TRUST, DISCRIMINATION AND ACCULTURATION[*]

EXPERIMENTAL EVIDENCE ON ASIAN INTERNATIONAL AND
AUSTRALIAN DOMESTIC UNIVERSITY STUDENTS

Daniel Ji[^]

Pablo Guillen[¶]

January 2010

Abstract

Intercultural relations between Australia and Asia are pivotal to the economic prosperity of the Asia-Pacific region. However, there appears to be tension between Australian domestic and Asian international students at universities in Australia. To measure the degree of trust and patterns of discrimination between these groups, the Berg, Dickhaut and McCabe (1995) trust game and a series of control games were used in framework where each participant played each game against several partners. Controlling for individual heterogeneity, domestic students significantly discriminated against international students in the trust game, and individual discrimination was preference-based rather than based on beliefs towards international students' trustworthiness. Moreover, the degree of in-group favouritism shown by domestic students was negatively correlated with the Big Five personality trait of Openness. Intercultural patterns across the games also pointed to a willingness of international students to build relations with domestic students. However, the average amount that they sent in the trust game was negatively related with the number of semesters studied at university in Australia, which may partly reflect cultural adjustment but also institutional disadvantages faced specifically by international students. The study furthers understanding of the patterns of discrimination between domestic and international university students, the nature of this discrimination, and illustrates the extent of challenges faced by the Australian tertiary education sector.

JEL Classification: F51, C92

Keywords: trust, discrimination, intercultural differences, economic experiments.

[^]Federal Reserve Bank of Australia

[¶] Corresponding author: Room 340, Merewether Building, Discipline of Economics, The University of Sydney, NSW 2006, Australia. P.Guillen@econ.usyd.edu.au. +61 2 9036 9188

1. Introduction

Social scientists have long sought to understand the elusive notion of social capital, how it can be measured or explained and the implications it has for economic outcomes (Hall, 1959; Arrow, 1974; Granovetter, 1985; Coleman, 1990; Putnam, 1993; Fukuyama, 1995; Uslaner, 2002). An important issue regarding social capital is the notion of trust and how it travels across cultural, ethnic or linguistic boundaries. Trade and financial market transactions across national borders, for instance, will naturally involve parties from different cultures. [1] With migrations increasingly becoming a global phenomenon most developed countries become *de facto* multicultural. Agents may prefer to transact with those from their own culture, discriminating against other groups. In some societies, particular cultural groups may be discriminated against or mistrusted by society in general (Fershtman and Gneezy, 2001). The result may not only be foregone benefits from trade, but perpetuation of disparities in income, wealth or economic and social opportunities, particularly to the detriment of members from minority cultural groups. Understanding intercultural patterns of trust, however, may help promote trade between intercultural parties, improving the economic welfare of agents of different cultures and harmony in society.

Intercultural relations between Asian and Australian individuals that may differ in cultural, ethnic and linguistic backgrounds have substantial economic implications. Australia's economic growth and prosperity has over several decades depended on trade with countries in Asia, particularly and increasingly, China, which in turn have depended on Australia for vital resources to sustain strong growth, and its education sector for the accumulation of human capital. [2] There is also substantial cultural and ethnic diversity within Australia, with many migrants originating from Asian cultural backgrounds. Over the past decade, there has been an increase in

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[1] A major puzzle in macroeconomics is the low degree of actual financial and trade integration across countries vis-à-vis the predictions of neoclassical theory (see Obsfeld and Rogoff, 2000).

[2] For instance Australia is the world largest supplier of coal and China the major importer.

international students in Australia, particularly from Asian backgrounds, corresponding to the significant growth of Australia's education export sector.[3]

In this study, we therefore analysed the patterns of trust and discrimination between Asian international students and Australian domestic students. Relations between these groups is important in light of potential knowledge spillovers from learning and research activities (see Romer, 1986; Benabou, 1996), and will directly affect economic relations between Australia and its Asian trading partners, particularly China, since international students who have experienced life and education in Australia are likely to be pivotal for inter-firm and trade relations between the countries in the future.

However, there have been growing concerns that the potential for intercultural links have not been realised. Instead, language and cultural barriers have limited social interaction between international and domestic students at Australian universities (Deumert et al, 2005). Some domestic students appeared to harbour deep prejudices and resentment against Asian international students (Pryor, 2009), while international students have also expressed disillusionment after failed attempts to integrate with domestic students (Das and Jensen, 2008). There also appeared to be a perception amongst Australian employers that Asian international students did not socially integrate in Australia, resulting in severe difficulties in securing full-time employment in the Australian labour market (Gilmore, 2009a). Institutional factors may also influence the social capital, embodied in the level of trust shown by international students, who in recent protests in Sydney and Melbourne expressed frustration over issues such as 'safety, accommodation, visas, shonky institutions and travel concessions' (Gilmore, 2009b).

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[3] Education is the first service export of Australia and the third overall exports only after coal and iron ore.

In this complex social and institutional setting, we analysed intercultural trust and discrimination through a series of abstract economic decision-making tasks based on the Berg et al (1995) trust game, which allowed us to measure and understand intercultural patterns of behaviour and impact of time at Australian universities on trust levels of international students. We sought to answer the following questions:

1) Is there systematic mistrust in the trust game against either international students or domestic students by both groups?

2) Is there discrimination by either international or domestic students against either group in the trust game?

3) If there is discrimination, is the discrimination preference-based, in the sense that there is a discrepancy in altruism, or is it statistical or beliefs based, in the sense that there is a discrepancy in expectation of return from the discriminated group by the discriminating group?

4) Which factors predict or correlate with the relative degree of discrimination or in-group favouritism shown by individual decision makers in the trust game?

5) How does the level of trust shown by international students change with increased time at Australian Universities?

Our main findings are as follows. Controlling for individual heterogeneity, domestic students discriminated against international students in the trust game. From within-subject analysis of behaviour in the control games, it appears that this discrimination was preference-based rather than based on differences in expectations of return. On the *nature* of the relevant preferences, a strong negative correlation was found between the level of in-group favouritism shown by domestic students, and the personality trait of Openness. We also found a worrying trend for policy makers in the tertiary education sector of decreasing levels of trust in international students as the number of semesters studied increases.

This paper is structured as follows: Section 2 details the design of the experiment. The results from the experiment and corresponding analysis are contained in section 3. Section 4 concludes by discussing the results, their implications, limitations, and the avenues for further research. Both Appendix containing further data analysis and matching procedures, and the experimental instructions are available online.

2. Experimental Design

The experiment consisted of 4 sessions, with 24 subjects per session, and 96 subjects in total, each approximately 1 hour and 45 minutes long and conducted in the Behavioural Research Lab at the University of Sydney between 27/8/2009 and 2/9/2009. All decisions were made privately in separated computer terminals. Task-specific instructions were programmed in zTree (Fischbacher, 2007), with some general instructions provided in paper.[4] Subjects were recruited by responding to an email sent to those registered to participate in economics experiments through the online recruitment system ORSEE (Greiner, 2004).

Each subject completed an initial questionnaire, six tasks and a post-experiment survey. The initial questionnaire and task 1 (a maths quiz) gathered information from the subjects used in the identification mechanism of the subsequent tasks. Subjects played each of tasks 2, 3 and 4 as Player A (truster) against different Player Bs (trustees) for four rounds in each task. These four 'matches' were the same across the three tasks for each of the subjects.[5] Task 2 was based on the Berg et al (1995) trust game (Game T) and measured trust and trustworthiness. Task 3 was a modified dictator game (Game MD) and controlled for altruism. Task 4 was a trust gamble task (Game G) and controlled for sending in the trust game based on expectations of

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[4] Instructions are available from Daniel Ji (d.ji@econ.usyd.edu.au) or Pablo Guillen (p.guillen@econ .usyd.edu.au) upon request.

[5] For example, if player A faced a certain player B in round 3, task 2; they also faced the same player B in round 3, task 3 and 4.

return. Task 5 was a prediction task (Game P) which directly measured Player A's belief of the expected trustworthiness of selected Player Bs. Task 6 was a unilateral risky investment (Game R) that controlled for the subjects' risk and ambiguity attitudes.

Subjects were informed at the commencement of the experiment that they were to be paid their earnings of one round from one of tasks 2 to 6 in cash, determined by public die throws at the end of the experiment. For tasks where player A and player B's payoffs may depend on their partner's decision, participants were paid as either player A or player B, if the task was selected for payment.[6] Probabilistic payment implies that subjects cannot hedge their decisions across rounds or tasks, or within each round between player A and player B decisions. Furthermore, as we did not expect scaling down of stakes in individual rounds (see Laury, 2006), the endowment in most tasks of $30 (Australian Dollars) for player A was therefore fairly substantial. At the end of the experiment, one anonymous participant was also randomly chosen to be paid $2 per question that they answered correctly in the maths quiz (task 1).[7] All participants received a show-up fee of $5 in addition to their other earnings.

We employed a 2x2x3 (player A international/domestic status by player B international/domestic status by trust and trustworthiness/altruism/expectations of return) within-subject design based on the framework in Slonim & Guillen (2010) and Slonim and Garbarino (2008).[8]

This framework is within-subject in two senses. First, each subject plays the baseline trust game *and* the control games, as in Ashraf et al (2006). Secondly,

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[6] If they were paid as player A, their partner in the selected round were paid as player B and vice versa. This procedure was described in the instructions at the commencement of the relevant tasks.

[7] Maths scores ranged from 2 to 30.

[8] Our main points of departure from this framework were the introduction Game G and Game R, as well as modified procedures for Game T and Game P.

subjects play more than one round of each game against different subjects, with these being the same subjects that they faced in the control games. Since no feedback was provided to participants after each round on earnings in the round, the observations of each subject across rounds can then be regarded as independent in the sense that there can be no updating of beliefs on the amount player B would return, whether for player Bs in general or conditional upon information on player B.[9]

2.1. Identification and Matching

In contrast to many previous intercultural experiments, cultural identification in our experiment was one-sided, (e.g. Glaeser et al, 2000; Fershtman and Gneezy, 2001; List, 2004; Bouckaert and Dhaene, 2004). Player A was given information about their Player B partner, but Player B was not given any information on Player A. The abstraction allowed us to better control for motivations behind behaviour by holding the objective trustworthiness of player B constant against the cultural identity of player A. This is also consistent with other 'cold' features in the design.

In Games T, MD, G, and P, player A was always given two pieces of information on their Player B partners. First, we provided information on the international or domestic student status of Player B, elicited through the initial questionnaire. This revealed the likely cultural group to which Player B belongs, since most international students in the experiment, corresponding to actual university compositions, were from Asian cultural background, while most domestic students were from Australian background, with the largest proportion being of Anglo-Saxon or European ethnicity. We acknowledge that this identifier is not without problems, and the demand effect would induce downward pressure on experimentally

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[9] An interesting 'strategy method' in which subjects specified their strategy conditional on the information given on their player B partner was used in Falk and Zehnder (2007). However, to the extent that subjects may be averse to specifying a 'strategy for discrimination', this method may not capture more socially unacceptable forms of discrimination such as ethnic or cultural discrimination.

observed levels of discrimination vis-à-vis subjects' actual discriminating tendencies.[10] Our results would therefore tend to understate the actual levels of discrimination between these groups.[11]

The second piece of information we provided was the scores obtained by Player B in the task 1 maths quiz, included to reduce the demand effect of providing only information on cultural identity, and also to provide a proxy for information on ability – which is available in many markets. We also listed the overall distribution of maths scores so that subjects were not updating beliefs on the relative performance of their partners across rounds.

A mechanism was used to generate matchings between player As and player Bs. These matchings balanced observations both across subjects within rounds and within subjects across rounds, of in-group and out-group matches (see Appendix).

2.2. Task 2: Trust and Trustworthiness (Game T)

The monetary payoffs for players A and B in Game T, a variant of the Berg et al, 1995) trust game was, in any given round:

$$\pi_{i,j}{}^{TA} = 30 - X_{i,j}{}^{T} + Y_j, \ \pi_{j,i}{}^{TB} = 3X_i - Y_j$$

Where $X_{i,j}{}^{T}$ is the amount the i th player A decided to send to the j th player B and Y_j is the amount that the j th player B decided to return. Since all participants as player B specified a strategy profile which applied to all rounds:

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[10] Alternative identification mechanisms in the literature include names (Fershtman and Gneezy, 2001), or appearance (Ferraro and Cummings, 2007), but these methods were not practical for this study. As it was also open to us to use English language or cultural acclimatisation tests as indirect identification mechanism, which may be less sensitive to the demand effect associated with cultural or ethnic discrimination studies, we would have preferred to add across-subject sessions and incorporated different identification treatments if a larger budget and pool of subjects was available.

[11] 36% of participants in the cultural subsets that we analysed strongly agreed with the question "*In the role of Player A in Task 2, I ignored the information on whether the Player B was an international student or a domestic student in deciding how much money to send to the Player B.*"

$$Y_j = f_j(3X_{i,j}{}^T)\,,\ X^T \in [0,30]\,,\ Y_j \in [0,3X_{i,j}{}^T]\,.$$

All subjects played Game T both as Player B, in the strategy method, and as Player A, in the normal method. Unlike in Slonim and Garbarino (2008), subjects first made decisions as Player B rather than as Player A.[12] This eliminated potential behavioural effects on Player B induced by awareness of Player A's ability to discriminate across different Player Bs. To our knowledge, the non-standard ordering has not been used in the trust game literature. While we expected this to decrease the overall levels sent,[13] our results on player B returns did not qualitatively differ from previous studies that have used the strategy method in a standard ordering.

Following Slonim and Garbarino (2008), the strategy method was used to elicit the player B return functions of each participant. Although the strategy method appears not to qualitatively affect the pattern of return in the trust game, it has been reported to decrease the overall levels of trustworthiness relative to the normal method (Casari and Cason, 2009). Playing in both roles in the investment game also appears to reduce both levels sent as Player A and received as Player B (Burks et al, 2003). However, we did not expect these discrepancies to be problematic and proceeded based on the reasonable assumption that they do not interact with the cultural identity of Player B.

2.3. Task 3: Altruism (Game MD)

As in Fershtman and Gneezy (2001), we used a modified dictator game to test whether there are discrepancies in altruism and surplus maximisation motives

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[12] At this point, they were neither given information on their potential Player A partners nor told that information on Player B partners were to be given to Player A in each of the four rounds in which all subjects would play as Player A.

[13] 1) By artificial and unfamiliar framing inducing a one-shot game theoretic perspective. 2) By assisting subjects in solving the narrowly rational sub-game perfect equilibrium through backward induction. 3) Since subjects may overestimate their own levels of altruism or reciprocity.

which can collectively be described as preference-based discrimination. In the Game MD, Player A sends an amount to Player B. Player B receives triple the sent amount, but unlike in Game T, did not have an opportunity to send anything back. The monetary payoffs were: $\pi_{i,j}^{DA} = 30 - X_{i,j}^{D}$, $\pi_{j}^{DB} = 3X_{i,j}^{D}$, $X^{D} \in [0,30]$.

Limitations of Game MD are that it may induce an allocative heuristic for equality which is absent in Game T,[14] and may not entirely capture the preferences relevant to decisions in Game T. In particular, there may be a preference for trust, either positively defined, as suggested by neuroeconomic evidence (Kosfeld et al, 2005), or negatively defined, as suggested by evidence on betrayal aversion (Bohnet and Zeckhauser, 2004).

Based on the above considerations, instead of inferring by deduction from the results of Game MD whether discrimination in Game T was statistical or preference-based (Fershtman and Gneezy, 2001), two direct measures were used to test for the presence of statistical discrimination.

2.4. Task 4: Trust Gamble (Game G)

Game G allows us to extrapolate 'trust' based on expectations of returns, independent of altruism, surplus maximisation motives. Player A, for a given decision, received the same payoffs as in Game T, but unlike in Game T, Player A could not influence the payoffs of Player B. The return to an amount sent by Player A was *determined by the Player B strategy profile for Game T*. As in Game T, Player A was given information about Player B. The monetary payoff to player A in a given round was: $\pi_{i,j}^{G} = 30 - X_{i,j}^{G} + Y_{j}$, where $X_{i,j}^{G}$ is the amount player A decides to send in Game G to j and $Y_{j} = f_{j}(3X_{i,j}^{G})$ is the amount that player B decided to return in Game T if

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[14] In an allocation decision, distributive motives such as equality, judgment on neediness and deservingness may be more relevant.

player A had sent $X_{i,j}^G$, $X^G \in [0,30]$, $Y_j \in [0, 3X_{i,j}^G]$. There were no payoffs to player B, as all participants could only be paid as player A in this task.

If player A only cared about their own monetary payoff, they would send the same amount in Game G as they did in Game T. While Game G can be seen as an alternative measure of trust to the original investment game, it is no accident that Game G is less natural and elegant to describe and comprehend than Game T since the notion that both parties in a bilateral exchange gain from trade is arguably fundamental to its nature (whether in goods, services, finance, labour or knowledge) and to the realisation of gains from trade.[15]

2.5. Task 5: Prediction (Game P)

A prediction task, Game P, was used to directly test for mean statistical discrimination, i.e. whether there is a commonly held stereotype in respect to the trustworthiness of a particular group, or of the out-group.[16] Subjects guessed the mean amounts returned by 4 Player Bs in Game T for $45 and $90 received in each round, and were given information on the Player Bs. The earnings of subjects in each

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[15] Two potential behavioural differences between Game G and Game T are: 1) betrayal aversion induced by the games (Bohnet and Zeckhauser, 2004), if the true causal factor is Player B's *wilful* intention to take advantage of Player A's trust, whereby Player B *gains* through the same act. For instance, contrast the case where an investment venture fails due to incompetence with failure due to embezzlement. Relative to Game G, Game T may induce an additional aversion to 'wilful' betrayal 2) Since both Player A and Player B can gain from the exchange in Game T renders it a more familiar situation for Player A than Game G, player A might place greater reliance on their repeated game heuristics rather one-shot maximisation of narrowly rational preferences. These effects are minimised through a series of 'cold' features in our design. See Brandts and Charness (2000).

[16] We also considered using a quadratic scoring rule to elicit beliefs on the probability distribution of the trustworthiness of international and domestic students across each session. However, this may be too complex for to subjects to comprehend within reasonable time constraints and the stakes involved in variations of probability distributions to be too small for the individual subjects' calculation of beliefs to be worthwhile. Our identification method was also incompatible with the elicitation of a probability distribution on trustworthiness, without inducing a higher demand effect.

round were determined by the linear departure of their guesses from the actual mean of amounts returned by the 4 Player Bs.[17]

In addition to the aforementioned random payment rule, we also only paid subjects for either their guess for \$45 or \$90 received by player B to minimise hedging. Unlike Game G, Game P does not capture second moment statistical discrimination against a particular group, based either on belief in the greater variance of, or uncertainty in, the group's trustworthiness.

2.6. Task 6: Risk Attitudes (Game R)

Risk attitudes specific to the trust game were controlled for through a risky investment task. Subjects in Game R interacted as Player A with a computer rather than human Player B and were given the probability distribution of returns for the amount that they chose to send. The payoffs were $\pi_{i,l}{}^R = 30 - X_{i,l}^R + R_l$, where $R_l = r_{i,l} X_{i,l}{}^R$, $r_{i,l} \in [0,2]$. The realised return factor $r_{i,l}$ was randomly determined based on round specific probability distributions independent of $X_{i,l}$. While each of the 4 rounds played differed in probability distributions and the level of ambiguity, we will only report decisions in round 2, where relevant, as a control for risk aversion. In this round, subjects were given an objective probability distribution for the return factor, without ambiguity. The design is similar to that used in Houser et al (2006). Its advantage over a Holt and Laury (2002) method is that since players face a similar situation to the trust game, it controls for risk attitudes specific to the trust game.

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[17] The precise payoffs to the predictor were: $\pi_{i,K}{}^{P1} = \left| Z_{i,K}{}^1 - Y_K{}^1 \right|$, if $\left| Z_{i,K}{}^1 - Y_K{}^1 \right| \leq 30$, $\pi_{iK}{}^{P1} = 0$, if $\left| Z_{i,K}{}^1 - Y_K{}^1 \right| > 30$, $Y_K^1 = \frac{1}{4}\sum_{k=1}^4 Y_k^1$, $Y_k^1 = f_k(45)$, where $Z_{i,K}^1$ denotes i's prediction for \$45 received by $k \in K$ player Bs; and $\pi_{i,K}{}^{P2} = \left| Z_{i,K}{}^2 - Y_K{}^2 \right|$, if $\left| Z_{i,K}{}^2 - Y_K{}^2 \right| \leq 45$, $\pi_{i,K}{}^{P2} = 0$, if $\left| Z_{i,K}{}^2 - Y_K{}^2 \right| > 45$, $Y_K^2 = \frac{1}{4}\sum_{k=1}^4 Y_k^2$, $Y_k^2 = f_k(90)$, where $Z_{i,K}^2$ denotes i's prediction for \$90 received by the player Bs.

2.7. Survey

All participants completed a post-experiment survey after receiving feedback on their earnings in the experiment, while they were waiting for their payments to be prepared. The survey consisted of 6 sections: 1) general social attitudes, 2) GSS questions and adaptations, 3) various manipulation checks, 4) involvement on campus and specific questions on domestic and international students at university, 5) a short Big Five personality quiz, and 6) miscellaneous demographic questions.

3. Results and Analysis

Results and corresponding analysis are reported in the next three sub-sections. In 3.1., we reported between-subject intercultural patterns. In 3.2., we analysed the reasons why *individual* player A decision makers (DMs) discriminated against player B partners (partners) or showed in-group favouritism in Game T. Finally, in sub-section 3.3., we examined the trend of decreasing average amount sent by international DMs as semester studied increases.

Unless otherwise specified, we reported decisions of two cultural subsets of DMs and partners comprising the majority of all participants the experiment: 1) international students born in Asian countries (excluding the South Asian subcontinent), which included 40 out of 49 of all international students in the experiment,[18] and 2) domestic students of non-Asian ethnicity, which included 27 out of the 47 domestic students. We did not include Asian domestic students in the intercultural analysis, but this cultural group may be interesting to analyse in the future. For brevity, we subsequently refer to the first subset of participants as 'international' students, and to the second subset of participants as 'domestic' students.[19]

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[18] The countries of birth of Asian international subjects were China (inc. Hong Kong S.A.R. and Macau): 29, Malaysia: 5, Indonesia: 3, Vietnam: 2 and Thailand: 1.

[19] Although we found similar results by confining analysis to only international students of Chinese nationality (29 subjects), and domestic students of Anglo-Saxon or European ethnicity (22 subjects), we do not further pursue these cultural subsets in the proceeding analysis.

3.1. Intercultural Patterns (Between Subjects)

In the following between-subject analysis, we separately examined intercultural patterns in the trust game for player A, behaviour of player B, and patterns in the games that control for altruism and expectations of return.

3.1.1. Trust Game (Player A)

On an aggregated level, inter-cultural discrimination by domestic DMs against international partners in Game T is not significant.[20] On average, domestic DMs sent \$15.1 to international partners, compared to \$17.8 to domestic partners (see Figure T1). Using a t-test, we cannot reject the hypothesis that the means are equal (p=0.179).[21] Male domestic DMs sent \$17.3 to international partners and \$20.7 to domestic partners on average (p=0.172), while female domestic DMs sent \$9.8 to domestic partners and \$10.9 to international partners (p=0.616).

The histogram for the amount sent by domestic DMs to international and domestic partners respectively shows some degree of discrimination (Figure G1). The relative frequency of \$0 sent to international partners is approximately double the respective relative frequency for domestic partners. When we disaggregated domestic DMs on the basis of gender, a clearer pattern of discrimination by male domestic DMs can be discerned. In particular, the relative frequency for each possible discrete decision under \$18 sent to international partners is above that for domestic partners (Figure G2).

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[21] The p-value is similar using a non-parametric medians test that does not hinge on the normality assumption (Mann-Whitney: p=0.172). Unless otherwise specified, we report p-values from t-tests rather than non-parametric tests, since results of the latter are qualitatively similar.

Figure T1

Mean (standard deviation) of amount sent ($).

Game T

DM/player A	Partner/player B								
	All			International			Domestic		
	Obs	Mean Sent	SD	Obs	Mean Sent	SD	Obs	Mean Sent	SD
All	268	14.65	(9.30)	137	14.43	(9.36)	131	14.89	(9.26)
International	160	13.56	(8.36)	76	13.89	(8.24)	84	13.25	(8.51)
Domestic	108	16.28	(10.36)	61	15.10	(10.63)	47	17.81	(9.90)
Females	140	11.91	(7.22)	67	12.04	(7.02)	73	11.79	(7.46)
International	108	12.39	(7.51)	49	12.86	(7.25)	59	12.00	(7.76)
Domestic	32	10.31	(6.00)	18	9.83	(5.98)	14	10.93	(6.18)
Males	128	17.65	(10.36)	70	16.71	(10.72)	58	18.78	(9.89)
International	52	15.98	(9.54)	27	15.78	(9.65)	25	16.20	(9.60)
Domestic	76	18.79	(10.80)	43	17.30	(11.41)	33	20.73	(9.79)

Game MD

DM/player A	Partner/player B								
	All			International			Domestic		
	Obs	Mean Sent	SD	Obs	Mean Sent	SD	Obs	Mean Sent	SD
All	268	6.13	(5.80)	137	6.37	(6.09)	131	5.89	(5.49)
International	160	5.94	(6.30)	76	6.75	(7.37)	84	5.21	(5.08)
Domestic	108	6.42	(4.98)	61	5.90	(3.99)	47	7.09	(6.01)
Females	140	5.66	(4.68)	67	5.55	(4.56)	73	5.75	(4.82)
International	108	5.17	(4.62)	49	5.20	(4.97)	59	5.14	(4.35)
Domestic	32	7.31	(4.57)	18	6.50	(3.13)	14	8.36	(5.90)
Males	128	6.66	(6.80)	70	7.16	(7.21)	58	6.05	(6.27)
International	52	7.56	(8.66)	27	9.56	(9.92)	25	5.40	(6.60)
Domestic	76	6.04	(5.13)	43	5.65	(4.30)	33	6.55	(6.07)

Game G

| DM/player A	Partner/player B								
	All			International			Domestic		
	Obs	Mean Sent	SD	Obs	Mean Sent	SD	Obs	Mean Sent	SD
All	268	12.63	(10.24)	137	12.96	(10.42)	131	12.27	(10.08)
International	160	12.39	(9.37)	76	13.34	(9.50)	84	11.54	(9.23)
Domestic	108	12.97	(11.44)	61	12.49	(11.52)	47	13.60	(11.43)
Females	140	12.56	(8.27)	67	13.48	(8.03)	73	11.71	(8.46)
International	108	11.56	(7.96)	49	12.55	(7.57)	59	10.73	(8.25)
Domestic	32	15.94	(8.53)	18	16.00	(8.91)	14	15.86	(8.36)
Males	128	12.70	(12.06)	70	12.47	(12.32)	58	12.98	(11.85)
International	52	14.13	(11.68)	27	14.78	(12.31)	25	13.44	(11.16)
Domestic	76	11.72	(12.30)	43	11.02	(12.24)	33	12.64	(12.50)

Figure G1
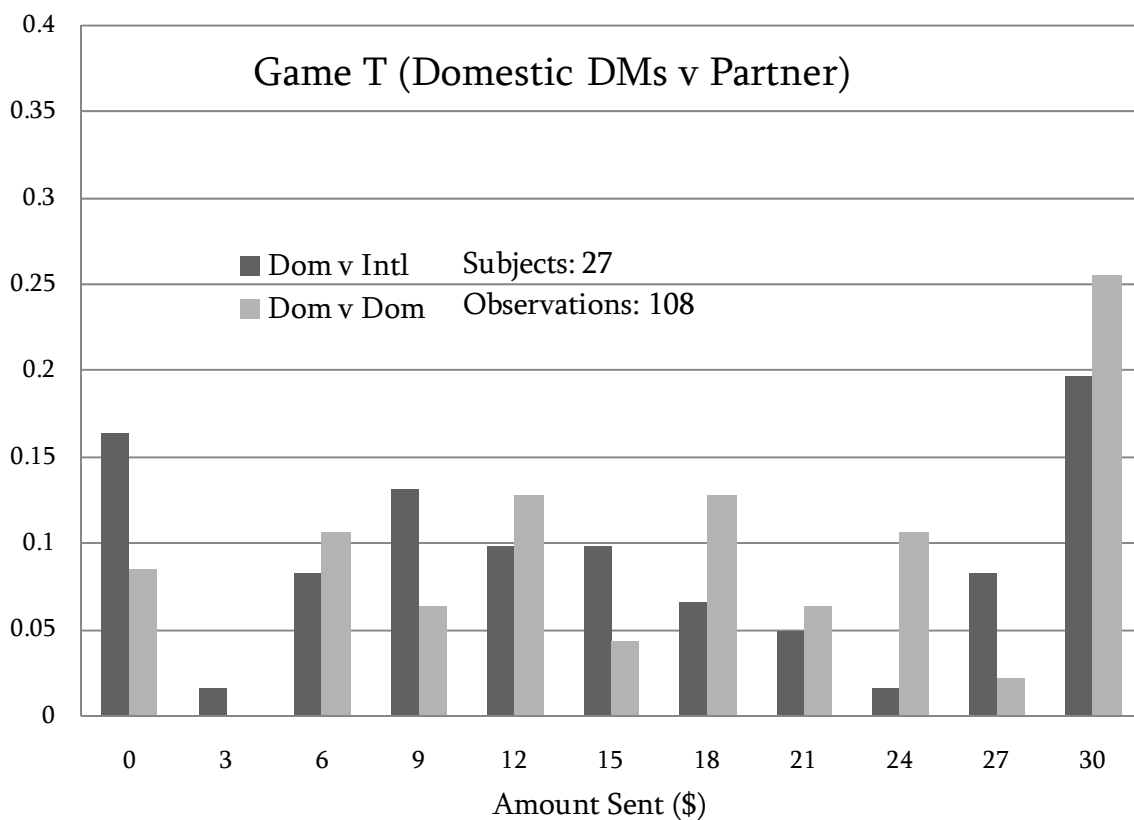
Figure G2
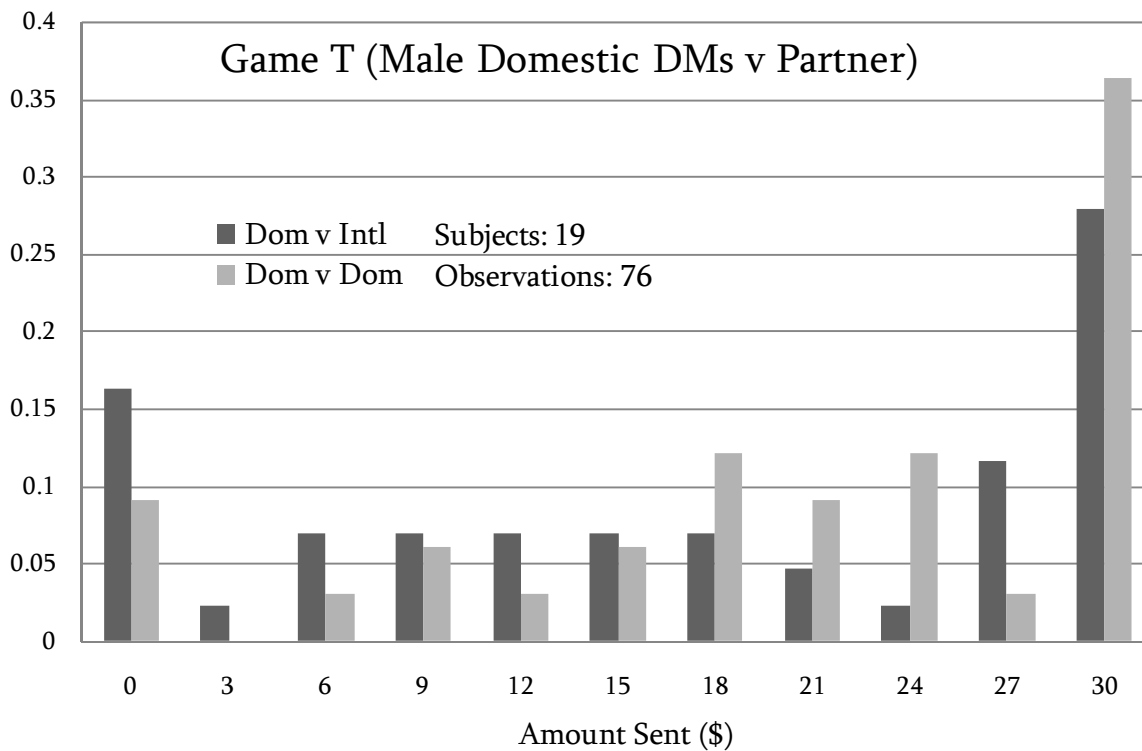
Figure: G3
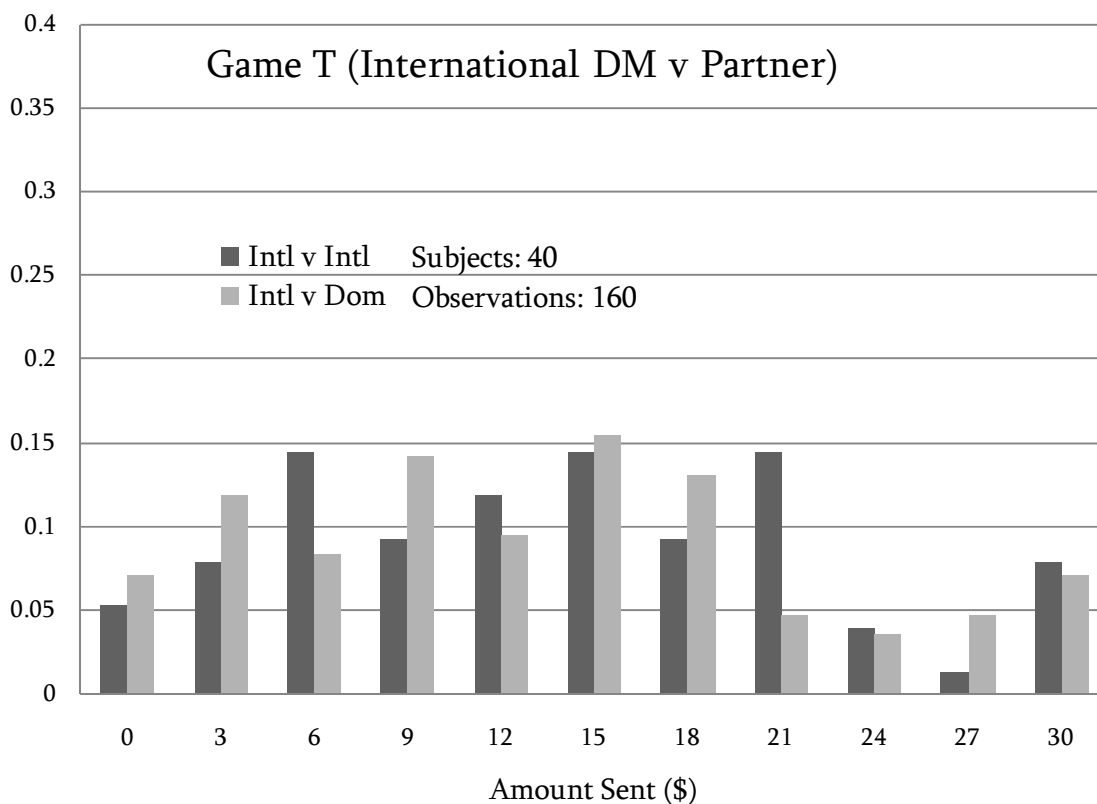
There is little aggregated evidence of in-group favouritism by international DMs in Game T (Figure G3). $13.89 was sent to international partners on average, and $13.25 to domestic partners (p=0.628). Male international DMs sent $15.78 to international partners and $16.2 to domestic partner on average (p=0.875), while female international DMs sent $12.9 to international partners and $12 to domestic partners (p=0.557).[22]

There is no evidence that, on average, either international or domestic player B partners systematically received less in Game T from DMs. International partners

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[22] This suggests that it was not the imbalance between gender compositions (see Figure T1) which drives the result that international DMs did not discriminate against domestic partners.

received $14.4 on average, compared to $14.9 received by domestic partners. The difference is insignificant (p=0.690).[23]

OBSERVATION 1: *There is no evidence of systematic mistrust against either domestic or international students.*

By 'systematic' mistrust, we refer to the phenomenon observed in the Fershtman and Gneezy (2001) experiment, whereby both cultural groups sent less to one of the cultural groups in the trust game.

The previous aggregated analysis masks substantial individual heterogeneity in DMs. We therefore estimated variants of the following random effects Tobit models:

$$X^{*\ T}_{i,j} = \beta_0 + \beta_1 IntlPartner_{i,j} + \beta_2 Female_i * IntlPartner_{i,j} + \beta_3 PartnerMaths_{i,j} \\ + \beta_4 Female_i * PartnerMaths_{i,j} + \gamma Controls_i + \mu_i + \varepsilon_{i,j} \tag{1}$$

for domestic DMs, and

$$X^{*\ T}_{i,j} = \beta_0 + \beta_1 DomPartner_{i,j} + \beta_2 Female_i * DomPartner_{i,j} + \beta_3 PartnerMaths_{i,j} \\ + \beta_4 Female_i * PartnerMaths_{i,j} + \eta Controls_i + \mu_i + \varepsilon_{i,j} \tag{2}$$

for international DMs.

Since amount sent was limited to a decision between $0 and $30, the dependent variable, double censored at $0 and $30, can be interpreted as a latent *willingness to*

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[23] Differences in distribution of amount sent by international and domestic DMs partly reflect gender differences, as our sample included more female international DMs and more male domestic DMs.

trust as measured by Game T.[24] We also estimated the respective models for Game MD and Game G, with similar interpretation for the dependent variables:[25]

$$X^{*}_{i,j}{}^{D} = \beta_0 + \beta_1 IntlPartner_{i,j} + \beta_2 Female_i * IntlPartner_{i,j} + \beta_3 PartnerMaths_{i,j}$$
$$+\beta_4 Female_i * PartnerMaths_{i,j} + \gamma Controls_i + \mu_i + \varepsilon_{i,j} \tag{3}$$

for domestic DMs,

$$X^{*}_{i,j}{}^{D} = \beta_0 + \beta_1 DomPartner_{i,j} + \beta_2 Female_i * DomPartner_{i,j} + \beta_3 PartnerMaths_{i,j}$$
$$+\beta_4 Female_i * PartnerMaths_{i,j} + \eta Controls_i + \mu_i + \varepsilon_{i,j} \tag{4}$$

for international DMs,

$$X^{*}_{i,j}{}^{G} = \beta_0 + \beta_1 IntlPartner_{i,j} + \beta_2 Female_i * IntlPartner_{i,j} + \beta_3 PartnerMaths_{i,j}$$
$$+\beta_4 Female_i * PartnerMaths_{i,j} + \gamma Controls_i + \mu_i + \varepsilon_{i,j} \tag{5}$$

for domestic DMs, and

$$X^{*}_{i,j}{}^{G} = \beta_0 + \beta_1 DomPartner_{i,j} + \beta_2 Female_i * DomPartner_{i,j} + \beta_3 PartnerMaths_{i,j}$$
$$+\beta_4 Female_i * PartnerMaths_{i,j} + \eta Controls_i + \mu_i + \varepsilon_{i,j} \tag{6}$$

for international DMs.

As we focused in this section on the pattern of discrimination in Game T, shown in models (1)-(2), results for models (3)-(6) pertaining Game MD and Game G are reported in the Appendix. Estimated coefficients that relate to discrimination are highlighted in grey. See Figure T2 in the Appendix for details on the explanatory variables. We abstracted from controls for order effects, which are insignificant for Games T and MD and slightly increased the coefficients that measured discrimination.

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[24] Double censoring using a Tobit model is standard in the literature since clustering of decisions at 0 and 30 would result in biased estimates using OLS by violation of the normality assumption.

[25] Models (3) and (4) include all controls in the respective models for Game T and Game G except for risk attitudes.

Figure M1

Model (1)

Willingness to Trust in the Trust Game, Domestic Decision Makers (Random Effects Tobit, censored at $0 and $30)

	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)
Risk Av (-)	0.617**	0.805***	0.790***	0.789***	0.712***	0.746***	0.754***
	(0.251)	(0.215)	(0.196)	(0.192)	(0.187)	(0.194)	(0.185)
Female	-9.473**	50.038***	50.738***	48.919***	49.100***	49.943***	48.188***
	(4.795)	(12.169)	(11.175)	(11.065)	(11.832)	(12.104)	(11.553)
Age	-2.742**	-4.175***	-4.221***	-4.189***	-4.262***	-4.345***	-4.369***
	(1.382)	(1.074)	(0.985)	(0.965)	(0.953)	(0.975)	(0.932)
GSS Trust (-)	-2.719	-0.854	-0.954	-0.773	-0.631	-0.528	-0.514
	(2.269)	(1.495)	(1.379)	(1.358)	(1.351)	(1.374)	(1.326)
Groupwork	0.676	0.177	0.036	-0.030	-0.018	-0.153	-0.220
	(1.611)	(1.121)	(1.034)	(1.016)	(1.008)	(1.033)	(0.990)
Semesters Studied	1.333	2.214**	2.170**	2.205**	2.287***	2.375***	3.079***
	(1.110)	(0.991)	(0.901)	(0.888)	(0.854)	(0.889)	(1.007)
Societies	-0.537	-0.476	-0.297	-0.298	-0.010	-0.086	-0.226
	(1.934)	(1.423)	(1.329)	(1.309)	(1.296)	(1.318)	(1.276)
Econ Major	4.586	15.750***	15.820***	16.162***	15.678***	15.828***	15.774***
	(4.323)	(4.875)	(4.424)	(4.361)	(4.119)	(4.267)	(3.956)
No. of Siblings	4.935***	6.086***	6.057***	5.992***	5.567***	5.552***	5.536***
	(1.833)	(1.367)	(1.282)	(1.260)	(1.236)	(1.249)	(1.207)
In-Group Friends	1.016	-1.066	-1.164	-1.206	-1.466*	-1.503*	-1.446*
	(1.196)	(0.906)	(0.833)	(0.818)	(0.809)	(0.828)	(0.789)
Political Stance (R)	-4.629**	-8.212***	-8.355***	-8.479***	-8.700***	-8.817***	-8.864***
	(1.914)	(1.710)	(1.604)	(1.583)	(1.554)	(1.581)	(1.533)
Economic Situation	-3.784	-4.573***	-4.689***	-4.576***	-4.830***	-4.743***	-4.699***
	(2.523)	(1.630)	(1.513)	(1.487)	(1.513)	(1.532)	(1.481)
Maths Score		0.868***	0.875***	0.889***	0.783***	0.771***	0.753***
		(0.295)	(0.273)	(0.270)	(0.263)	(0.270)	(0.256)
Maths * Female		-6.664***	-6.706***	-6.793***	-6.630***	-6.713***	-6.690***
		(1.388)	(1.274)	(1.258)	(1.190)	(1.232)	(1.151)
Intl Pnr (DvI)			-5.387***	-7.126***	-7.085***	-0.616	2.296
			(1.824)	(2.272)	(2.127)	(5.754)	(6.151)
DvI * Female				4.870	3.840	3.096	3.084
				(3.742)	(3.527)	(3.542)	(3.516)
Partner Maths					0.644**	0.939**	0.936**
					(0.276)	(0.368)	(0.366)
Pnr Maths * Female					-0.053	-0.008	0.126
					(0.490)	(0.487)	(0.498)
Pnr Maths * Intl Pnr						-0.515	-0.553
						(0.429)	(0.427)
DvI * Semesters							-1.221
							(0.970)
Constant	85.000**	112.633***	118.498***	118.481***	116.277***	114.378***	113.867***
	(39.725)	(29.504)	(27.196)	(26.619)	(26.679)	(27.137)	(26.089)
Log-Likelihood	-290.779	-275.361	-270.968	-270.119	-266.164	-265.448	-264.656
Prob> χ^2	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Observations	108	108	108	108	108	108	108
Subjects	27	27	27	27	27	27	27

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Figure M2

Model (2)

Willingness to Trust in the Trust Game, International D. M. (Random Effects Tobit, Censored at $0 and $30)

	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)	(2.7)
Risk Av (-)	0.049	0.062	0.063	0.074	0.045	0.029	0.031
	(0.156)	(0.147)	(0.147)	(0.148)	(0.144)	(0.142)	(0.143)
Female	-5.535**	-8.066	-8.108	-9.202	-5.621	-5.643	-6.542
	(2.468)	(7.514)	(7.476)	(7.637)	(7.950)	(7.784)	(7.967)
Age	-1.375**	-1.216*	-1.226*	-1.243*	-1.206*	-1.233**	-1.215*
	(0.646)	(0.634)	(0.633)	(0.634)	(0.626)	(0.613)	(0.620)
Years in Aus	0.176	0.577	0.586	0.592	0.588	0.560	0.631
	(0.891)	(0.835)	(0.836)	(0.843)	(0.835)	(0.819)	(0.847)
GSS Trust (-)	-0.519	-0.712	-0.748	-0.771	-0.758	-0.821	-0.862
	(0.680)	(0.646)	(0.646)	(0.654)	(0.637)	(0.631)	(0.640)
Groupwork	-0.208	-0.224	-0.233	-0.226	-0.255	-0.322	-0.321
	(0.659)	(0.665)	(0.663)	(0.667)	(0.656)	(0.647)	(0.656)
Semesters Studied	-2.007**	-1.879**	-1.891**	-1.895**	-1.860**	-1.792**	-2.314***
	(0.808)	(0.766)	(0.760)	(0.769)	(0.749)	(0.744)	(0.832)
Societies	-2.158	-1.958	-2.019	-2.015	-1.831	-1.777	-1.758
	(1.388)	(1.365)	(1.348)	(1.370)	(1.323)	(1.296)	(1.347)
Econ Major	-2.830	-4.582	-4.534	-4.538	-4.712	-4.856	-4.945
	(3.117)	(3.108)	(3.107)	(3.125)	(3.053)	(2.996)	(3.046)
In-Group Friends	0.874	0.587	0.574	0.588	0.493	0.522	0.470
	(0.590)	(0.590)	(0.593)	(0.595)	(0.586)	(0.575)	(0.585)
Political Stance (R)	-3.036***	-3.413***	-3.440***	-3.428***	-3.384***	-3.464***	-3.532***
	(1.035)	(1.043)	(1.031)	(1.045)	(1.011)	(1.012)	(1.026)
English Ability	2.692**	2.892**	2.969**	2.991**	2.987**	3.131**	3.206**
	(1.327)	(1.391)	(1.369)	(1.394)	(1.342)	(1.353)	(1.374)
Economic Situation	-0.887	-1.236	-1.208	-1.239	-1.200	-1.181	-1.204
	(0.873)	(0.881)	(0.875)	(0.886)	(0.870)	(0.849)	(0.875)
Maths Score		0.426	0.416	0.410	0.422	0.422	0.422
		(0.327)	(0.327)	(0.328)	(0.330)	(0.322)	(0.331)
Maths * Female		0.156	0.161	0.176	0.113	0.129	0.171
		(0.507)	(0.506)	(0.508)	(0.506)	(0.494)	(0.508)
Domestic Pnr (IvD)			-0.750	-1.974	-0.627	3.062	0.339
			(0.924)	(1.699)	(1.714)	(2.817)	(3.276)
IvD * Female				1.740	0.833	1.013	1.723
				(2.027)	(2.036)	(2.026)	(2.065)
Partner Maths					0.387**	0.278	0.295*
					(0.157)	(0.169)	(0.167)
Pnr Maths * Female					-0.184	-0.203	-0.222
					(0.194)	(0.193)	(0.192)
Pnr Maths * Intl Pnr						0.301*	0.280
						(0.183)	(0.182)
IvD * Semesters							0.810
							(0.515)
Constant	58.266***	51.602***	52.350***	53.185***	46.836***	44.692***	46.133***
	(16.196)	(16.634)	(16.442)	(16.692)	(16.534)	(16.335)	(16.550)
Log-Likelihood	-457.657	-455.815	-455.476	-455.121	-450.547	-449.188	-447.949
Prob> χ^2	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000
Observations	156	156	156	156	156	156	156
Subjects^	39	39	39	39	39	39	39

Standard errors in parentheses, ^ One subject was excluded due to missing data on 'Years in Aus'.

* p<0.1, ** p<0.05, *** p<0.01

OBSERVATION 2: *Controlling for individual heterogeneity, domestic DMs showed significant discrimination against international partners in Game T. Disaggregating by gender, discrimination by male DMs is significant, and discrimination by female DMs is insignificant.*

The first part of the observation can be discerned from model (1.3), where the coefficient for *Intl Pnr (DvI)* is negative and significant (p<0.01). Disaggregating by gender in (1.4), the coefficient for male DMs increases. Discrimination by female DMs is not significant (H_0: *Intl Pnr+LvI*Female*=0, p>0.1). In models (1.5)-(1.7), we controlled for the maths scores of partners and the interaction between female DMs and partner maths scores, and between partner maths scores and international partners. Since domestic DMs attributed (insignificantly) less to maths scores of international partners, we cannot directly interpret the discrimination coefficient of international partner in these models without fixing maths scores. Nevertheless, for an average partner maths score, discrimination remains.

OBSERVATION 3: *There is no significant discrimination by international DMs against domestic partners in Game T.*

Models (2.3) and (2.4) show that international DMs, whether or not disaggregated by gender, did not significantly discriminate against domestic partners. The direction of the interaction between maths scores and partner international/ domestic status is also positive for in-group partners of international DMs and marginally significant in one specification (model (2.6), p<0.1). This suggests that DMs attributed ability information more to in-group than out-group.

OBSERVATION 4: *There are some cross-cultural differences in the factors that explain trust shown in Game T by individual DMs.*

This can be seen by a comparison between models (1) and (2) for domestic and international DMs respectively in Game T, as well as the corresponding models for Game MD and Game G.[26] In line with Glaeser et al (2000) and Ashraf et al (2006), we found responses to the GSS trust question - "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?*" - to be insignificant in explaining the amount sent in Game T, both for domestic (1) and international (2) DMs, although the coefficient is in the expected direction. The effect of the GSS Trust question is significant at $p<0.05$ to $p<0.01$ for domestic DMs in model (5) for Game G, suggesting that attitudinal beliefs on the trustworthiness of others may explain trust game behaviour based on expectation of returns, but it is insignificant for international DMs. For both domestic and international DMs, female and older subjects had sent less.[27] The number of siblings has a significant positive effect on the amount sent for domestic DMs.[28] Number of semesters studied at university appears to have a positive effect on trust levels of domestic DMs (1), but a negative effect on that of international DMs (2).[29] The positive relationship between perceived English ability and the amount sent by international DMs is significant at $p<0.05$ in (2).

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[26] We express the following caveats: 1) due to recruitment protocols, self-selection bias cannot be dismissed. However, if self selection bias is confined to the dependent variable of willingness to trust and orthogonal with respect to the explanatory variables, variations in a willingness to trust above the threshold which induces self-selection can still be explained in our models. 2) We did not estimate interactions of demographics with gender to avoid over-fitting the models.

[27] As the age of our participants in the included cultural subsets ranged only from 18-26, the negative effect of age cannot be directly compared with life-cycle trends found in previous studies on representative subject samples (e.g. Bellemare and Kroger, 2007; Garbarino and Slonim, 2009).

[28] Number of siblings is not included as an explanatory variable for international students as the majority of international student subjects were born in China, which has had a one-child policy since 1979.

[29] We return to this trend in Chapter 6.

3.1.2. Trust Game (Player B)

Figure G4

Mean Proportions (Y/3X) Returned by Player B
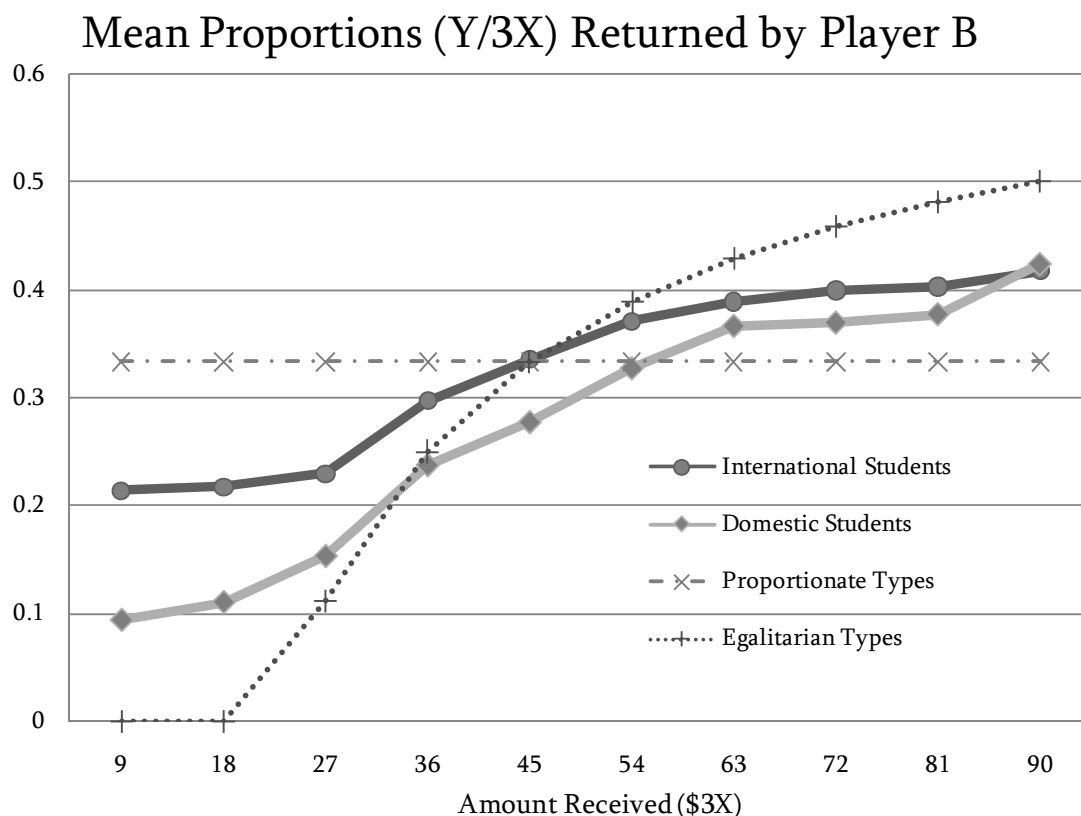
The amount returned by player B in Game T, elicited from each participant in the experiment as a strategy profile before they faced player B partners as player A, can be analysed to determine whether any patterns of first moment statistical discrimination based on international/domestic status or the maths score obtained by the player B partner is 'justified' by differences in the expected proportion return of player B, conditional upon information given on player B. The intercept of the return function for international students tended to be higher than that for domestic students, and the slope of the return function lower (Figure G4). We conjecture that this may be due to the Chinese cultural norm of *Ren Qin*, which necessitates the payment of social and financial debt (see King, 1991; Buchan and Croson,

2004).[30] It is clear that international students were at least no less 'trustworthy' than domestic students, on average, as player B. We also estimated the following OLS linear regression, reporting robust standard errors, clustered by subject.[31]

$$PropReturned_{i,j} = \beta_0 + \beta_1 AmtRecieved_{i,j} + \beta_2 Intl_j + \beta_3 Maths_j + \beta_4 Intl_j * Maths_j$$
$$+ \beta_5 Intl_j * AmtRecieved_{i,j} + \beta_6 Maths_j * AmtRecieved_{i,j}$$
$$+ \beta_7 Maths_j * Intl_j * AmtRecieved_{i,j} + \gamma Controls_j + \varepsilon_{i,j}$$

$$(7)$$

OBSERVATION 5: *While there are insignificant differences on average between the proportion returned by international and domestic player Bs in Game T, the intercept of the return function for international player Bs is higher, and the slope lower with marginal significance, relative to domestic player Bs.*

OBSERVATION 6: *There is a marginally significant positive relationship between the slope of the return function of international player Bs in Game T and the maths score that was obtained.*

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[30] We plotted the return functions in Figure G4 of hypothetical proportionate and egalitarian player Bs, the latter being identified in Ashraf et al. (2006). Proportionate player Bs return any amount that was sent by player A, while egalitarian player Bs return an amount that provides an equal allocation. Any potential relationship between reciprocity and amount sent independent of these motives may be complex, due to the nature of signalling intention. One indication that there might be reciprocity, is the upward kink in return functions at $90 received, as this may signal a possible *willingness* to send even more than the maximum option of $30.

[31] While proportion returned as a function of amount sent appears to be concave above $27 received, the departure of the return function from concavity at lower and upper values of amount received prompted us to abstract from this trend.

Figure M7

Model (7)

Proportion Returned by Player B (Linear OLS, Robust Clustered SE)

	(7.1)	(7.2)	(7.3)	(7.4)	(7.5)	(7.6)	(7.7)
International	0.0530	0.1215**			0.1425	0.4637***	0.5060**
	(0.0374)	(0.0591)			(0.1235)	(0.1650)	(0.2012)
Amount Received		0.0128***		0.0088***		0.0160***	0.0182***
		(0.0017)		(0.0029)		(0.0027)	(0.0028)
Amt Rec * Intl		-0.0042*				-0.0195***	-0.0198***
		(0.0024)				(0.0049)	(0.0048)
Maths			0.0020	-0.0000	0.0041	0.0090	0.0090
			(0.0033)	(0.0056)	(0.0034)	(0.0061)	(0.0058)
Maths * Received				0.0001		-0.0003	-0.0004*
				(0.0002)		(0.0002)	(0.0002)
Maths * Intl					-0.0073	-0.0264**	-0.0316***
					(0.0079)	(0.0113)	(0.0113)
Maths * Intl * Rec						0.0012***	0.0013***
						(0.0004)	(0.0004)
Age							-0.0113
							(0.0101)
Female							0.0525
							(0.0719)
Amt Rec * Female							-0.0041
							(0.0025)
GSS Trust (-)							-0.0299*
							(0.0161)
GSS Trust * Intl							0.0447*
							(0.0230)
Semesters Studied							0.0175*
							(0.0098)
Sem Studied * Intl							-0.0492**
							(0.0224)
Constant	0.2738***	0.0626	0.2797***	0.1352*	0.2290***	-0.0354	0.2341
	(0.0200)	(0.0395)	(0.0505)	(0.0806)	(0.0346)	(0.0623)	(0.2328)
R²	0.014	0.179	0.002	0.162	0.020	0.200	0.273
Observations	670	670	670	670	670	670	670
Subjects	67	67	67	67	67	67	67

Robust standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

In (7.2), the interaction between amount received and international player Bs is negative and marginally significant, while the intercept, interpreted as the predicted proportion returned for \$9 received, is significantly higher for international students than domestic students at p<0.05, consistent with the trend shown in the Figure G4. International player Bs were more responsive to the maths score that

they obtained in (7.6), with the slope of the return function increasing with maths scores (H_0: *Maths*Received+Maths*Intl*Rec=0*, p<0.01), while the effect of maths scores on domestic student behaviour as player B is insignificant in (7.6) and marginally significant in the opposite direction in (7.7). Overall, there appears to be little evidence that the overall expected trustworthiness of player B depended on their international/domestic status.[32] The following section also shows that both groups did not expect the out-group to be less trustworthy, on average.

3.1.3 Control Games (Player A)

The control games generally show similar aggregate patterns to Game T of insignificant in-group favouritism.[33] In Game MD, which controlled for altruism, domestic DMs sent $5.9 on average to international partners, and $7.1 to domestic partners. We cannot reject the null hypothesis that the averages are equal (p=0.223). International DMs sent $5.2 to domestic partners and $6.8 to international partners (p=0.124). Disaggregating by gender, there is a marginally significant difference between the averages sent by male international DMs to international partners ($9.6) to domestic partners ($5.4), where p<0.1. Although insignificant, it appears that domestic DMs' in-group favouritism in Game MD was greater than in Game G (Figure G5).[34]

Differences between mean amounts sent in Game G, which controlled for expectations of return in Game T are also insignificant. Domestic DMs sent $12.5 to international partners and $13.6 to domestic partners (p=0.621), while international DMs sent $13.3 and $11.5 to international and domestic partners respectively.[35]

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[32] Results are qualitatively similar when we included all cultural subsets in the analysis.

[33] The analysis controlling for heterogeneity in the control tasks is qualitatively similar. See Figures G3-G6 in the Appendix.

[34] Both aforementioned trends are consistent with Chapter 5 analysis.

[35] A significant difference between the amount sent by female domestic DMs to international partners ($16) and the amount sent by female international DMs to domestic partners ($10.7) where p<0.05, reflects an interaction between gender and cultural differences in decisions made in Game T and Game G beyond the scope of the paper. The interested reader may refer Figure T1.
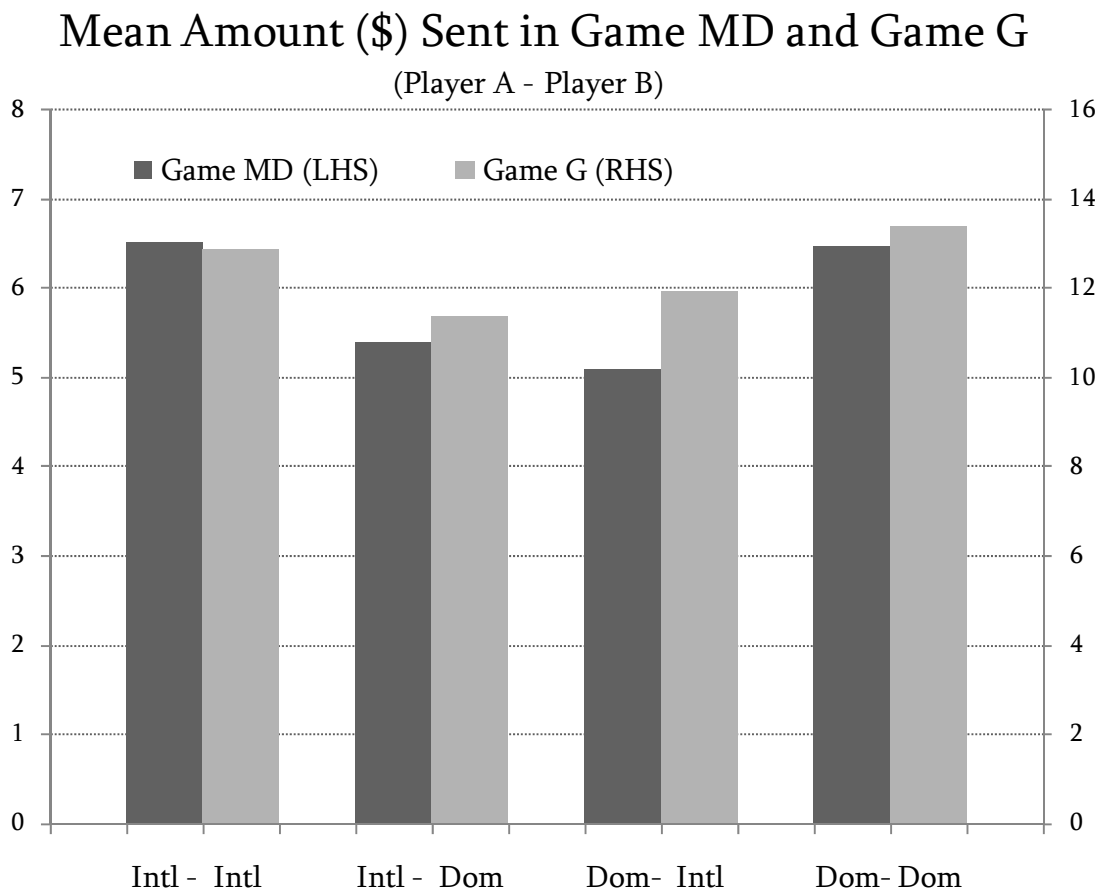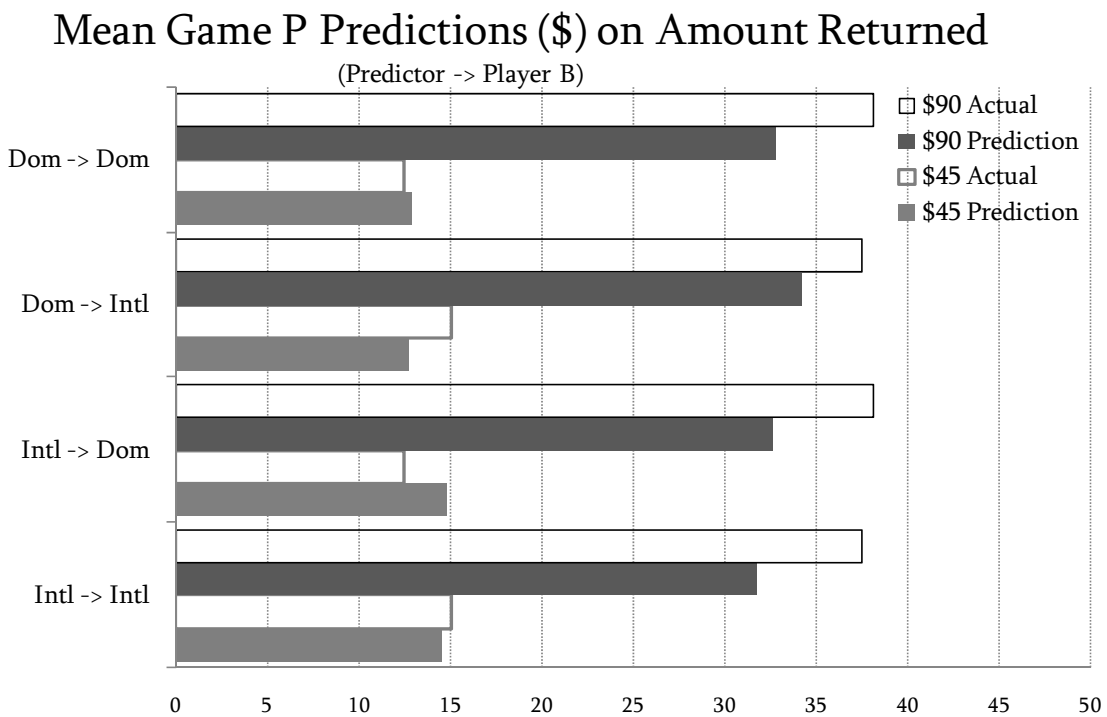
Figure G5

Mean Amount ($) Sent in Game MD and Game G

(Player A - Player B)

Figure G6

Mean Game P Predictions ($) on Amount Returned

(Predictor -> Player B)

The mean Game P predictions made by international and domestic DMs do not reveal evidence of first moment statistical discrimination. On average, there may be slight out-group favouritism for both groups (Figure G6), but this is insignificant.[36]

OBSERVATION 7: *At the aggregate level, in-group favouritism in Game MD, Game G, and out-group favouritism in Game P are insignificant for both international and domestic DMs.*

That the directions of favouritism (although insignificant) were opposite in Game G and Game P is unsurprising, since there may be second moment statistical discrimination if individuals were risk or ambiguity averse, and believed that they knew less about the trustworthiness of the out-group.

3.2. Intercultural Patterns (Within Subjects)

Given the existence of significant discrimination by domestic DMs against international partners in Game T, controlling for individual heterogeneity, one is interested in determining the reasons for discrimination by *individual* DMs. We approached this question from the following perspectives: first, in terms of the distinction between preference-based and statistical discrimination; and secondly, by examining the correlates of individual discrimination with demographic and survey responses, in particular, the relationship between preference-based discrimination and the personality trait of Openness. Finally, we identified a possible heuristic in international DMs to build mutually beneficial relations with domestic students.

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[36] Subjects returned more than the predictions. A t-test of the null hypothesis that the elicited returns for $30 sent for all of the 96 subjects ($36.6) was equal to the predictions on average returns ($32.3) could be rejected at $p < 0.05$. However, we do not further pursue this digression.

3.1.1. Statistical and Preference Based Discrimination

Post-hoc evidence suggests that subjects based their decisions in Games T, MD and G on an anchoring and adjustment heuristic.[37] Since each DM faced the same 4 partners in the same order in these games, and changes across rounds in Game MD and Game G measured changes in the level of altruism towards and expectations of return from the player B partners respectively, these changes can explain whether discrimination by each DM across rounds in Game T can be regarded as preference based or belief based (statistical) discrimination.

To keep our analysis tractable, we confined to the situation where the absolute change in partner maths score was 3 or smaller, rather than explicitly control for changes in partner maths score, since if the change in partner maths score was small, DMs were likely to be discriminating against their partner based on international/domestic status rather than on maths scores. Consequently, we first differenced the dependent Game T decisions, and explanatory Game MD and Game G decisions, estimating the resultant equations using linear OLS, with robust standard errors clustered around individual decision makers.

$$\Delta Trust_i * \Delta IntlPartner_i = \beta_0 + \beta_1 \Delta Dictator_i * \Delta IntlPartner_i + \beta_2 \Delta Gamble_i * \Delta IntlPartner_i$$
$$+ \beta_3 Intl_i * \Delta IntlPartner + \beta_4 Intl_i * \Delta Dictator_i * \Delta IntlPartner_i$$
$$+ \beta_5 Intl_i * \Delta Gamble_i * \Delta IntlPartner_i + \varepsilon_i, \forall \Delta Trust_i * \Delta IntlPartner < 0, |\Delta PartnerMaths| \leq 3$$

(8)

$$\Delta Trust_i * \Delta IntlPartner_i = \beta_0 + \beta_1 \Delta Dictator_i * \Delta IntlPartner_i + \beta_2 \Delta Gamble_i * \Delta IntlPartner_i$$
$$+ \beta_3 Intl_i * \Delta IntlPartner + \beta_4 Intl_i * \Delta Dictator_i * \Delta IntlPartner_i$$
$$+ \beta_5 Intl_i * \Delta Gamble_i * \Delta IntlPartner_i + \varepsilon_i, \forall \Delta Trust_i * \Delta IntlPartner > 0, |\Delta PartnerMaths| \leq 3$$

(9)

$$\Delta Trust_i * \Delta IntlPartner_i = \beta_0 + \beta_1 \Delta Dictator_i * \Delta IntlPartner_i + \beta_2 \Delta Gamble_i * \Delta IntlPartner_i$$
$$+ \beta_3 Intl_i * \Delta IntlPartner + \beta_4 Intl_i * \Delta Dictator_i * \Delta IntlPartner_i$$
$$+ \beta_5 Intl_i * \Delta Gamble_i * \Delta IntlPartner_i + \varepsilon_i, \forall \Delta Trust_i * \Delta IntlPartner \neq 0, |\Delta PartnerMaths| \leq 3$$

(10)

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[37] See Tversky and Kahnemann (1974).

Model (8) explains discrimination against international partners.[38] Model (9) explains discrimination against domestic partners. Model (10) analyses the reasons for discrimination *by* international and domestic DMs. Since model (10) is qualitatively similar to (8) and (9), results for (10) are reported in the Appendix. Admittedly, this analysis is limited by the small number of observations. Nevertheless, we report the following result.

OBSERVATION 8: *Within-subject discrimination by domestic DMs against international partners in Game T appears to be explained by preference-based discrimination, rather than by statistical discrimination.*

This can be seen in model (8), where $\Delta IntlPnr * \Delta Dictator$ is significant at p<0.01 in (8.1), (8.4) and (8.5), but $\Delta IntlPnr * \Delta Gamble$ and $\Delta IntlPnr * \Delta Prediction$ are either insignificant or negative with marginal significance. In (8.6), discrimination against international partners *by* international DMs in Game T cannot be significantly explained by either Game MD or Game G, while the size of the corresponding coefficient for domestic DMs increases. Given that the analogous coefficients in (9) were small, we refrain from making an analogous observation for discrimination against domestic students.

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[38] $\Delta \overline{X}_i = \overline{X}_{i,t} - \overline{X}_{i,t-1}$, $t \in [1,4]$ denotes the round in which the decision was made, $Intl_i = 1$ if the DM i was an international student, and 0 otherwise, and $IntlPartner_{i,t} = 1$ when DM i's player B partner in round t was an international student and 0 otherwise. $\Delta Trust_i * \Delta IntlPartner_i < 0$ in two instances – 1) when a decrease in trust accompanies a change from a domestic to an international partner, i.e. discrimination against international partners, and 2) when an increase in trust accompanies a change from an international partner to a domestic partner – i.e. favourable treatment towards domestic partners. Although we abstracted from any distinction between discrimination against and discrimination in favour of a particular group, this distinction deserves further examination in future studies, particularly in respect of whether there is an effect in discrimination patterns analogous to reference dependence and loss aversion (Kahneman and Tversky, 1979). This is not to be confused with the distinction between 'discrimination and nepotism' identified in Fershtman et al (2005).

Figure M8

Model (8)

Analysing Discrimination Against International Partners in Game T (Linear OLS, Robust Clustered SE)

	(8.1)	(8.2)	(8.3)	(8.4)	(8.5)	(8.6)
ΔIntl Pnr * ΔDictator	1.547***			1.414***	1.529***	1.670***
	(0.181)			(0.323)	(0.161)	(0.460)
ΔIntl Pnr * ΔGamble		-0.672*		-0.131		-0.075
		(0.370)		(0.200)		(0.238)
ΔIntl Pnr * ΔPrediction			-0.379		-0.338*	
			(0.461)		(0.179)	
ΔIntl Pnr*Intl						0.196
						(2.440)
ΔIntl Pnr*ΔDict*Intl						-1.682*
						(0.819)
ΔIntl Pnr*ΔGamble*Intl						0.430
						(0.538)
Constant	-6.017***	-9.144***	-10.350**	-6.301***	-7.254***	-6.863***
	(1.511)	(2.124)	(3.556)	(1.735)	(1.987)	(1.871)
Prob>F	0.00000	0.09404	0.42700	0.00000	0.00000	0.00213
R^2	0.539	0.270	0.062	0.545	0.588	0.648
Observations	14	14	14	14	14	14
Subjects	13	13	13	13	13	13

Robust standard errors in parentheses
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Figure M9

Model (9)

Analysing Discrimination Against Domestic Partners in Game T (Linear OLS, Robust Clustered SE)

	(9.1)	(9.2)	(9.3)	(9.4)	(9.5)	(9.6)
ΔIntl Pnr * ΔDictator	0.132***			0.132***	0.132***	0.164***
	(0.034)			(0.036)	(0.036)	(0.046)
ΔIntl Pnr * ΔGamble		0.020		0.017		-0.116
		(0.073)		(0.068)		(0.113)
ΔIntl Pnr * ΔPrediction			-0.023		-0.022	
			(0.037)		(0.031)	
ΔIntl Pnr*Intl						0.576
						(0.432)
ΔIntl Pnr*ΔDict*Intl						-0.059
						(0.086)
ΔIntl Pnr*ΔGamble*Intl						0.147
						(0.105)
Constant	4.069***	4.290***	4.316***	4.033***	4.054***	4.020***
	(0.433)	(0.457)	(0.388)	(0.452)	(0.444)	(0.552)
Prob>F	0.00159	0.78974	0.54286	0.00146	0.00810	0.00338
R^2	0.228	0.005	0.028	0.232	0.254	0.340
Observations	18	18	18	18	18	18
Subjects	15	15	15	15	15	15

Robust standard errors in parentheses
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

3.2.2. In-Group Favouritism and Personality

If discrimination by individual domestic DMs against international partners in Game T was explained by preferences rather than beliefs, what is the nature of these preferences? We therefore calculated a within-subject value for discrimination for each DM – their 'bias' towards international student partners – which is the average amount that the DM sent to all international partners that they faced in the 4 rounds of a particular task, minus the average amount that they sent to all domestic partners in that task,[39] and examined rank correlations (Spearman's ρ) of subjects' bias with their individual characteristics elicited in the post-experiment survey.[40]

OBSERVATION 9: *Discrimination by domestic DMs in Game T and Game MD can be significantly explained by individual personality. Domestic DMs who expressed higher agreement with Openness questions in a Big Five personality quiz tended to send more to international partners relative to domestic partners in these games.*

In a simple Big Five personality quiz, with 2 questions for each trait, subjects' responses to the Openness questions are highly correlated within-subject bias in Game T. The level of agreement with the statement "*I have a vivid imagination: 1) Strongly disagree to 7) Strongly agree*" is correlated with the Game T bias at $\rho = 0.6697$ (p= 0.0009),[41] and agreement with "*I spend time reflecting on things*" is correlated with Game T bias at $\rho = 0.6571$ (p=0.0012).[42] Correlation of the average response to these questions with Game T bias is $\rho = 0.7393$ (p=0.0001). They are also correlated with Game MD bias, our measure of altruism, at $\rho = 0.5606$

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[39] See Figure G10 in Appendix for mean bias of international and domestic DMs in the tasks.

[40] Since we excluded observations for which Game T bias = 0, the correlation analysis includes 21/26 domestic DM observations and 36/40 international DM observations. 1 domestic DM faced only international partners.

[41] 5 out of the 6 domestic DMs who had strongly agreed with this question had sent more to international partners than to domestic partners, and 1 did not show any bias.

[42] The effect remained when we controlled for gender and interactions in linear OLS regressions for each question.

(p=0.0082), and ρ = 0.4810 (0.0273), but not significantly correlated with Game G bias, or expectations of return, at ρ =0.0720 (p=0.7565) and ρ = -0.1018 (p=0.6605) respectively, suggesting that differences in openness does not affect the formation of beliefs on the trustworthiness of the in-group vis-à-vis out-group.[43]

A priori, Openness could have affected the Game T bias indirectly rather than directly. Open individuals may have more out-group friends, and this might have, through mistaken application of repeated game heuristics, prompted greater generosity towards the out-group due to higher chance of repeated interaction. We therefore examined differences between levels of agreement with "*I have many friends who are international students*" and "*I have many friends who are domestic students*". However, correlation between this friendship bias and the two Openness questions are only ρ =0.0992 (p=0.6689) and ρ =0.0127 (p=0.9565) respectively, suggesting that openness may be *directly* causative of discrimination in an economic context. The Game T bias is also only weakly correlated with the friendship bias at ρ =0.2648 (p=0.2461).

There are no significant correlations with other potentially relevant survey responses. For example, correlations between agreement with "*I often participate in study groups with international students,*" "*I often participate in group work assignments with international students,*" and "*In general, I have had positive experiences in completing group work assignments*" with Game T bias are ρ =0.2532 (p=0.2681), ρ =-0.0263 (p=0.9100) and ρ =0.2152 (p=0.3489) respectively. There is also no correlation between Game T bias and bias in the GSS questions. For instance, we calculated a bias towards international students from modifications of the GSS question *"Generally speaking, would you say that most people can be*

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[43] We also found some correlation between the 'Agreeableness' question "*I sympathize with others' feelings*" at ρ = 0.5104 (p=0.0181), and the 'Contentiousness' question "*I pay attention to details*" at ρ = 0.3730 (p=0.0958), with the Game T bias, but insignificant correlation with bias in the control games.

trusted or that you can't be too careful in dealing with people?" replacing "*most people*" with "*most international students*" and "*most domestic students*". The ρ between this measure and Game T bias is only 0.0144.[44]
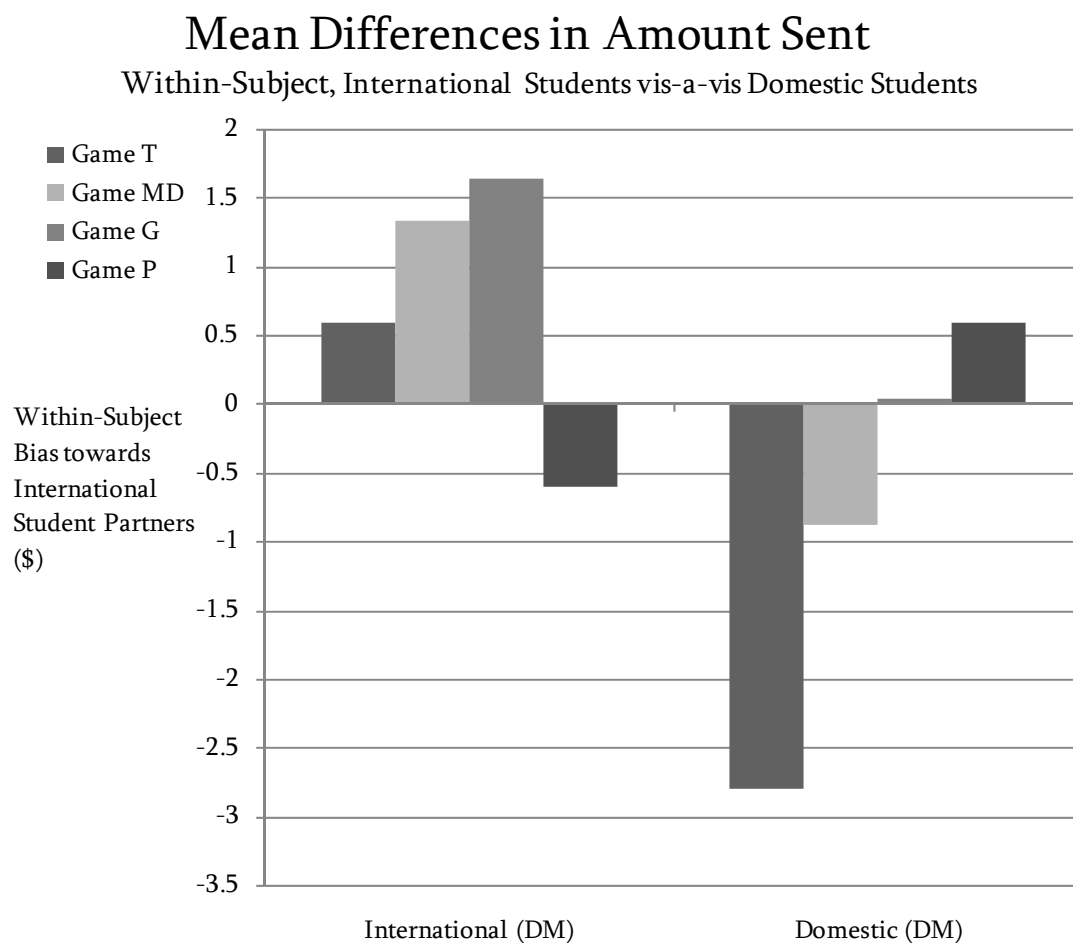
On the other hand, personality and attitudinal survey responses did not predict bias by international DMs. This appears to be consistent with literature in cross-cultural psychology and management arguing that cultural norms rather than individual attitudes tended to be better predictor of behaviour in exchange and negotiation relations for decision makers from collectivist (e.g. China) rather than individualist (e.g. U.S.) cultures (Triandis, 1995; Liu et al, 2005). Nevertheless, since both the absolute value of the means ($0.65 versus $-3.48) and standard deviation in the trust bias (SD: 4.9 versus 6.6) for international decision makers are smaller than for domestic decision makers, we do not dwell on the conjecture.

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[44] This measure has some correlation with the Game MD bias at ρ =0.4603 (p= 0.0357), consistent with the relationship between GSS responses and trustworthiness in Glaeser et al (2000).

3.2.3. Relation-Building Heuristic in International DMs

Figure G7

Mean Differences in Amount Sent

Within-Subject, International Students vis-a-vis Domestic Students

OBSERVATION 10: *International DMs appear to have shown more in-group favouritism in Game MD and Game G than in Game T by contrast to domestic DMs, who appear to have shown more in-group favouritism in Game T than in Game MD and Game G.*

This can be seen by comparison of the bias of international and domestic DMs in the different tasks (Figure G7).[45] We postulate that a heuristic independent of altruism and expectations of return based on desire to build mutually beneficial

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[45] See section 5.2 for the definition of the bias. A qualitatively similar pattern can be seen by comparison of the Tobit models (Figures M1-M6).

reciprocal partnerships with domestic student was used by international students,[46] while an analogous motive may be absent in domestic students.[47] Conversely stated, international DMs had sent more to domestic partners when they did not solely consider the expected returns from and their levels of altruism towards domestic partners. Another possible reason for this trend is higher levels of betrayal aversion shown by international students towards the in-group. However, we see this possibility as less likely given the cold features in the experimental design.[48]

3.3. Acculturation and Trust Levels

How does one's general level of trust change with adaptation or integration into an environment or country with a different culture? To answer this question, we analysed trust levels of two groups from Asian cultural backgrounds - Asian international students and Asian domestic students. The advantage of this analysis is that both the behavioural levels of trust observed, as revealed preferences, and information on semesters studied or years in Australia are 'objective' rather than attitudinal information.

We examined responses to the question, *"How many semesters have you been studying (not including the present semester) at your current university?"*, and average amounts sent in the games by Asian international DMs.[49]

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[46] The heuristic may be similar to the community-building motive identified in Barr (2003)

[47] This discrepancy may be related to networking or *Guanxi* inclinations in Chinese culture (see Triandis, 1995).

[48] See above n29.

[49] We examined semesters studied at university rather than years in Australia to specifically study the impact of acculturation on international students at university, a different environment from high school. The abstraction from variation of information across rounds is justified since our matching mechanism ensured, so far as possible, that each DM received at least one international partner, one domestic partner, one partner with a higher maths score and one partner with a lower maths score and variations in average information across rounds were orthogonal to the demographic characteristics of subjects. Results were qualitatively unaffected when we controlled for information on partners in the first round.

OBSERVATION 11: *There is a significant negative relationship for international students between the number of semesters studied at university and the average amounts sent in Game T. Moreover, semesters studied is negatively related to expectations of return by their player B partner, as measured by Game G.*

Each additional semester studied at the current university by international students decreases the average amount sent in Game T and Game G by approximately $1.8 (Figures G8 and G9). The Spearman's ρ between average trust (Game T) of Asian international DMs and semesters studied is -0.484 (p=0.0016). Between average amount sent in Game G and semesters studied, it is -0.435 (p=0.005), while the ρ between Game MD and semesters studied is negative but insignificant at -0.170 (p=0.294). The fact that the relationship in Game G is qualitatively similar, in addition to attribution of underinvestment to beliefs, also suggests that discrepancies in altruism towards the experimenter (a research student who has also studied for several semesters at the university) is unlikely to be causing lower amounts to be sent in Game T, since Game G does not involve 'surplus' maximisation.
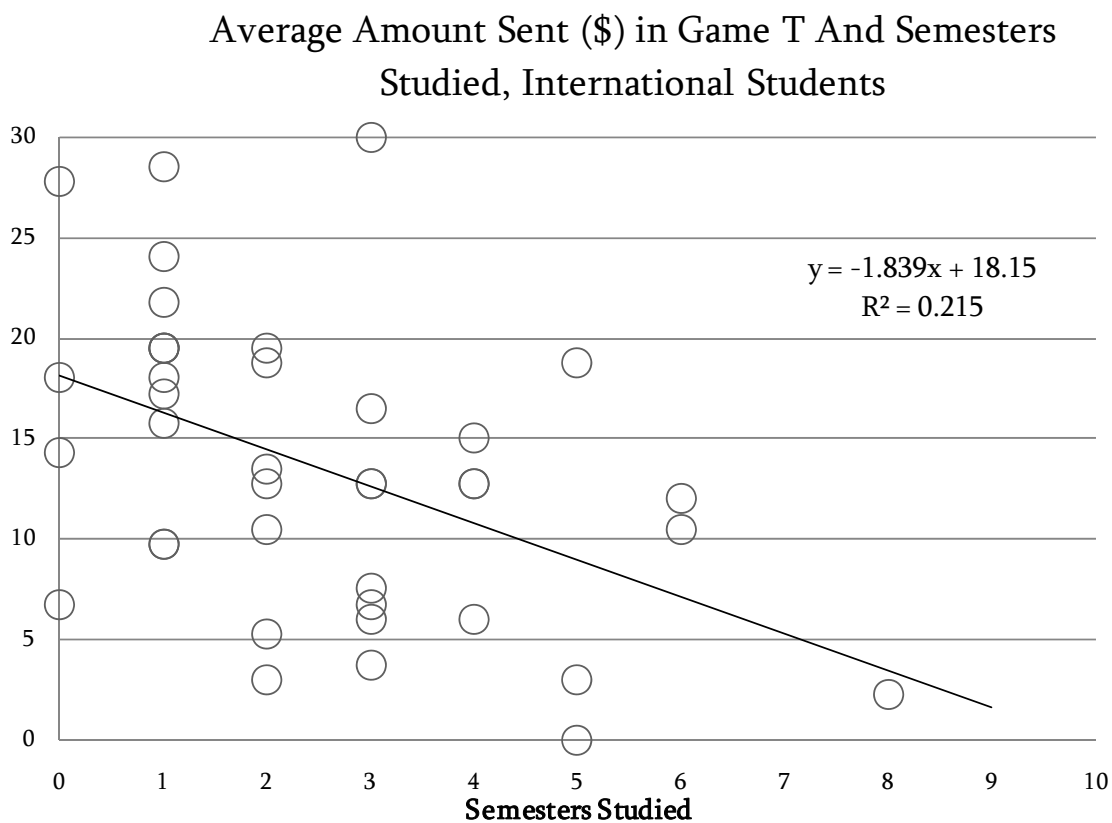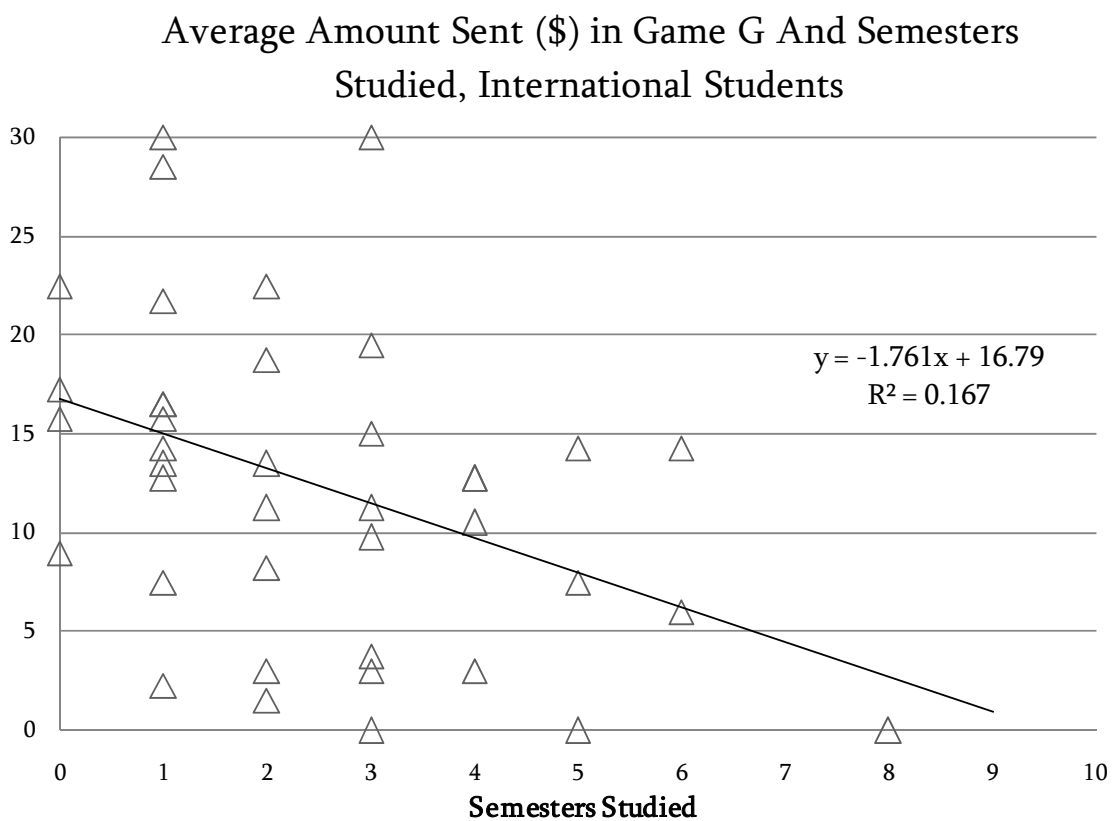
Figure G8

Average Amount Sent ($) in Game T And Semesters Studied, International Students

$y = -1.839x + 18.15$
$R^2 = 0.215$

Semesters Studied

Figure G9

Average Amount Sent ($) in Game G And Semesters Studied, International Students

$y = -1.761x + 16.79$
$R^2 = 0.167$

Semesters Studied

We also estimated a linear regression model for international DMs, reporting robust standard errors (Figure M11).

$$AverageTrust_i = \beta_0 + \beta_1 SemestersStudied_i + \gamma Controls_i + \varepsilon_i$$

(11)

As there is an *a priori* possibility that international students who had studied for more semesters were more likely to self-select into experiments to earn money, due to financial strains incurred by increased time in living independently, we examined responses to the survey question *"What was the most important reason for you, out of the following, for participating in this experiment? 1) Earn money, 2) Have fun, or 3) Learn about economics."* Contrary to this however, of those who had studied for 3 semesters or less, 68% responded with "Earn money", while of those who had studied for more than 3 semesters, only 37% responded with "Earn money", with the rest of responses being split between "Have fun" and "Learn about economics". The effects of these responses on average trust are negative and insignificant without other controls (11.2), and positive and insignificant with other controls (11.4).[50]

Could the effect of semesters studied on average trust be induced by the *mere* fact of studying at university? However, the analogous effect for *all domestic students* is slightly positive and insignificant (Figure G10).[51] Therefore, if studying at university is the causal factor in the negative relationship, it applied only to international students.
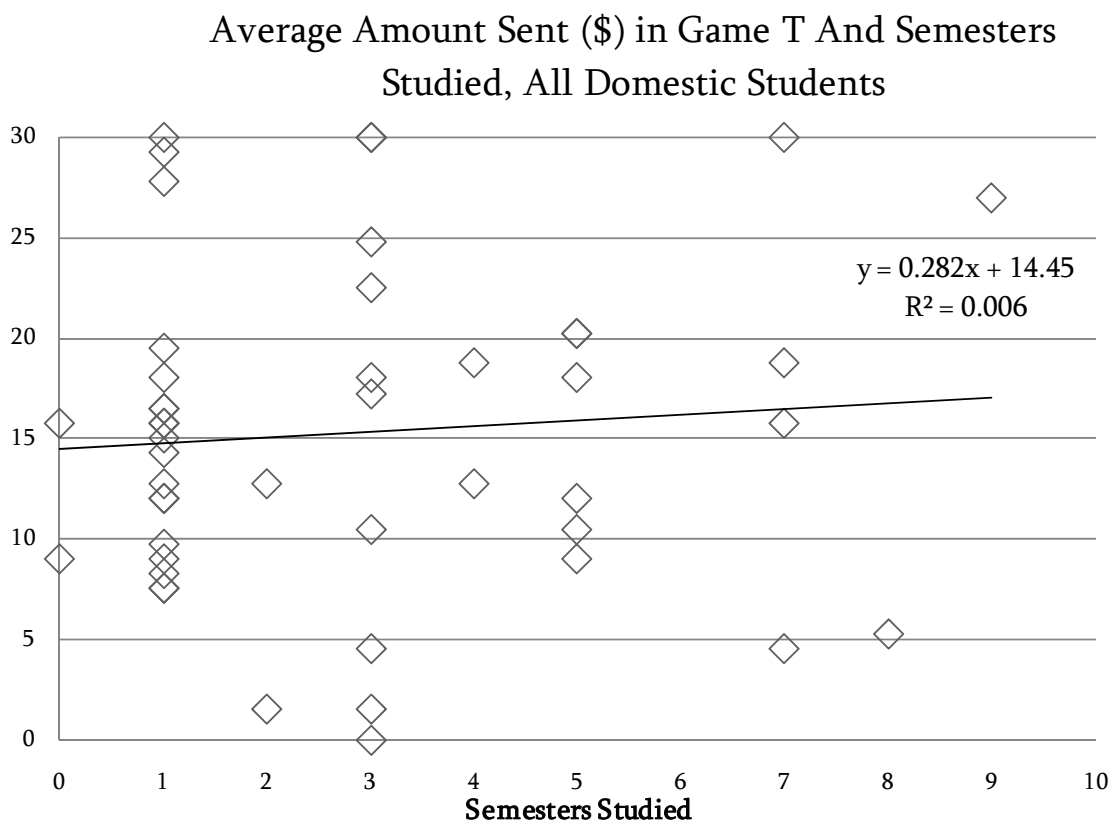
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[50] An *a priori* possibility is that subjects who had answered 'have fun' might have taken the experiment less seriously, and that subjects who answered 'learn about economics' were more inclined play the narrowly rational subgame perfect equilibrium. Smaller 'importance' weights on observations that answered with 'have fun' does not qualitatively affect results.

[51] The result is qualitatively similar for all cultural subsets among domestic students, including subsets excluded in the preceding intercultural analysis.

Figure G10

Average Amount Sent ($) in Game T And Semesters Studied, All Domestic Students

$y = 0.282x + 14.45$

$R^2 = 0.006$

Semesters Studied

4. Discussion and Conclusion

We conclude through a discussion of the results in the experiment, identifying limitations of the study and avenues for further research on two issues: discrimination and in-group favouritism based on culture; and the impact of acculturation on levels of trust. Finally, we briefly outlined policy suggestions looking forward for improving intercultural relations and the experiences of international students in tertiary education.

4.1. Discrimination and In-Group Favouritism

The results suggest that there is some discrimination by domestic students against Asian international students at Australian universities, and the discrimination is mainly preference-based rather than statistical. As decision makers in both groups had predicted that the out-group was slightly (but insignificantly) more trustworthy, there does not appear to be a miscalibration of first moment beliefs.

That there is little statistical discrimination between the two groups is encouraging for the state of intercultural relations, and implies that there is no mistakenly held stereotype as to the trustworthiness of any group, by contrast to the groups studied in Fershtman and Gneezy (2001). Indeed, the fact that discrimination found is mainly preference-based discrimination, which is surely less socially acceptable, suggests that this is not merely driven by experimentally induced fairness considerations. However, there are two caveats in interpreting the result. First, it may only apply in a one-sided knowledge sense, although this has some external validity. As pointed out in Johansson-Stenman (2008), an employer is concerned about the general trustworthiness of the potential employee, rather than the employee's specific trustworthiness towards the employer. Nevertheless, a two-sided knowledge condition may have higher external validity for other bilateral exchange situations. Future research can incorporate both one-sided knowledge and two-sided knowledge treatments to determine the *degree* of statistical discrimination that arises from the *fact* of player B behaviour being conditional on player A's cultural identity, and whether this is correctly calibrated or mistaken.[52]

Secondly, the relevant beliefs of player A in our study relate to the *willingness* of player B to reciprocate. In an intercultural context, this also hinges on beliefs of the cultural norms underlying the behaviour of player B. On the other hand, the perceived *ability* to reciprocate will also be relevant in many exchanges, and may not only depend on the perceived technical skills, but also be hindered by language, cultural barriers and social skills. Indeed, these factors, relevant to Australian employers, operated to the disadvantage of international students (Gilmore, 2009). While ability is more likely to be task-specific, and willingness to reciprocate is more likely to be applicable to a wider range of situations, both are pertinent in determining a *general* level of trustworthiness in a given situation. Beliefs on

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[52] While Yamagishi et al (2005) manipulated knowledge conditions on a within-subject basis in a prisoners' dilemma, future research may seek to use higher stakes and control tasks.

ability, particularly with respect to language and communication skills, are therefore a natural area for further intercultural research.[53]

Some implications can be drawn from the preference-based nature of discrimination found in this study. First, the within-subject nature of our design suggests that individuals may not be averse to conscious preference-based discrimination. This may be particularly problematic in markets where opportunities for comparison are ample, such as the situation faced by employers in labour markets, and appears to be consistent with audit studies that have found cultural discrimination in these markets. If preferences are to some extent endogenous to experiences, market design may gradually reduce discrimination.[54] Future studies may also explore the effect of behavioural heuristics and ordering on discrimination, and the dynamics of selection and group formation in an intercultural context. A key challenge for these studies will be reaching an appropriate balance between internal and external validity, thereby complementing the existing observational literature in management, cross-cultural relations and psychology.

Secondly, that the individual personality trait of Openness can substantially account for within-subject preference-based discrimination by domestic decision makers against international partners confirms Gary Becker's conjecture that 'tastes [for discrimination] may differ simply because of differences in personality' (Becker, 1957:9). It is in line with research in psychology (McCrae, 1996), and builds on growing evidence that personality can explain variations in decisions made in simple games (Meyers, 1992; Boone et al., 1999; Gunnthorsdottir et al, 2002; Evans and Revelle, 2008). If personality is exogenous, this implies that between-subject *distribution* of discrimination preferences is also exogenous. Therefore, the neoclassical paradigm of modelling preferences as identical across individuals, with endogenous sub-utility explained by habit formation (Stigler and Becker, 1977) may

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[53] On ability and gender, see Schwieren and Sutter (2008).

[54] Fershtman et al (2005) for instance, identified the effect of anonymity on discrimination.

be untenable in light of growing evidence on the role of personality in predicting economic behaviour and the stability and empirical verifiability of personality (Caplan, 2003). Although there may be reservations against explicit incorporation of heterogeneous personality due to a penchant for adherence to neoclassical assumptions rather than the interests of tractability (Rabin, 2002), a greater willingness to incorporate cross-disciplinary insights into economics is required in order to realistically represent the phenomenon of intercultural discrimination, and thereby prescribe appropriate policies.

Finally, the results suggest that differences in trust and social capital may not merely hinge on beliefs and altruism, but also on other heuristics and preferences. A relation-building heuristic in international students may reflect a broader desire of international students to build links with domestic students. Indeed, the trend found in Chapter 6 may partly reflect disillusionment due to this not been realised. Future research can examine the effect of other preferences relevant to social capital such betrayal aversion and a preference for trust in an intercultural context (Bohnet and Zeckhauser, 2004; Kosfeld et al, 2005). *A priori*, greater social distance may decrease the level of betrayal aversion. On the other hand, agents may be more averse to intercultural betrayal if they perceive it to constitute cultural discrimination against them.

4.2. Acculturation and Trust

On the effect of adaptation to a new cultural environment (acculturation) on levels of trust, we express the caveat that since our findings are post-hoc, a limitation of the experimental design is that the intercultural elements may confound results due to potential status effects. We would therefore like to conduct further experiments without intercultural elements to confirm our findings, particularly to ascertain whether status effects interact with semesters studied.

The relationships found between semesters studied and average trust in Asian international students and between years in Australia and average trust in Asian domestic students suggests that the adjustment from Asian to Australian culture has a negative effect on trust levels. We postulate the following reasons. First, macro-economic empirical (Berggren et al, 2008) and microeconomic experimental (Buchan and Croson, 2004) literature suggest that observed attitudinal and behavioural trust levels in China are particularly high relative to many countries, including Australia,[55] most likely due to cultural norms. Secondly, a possibility emerged from the 'web-based' intercultural prisoners' dilemma experiment involving Australian and Japanese subjects that there may be a commonly held stereotype in East Asian countries that Australians are particularly fair and trustworthy (Yamagishi et al, 2005). Longer time in Australia may prompt individuals to their update beliefs on the trustworthiness of Australians or as implied by Australian cultural norms if naïve perceptions were miscalibrated or exaggerated. Thirdly, increased time in a foreign country may increase exposure to adverse effects on trust – for instance, migrants and sojourners may experience culture shock, ethnic discrimination, disconnection or loneliness. These factors may be exacerbated by a failure to integrate or the institutional problems faced by the particular group.

From a comparison of the trend found in Asian international students and that found in Asian domestic students, it appears that acculturation at university has a more adverse impact on trust for international students, since the implied coefficient of years at university from the coefficient of semesters studied on levels of trust for international students is approximately -3.6, compared to the coefficient of years in Australia for Asian domestic students of -1.18.[56] This difference may be due to specific institutional disadvantages faced by international students, *inter alia*,

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[55] Berggren et al (2008), summarising previous empirical studies, reported attitudinal trust in terms of percentage of sample that agreed with the GSS question 'most people can be trusted'. This percentage for China was 60 compared to 39.9 for Australia.

[56] The difference is significant when we include the two groups in a single model.

with respect to legal status in Australia, differential treatment in labour, rental markets, lack of travel concessions, and higher study fees, which may cumulatively aggravate the extent of the third aforementioned factor. Further studies can examine the effect of *subjective* acculturation of changing cultural attitudes on trust independent of this third factor, taking endogeneity of these attitudes into account.

4.3. Policy Implications for Tertiary Education

The results indicate that policymakers in the Australian tertiary education face numerous challenges. While emphasis over the past decade appears to have been on maximising the immediate pecuniary value of education exports (Marginson, 2009), this has perhaps occurred at the expense of ensuring a high quality of experience for international students, and more needs to be done in order that the latter increases *pari passu* with the former. Measures can be taken to address two broad areas.

First, the potential relation-building heuristic in international students that entails lower in-group favouritism in situations of mutual gain, and the substantial heterogeneity in the altruism of domestic students towards international students, dependent on individual personality, raises the potential for increased intercultural interaction between these groups at Australian universities. For instance, domestic students with high altruism towards international students may self-select into a mentoring program which links domestic students with several semesters' experience at university and newly enrolled international students. International students may also be encouraged participate in university Clubs and Societies based on common interest in the sciences or the creative arts, if these societies tend to attract individuals with higher levels of Openness.

Secondly, substantial decline in the trust of international students in line with the number of semesters studied in Australia suggests that improved support services, such as accommodation, language training and career services for international

students may be required.[57] If public sector operators increased capacity in provision of these services, increased competition may also result in improved quality in private sector providers. Alternatively, regulation for standards in the private sector, and certain legal disadvantages faced by international students, such as lack of travel concessions, may be revised.

Nevertheless, there may not be a simple solution to the complex ongoing problems surrounding in the tertiary education sector. Greater interdisciplinary attention is required given the potential economic and social consequences of failure to address these issues. While some appropriate policies may come at a high immediate cost, they may be consistent with maximising efficiency by increasing the willingness to and gains from trade between intercultural parties.

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[57] This is consistent with the positive effect of perceived English Ability on trust in model (2).

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