uncertainty about the final wage paid by employers. It can be seen that the tendency of females to be less cooperative was not significant in either role in the WPG, although the sign of the female variable remained the in the same direction as in the GEG. This leaves a somewhat mixed picture, in which risk and lower reciprocity might have an influence for our subject pool, while lower reciprocity could be a slightly greater driver of differences than risk attitudes.[10] While explaining this difference is somewhat speculative given our data, these findings are in line with the general picture in the literature describing women to be more reactive to the game-context and framing used in the two games; that is, in the WPG women might be able to use the cheap talk wage promising stage as a vehicle to make interaction more collaborative and to embark on a more cooperative path.

With respect to the other potential determinants used in our study, the picture is similar to that in the literature. Age appears to lead to less generous wage offers, but not to significantly lower levels of reciprocity, as the age effect disappears for decisions over final wages and is also not observable for worker decisions. A similarly mixed determinant is job experience, which leads participants in the employer role to offer more and the person in the worker role to react with insignificantly lower efforts.[11] Finally, income has a significant effect for some decisions, but not for others, which makes it difficult to give it a clear-cut interpretation and we refrain from speculating about the reason for any effect here.

Finally, we observe time trends of almost all variables over the course of the games. For wage offers in the GEG the time trend indicates declining reciprocity, which is surprising as higher wage offers in the game would be profitable for

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[10]For example, females also pay significantly lower final wages in the WPG; this difference is due to the interplay of (insignificantly) lower wage offers of females, which lead to slightly lower returned efforts to them. These efforts are in the next stage reciprocated (insignificantly) less by females, jointly leading to a significant difference. We have not included these estimation results above, as we believe that it is important to take the influence of received efforts into account when analysing final wage decisions. Nevertheless, this gives another indication about what might drive the lower levels of choices by females.

[11]Two interpretations can be used to explain this. One is that job experience leads to the perception that higher reciprocity is reasonable and mutually profitable in employer-worker interaction (e.g. Hannan et al. (2002) argued that MBA students that had experience in jobs in which gift exchange actually occurred were more likely to engage into gift exchange in their experiment). However, in this case one would in our experiment expect a similar effect for individuals with job experience in the worker role, but this is not observable. Another explanation could be a higher level of identification with the worker role and hence higher transfers to the participant in this role. This is particularly plausible considering that participants that currently have a job are in the worker role in reality.

employers given the reaction pattern of workers, and additionally workers also return significantly higher amounts in later periods of the GEG. Conversely, there is a positive trend for wage offers in the WPG, probably reflecting that employers increasingly realise that wage offers are having a positive effect on worker decisions despite being costless cheap talk to themselves. However, for worker decisions in the WPG the time trend is negative, most likely reflecting that workers realise that wage offers in the WPG are just cheap talk and not indicative of final wages.

5   Conclusion

In this paper we studied determinants of decisions in an experimental labour market in a student population in China. We found that most however, not all findings of the literature about experimental decisions are also found in our Chinese participant pool. That is, we did not replicate findings of differences in decisions based on academic major, indicating that the Chinese students studying in an economics-related major are not necessarily more selfish than others. We did, however, find that females were less trusting than males in GEG decisions, with its direction but also with its context-dependant significance being similar to findings in the West (see Croson and Gneezy, 2009) as well as in China (Wang and Yamagishi, 2005). However, our finding of less reciprocity in female decisions in the GEG adds another facet to the literature. We did not find a clear indication for the common conjecture that lower trust by females is driven by risk aversion. This would have become apparent comparing results from the GEG and the WPG where the risk is shifted from the employer to the worker. Instead our results indicate that the differences in female decisions are potentially influenced by both risk attitudes and lower reciprocity.

With regard to our other findings only our strong age effect is surprising, as it indicates that social preferences might even change with age over a relatively short time span and not only between cohorts. The influence of the other variables is difficult to interpret given their varying statistical significance (job status) and changing sign (income).

We believe that our results provide some first important insights about determinants of (labour market relevant) social preferences in China. Particularly the study of gender differences in labour market interaction appears to be an interesting and important avenue for future experimental economic research, as China continues to become the world's economic powerhouse, while its demographic structure is changing and will increasingly (have to) draw on an educated male and female workforce. Understanding the behaviour of this workforce, which is potentially different in its way of interaction from a Western workforce (due to major societal changes in recent years, including the effects of the "one child" policy), is therefore important and deserves a closer look. Our paper is one step towards such a better understanding. As such, we believe that our results can deliver valuable insights for understanding determinants of pro-social behaviour relevant in labour market contexts in China and be infor-

mative for policy makers regulating labour markets as well as managers trying to implement organisational models developed in the West to Chinese companies.

References

Andreoni, J. and Vesterlund, L. (2001). Which is the fair sex? gender differences in altruism. *Quarterly Journal of Economics*, 116(1):293–312.

Bu, N. and McKeen, C. A. (2001). Work goals among male and female business students in canada and china: The effects of culture and gender. *International Journal of Human Resource Management*, 12(2):166–183.

Buchan, N. R., Croson, R. T., and Solnick, S. (2008). Trust and gender: An examination of behavior and beliefs in the investment game. *Journal of Economic Behavior & Organization*, 68(3):466–476.

Carter, J. R. and Irons, M. D. (1991). Are economists different, and if so, why? *The Journal of Economic Perspectives*, pages 171–177.

Charness, G. and Villeval, M. C. (2009). Cooperation and competition in intergenerational experiments in the field and the laboratory. *American Economic Review*, 99(3):956–978.

Chaudhuri, A. and Gangadharan, L. (2007). An experimental analysis of trust and trustworthiness. *Southern Economic Journal*, pages 959–985.

Cox, J. C. and Deck, C. A. (2007). When are women more generous than men? *Economic Inquiry*, 44(4):587–598.

Croson, R. and Buchan, N. (1999). Gender and culture: International experimental evidence from trust games. *American Economic Review*, 89(2):386–391.

Croson, R. and Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2):448–474.

Dasgupta, U. and Menon, A. (2011). Trust and trustworthiness among economics majors. *Economics Bulletin*, 31(4):2799–2815.

Dulleck, U., Fooken, J., and He, Y. (2012). Public policy and individual labor market discrimination: An artefactual field experiment in China. *QuBE Working Paper Series*.

Eckel, C. C. and Grossman, P. J. (2008). Differences in the economic decisions of men and women: Experimental evidence. *Handbook of experimental economics results*, 1:509–519.

Fehr, E., Kirchsteiger, G., and Riedl, A. (1993). Does fairness prevent market clearing? an experimental investigation. *Quarterly Journal of Economics*, 108(2):437–459.

Fehr, E., Klein, A., and Schmidt, K. M. (2007). Fairness and contract design. *Econometrica*, 75(1):121–154.

Fischbacher, U. (2007). z-tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics*, 10(2):171–178.

Frank, R. H., Gilovich, T., and Regan, D. T. (1993). Does studying economics inhibit cooperation? *The Journal of Economic Perspectives*, pages 159–171.

Garbarino, E. and Slonim, R. (2009). The robustness of trust and reciprocity across a heterogeneous US population. *Journal of Economic Behavior & Organization*, 69(3):226–240.

Hannan, R. L., Kagel, J. H., and Moser, D. V. (2002). Partial gift exchange in an experimental labor market: Impact of subject population differences, productivity differences, and effort requests on behavior. *Journal of Labor Economics*, pages 923–951.

Harbaugh, W. T., Krause, K., and Vesterlund, L. (2002). Risk attitudes of children and adults: Choices over small and large probability gains and losses. *Experimental Economics*, 5(1):53–84.

Martinsson, P., Nordblom, K., Rützler, D., and Sutter, M. (2011). Social preferences during childhood and the role of gender and age – An experiment in austria and sweden. *Economics Letters*, 110(3):248–251.

Marwell, G. and Ames, R. E. (1981). Economists free ride, does anyone else?: Experiments on the provision of public goods, IV. *Journal of Public Economics*, 15(3):295–310.

Ortmann, A. and Tichy, L. K. (1999). Gender differences in the laboratory: evidence from prisoners dilemma games. *Journal of Economic Behavior & Organization*, 39(3):327–339.

Sutter, M. and Kocher, M. G. (2007). Trust and trustworthiness across different age groups. *Games and Economic Behavior*, 59(2):364–382.

Wang, F. and Yamagishi, T. (2005). Group-based trust and gender differences in china. *Asian Journal of Social Psychology*, 8(2):199–210.

Zhang, J., Pang, X., Zhang, L., Medina, A., and Rozelle, S. (2012). Gender inequality in education in china: A Meta–Regression analysis. *Working Paper - Rural Education Action Project*.