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Culture and Corruption

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Abigail Barr and Danila Serra

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Culture and Corruption

by

Abigail Barr[a] and Danila Serra
Centre for the Study of African Economies
University of Oxford

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[a] Corresponding author. Email: abigail.barr@economics.ox.ac.uk Address: CSAE, Department of Economics, University of Oxford, Manor Road, Oxford, OX1 3UQ, United Kingdom.

Culture and Corruption

Abstract: Working with a sample of individuals from 43 countries, including some of the most and least corrupt in the world, we run an experiment in which: 'private citizens' have to decide whether and how much to offer 'public servants' in exchange for corrupt services; 'public servants' have to decide whether and how much to accept; and offered and accepted bribes do harm to other members of society. We can predict who, among the younger members of our sample, will offer bribes with reference to the level of corruption prevailing in their home countries. And, by comparing behaviour across treatments, we can identify the effect on behaviour of an internalized social norm or preference for *not engaging in bribery because it is harmful to society*. We conclude that corruption is, in part, a cultural phenomenon.

Culture and Corruption

1. Introduction

Economic theories of corruption focus on decisions made by public servants and private citizens endeavouring to maximize their own expected incomes or profits, while being constrained by institutions designed to deter the former and the latter from encouraging the former from abusing their positions thus and causing harm to society as a result.[1] These models suggest that, when the private returns to corruption are high or, due to weak institutions, the likelihood or consequences of detection are limited, individuals are more inclined to act corruptly. Further, because finding a partner with whom to engage in a corrupt transaction and escaping detection or punishment becomes easier as the proportion of individuals who are corrupt increases, multiple equilibria involving different levels of corruption are likely to exist.[2]

These models, while providing a basis for some policy debate, leave many questions unanswered. In particular, what types of institutions are important and what role, if any, might social preferences play? Should our attention be limited to formal institutions, i.e., to those supported and enforced by systems of law and order? Or should we also consider the possible role of informal behavioural rules, social norms, and social preferences, enforced or reinforced externally through social exclusion, sanctioning, and shaming and internally through feelings of guilt?[34] In other words, should we take account of the role culture might play in determining levels of corruption? Some economic theorists now explicitly build pro-social behavioural tendencies, social norms, social sanctions, and psychological factors such as guilt and shame into their models.[5] Further, a growing body of experimental evidence indicates that such factors influence individual decision-making in a wide variety of simulated contexts including ones within which

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[1] For a review on economic theories of corruption see: Bardhan, 1997. For evidence that corruption is harmful to society see for example: Mauro, 1995; Keefer and Knack, 1995; Gupta, Davoodi and Alonso-Terme, 1998; and Tanzi and Davoodi, 1997.

[2] For examples of models of corruption with multiple equilibria see: Cadot, 1987; Andvig and Moene, 1990; Tirole, 1996; and Mauro, 2002.

[3] For psychological treatise on the subject of social norms and their enforcement see: Benedict, 1934; Grusec and Kuczynski, 1997.

[4] Like economic systems, the evolution of social norms may also be subject to frequency-dependent equilibria: the more people obey a norm, the more likely it is that any one individual will internalize that norm. For formal models see: Akerlof, 1980; Cavalli-Sforza and Feldman, 1981; and Boyd and Richerson, 1985.

[5] For examples of such theories see: Akerlof, 1980; Benabou and Tirole, 2003; Lindbeck et al. ,1999; and with reference to corruption, see: Andvig and Moene, 1990; Hauk and Saez Marti, 2002.

corrupt-like acts occur.[6] And outside the laboratory, some cross-country regressions provide evidence consistent with a causal link between such factors and corruption.[7] However, the external validity of the experimental evidence and the relevance and robustness of the causal relationships suggested by cross-country regressions are often called into question.[8] And, as a result, the general consensus among economists remains that, if social, psychological, and cultural factors do play a role in determining levels of corruption, that role is minor and policy should continue to focus on formal institutional redesign.

Here, we challenge this consensus by presenting the results of a combined experimental and cross-country study: the experimental element facilitates the identification of precisely defined causal relationships and the cross-country element provides external validity. The basic idea of our study is as follows. Suppose we could take a sample of private citizens and public officials from a large number of countries each with a markedly different level of corruption and place them all in exactly the same formal institutional context. Suppose, also, that we could ensure that a particular corrupt service was equally valuable to each private citizen and equally costly for each public servant to supply and that the negative externality resulting from the former offering and the latter accepting a bribe in exchange for the service was equally large for all possible citizen-servant pairs. And finally, suppose that we could eliminate strategic complementarities and, hence, multiple equilibria. Would we be able to predict who would offer and who would accept bribes with reference to the levels of corruption prevailing in their home countries? If the answer to this question is 'no', it implies that by redesigning some or all countries' formal institutions we should be able to eliminate cross-country differences in levels of corruption. However, if the answer to this question is 'yes' it implies that the different levels of corruption across countries are, at least to some extent, cultural in the sense that they are embodied within their peoples in the form of internalized social norms and preferences.

Our study deviated from this 'ideal design' in two important ways. First, all of our 195 study participants were students and, hence, private citizens and not public servants. Second, because a real, formal institutional environment would have been impossible to

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[6] For an example relating to reciprocity between bribers and bribees see: Abbink, 2004.

[7] For evidence of a positive relationship between interpersonal trust and corruption at the country-level see: La Porta et al, 1997; and Knack and Keefer, 1997. For evidence of a negative relationship between the dominance of non-hierarchical religions and corruption see: La Porta et al, 1997 and 1999; Treisman, 2000; and Serra, 2006. For a recent review see: Rose-Ackerman, 2004.

[8] For comments on the robustness of cross country analyses see: Treisman, 2000, and Serra, 2006.

perfectly control, our study involves an economic experiment based on a specially designed game. Within this game, the private costs and returns associated with engaging in corrupt transactions were fixed at the same level for all 'public servant-private citizen' pairs. However, in order to separate out the effect of a social preference or internalized social norm for *not engaging in bribery because it is harmful to society* from the possible effects of both cognitive error and other types of social preference, we varied two aspects of the game: the magnitude of the negative externalities caused by a corrupt transaction; and the likelihood of the participants viewing their behaviour within the game as synonymous with corruption.

There has been one previous study of this kind. Cameron, Chaudhuri, Erkal, and Gangadharan (2005) involved nearly 2000 students in Australia, India, Indonesia, and Singapore in an experiment involving a bribery game that was similar but not the same as ours. However, the findings of this study were puzzling – there were no significant cross-country differences in the likelihoods of participants offering bribes and bribes were rejected more often in Indonesia than in less corrupt Singapore – and caused the authors to conclude that "there is no clear and robust relationship between the level of corruption in the four countries and subject' behaviour in the experiment" (p. 9). Further, while the authors found that some participants in every country were willing to punish bribers and bribees, they could not identify an effect on bribe offering or taking of an internalized social norm or preference for *not engaging in bribery because it is harmful to society*.

Our smaller sample of 195 experimental participants originated from 43 different countries including some of the most and least corrupt in the world. Their bribe offering and taking behaviour in the experiment provides strong evidence of the existence of an internalized social norm or preference for *not engaging in bribery because it is harmful to society*. Further, among our younger participants, those from more corrupt countries were more likely to engage in bribery.

The paper has five sections. Following this introduction, in section 2, we describe our experimental game design, present a number of behavioural predictions relating to different assumptions about social preferences and norms, and, with reference to these predictions, explain the various treatments we applied. In section 3, we introduce our subject pool and, briefly, explore whether and how their experiences of and attitudes towards corruption correspond to the assessments of corruption in each of their home countries made by Transparency International (TI), an NGO dedicated to fighting

corruption worldwide. Then, in section 4 we present our results. Finally, in section 5, we summarize and discuss our findings and then draw some tentative conclusions.

2. Methodology

2.1 The bribery game

Using prior experiments relating to bribery and corruption as our starting point, we set out to design the simplest possible bribery game.[9] The resulting game simulates a situation in which a private citizen must decide whether and how much to offer a public servant as a bribe in exchange for a corrupt service, such as a reduction in tax, preferential treatment in a court hearing or a speedier admission to hospital. In turn, the public official has to decide whether and how much to accept as bribe. If a bribe is offered and accepted, the briber-bribee pair benefit, while other members of society incur a cost. The game involves 15 players, 5 'private citizens', 5 'public servants', and 5 'other members of society'. Roles and 'private citizen'–'public servant' pairings are randomly allocated and play is anonymous and one-shot.[10]

Each 'private citizen' receives an initial endowment, Y_c, and may offer a 'bribe', b, in exchange for a corrupt service, the value of which to him is V. If he offers a bribe, regardless of its magnitude and whether it is accepted or rejected by the 'public servant', he incurs a cost E. This represents the expected cost of being caught and punished. We chose to make this cost deterministic rather than stochastic in order to reduce the potential impact of risk preferences on observed behaviour. So, the 'private citizen's' final payoff from the game is:-

$F_c = Y_c$ if he chooses not to offer a bribe;

     $= Y_c - E + V - b$ if he offers a bribe and the bribe is accepted; and

     $= Y_c - E$ if he offers a bribe and the bribe is rejected.

Each 'public servant' receives an initial endowment of Y_p. If he accepts a bribe he automatically has to supply the corrupt service and incur a cost, K.[11] This cost represents the sum of the expected cost of being caught and punished, the actual cost of supplying the

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[9] Cameron *et al* (*op. cit.*) and Abbink *et al* (2002) provided our starting point. Subsequent footnote will detail the primary differences in designs. For a review of these and other experiments addressing the issue of corruption see Abbink (2005).

[10] Play was one-shot in Cameron *et al* (*op. cit.*) and repeated in Abbink *et al* (*op. cit.*).

[11] In Abbink *et al* (*op. cit.*) the 'public servant' can take the bribe and *not* provide the corrupt service.

service, and the cost of any efforts made to reduce capture. Again, we chose to make this cost deterministic rather than stochastic in order to reduce the potential impact of risk preferences on observed behaviour. So, the 'public servant's' final payoff from the game is:-

$F_p = Y_p$ if he is not offered a bribe;

$\quad = Y_p$ if he is offered but does not accept a bribe; and

$\quad = Y_p - K + b$ if he accepts a bribe.[12]

Finally, each 'other member of society' receives an initial endowment of Y_o and for every bribe offered by a 'private citizen' and accepted by a 'public servant' he incurs a cost, h. So, each 'other member of society's' final payoff from the game is $F_o = Y_o - N_c h$, where $N_c \in \{1, 2, 3, 4, 5\}$ is the number of 'private citizen'-'public servant' pairs who offer and accept bribes.[13]

If all 'public servants' and 'private citizens' are selfish money-maximizers, this game has a single equilibrium. Each 'public servant' will accept any bribe that leaves him better off, i.e., he will accept any $b > K$, and will be indifferent between accepting and rejecting when $b = K$. Assuming 'private citizens' know this, they will all offer bribes of $K + *$, where $*$ is a small positive amount. All bribes ($= K + *$) will be accepted, so each 'other member of society' will suffer the maximum possible negative externality of $5h$. We will refer to this as the Nash equilibrium below.

Observed deviations from this single equilibrium may be taken as evidence that social preferences, internalized social norms, and, in the case of the 'private citizens', risk preferences and beliefs about the social preferences and internalized social norms of the 'public servants' are affecting the players' behaviour. However, deviations could also be due to cognitive errors.

2.2 Identifying a social preference or norm for *not engaging in bribery because it is harmful to society*

We are particularly interested in establishing whether a social preference or norm for *not engaging in bribery because it is harmful to society* affects behaviour. One way of modelling this is to assume that a 'public servant' who violates this preference or norm

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[12] In Abbink *et al* (*op. cit.*) and Cameron *et al* the 'public servants' receive three times the bribe.

[13] In Abbink *et al*, there are no other members of society. Instead, it is the other (9) potential briber-bribee pairs who suffer the negative externality. In Cameron *et al*, there is one 'other member of society' for each potential briber-bribee pair and they have the power to punish bribers and bribees.

suffers a psychological cost, $M_p=M_p(h,s)$ with $M_p>0$ if $h>0$, $dM_p/dh>0$, $dM_p/ds>0$, and where s captures the apparent salience of the preference or norm to the context in which the violation takes place. Similarly, a violating 'private citizen' suffers a psychological cost, $M_c=M_c(h,s)$ with $M_c>0$ if $h>0$, $dM_c/dh>0$, $dM_c/ds>0$. Now, leaving all other aspects of the game unchanged and assuming no other social preferences, we can make a number of predictions.

1. 'Public servants' will now only accept $b>K+M_p(h,s)$. So, an increase in either h or s will lead to an increase in 'public servants' minimum acceptable bribes.

2. Any 'public servant' for whom $M_p(h,s)>b_{max}-K$, where b_{max} is the maximum possible bribe in the game, will always reject. So, if $M_p \sim F(.)$, over some range of h and s, the proportion of 'public servants' who reject all possible bribes, $1-F(b_{max}-K)$, will increase following an increase in either h or s.

3. A 'private citizen' who believes $M_p \sim \hat{F}(.)$ will offer no bribe if the net total private value of the corrupt service is insufficient to cover the sum of his own and his best guess of the 'public servant's' psychological costs, i.e., if $M_c(h,s)+\hat{M}_p(h,s)>V-K-E$, where $\hat{M}_p$ satisfies the first order condition $V-K-\hat{M}_p=\hat{F}(\hat{M}_p)/\hat{f}(\hat{M}_p)$. So, as long as $d\hat{M}_p/dh \geq 0$ and $d\hat{M}_p/ds \geq 0$ (reasonable assumptions that would apply in the case of most common probability distributions), an increase in either h or s will also lead to an increase in the proportion of 'private citizens' who choose not to bribe.

4. If $M_c(h,s)+\hat{M}_p < V-K-E$, the 'private citizen' will offer a bribe of $K+\hat{M}_p+*$. So, if we assume that $d\hat{M}_p/dh > 0$ and $d\hat{M}_p/ds > 0$, an increase in h or s will lead to an increase in the bribes offered by 'private citizens'.

2.3 Parameterization and treatments

In our experiment we used a fictitious currency called a Gilpet (Ǥ1 = £0.20 ≈ $0.35), set $Y_c=Y_p=$Ǥ35, $Y_o=$Ǥ25, $V=$Ǥ16, $E=$Ǥ1, $K=$Ǥ5, and, for reasons that will be explained below, set h equal to either Ǥ1 or Ǥ4. 'Private citizens' could choose any $b \in \{$Ǥ1, Ǥ2, Ǥ3,…Ǥ20$\}$ and, 'public servants', instead of responding only to the particular bribe offered to them by the 'private citizen' with whom they were paired, had to state whether they would accept or reject each of the possible bribes, $b \in \{$Ǥ1, Ǥ2,

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€3,…€20}, while knowing that whichever one of their responses turned out to be pertinent would determine their earnings. This full strategy elicitation enabled us to identify those 'public servants' who would reject any possible bribe and the minimum acceptable bribe for each of the others.[14]

Table 1: Experimental Design: Sessions and Treatments

	$S=S_L$ (abstract frame)	$S=S_H$ (corruption frame)
$h=h_L=$€1 (negative externalities low)	3 sessions (45 participants, 15 in each role)	3 sessions (45 participants, 15 in each role)
$h=h_H=$€4 (negative externalities high)	3 sessions (45 participants, 15 in each role)	4 sessions (60 participants, 20 in each role)

We varied both the magnitude of the negative externality caused by a bribe being offered and accepted, h, and the apparent salience of the aforementioned social preference or norm, s, across experimental sessions. *h* was set either low, $h=h_L=$€1, or high, $h=h_H=$€4. With $h=$€1, bribery was Pareto-improving and, with $h=$€4, bribery was Pareto-worsening.[15] We varied *s* by varying the extent to which the game was framed as a corrupt interaction between a public servant and private citizen. We set s low, $s=s_L$, by explaining the game in abstract terms. Those taking the 'private citizen' role were referred to as 'Player As', those taking the 'public servant' role were referred to as 'Player Bs', 'other members of society' were referred to as 'Player Cs', bribes were simply referred to as 'offers', and no mention was made of corrupt services. When *s* was set high, $s=s_H$, the game was described using the labels 'private citizen', 'public servant', 'other members of society', and 'bribe'.[16]

We conducted 13 experimental sessions each involving 15 participants. Table 1 shows the distribution of sessions with respect to *h* and *s*.

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[14] Strategy elicitation and the strategy method were developed by Selten, 1967.
[15] Abbink *et al* (2002) set *h* in their experiment to either zero or some positive amount. In the former bribery was Pareto improving, in the latter, Pareto worsening. They found no effect on behaviour. Cameron *et al* always set *h* greater than zero, but with bribery Pareto improving in one treatment and Pareto worsening in another. They too found no effect on bribe offering or acceptance.
[16] Cameron *et al* always used a corruption frame. Abbink *et al* (*op. cit.*) presented the game in abstract form. However, Abbink and Hennig-Schmidt (2002) then repeated the same game while applying a corruption frame and found no significant change in behaviour.

2.4 Practical details

All the experimental sessions took place during the final quarter of 2005 in seminar rooms in the Department of Economics, Oxford University. In every session the participants were seated at well spaced desks. The game was explained verbally by one of the authors (the same one in all sessions) following a predefined script and using visual aids in the form of overhead projector slides. Each participant received two tables showing how various possible decision combinations lead to particular final payoffs for each player-type. The participants expressed their decisions on specially designed forms which they completed behind privacy screens designed to ensure that they were not overlooked. No talking was allowed. Once the game was complete, the participants' payoffs were calculated at the front of the seminar room and a show-up fee of £3 (≈$5.29) was added.[17] In the meantime, the participants filled out a questionnaire about themselves and their home country. (All the scripts, visual aids, tables, and forms designed for and used during the experiment are available from the authors.)

3. Experimental participants

Our 195 participants were all students at the University of Oxford. Some signed up for the study at a stall set up by us at the Annual Freshers' Fare, an event at the start of each academic year designed to facilitate recruitment by student societies and other activity-based groups. The remainder contacted us by e-mail having seen promotional posters and leaflets advertising the study or received an e-mail through their school or college mail list. Most of the posters and leaflets were placed in and all of the mail lists used related to graduate colleges and schools with the aim of attracting a more diverse set of participants.

The resulting prevalence of graduates and overall diversity of our participant sample can be seen from Tables 2 and 3. Out of 195 participants 64 percent were graduate students. Ages ranged from 18 to 44 years, with the average age being just under 24 years. Just over half of the students were female, few were married and even fewer had children. Hindus, Muslims, Jews, and various types of Christian were all represented in the sample, although less than one third of the participants described themselves as religious people.

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[17] This gave an average participant a take-home pay, including show-up fee, of £9.53. Sessions lasted approximately 50 minutes.

15 percent were only children and the number of siblings for the remainder varied from 1 to 10.

Table 2: Participant characteristics

	Mean or proportion	Standard deviation	Minimum	Maximum
Graduate students	0.641			
Age in years	23.856	4.457	18	44
Female	0.513			
Married	0.051			
With children	0.021			
Number of children	0.026	0.188	0	2
Described self as religious	0.297			
Number of siblings	1.467	1.177	0	10
An only child	0.154			

Unfortunately, we collected no data on the prior occupations of the 30 to 40 students who were old enough to have worked before commencing their current studies. So, we cannot rule out the possibility that some of these were, at some time, public servants. However, this notwithstanding, it seems reasonable to assume that most of our participants would have identified more readily with the role of 'private citizen' and the decision about whether to offer a bribe than with the role of a 'public servant' deciding whether to accept or reject a bribe. Thus, we expected the change from s_L to s_H to impact less on the behaviour of those in the 'public servant' role and the public servant data to be noisier, in general.

Table 3 indicates that over one third of the participants were British, while the remaining two thirds came from 42 other countries. The number of participants coming from each country and a measure of how corrupt each country was in 2004 are also presented in the table. The corruption measure, which we refer to as *corruption 2004* throughout the remainder of the paper, is equal to 10 minus TI's corruption index and, across our participants, ranges from 0.3 for Finland, the least corrupt country represented in our study, to 8.5 for Bangladesh, the most corrupt country represented in our study.

Table 3: Corruption in the participants' home countries

Home country	Number of participants	Corruption 2004	Home country	Number of participants	Corruption 2004
UK	71	1.4	Switzerland	2	0.9
USA	23	2.5	Zimbabwe	2	7.7
Australia	9	1.2	Bangladesh	1	8.5
Canada	8	1.5	Barbados	1	2.7
Germany	8	1.8	Belarus	1	6.7
China	6	6.6	Colombia	1	6.2
Italy	6	5.2	Czech Republic	1	5.8
South Africa	6	5.4	Finland	1	0.3
India	4	7.2	Israel	1	3.6
Singapore	4	0.7	Kenya	1	7.9
Hong Kong	3	2.0	Korea	1	5.5
Kazakhstan	3	7.8	Luxembourg	1	1.6
Peru	3	6.5	Malawi	1	7.2
Argentina	2	7.5	Malaysia	1	5.0
France	2	2.9	Philippines	1	7.4
Greece	2	5.7	Poland	1	6.5
Mauritius	2	5.9	Portugal	1	3.7
New Zealand	2	0.4	Slovenia	1	4.0
Norway	2	1.1	Tajikistan	1	8.0
Romania	2	7.1	The Netherlands	1	1.3
Russia	2	7.2	Ukraine	1	7.8
Sweden	2	0.8			

Source: List of countries and frequencies derived from authors' own dataset. The measure 'corruption 2004' is equal to 10 minus Transparency International's corruption index for each of the countries.

We chose to base our country-level measure of corruption on TI's corruption index because it is widely cited and highly respected. However, this index is based on surveys of elite business-people and assessments by country analysts and, so, may not be a good indicator of the levels of corruption observed and experienced by the participants in our study.[18] To explore this issue, we asked our participants about their own perceptions of corruption in a number of different contexts in their home countries. In addition we asked them whether they thought bribery could ever be justified and whether they thought people try to take advantage or try to be fair in, first, their home country and, second, the UK. (The precise wording of the questions used, is presented in Appendix 1, Table A1.) The means or proportions for each of the resulting variables as well as the correlation coefficients between each and *corruption 2004* are presented in Table 4.

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[18] For further details on the construction of the TI corruption indices see Lambsdorff, 2004.

Table 4: Participants' experiences of and attitudes towards corruption

| Variable	Scale	Mean or proportion	Correlation with corruption 2004
corruption in health	(common 1=not 4=very)	1.897	0.689
corruption in public appontments	(common 1=not 4=very)	1.835	0.781
corruption in police	(common 1=not 4=very)	2.325	0.639
corruption in politics	(significance 1=none 4=high)	2.677	0.649
corruption in business	(significance 1=none 4=high)	2.441	0.518
corrupt culture and values	(significance 1=none 4=high)	2.103	0.563
corruption in personal life	(significance 1=none 4=high)	1.467	0.456
bribe giving justifiable	(1=never 4=always)	1.323	0.139
bribe taking justifiable	(1=never 4=always)	1.338	-0.014
fairness in home country	(1=people try to be fair)	0.533	-0.427
fairness in UK	(1=people try to be fair)	0.549	-0.108

The correlations between the participant's perceptions of how common bribery and nepotism are in public health service provision, public appointments, and in the police in their own country and *corruption 2004* are all positive and highly significant. The same is true of their perceptions of the impact of corruption on politics, business, culture and values, and their own personal lives. However, the correlation is weaker and the mean response lower in the case of the latter. The correlation with how justifiable the participants thought the giving of bribes to public officials is weaker again, although still significant, and there is no correlation with how justifiable they thought bribe taking by public officials. This decline in correlation as we move closer to the participants' own involvement in and attitudes towards corruption could be due to responder bias, i.e., to them not wishing to admit to involvement in or ambivalence towards corruption. However, it could also indicate that the participants, while being aware of the level of corruption in their home countries, were isolated from that corruption due to their age or position in society. Finally, participants from more corrupt countries were less likely to characterize people from those countries as trying to be fair rather than trying to take advantage. However, they did not appear to project the same beliefs onto people in the UK.

Because these data on the participants' own perceptions of and attitudes towards corruption were collected directly after the completion of the game, we cannot use them to establish whether the level of corruption prevailing in the participants' home countries affected their behaviour in the experiment. This is because, in addition to the concerns

about responder bias raised above, we would have concerns about endogeneity. It is, however, reassuring that most of the participants' responses correlate strongly with the country-level measure of corruption, *corruption 2004*, which we do intend to use and which is free from such concerns.

4. Results

We start this section by presenting our experimental data and the results of a series of parametric and non-parametric tests relating to the predictions listed at the end of section 2.2. Then, we turn to the issue of whether we can predict behaviour within the game with reference to the level of corruption prevailing in the participants' home countries.
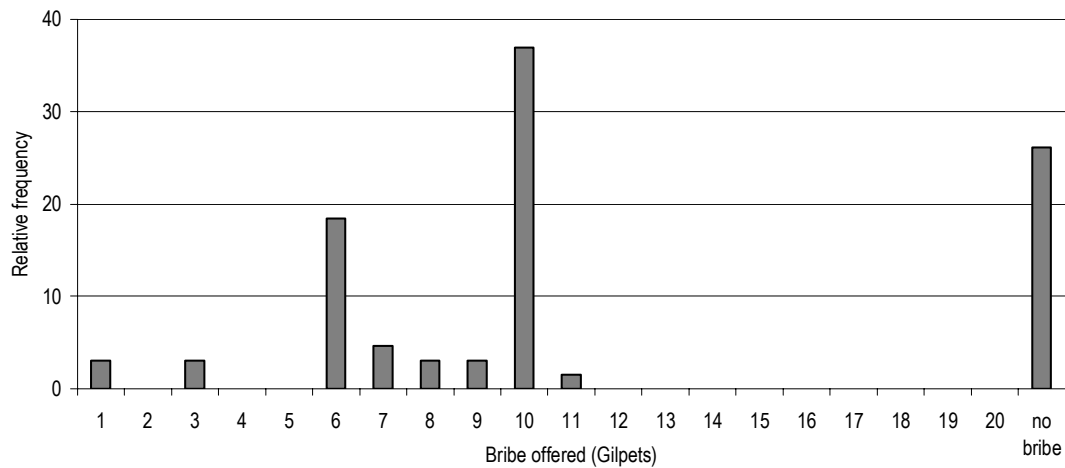
Figure 1: Bribes offered by 'private citizens' in the bribery game

4.1 Experimental data

The data generated by our experiment is presented in Table 5 and Figures 1 to 6. Note that no bribe offered or accepted is placed at the right- rather than the left-hand end of each figure. For 'public servants' this is because, given the maths of the game, accepting no bribe implies a minimum acceptable bribe of 21 or more. We then do the same for bribes offered in order to be consistent. However, also note that, under the model presented in section 2.2, the total psychological costs implied by each bribe amount offered increase as we move from left to right only if we place no bribe on the right.

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Table 5: Treatment effects in the bribery game

|	Full sample	Low externality h=G1	High externality h=G4	Abstract frame s=sL	Corruption frame s=sH
'Private Citizens'					
Offered no bribe	26.15%	13.33%	37.14%	10.00%	40.00%
Observations	65	30	35	30	35
Chi-squared tests p-values		0.029		0.006	
Mean bribe offered	8.04	7.50	8.68	7.62	8.57
Observations	48	26	22	27	21
t-tests (one tailed) p-values		0.055		0.104	
rank-sum tests (two-tailed) p-values		0.332		0.151	
'Public Servants'					
Accepted no bribe	18.46%	6.67%	28.57%	10.00%	25.71%
Observations	65	30	35	30	35
Chi-squared tests p-values		0.023		0.104	
Mean minimum acceptable bribe	7.54	7.39	7.72	7.74	7.34
Observations	53	28	25	27	26
t-tests (one tailed) p-values		0.330		0.703	
rank-sum tests (two-tailed) p-values		0.909		0.372	

Of the 'private citizens' only 18 percent offered the Nash equilibrium bribe of ₲6, while the remaining 82 percent deviated in a variety of ways: 26 percent chose not to offer a bribe at all; 37 percent offered a bribe of ₲10, thereby dividing the net total private return to corruption equally between themselves and the 'public servant'; 6 percent made offers below the Nash equilibrium, possibly erroneously; 1 percent made an offer of ₲11; and the remaining 10 percent made offers between ₲6 and ₲10. The strong mode at ₲10 is worthy of note: it is reminiscent of the oft seen modal offer of 50 percent in Ultimatum Games and suggests that norms or preferences relating to fairness or reciprocal kindness may have affected the 'private citizens' behaviour towards the 'public servants'.[19] While interesting, this pattern in the data cannot be taken as evidence of a social preference or internalized social norm for *not engaging in bribery because it is harmful to society*. For that we must turn to the comparisons across treatments.

In Figure 2 and the third and fourth columns of Table 5 the data on bribe offering has been separated according to the magnitude of the prevailing negative externality. In accordance with the third prediction made in section 2.2 above, 'Private citizens' were significantly (5% level) less likely to offer bribes when the externality was high, i.e., when greater harm was done to the 'other members of society' when bribes were offered and accepted. We also see an increase in the mean bribe offered, conditional on offering a

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[19] For a recent review of Ultimatum game results see Camerer, 2003.

bribe at all, when the negative externality was increased. This increase concurs with the fourth prediction made above. However, it is only significant (10% level) according to a one tailed t-test, the power of which may be questionable given the non-normality of our data, and is not significant according to a non-parametric, rank-sum test.
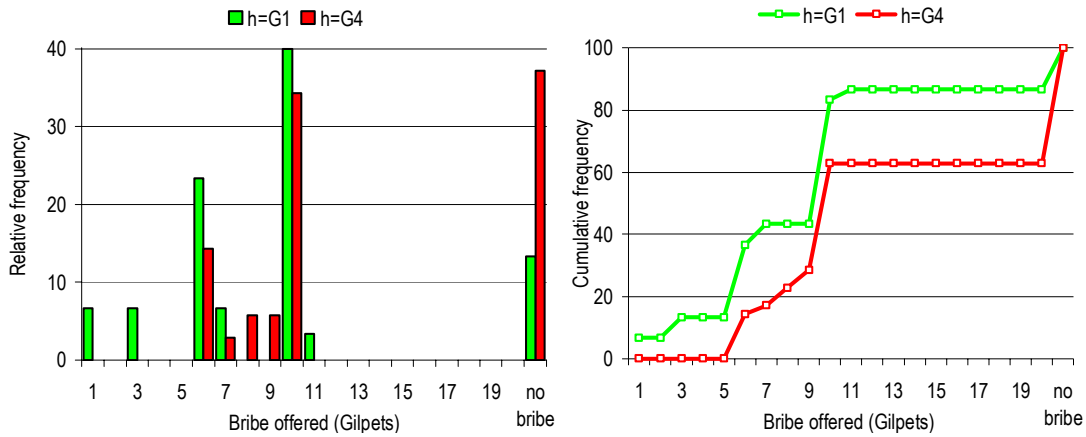

Figure 2: The effect of negative externalities on bribes offered
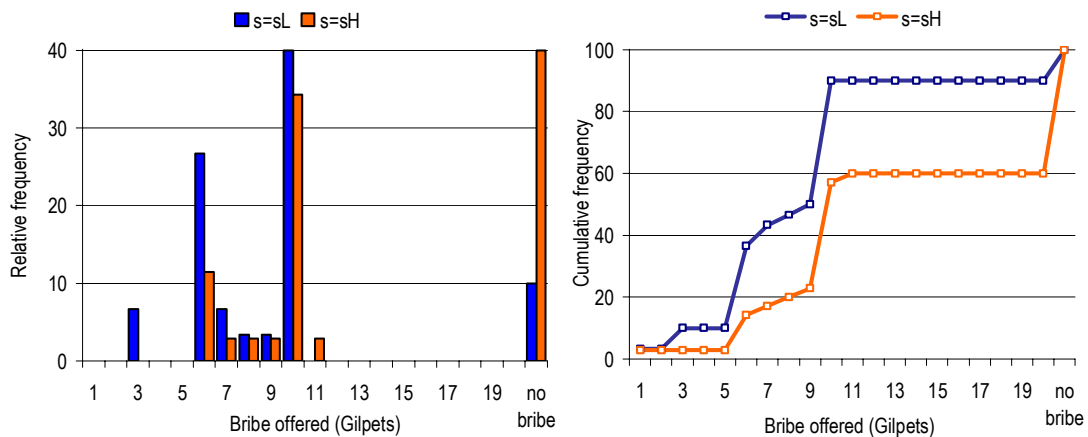
**Figure 3: The effect of framing on bribes offered**

In Figure 3 and the fifth and sixth columns of Table 5 the data on bribe offering has been separated according to whether the game was presented in abstract form ($s=s_L$) or framed as a corrupt transaction ($s=s_H$). Again, in accordance with the third prediction made above, 'Private citizens' were significantly (1% level) less likely to offer bribes when the corruption frame was applied, i.e., when the salience of a preference or norm associated with not engaging in bribery was greater. The increase in the mean bribe offered, conditional on offering a bribe at all, when the game was framed as a corrupt exchange concurs with the fourth prediction. However, it is only borderline significant

(10.4% level) according to a one tailed t-test and is not significant according to a non-parametric, rank-sum test.
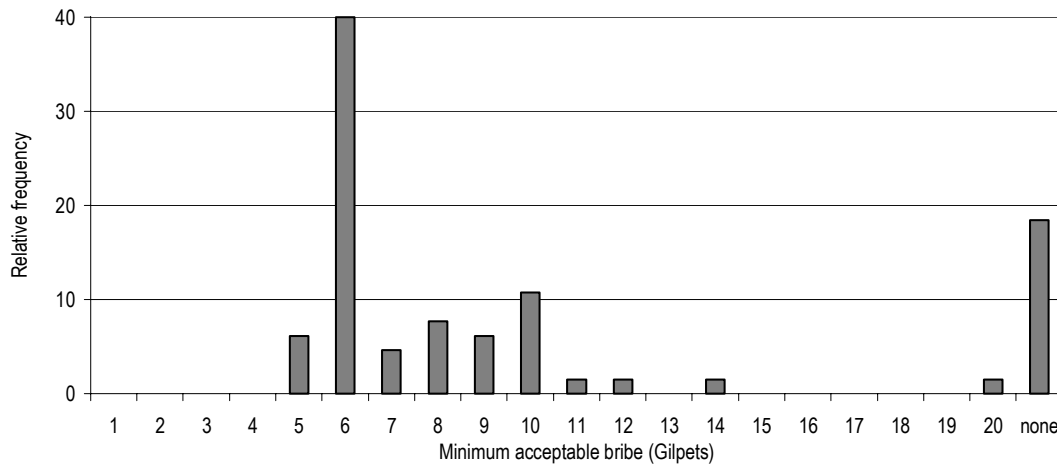

Figure 4: 'Public servants' minimum acceptable bribes in the bribery game

Figure 4 presents a histogram of the 'public servants' minimum acceptable bribes (MABs). 40 percent of the 'public servants' would have accepted the Nash equilibrium bribe of Ǥ6 and a further 6 percent would have accepted the break-even bribe of Ǥ5. Of the remaining 54 percent: 18 percent would not accept any bribe; only 11 percent chose a MAB of Ǥ10; 6 percent indicated MABs above Ǥ10; and 18 percent chose a MAB between Ǥ6 and Ǥ10. We see less evidence of a norm or preference for fairness or reciprocal kindness affecting the way the 'public servants' respond towards the 'private citizens' here, but still need to turn to the comparisons across treatments of evidence of a social preference or internalized social norm for *not engaging in bribery because it is harmful to society*.
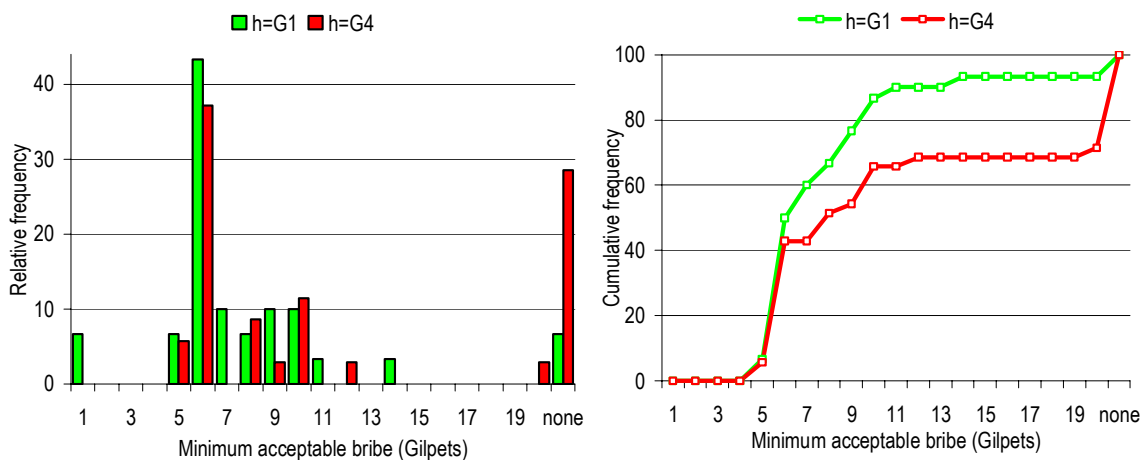
Figure 5: The effect of negative externalities on minimum acceptable bribes

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In Figure 5 and the third and fourth columns of Table 5 the data on MABs has been separated according to the magnitude of the prevailing negative externality. Consistent with the first prediction made is section 2.2 above, 'Public servants' were significantly (5% level) more likely to reject all possible bribes when the externality was high, i.e., when greater harm was done to the 'other members of society' when bribes were offered and accepted. The increase in the mean MAB, conditional on accepting at least one of the possible bribes, when the negative externality was increased concurs with the second prediction, but is not statistically significant.
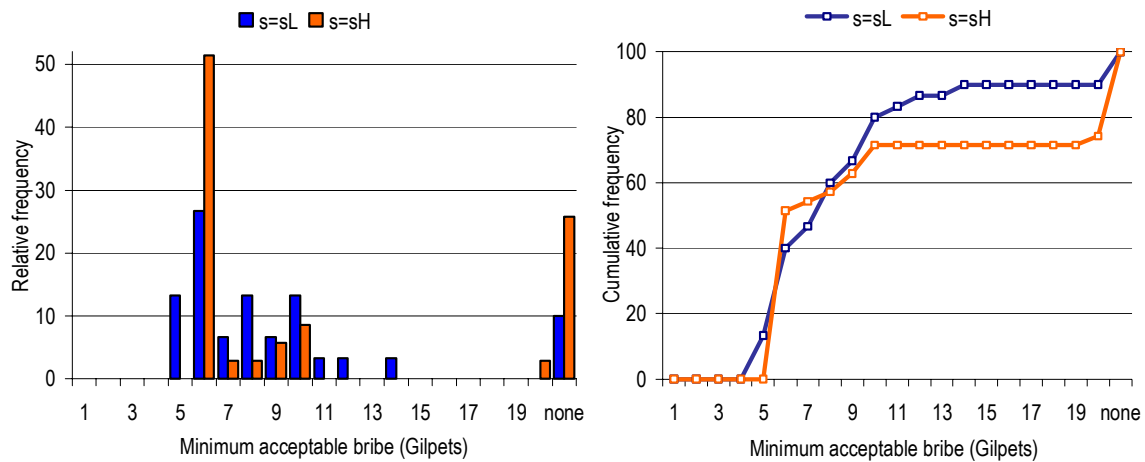
Figure 6: The effect of framing on minimum acceptable bribes

In Figure 6 and the fifth and sixth columns of Table 5 the data on MABs has been separated according to whether the game was presented in abstract form ($s=s_L$) or framed as a corrupt transaction ($s=s_H$). The figures indicate that in accordance with the first prediction, 'Public servants' were more likely to reject all bribes when the corruption frame was applied, i.e., when the salience of a preference or norm associated with not engaging in bribery was greater. However, this result is only borderline significant (at 10.4%). Finally, the decline in the mean MAB, conditional on accepting at least one of the possible bribes, as we move from the abstract to the corruption frame, does not concur with the second prediction, but is also not statistically significant.

4.2 Predicting experimental bribery using cross-country variations in corruption

In Table 6 we report the marginal effects, standard errors, and significance levels relating to two Probit regressions. In each, the dependent variable equals one for 'private

citizens' who offered bribes and zero for all other 'private citizens'. All standard errors have been adjusted to take account of possible non-independence of errors within sessions. The regression in the first column contains three independent variables, two dummy variables indicating whether the participant faced the low or high externality treatment and the low or high salience treatment and *corruption 2004*, our measure of the level of corruption prevailing in the participant's home country. The coefficients on the two dummy variables are both significant (5% level) and have the expected sign. However, *corruption 2004* is not significant.

Table 6: Probit analysis of bribe offering

	Dependent variable = 1 if participant offered a bribe	
	(1)	(2)
	All	All
$h = h_H$ (high negative externality)	-0.229 **	-0.250 **
	(0.100)	(0.093)
$s = s_H$ (corruption frame)	-0.289 ***	-0.308 **
	(0.094)	(0.090)
Corruption 2004	-0.014	0.414 ***
	(0.024)	(0.160)
Age		0.039 ***
		(0.013)
Age x *Corruption 2004*		-0.016 ***
		(0.005)
Pseudo R-squared	0.173	0.265
Observations	65	65

Notes: Standard errors (in brackets) are robust and have been adjusted to account for clustering within sessions. We report marginal effects of continuous variables and the effect of a change from zero to one in the case of dichotomous variables. *** - sig at 1% level, ** sig. at 5% level.

In the second column we introduce the age of the participant and the interaction between age and *corruption 2004*. Here, *corruption 2004*, age and the interaction between the two are each individually significant (1% level). They are also jointly significant (0.1% level). The coefficients on these three variables indicate that among younger participants, those from more corrupt countries were more likely to offer bribes in the experiment, while the opposite might be true among older participants. We use this regression to generate predicted probabilities that participants of various ages from a very uncorrupt country (*corruption 2004* = 1) and a very corrupt country (*corruption 2004* = 7) would bribe in the experiments under the high externality, high salience treatment. These predicted probabilities are plotted against age in Figure 7, which also presents the age

distribution of the participants who assumed the 'private citizen role in the game.[20] Tests of linear restrictions indicate that there is a significant (10% level) positive relationship between *corruption 2004* and bribing in the experiment for those aged 21 or less, i.e., for the youngest 31 percent of the sample who fall within the shaded area to the left of the figure. Similar tests indicate that there is a significant (10% level) negative relationship between *corruption 2004* and bribing in the experiment for those aged 29 or more, i.e., for the oldest 12 percent of the sample who fall within the shaded area to the right of the figure. Given the low density of observations in the shaded area to the right of the figure, we are unconvinced about the negative relationship between *corruption 2004* and the likelihood of bribing within the experiment among older participants.[21] Further, to ensure that the relationships identified in the second column of Table 6 are not being driven by the two outlying, older participants depicted on the far right of Figure 7, we re-run the Probit regression excluding these two observations. The coefficients on *corruption 2004* and the interaction term fall marginally but remain significant (10% level).
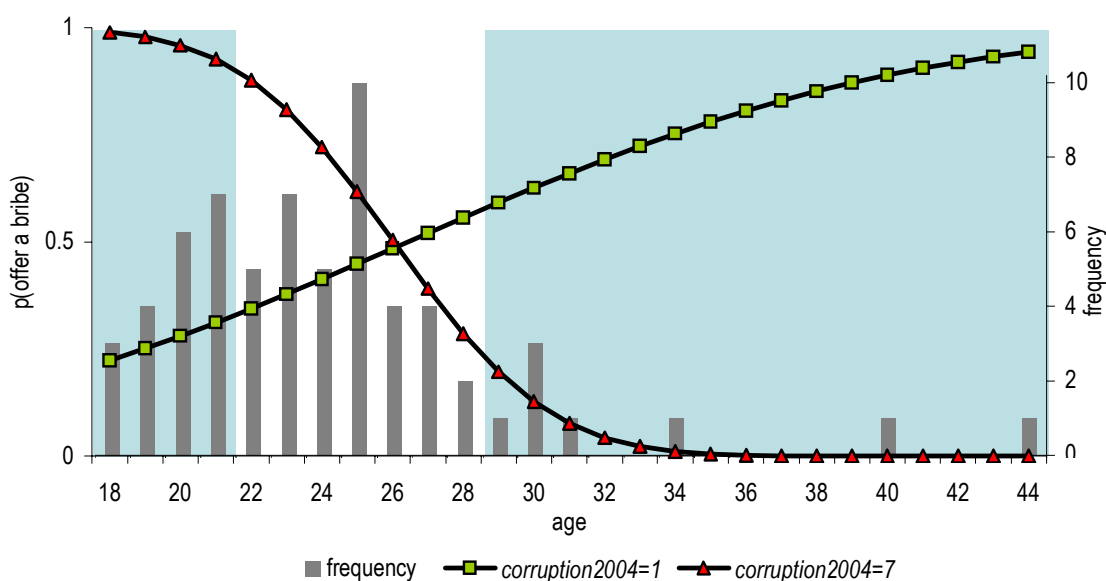
Figure 7: Predicted probabilities of bribing

If we restrict the sample to only 'private citizens' who offered a bribe and conduct a linear regression taking the magnitude of the bribe offered as the dependent variable, the

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[20] Finally, other participants' characteristics (sex, course of study, whether they are an only child, whether they consider themselves to be religious) are all insignificant when added to the regression in the second column and do not significantly alter the results.

[21] Further, if we restrict the sample to those with 24 years of age or less, we find a positive and significant relationship between *corruption 2004* and the likelihood of offering a bribe in the experiment, while for all possible sub-samples of older participants we find no significant negative relationship.

coefficients on both the treatment dummies, *corruption 2004*, age, and the interaction term are all insignificant.

Table 7: Probit analysis of bribe acceptance

	Dependent variable = 1 if participant accepted a bribe	
	(1) All	(2) All
$h = h_H$ (high negative externality)	-0.213 ***	-0.196 ***
	(0.078)	(0.071)
$s = s_H$ (corruption frame)	-0.161	-0.160
	(0.084)	(0.080)
Corruption 2004	-0.019	-0.071
	(0.022)	(0.103)
Age		-0.016
		(0.015)
Age x *Corruption 2004*		0.002
		(0.004)
Pseudo R-squared	0.153	0.165
Observations	65	65

Notes: Standard errors (in brackets) are robust and have been adjusted to account for clustering within sessions. We report marginal effects of continuous variables and the effect of a change from zero to one in the case of dichotomous variables. *** - sig at 1% level.

In Table 7 we conduct Probit analyses for bribe acceptance by 'public servants'. Here, the dependent variable equals one for 'public servants' who indicated that they would accept at least a bribe of Ǥ20 and zero for those who would accept no bribe. In these regressions only the dummy variable indicating whether the participant faced the high or low externality treatment is significant. *Corruption 2004* is never significant and this remains the case when *corruption 2004* is interacted with other participant characteristics.

A Tobit analysis of minimum acceptable bribes in which those 'public servants' who would accept no bribe are placed at an upper limit equal to Ǥ21, returns similar results. However, diagnostic tests indicate that this is driven by the differences between those who accept some bribes and those who accept none analysed above.

5. Discussion and conclusions

We took a sample of individuals from 43 countries with markedly different levels of corruption, presented them with a fully controlled set of private costs and benefits associated with corruption, and found, for younger participants, a statistically significant, positive relationship between the level of corruption prevailing in their home country and the likelihood of engaging in corruption, within the context of the experiment. This

finding suggests that variations in levels of corruption between countries may be due, in part, to variations in the social norms and preferences that have been internalized by the inhabitants of those countries.

We think that, while this result does not hold for all our experimental participants, it should to be taken seriously – certainly seriously enough to warrant efforts to seek replication in a larger sample, preferably draw from a different subject pool. There are numerous reasons why we might expect Oxford students to be unlike their compatriots, but it seems likely that these would cause them to act less rather than more in accordance with their national cultures, thereby biasing our main result away from significance.

That the positive relationship between corruption in the home country and corruption in the experiment could only be found for students assuming the role of 'private citizens' in the experiment is worthy of note. We could not predict the behaviour of individuals who assumed the role of 'public servants' and suspect that this is because the 'public servant' role would have been relatively unfamiliar to the students. While we would have preferred a significant result here also, this relative lack of predictability may support our argument about bias in the preceding paragraph and has interesting implications for the external validity of experiments in general. It suggests that external validity is greater the better the match between participants' real identities and the roles we ask them to assume in the experiments. This might also explain why we identified a relationship between experimental behaviour and TI's country-level assessments of corruption, while Cameron *et al* did not: where they asked their student participants to imagine themselves as large enterprises, we simply reminded ours that they were private citizens.

We could also find no such relationship for older students assuming the role of 'private citizens'. Here, three possible explanations spring to mind. First, it may be that the older students have been in the UK longer and have become acculturated to the UK's relatively uncorrupt environment as a result. We tested this hypothesis by asking participants who assumed the role of 'private citizens' when they left their home country and when they arrived in the UK. We used their answers to construct a measure of exposure to the UK and various other measures of exposure to different levels of corruption. However, we found that these data added nothing to our analysis and that age and its interaction with *corruption 2004* remained dominant. The second possible explanation is that older people become acculturated to new environments more quickly. And the third possible explanation is that the process by which individuals select or are

selected into the Oxford student population varies with age. Our current data does not allow us to test for the second and third explanations.

As well as providing evidence that cultural factors affect the levels of corruption prevailing in different countries, our experiments provide insights into the specific informal behavioural rules or preferences at work. A significant proportion of the students in our experiment chose not engage in corruption, even though it was individually and mutually (for the briber and bribee) advantageous to do so, and this proportion increased both as the amount of harm that bribery did to others and the extent to which the act of bribery in the game was likened to a real act of corruption were exogenously increased. Both of these findings indicate that a preference or norm for *not engaging in bribery because it is harmful to society* was affecting play. Previous experimental endeavours to isolate this effect have failed and we think our relative success could relate to the simplicity of our game. In Cameron *et al*'s bribery experiment the non-passivity of the 'other members of society' might have drawn the participants' attention away from the magnitude of the negative externality. Further, in their experiment the negative externality was always proportional to the bribe. The negative externality was independent of the magnitude of the bribe in Abbink *et al*'s experiment. However, as 'public servants' could accept a bribe without committing to supply a corrupt service, the bribers needed to be much more focused on inducing reciprocal kindness and may have paid less attention to third parties as a result. While we did not set out to identify such a reciprocity effect, there is, nevertheless, evidence of it in our data; many of the 'private citizens' who bribed, offered to share the private returns to bribery equally with the bribee even though, often, a lesser bribe would have secured the corrupt service.

It is worth taking a moment to think about which aspect of our game design (rather than our wider experimental design) most compromises the external validity of our findings. We think that it is the fact that the 'private citizens' and 'public servants' in our game knew precisely how much harm they would cause others by offering and accepting bribes, whereas in reality the magnitude of the harm and even whether it occurs at all is ambiguous. But if this is the case, our results suggest that one way of curbing corruption is to let people know how harmful it is.

Finally, putting speculation aside and returning to our three main findings, we conclude that corruption is, in part, a cultural phenomenon.

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Table A1: Survey questions on corruption

Question	Abreviation	Scales

How seriously do you think that corruption affects different spheres of life in the country <u>where you grew up</u>?
 	
    Political Life
    Business Environment
    Culture and Values in society
    Your personal life
	corruption in politics
	corruption in business
	corrupt culture and values
	corruption in personal life
		1 = not significant
		2 = somewhat significant
		3 = significant
		4 = very significant

In the country <u>where you grew up</u>, when in need of public health services, was it common for people to contact a relative, friend, or friend of a friend who worked in the service and/or offer favours/gifts to health workers in order to improve the speed or quality of the health service?	corruption in health	
In the country <u>where you grew up</u>, when trying to secure a job in the public sector, was it common for people to contact a relative, friend, or friend of a friend already working in a position of authority in the sector and/or offer favours/gifts to those in authority?	corruption in job market	1 = not at all common 2 = not very common 3 = somewhat common 4 = very common
In the country <u>where you grew up</u>, when trying to resolve a problem in hands of the police, was it common for people to contact a relative, friend, or friend of a friend working in the police force and/or offer favours/gifts to police officers?	corruption in police	

Do you think that each of the following actions can always be justified, never be justified, or something in between?
 	
    Jumping a queue in a public office by giving a "gift" to the public officer…
    Someone accepting a bribe in the course of their duties…
	bribe giving justifiable
	bribe taking justifiable
		1 = never
		2 = rarely
		3 = sometimes
		4 = always

Do you think that, in the country <u>where you grew up</u>, most people would try to take advantage of you if they got a chance, or would they try to be fair?	fairness in home country	1 = be fair 0 = take advantage
Do you think that, in the country <u>where you live now</u>, most people would try to take advantage of you if they got a chance, or would they try to be fair?	fairness in UK	

Source: Questions on perceptions of corruption in different spheres of life are drawn from Transparency International's Corruption Barometer. Questions on indirect experiences of corruption in the public job market and in the police follow a format originally developed by Vicente (2005). Questions about willingness to justify bribery and questions about fairness are drawn the World Value Survey.