

Aksoy, Billur; Eckel, Catherine C.; Wilson, Rick K.

Article

Can I rely on you?

Games

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Aksoy, Billur; Eckel, Catherine C.; Wilson, Rick K. (2018) : Can I rely on you?, Games, ISSN 2073-4336, MDPI, Basel, Vol. 9, Iss. 4, pp. 1-14, <https://doi.org/10.3390/g9040081>

This Version is available at:

<https://hdl.handle.net/10419/219202>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

Can I Rely on You?

Billur Aksoy ^{1,*}, Catherine C. Eckel ¹ and Rick K. Wilson ²¹ Department of Economics, Texas A&M University, College Station, TX 77843, USA; ceckel@tamu.edu² Department of Political Science, Rice University, TX 77005-1827, USA; rkw@rice.edu

* Correspondence: billuraksoy@tamu.edu

Received: 1 September 2018; Accepted: 10 October 2018; Published: 12 October 2018



Abstract: This paper introduces a strategic element into the dictator game by allowing recipients to select their dictator. Recipients are presented with the photographs of two dictators and the envelopes containing their allocations, and are then asked to select which dictator's gift they would like to receive. The recipient is paid the contents of the envelope they select. The photographs carry information about the gender and race/ethnicity of the dictators, and we ask an independent sample of raters to evaluate the photographs for other characteristics. While gender and ethnicity do not affect the recipient's choice, one characteristic inferred from the photos makes them significantly more likely to be selected: Their perceived reliability.

Keywords: dictator game; lab experiment; generosity; face evaluation

1. Introduction

Many interactions take place online. For example, people create profiles on LinkedIn to network professionally, on ziprecruiter.com to apply for jobs, on eBay to sell items, and on Tinder to find their soulmates. With the level of convenience and popularity of these online platforms, our faces become our brands and provide the very first impression in online interactions. Most people, if they are asked, believe that they are able to read other's faces, and can judge trustworthiness, generosity and a willingness to cooperate in others. These assessments may be based on the person's gender, ethnicity, attractiveness or other facial features. It is reasonable to ask just how good people are at making economically meaningful choices based on quick judgments from facial images. In this study we investigate the perceived generosity of dictators using the behavior of recipients who are able to choose their dictators.

In this study our primary focus is on subjects who are recipients in a modified dictator game. Each recipient is presented a pair of envelopes. The envelopes contain the allocation choices of dictators from a prior experiment, and have a photograph of the dictator affixed to the corner. Recipients decide which envelope, from the pair, that they wish to keep. Given that the subjects have no other basis by which to judge the contents of the envelopes, we assume that the photos are the basis of the choice. A rational recipient would select the envelope that she expects to contain the largest amount of money.

The design blocks the pairings of dictator photos based on gender and ethnicity. We have three findings. First, there is no obvious pattern in the choice of a dictator by gender or ethnicity. We expected that ethnicity would be a powerful cue, but that is not the case. Second, and related to this point, is that subjects do not choose dictators that are like themselves. For example, a white woman does not automatically choose a dictator who is also a woman, or a white person. Finally, subjects are reading something systematic from the photos. They are more likely to select photos that others have rated as being "reliable", where the reliability measure is the outcome of a factor analysis of a set of survey questions used to evaluate the photos. However, this judgement is not accurate, in that the "reading" of the dictator does not lead to a larger payoff for the recipient.

2. Motivation

There is an extensive literature on reading faces in dyadic games (particularly the trust game). For example, Scharlemann et al. show that first-movers in a trust game are more likely to extend their trust to a smiling face [1] (also see Centorrino et al. [2] and the references therein). People exhibit a greater trust in a hypothetical trust game where kinship is induced by morphing a trustor's face with the counterpart's face [3]. People are more likely to trust an attractive counterpart, and expect higher levels of trust from attractive first movers in the game [4] (see also Hancock and DeBruine [5], and Smith et al. [6]). Cultural cues are also important, ranging from skin color to the gender or ethnicity of one's counterpart [7–12]. All affect beliefs about trustworthiness.

Separate studies have focused on whether there are particular elements of human faces that signal trustworthiness. By systematically searching for facial markers of trustworthiness, Todorov and Duchaine [13] generate a set of computerized faces to match these markers. Subjects were able to pick out such faces as trustworthy, even when they were exposed to the image for as little as 100 milliseconds [14–16]. Several papers confirm that subjects are more likely to send money to faces rated as more trustworthy [17–19]. This finding is replicated in part by Tingley [20] who allows subjects to pick an avatar image to play the trust game. The images are taken from the stock of images generated by Todorov and Duchaine [13]. Subjects are more likely to choose an image that is rated as trustworthy and to act on the basis of the perceived trustworthiness of the avatar selected by their counterpart (see also Desteno et al. [21] and the use of a different type of avatar). In short when playing the trust game subjects are attentive to the facial features signaling the trustworthiness of their counterpart. Indeed, Eckel and Petrie [22] measure the willingness of subjects to pay to see the photographs of their counterparts in the trust game, indicating that subjects do expect to be able to infer trustworthiness from their reading of a person's face.

There are a number of studies using faces in the dictator game, typically (but not always) using photos of the recipient to convey information to the dictator. Additionally, Habyarimana et al. [23] include a dictator game in a multi-stage experiment for the purpose of measuring ethnic bias. In this experiment dictators view the images of two recipients and decide how to allocate a fixed pie between themselves and the recipients. The authors vary the ethnicity of the recipients and find little evidence for ethnic bias (in part because subjects had difficulty identifying differences among ethnic groups in the study site of Uganda). They find that about 40 percent of the total pie is allocated to the photographed recipients. Attractiveness of the recipient may also play a role in dictator's decision. For example, Rosenblat [24] uses a photo condition in a dictator experiment in which the dictator sees a headshot of the recipient. She focuses on the attractiveness of the recipient and finds a slight beauty penalty in that condition—more attractive people receive less. But when dictators also hear the voice of the recipient, the beauty premium reappears, with attractive people receiving more. However, Bhogal et al. [25] find little effect in allocations accounted for by beauty in an experiment in which the dictator can see the recipient, but not vice-versa (using a lab with one-way mirrors). They find similar results in a second study in which both dictators and recipients can see one another. The closest study to our own is Burnham [26]. They take photos of the dictators and use them to examine the effect on giving of revealing the dictator's identity to the recipient.¹ (Also see Buchanan et al. [27] for a videotaped version of this experiment). Furthermore, research finds that just looking at abstract eyes, which may create the impression that dictator's actions are being watched, increases dictator giving [28]. Almost all of the interest by researchers focuses on dictator behavior, and how dictator giving varies depending on cues embedded in the photo or video images of the recipient. In this design we instead allow the recipients to choose between dictators based on their photos. We focus on recipient behavior, and examine whether recipients infer something about the dictator based on

¹ In one treatment, the dictator's photo was included in a sealed envelope and given to a recipient. And in a second treatment, the photo of the recipient was shown to the dictator prior to making the allocation decision.

their photographic image. We are interested in whether recipients, when forced to choose between two dictators, make systematic choices that reveal a preference for gender, ethnicity or some other observable characteristic of the photograph.

3. Materials and Methods

In this experiment, subjects played the role of the recipient in the dictator game. We provided them a pair of envelopes. Each envelope contained the amount left by a dictator from a previous study as explained in Appendix A, as well as a small color picture of the dictator that was affixed in the upper right corner, outside the envelope. Using neutral language, we explained how the dictators made decisions in a previous experiment, and asked recipients to choose one of the two envelopes in the pair to keep (instructions are provided in Appendix B). In other words, each recipient was provided two envelopes and chose their dictators, keeping whatever was in the envelope. Each recipient was provided four unique pairs of envelopes, one at a time, and chose one from each pair. Thus, they made a total of four choices. Next, they answered a brief survey. At the end, two of the four envelopes the recipients picked were randomly selected. Subjects opened these envelopes and the experimenter recorded their selections and their earnings.

Each envelope contained 15 objects (a combination of one-dollar bills and blank paper slips of the same size and texture as one-dollar bills). The number of one-dollar bills in each envelope was determined by the dictator whose photo was attached to the envelope. For example, if the dictator left \$7, then the envelopes with this dictator's photo contained seven one-dollar bills and eight paper slips. This was to ensure that the envelopes themselves did not signal to the recipient anything about the contents.

The dictator decisions presented to the subjects were selected from the decisions of two groups of subjects who participated as dictators prior to this experiment. One group of subjects at the University of Houston (UH) (August 2001) and another group at Virginia Tech (VT) (February 2002) participated in a dictator game experiment as dictators (details are provided in Appendix A). We collected the dictator decision data from these two different locations to ensure diversity in our dictator sample. After we collected the decisions from the initial set of 51 dictators, we selected 22 dictators to be used in this study. We used the dictators' ethnicity, gender and the giving behavior in the dictator game as the basis for generating our envelope pairs.

Table 1 presents the details of the pairings presented to subjects in our design. These consist of 5 (ethnicity) $\times$ 3 (gender) $\times$ 4 (fairness) dictator conditions. In the aftermath of 11 September 2001, we focused on photos of dictators that were recruited from the Muslim Student Association at Virginia Tech (we will refer to this group as MSA); and we also included African-American (black) and Caucasian-American (white) subjects. From our reduced set of dictators, we created five ethnicity pairings, as seen in the first column of Table 1 (a). We also controlled for the gender of the dictators, which gives us three gender pairings, as seen in the second column. Finally, we classified the photos based on what they sent to their counterpart. By design, this final categorization was not revealed to the recipients. However, we were interested to study whether people would be able to detect the more generous decisions by just looking at the dictators' photos. Dictators were classified as either self-interested (sending five dollars or less) or generous (sending seven dollars or more). We had a total of 60 unique envelope pairings. The breakdown of these pairings can be seen in Table 1 (b) and the full list is provided in Appendix C. Due to the fact that we had a limited number of dictators, we were careful to ensure that no subject saw the same picture twice. The choice of the photo-tagged envelope (when presented with its paired envelope) constitutes the main experimental outcome and the dependent variable in our analysis below.

Table 1. Experimental design.

(a) Envelope Pairings							
Ethnicity		Gender		Fairness			
	Black/MSA	male/male		self-interested/self-interested			
	White/MSA	female/female		generous/generous			
	MSA/MSA	mixed		generous/self-interested			
	White/White			self-interested/generous			
	Black/Black						
(b) Number of pairings in each cell							
		Black		White		MSA	
		Female	Male	Female	Male	Male	Female
Black	Female	3					
	Male	4	2 *				
White	Female	-	-	3			
	Male	-	-	4	3		
MSA	Female	4	3 *	4	4	3	
	Male	4	4	4	4	4	3

* These two cells are missing an envelope pairing each. The missing pairings are indicated in Appendix C. We have only three fairness pairings in the pairs with the same gender and the same ethnicity cells. This is because generous/self-interested combination is the same as self-interested/generous combination in these cells. MSA, Muslim Student Association.

Evaluation of Dictator Photos

An independent group of students evaluated the photos of the dictators in Fall 2001 and Spring 2002. On average each image was evaluated by 21.8 subjects. VT students evaluated the photos of the dictators from the UH; and Rice University students evaluated the photos of the dictators from VT. This was designed to ensure that subjects doing the evaluations did not know the person being evaluated. The details of the photo evaluation are provided in Appendix D.

Using 15 opposite word/pair items, students were asked to indicate how well they thought each specific word pair fit the person in the photo. For example, given the word pair Honest/Dishonest, students were asked to rate the photo on a six-point scale. In this instance if the student thought the person in the photo was honest, then she would choose values from 1 through 3, with 1 being the highest category of honesty. However, if the student thought the person in the image was dishonest, then she would pick values from 4 through 6, with the latter representing the most dishonest category. Photos are rated on these dimensions: Motivated, trusting, competitive, trustworthy, hardworking, intelligent, selfish, honest, respectful, attractive, excitable, friendly, happy, accepting, and dependable (see Appendix D for the set of items and a sample decision sheet).

We use the results of these evaluations as control variables in the analysis. Because of the focus on attractiveness in prior studies, the attractiveness rating enters directly. We also used factor analysis to identify a second measure. First, we take the remaining 14 opposite word-pair items and scale them in the same direction. Exploratory factor analysis indicate that these items loaded on a single dimension (only one factor has an eigenvalue greater than 1). Using Cronbach's alpha ($\alpha = 0.86$) as a guide we removed four items, leaving the factor containing the following measures: Motivated, trusting, trustworthy, hardworking, intelligent, honest, respectful, friendly, happy, accepting, and dependable. Considering the word-pair items that load on this factor, we believe it is related to one's perceived level of reliability. Thus, we term this factor "reliable". From this we generate factor scores for a single factor and calculate the average score for each dictator. We use these values as a covariate.

4. Results

A total of 98 subjects (59% male) played the dictator game as recipients and made a total of 278 decisions.² At Rice University (41 subjects), subjects were recruited from the Behavioral Research Laboratory subject pool database and from commons areas on the Rice campus. At Virginia Tech (VT) (57 subjects), the experiments were conducted in the Lab for the Study of Human Thought and Action (LSHTA), and recruited from the LSTA subject pool by email. The experiments were conducted in March 2002 and in November 2002.

We first study whether gender or ethnicity of the dictator affected their probability of being chosen by the recipients. The probability of each dictator being chosen given the characteristics of the other envelope in the pair is provided in Table 2. On average, when MSA dictators were matched with black dictators, MSA dictators were chosen 47% of the time. When they were matched with White dictators, MSA dictators were chosen 55% of the time. Additionally, when females and males were matched, females were picked 56% of the time. Using a binomial probability test, we find that the probabilities presented in Table 2 are not statistically different than a random draw of 50% except one. When male MSA dictators were paired with female black dictators, they were significantly less likely to be chosen (p -value: 0.049).

Table 2. The probability of a dictator being chosen given the paired dictator's characteristics.

		Not Chosen							
		Black		White		MSA			
		Female	Male	Female	Male	Female	Male		
CHOSEN	Black	Female	not reported	0.50	-	-	0.31	0.76	
		Male	0.50	not reported	-	-	0.61	0.45	
	White	Female	-	-	not reported	0.50	0.57	0.44	
		Male	-	-	0.50	not reported	0.45	0.35	
	MSA	Female	0.69	0.39	0.43	0.55	not reported	0.68	
		Male	0.24	0.55	0.56	0.65	0.32	not reported	
	Overall		0.47		0.55				

The number of times each dictator was chosen given the paired dictator's characteristics can be found in Table A2 (Appendix E). MSA, Muslim Student Association.

We further explore the data using a fixed effects conditional logit model.³ This model lets us study subjects' choice behavior based on the characteristics of the alternative envelope (dictators), as well as the decision makers (recipients). Table 3 presents estimated odds ratio for each variable; significance tests are for differences from 1.

The dependent variable in all models is "Chosen", which takes the value of one if the envelope was chosen, otherwise zero. The variables Female Dictator, White Dictator, White Female Dictator, Black Dictator, and Black Female Dictator are dummy variables that take the value of one if the picture on the envelope was female, white, white female, black, or black female respectively. Self-Interested is a dummy variable that takes the value of one if the dictator sent \$5 or less, and zero otherwise. This was not observed by the recipients. We include this to check whether the recipients were good at guessing which envelopes contained more money. Same Gender, Same Ethnicity and Same Ethnicity and Gender are dummy variables that take the value of one if the dictator and the decision maker shared the same gender, ethnicity and both respectively. Finally, we include two variables that are the evaluations of the dictator's face. The variable Attractive is the average attractiveness evaluation of

² Each recipient made four choices and was paid for two. Due to a misunderstanding, only the two envelopes that were used in payment were recorded by the experimenter for 57 subjects whereas all four choices of 41 subjects were recorded. Because the outcomes for which they were paid were randomly chosen, it introduces no bias into our estimates.

³ An alternative way of analyzing our data is to use a rank-ordered logit regression. Due to the nature of our experimental design (i.e., our data only includes the unique best alternative), these two methods produce the same exact estimations.

the dictator. The higher the value the more attractive the photo was rated. We also created a factor (Reliable) using a factor analysis of the facial evaluations of each dictator. Reliable is constructed using an exploratory factor analysis, as described above. The higher the value, the more the dictator was perceived as reliable.

Table 3. Conditional fixed effects logit regression results.

DV: Chosen	(1)	(2)	(3)	(4)
Dictator Characteristics				
Female Dictator	1.293 (0.336)	1.288 (0.345)	1.206 (0.340)	1.196 (0.349)
White Dictator	0.830 (0.244)	0.921 (0.370)	1.174 (0.384)	1.329 (0.555)
White Female Dictator	1.092 (0.424)	1.112 (0.447)	0.781 (0.328)	0.793 (0.345)
Black Dictator	1.394 (0.445)	1.395 (0.451)	1.252 (0.407)	1.254 (0.411)
Black Female Dictator	0.749 (0.330)	0.752 (0.335)	0.692 (0.312)	0.696 (0.318)
Self-interested	1.135 (0.215)	1.130 (0.213)	1.021 (0.203)	1.014 (0.201)
Dictator and Recipient Characteristics				
Same Gender		0.986 (0.204)		0.985 (0.206)
Same Ethnicity		0.823 (0.408)		0.823 (0.410)
Same Ethnicity and Gender		1.078 (0.445)		1.028 (0.423)
Dictator Face Evaluation Variables				
Attractive			0.886 (0.205)	0.888 (0.205)
Reliable			1.874 *** (0.443)	1.874 *** (0.443)
Number of Subjects	98	98	98	98
Observations	556	556	556	556
Log pseudolikelihood	−191.3	−191.3	−186.8	−186.8

*** $p < 0.001$. Odds ratios are presented. Standard errors clustered at individual level are in parentheses.

Looking at the first column in Table 3, we see that neither the ethnicity nor the gender of the dictator has an impact on the odds of a dictator being chosen. Additionally, we include Self-interested to check whether the recipients are good at guessing which envelopes contain more money. We conclude that subjects are not good at picking the envelope with the larger amount left, since the coefficient is not significant. In fact, they do not do better than randomly selecting one of the envelopes.⁴ Column 2 shows that whether the decision maker (the recipient) and the dictator share the same Ethnicity, gender, or both have no significant impact on the odds of an envelope being chosen. Finally, in columns 3 and 4, we include variables related to the facial evaluations of the dictators. Like Bhogal et al. [25], we find

⁴ Dictators that were chosen left \$4.23 on average while those not chosen left \$4.38 in the envelopes (Mann-Whitney test p -value is 0.7227).

that attractiveness of the dictator does not play a significant role on recipient's decision. However, we do find that dictators with higher reliability ratings have higher odds of being chosen.

We also analyze the data using a mixed logit model. Mixed logit model has some advantages over the conditional logit model, since it relaxes some underlying assumptions (see Hensher and Greene [29] for a detailed discussion of this model). Here, we are interested in the preference heterogeneity in our sample. Appendix E Table A3. presents the constant parameter estimates, as well as the standard deviation of random parameters. We do not see any heterogeneity across individuals in the extent to which their decisions are affected by the gender or ethnicity of the photos. We confirm the positive impact of Reliable. However, there is no heterogeneity across individuals in their response to Reliable.

From these findings, we conclude that the recipients do not react to ethnicity or gender as a signal of generosity. Recipients, however, seem to be reading something else into the photos: Whether the dictator are deemed reliable or not. The reliability rating of the dictators significantly affects the recipients' choice. However, dictators who have higher reliability ratings are not more generous. Estimating a simple linear regression of the amount left in the envelope (Amount Left) on Reliable (see Table 4), we do not find any significant effect. Thus, although recipients pick the envelopes with dictators who seem more reliable, these dictators are not more generous.

Table 4. Linear regression results.

DV: Amount Left	
Reliable	0.550 (1.220)
Constant	4.504 *** (0.690)
Number of Subjects	22

*** $p < 0.001$.

5. Conclusions

The literature finds that dictators are attentive to their recipient's photograph when deciding an allocation, but we find little evidence that recipients use gender and ethnicity information (embodied in a photograph) when choosing among dictators. We expected that recipients would be more likely to pick people similar to themselves. This is not the case for either gender or race/ethnicity. It is also the case that people do not use these obvious signals in making their choice—that is, we find no overall preference for individuals of a specific gender or ethnicity. However, recipients do rely on something they read into the photographs. As distilled from raters of the photos, we find that a combination of items relating to an assessment of the reliability of the image in the photo matters. This combination of factors (survey questions evaluating the extent to which the photos appear motivated, trusting, trustworthy, hardworking, intelligent, honest, respectful, friendly, happy, accepting, and dependable) may constitute a kind of heuristic for selecting partners who are more likely to be cooperative. Along a similar line, Eisenbruch et al. [30] find that, in the ultimatum game, subjects use heuristics, such as the appearance of strength, kindness, productivity, health and social status, inferred from photographs of their counterparts, in deciding how much to offer in the game.

We do not find that such a signal translates into economic benefits. Recipients make no more in their choice of an image that is viewed as "reliable" than if they had picked the less reliable in the pair. This result may indicate that subjects are unable to infer true reliability from the photos, or it may be merely an artifact of the experimental design in which only one side of the transaction views the photos. In our study subjects who were dictators did not know who their potential recipients might be. A hint at what might be going on can be seen in the results reported in Eckel and Petrie [22]. In their study, subjects can pay to view a photo of their counterpart. Many subjects purchase the photos,

but doing so does not increase their earnings on average; subjects are not able to infer trustworthiness of a partner just by looking. Earnings of the pair (trustor and trustee) are only higher when both parties have decided to view the other's photo—when they are face-to-face. This hints at the possibility that accurate inferences may depend, not on the photo per se, but on the pairing. Future research may discover whether “reliability” is an honest signal of cooperativeness when both players see each other's faces.

Author Contributions: Conceptualization, C.C.E. and R.K.W.; Data curation, B.A. and R.K.W.; Formal analysis, B.A. and R.K.W.; Funding acquisition, C.C.E. and R.K.W.; Investigation, C.C.E. and R. K.W.; Methodology, B.A., C.C.E. and R.K.W.; Project administration, R.K.W.; Resources, C.C.E. and R.K.W.; Writing—original draft, B.A.; Writing—review & editing, B.A., C.C.E. and R.K.W.

Funding: This research was funded by National Science Foundation, grant number SES 98-19943.

Acknowledgments: We thank Selhan Sahin for research assistance. We also thank Sheryl Ball, and the staff at the Lab for the Study of Human Thought and Action (LSHTA) at Virginia Tech and the Behavioral Research Lab (BRL) at Rice for facilitating the experiments. Finally, we thank Paolina Medina and Marco Palma for providing their insights on data analysis.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Appendix A. Dictator Decisions

Twenty eight students from the University of Houston (UH) (August 2001) and 23 from Virginia Tech (VT) (February 2002) participated in a dictator game experiment as dictators. IRB approvals were obtained in the corresponding universities. Students from two different locations were used because we wanted to ensure that these students would not be recognized by Rice University students where our main experiment took place. Additionally, we wanted diversity in our sample and sampling was deliberately based on gender and ethnicity characteristics. In recruitment, we deliberately recruited black and white students at University of Houston, and oversample of students from the Muslim Student Association at Virginia Polytechnic Institute and State University.

On arrival to the lab, a picture of their face was taken and subjects were told that the image was to be used in another lab experiment. Photographs were cropped such that all images had the same dimensions and looked uniform. Two different procedures were used to elicit dictator decisions. UH subjects were given seven different binary allocation decisions similar to the choice given in Figure A1. Subjects would mark one choice for each of the decisions. They were told that allocation for the other subject would go to a student at a different location. One of these seven decisions was randomly chosen to be payoff relevant. Based on this randomly selected decision, a separate experimenter prepared the payment envelopes. Each envelope contained 15 objects (a combination of one dollar bills and blank paper slips depending on the decision made). Table A1 presents the complete list of alternatives given to the dictators.

Allocation A	Allocation B
Your Earnings: \$8.00	Your Earnings: \$14.00
Other's Earnings: \$7.00	Other's Earnings: \$1.00

Mark Your Choice

A

B

Figure A1. Dictator Decision. This is an example of a binary allocation decision used by University of Houston subjects.

Table A1. List of alternatives.

Decision	Allocation A		Allocation B	
	Dictator's Earnings	Recipient's Earnings	Dictator's Earnings	Recipient's Earnings
1	\$8	\$7	\$14	\$1
2	\$7	\$8	\$14	\$1
3	\$14	\$1	\$12	\$3
4	\$10	\$5	\$14	\$1
5	\$12	\$3	\$10	\$5
6	\$10	\$5	\$8	\$7
7	\$8	\$7	\$12	\$3

The VT subjects played a traditional dictator game. The VT subjects were handed two envelopes (that read KEEP and SEND), 15 one dollar bills and 15 blank slips of paper the same size and texture as one dollar bills. Subjects were also provided with written instructions and they were then sent to a privacy table. Subjects were asked to place 15 objects in each envelope which determined how much of their endowment they kept to themselves and sent to the recipient. Subjects were asked to write them their unique experimental IDs on the envelope SEND, seal it and drop in a box on their way out. Subjects were told that the contents of the envelope SEND would go to another student, at a different campus, also participating in an experiment.

A subset of the images was then used in our main experiment. We selected 22 of the 51 photos for the experiment using the experimental design explained in Section 3. Images were selected based on their demographic characteristics (ethnicity and gender) and whether they were self-interested (sending five dollars or less) and generous (sending seven dollars or more).

Appendix B. Recipient Instructions

IRB Approvals Were Obtained in 2002 at Rice University and Virginia Tech

In each envelope you will find fifteen pieces of paper, some of which are one-dollar bills and the rest are blank pieces of paper.

Here is the experiment that subjects like you participated in at another location.

1. Upon arrival to the experimental laboratory, a photo of each person is taken, and each person was randomly assigned a subject number.
2. Each subject was given an envelope that contained 15 one-dollar bills and 15 blank slips of paper.
3. According to their subject number, each person was directed to a private decision room.
4. In this room they decided how many dollar bills (if any) and how many slips of paper to leave in the envelope. The only requirement was that the number of dollars bills plus the number of slips of paper were to add up to 15. Example: The person might (a) Leave \$2 and 13 slips in the envelope, pocket \$13 and two slips; (b) Leave \$9 and six slips in the envelope, pocket \$6 and nine slips. These were examples only; the actual decision was up to each person.
5. The person then pocketed the remaining dollar bills and slips of paper.
6. Once the decision is made, the person sealed his/her envelope, and then the experimenter stapled the person's picture to the envelope. The envelope was then dropped in a box.
7. These persons were told that the envelopes would be distributed to subjects at another location, and that the recipient of an envelope would get to keep its contents. They were told that the recipient would open the envelopes, and that an experimenter would record the contents.
8. This concluded their part of the experiment.

Are there any questions? Please make sure you understand the task presented to those other people.

Appendix C. List of Envelope Pairings

Group 1: Same sex, different ethnicity

Female White (Generous)–Female MSA (Generous)
 Female White (self-interested)–Female MSA (self-interested)
 Female White (Generous)–Female MSA (self-interested)
 Female White (self-interested)–Female MSA (Generous)
 Female Black (Generous)–Female MSA (Generous)
 Female Black (self-interested)–Female MSA (self-interested)
 Female Black (Generous)–Female MSA (self-interested)
 Female Black (self-interested)–Female MSA (Generous)
 Male White (Generous)–Male MSA (Generous)
 Male White (self-interested)–Male MSA (self-interested)
 Male White (Generous)–Male MSA (self-interested)
 Male White (self-interested)–Male MSA (Generous)
 Male Black (Generous)–Male MSA (Generous)
 Male Black (self-interested)–Male MSA (self-interested)
 Male Black (Generous)–Male MSA (self-interested)
 Male Black (self-interested)–Male MSA (Generous)

Group 2: Different sex, different ethnicity

Female MSA (Generous)–Male White (Generous)
 Female MSA (self-interested)–Male White (self-interested)
 Female MSA (Generous)–Male White (self-interested)
 Female MSA (self-interested)–Male White (Generous)
 Female MSA (Generous)–Male Black (Generous)
 Female MSA (self-interested)–Male Black (self-interested)
 Female MSA (Generous)–Male Black (self-interested)
 Female MSA (self-interested)–Male Black (Generous) – not present
 Female White (Generous)–Male MSA (Generous)
 Female White (self-interested)–Male MSA (self-interested)
 Female White (Generous)–Male MSA (self-interested)
 Female White (self-interested)–Male MSA (Generous)
 Female Black (Generous)–Male MSA (Generous)
 Female Black (self-interested)–Male MSA (self-interested)
 Female Black (Generous)–Male MSA (self-interested)
 Female Black (self-interested)–Male MSA (Generous)

Group 3: Different sex, same ethnicity

Female MSA (Generous)–Male MSA (Generous)
 Female MSA (self-interested)–Male MSA (self-interested)
 Female MSA (Generous)–Male MSA (self-interested)
 Female MSA (self-interested)–Male MSA (Generous)
 Female Black (Generous)–Male Black (Generous)
 Female Black (self-interested)–Male Black (self-interested)
 Female Black (Generous)–Male Black (self-interested)
 Female Black (self-interested)–Male Black (Generous)
 Female White (Generous)–Male White (Generous)
 Female White (self-interested)–Male White (self-interested)
 Female White (Generous)–Male White (self-interested)
 Female White (self-interested)–Male White (Generous)

Group 4: Same sex, same ethnicity

Female White (Generous)–Female White (Generous)
 Female White (self-interested)–Female White (self-interested)
 Female White (Generous)–Female White (self-interested)

Female Black (Generous)–Female Black (Generous)
 Female Black (self-interested)–Female Black (self-interested)
 Female Black (Generous)–Female Black (self-interested)
 Female MSA (Generous)–Female MSA (Generous)
 Female MSA (self-interested)–Female MSA (self-interested)
 Female MSA (Generous)–Female MSA (self-interested)
 Male White (Generous)–Male White (Generous)
 Male White (self-interested)–Male White (self-interested)
 Male White (Generous)–Male White (self-interested)
 Male Black (Generous)–Male Black (Generous)
 Male Black (Generous)–Male Black (self-interested)
 Male Black (self-interested)–Male Black (self-interested)–not present
 Male MSA (Generous)–Male MSA (Generous)
 Male MSA (self-interested)–Male MSA (self-interested)
 Male MSA (Generous)–Male MSA (self-interested)

Appendix D. Photo Evaluations

Two different approaches were taken. At VT, 457 students evaluated the dictator photos from the UH. Each student evaluated only one photo. The evaluations took place in large, introductory, classes at the beginning of the semester. Students were asked to voluntarily do one evaluation and were told it was part of a larger study. Students were given a single sheet of paper with a high definition picture approximately 1.3 inches high by 1.8 inches wide. On the sheet were 20 opposite word pairs. Students were asked to indicate how well they thought each specific word pair fit the image. For example, given the word pair Honest/Dishonest, students were asked to rate the photo on a six-point scale. In this instance if the student thought the person in the photo was honest, then she would choose values from 1 through 3, with 1 being the highest category of honesty. However, if the student thought the person in the image was dishonest, then she would pick values from 4 through 6, with the latter representing the most dishonest category. Four additional questions were included asking about the sex and ethnicity of the image and that of the rater. Students entered their responses on a scantron sheet (see next page) and when finished (the task took less than 10 min) were thanked for their time.

The Rice students evaluated the VT photo using an on-line system. Subjects were recruited from the Behavioral Research Lab subject pool and asked to go to a URL where they would see the photo, carry out an evaluation, and then see a new photo. Subjects were paid \$.25 per photo and could evaluate a maximum of 20 photos. The photos were randomly assigned to each subject and presented in a random order. We eliminated five of the opposite word pair items (fragile/tough; plain/pretty; modest/boastful; kind/cruel; passive/aggressive), such that these subjects had 15 opposite word pair evaluations per photo. The words were presented in clusters of 5, with the word pairs randomly ordered.

Scantron Sheet Example

[image] ID: 1319003	In the space provided on the scantron sheet for your social security number please enter the 7 digit ID code printed under the image on the left. Below I provide pairs of words that have opposite meanings. For each of the pairs of words, please pick a number and enter it on the scantron sheet. If the word on the left best describes the image, then choose values 1 through 3, depending on strongly you feel the word describes the image. If the word on the right best describes the image then choose values ranging from 4 through 6.
---	--

		Very Strong	Strong	Weak	Weak	Strong	Very Strong	
1	Motivated	1	2	3	4	5	6	Unmotivated
2	Suspicious	1	2	3	4	5	6	Trusting
3	Modest	1	2	3	4	5	6	Boastful
4	Competitive	1	2	3	4	5	6	Cooperative
5	Trustworthy	1	2	3	4	5	6	Untrustworthy
6	Hardworking	1	2	3	4	5	6	Lazy
7	Unintelligent	1	2	3	4	5	6	Intelligent
8	Tough	1	2	3	4	5	6	Fragile
9	Selfish	1	2	3	4	5	6	Generous
10	Honest	1	2	3	4	5	6	Dishonest
11	Respectful	1	2	3	4	5	6	Disrespectful
12	Unattractive	1	2	3	4	5	6	Attractive
13	Excitable	1	2	3	4	5	6	Calm
14	Unfriendly	1	2	3	4	5	6	Friendly
15	Happy	1	2	3	4	5	6	Sad
16	Passive	1	2	3	4	5	6	Aggressive
17	Complaining	1	2	3	4	5	6	Accepting
18	Pretty	1	2	3	4	5	6	Plain
19	Irresponsible	1	2	3	4	5	6	Dependable
20	Kind	1	2	3	4	5	6	Cruel
21	Sex of Photograph?	1 = Male 2 = Female						
22	Ethnicity of Photograph?	1 = African-American 2 = Asian-American 3 = Caucasian 4 = Hispanic 5 = Other						
23	Your Sex?	1 = Male 2 = Female						
24	Your Ethnicity?	1 = African-American 2 = Asian-American 3 = Caucasian 4 = Hispanic 5 = Other						

Appendix E. Tables

Table A2. The number of times a dictator was chosen given the paired dictator's characteristics.

		NOT CHOSEN					
		Black		White		MSA	
		Female	Male	Female	Male	Female	Male
CHOSEN	Black	Female	not reported				
		Male	10/20	not reported			
	White	Female	-	-	not reported		
		Male	-	-	9/18	not reported	
	MSA	Female	11/16	5/13	9/21	11/20	not reported
		Male	4/17	11/20	5/9	17/26	6/19
							not reported

MSA, Muslim Student Association.

Table A3. Random Parameter (Mixed) Logit Estimation Results.

Variables	(1)		(2)		(3)		(4)	
DV: Chosen	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
Female Dictator	1.361 (0.559)	1.230 (2.552)	1.372 (0.822)	0.835 (1.957)	1.234 (0.443)	1.007 (0.027)	1.241 (0.502)	1.007 (0.027)
White Dictator	0.807 (0.270)	1.730 (4.887)	0.892 (0.469)	1.675 (6.536)	1.165 (0.466)	2.182 (3.123)	1.298 (0.654)	2.166 (3.565)
White Female Dictator	1.085 (0.553)	2.467 (6.341)	1.105 (0.597)	2.711 (10.174)	0.692 (0.396)	0.962 (0.113)	0.698 (0.432)	0.962 (0.131)
Black Dictator	1.417 (0.533)	1.067 (0.068)	1.418 (0.548)	1.071 (0.086)	1.263 (0.443)	1.042 (0.078)	1.265 (0.444)	1.042 (0.082)
Black Female Dictator	0.716 (0.399)	0.995 (0.068)	0.716 (0.457)	1.005 (0.096)	0.651 (0.342)	1.044 (0.091)	0.651 (0.355)	1.043 (0.085)
Self-interested	1.125 (0.249)		1.121 (0.255)		0.984 (0.233)		0.979 (0.231)	
Same Gender			1.022 (0.416)				1.019 (0.259)	
Same Ethnicity			0.826 (0.501)				0.846 (0.505)	
Same Ethnicity and Gender			1.074 (0.503)				1.032 (0.481)	
Attractive					0.892 (0.225)	1.393 (0.810)	0.893 (0.226)	1.422 (0.860)
Reliable					2.203 ** (0.714)	2.021 (1.230)	2.196 ** (0.737)	1.978 (1.229)
Number of Subjects	98		98		98		98	
Observations	556		556		556		556	
Log likelihood	−190.9		−190.9		−185.9		−185.8	

** $p < 0.01$. Standard errors clustered at the individual level are presented in parentheses.

References

- Scharlemann, J.P.W.; Eckel, C.C.; Kacelnik, A.; Wilson, R.K. The Value of a smile: Game theory with a human face. *J. Econ. Psychol.* **2001**, *22*, 617–640. [CrossRef]
- Centorrino, S.; Djemaib, E.; Hopfensitz, A.; Milinski, M.; Seabright, P. Honest signaling in trust interactions: Smiles rated as genuine induce trust and signal higher earning opportunities. *Evol. Hum. Behav.* **2015**, *36*, 8–16. [CrossRef]
- DeBruine, L.M. Facial resemblance enhances trust. *Proc. Biol. Sci.* **2002**, *269*, 1307–1312. [CrossRef]
- Wilson, R.K.; Eckel, C.C. Judging a book by its cover: Beauty and expectations in the trust game. *Political Res. Q.* **2006**, *59*, 189–202. [CrossRef]
- Hancock, P.J.B.; DeBruine, L.M. What's a face worth: Noneconomic factors in game playing. *Behav. Brain Sci.* **2003**, *26*, 162–163. [CrossRef]
- Smith, F.G.; DeBruine, L.M.; Jones, B.C.; Krupp, D.B.; Welling, L.L.M.; Conway, C.A. Attractiveness qualifies the effect of observation on trusting behavior in an economic game. *Evol. Hum. Behav.* **2009**, *30*, 393–397. [CrossRef]
- Eckel, C.C.; Wilson, R.K. *Initiating Trust: The Conditional Effects of Sex and Skin Shade among Strangers*; Working Paper, Political Science; Rice University: Houston, TX, USA, 2004; Available online: http://http://rkw.rice.edu/Papers/Initiating_Trust.pdf (accessed on 1 September 2017).
- Simpson, B.; McGrimmon, T.; Irwin, K. Are blacks really less trusting than whites? Revisiting the race and trust question. *Soc. Forces* **2007**, *86*, 525–552. [CrossRef]
- Fershtman, C.; Gneezy, U.A. Discrimination in a segmented society: An experimental approach. *Q. J. Econ.* **2001**, *116*, 351–377. [CrossRef]
- Burns, J. Race, diversity and pro-social behavior in a segmented society. *J. Econ. Behav. Organ.* **2012**, *81*, 366–378. [CrossRef]
- Croson, R.; Gneezy, U. Gender differences in preferences. *J. Econ. Lit.* **2009**, *47*, 448–474. [CrossRef]

12. Lount, R.B., Jr.; Pettit, N.C. The social context of trust: The role of status. *Organ. Behav. Hum. Decis. Process.* **2012**, *117*, 15–23. [\[CrossRef\]](#)
13. Todorov, A.; Duchaine, B. Reading trustworthiness in faces without recognizing faces. *Cogn. Neuropsychol.* **2008**, *25*, 395–410. [\[CrossRef\]](#) [\[PubMed\]](#)
14. Willis, J.; Todorov, A. First impressions: Making up your mind after a 100-ms exposure to a face. *Psychol. Sci.* **2006**, *17*, 592–598. [\[CrossRef\]](#) [\[PubMed\]](#)
15. Todorov, A.; Pakrashi, M.; Oosterhof, N.N. Evaluating faces on trustworthiness after minimal time exposure. *Soc. Cogn.* **2009**, *27*, 813–833. [\[CrossRef\]](#)
16. Marzi, T.; Righi, S.; Ottonello, S.; Cincotta, M.; Viggiano, M.P. Trust at first Sight: Evidence from ERPs. *Soc. Cogn. Affect. Neurosci.* **2014**, *9*, 63–72. [\[CrossRef\]](#) [\[PubMed\]](#)
17. Van't Wout, M.; Sanfey, A.G. Friend or foe: The effect of implicit trustworthiness judgments in social decision-making. *Cognition* **2008**, *108*, 796–803. [\[CrossRef\]](#) [\[PubMed\]](#)
18. Rezlescu, C.; Duchaine, B.; Olivola, C.Y.; Chater, N. Unfakeable facial configurations affect strategic choices in trust games with or without information about past behavior. *PLoS ONE* **2012**, *7*, e34293. [\[CrossRef\]](#) [\[PubMed\]](#)
19. Yu, M.; Saleem, M.; Gonzalez, C. Developing trust: First impressions and experience. *J. Econ. Psychol.* **2014**, *43*, 16–29. [\[CrossRef\]](#)
20. Tingley, D. Face-off: Facial features and strategic choice. *Polit. Psychol.* **2014**, *35*, 35–55. [\[CrossRef\]](#)
21. Desteno, D.; Breazeal, C.; Frank, R.H.; Pizarro, D.; Baumann, J.; Dickens, L.; Lee, J.J. Detecting the trustworthiness of novel partners in economic exchange. *Psychol. Sci.* **2012**, *23*, 1549–1556. [\[CrossRef\]](#) [\[PubMed\]](#)
22. Eckel, C.C.; Petrie, R. Face Value. *Am. Econ. Rev.* **2011**, *101*, 1497–1513. [\[CrossRef\]](#)
23. Habyarimana, J.; Humphreys, M.; Posner, D.N.; Weinstein, J.M. Why Does Ethnic Diversity Undermine Public Goods Provision? *Am. Polit. Sci. Rev.* **2007**, *101*, 709–725. [\[CrossRef\]](#)
24. Rosenblat, T.S. The beauty premium: Physical attractiveness and gender in dictator games. *Negot. J.* **2008**, *24*, 465–481. [\[CrossRef\]](#)
25. Bhogal, M.S.; Galbraith, N.; Manktelow, K. Physical attractiveness and altruism in two modified dictator games. *Basic Appl. Soc. Psych.* **2016**, *38*, 212–222. [\[CrossRef\]](#)
26. Burnham, T.C. Engineering altruism: A theoretical and experimental investigation of anonymity and gift giving. *J. Econ. Behav. Organ.* **2003**, *50*, 133–144. [\[CrossRef\]](#)
27. Buchanan, J.A.; McMahon, M.K.; Simpson, M.; Wilson, B.J. Smile, dictator, you're on camera. *South. Econ. J.* **2017**, *84*, 52–65. [\[CrossRef\]](#)
28. Rigdon, M.; Ishii, K.; Watabe, M.; Kitayama, S. Minimal social cues in the dictator game. *J. Econ. Psychol.* **2009**, *30*, 358–367. [\[CrossRef\]](#)
29. Hensher, D.A.; Greene, W.H. The mixed logit model: the state of practice. *Transportation* **2003**, *30*, 133–176. [\[CrossRef\]](#)
30. Eisenbruch, A.B.; Grillot, R.L.; Maestripieri, D.; Roneya, J.R. Evidence of partner choice heuristics in a one-shot bargaining game. *Evol. Hum. Behav.* **2016**, *37*, 429–439. [\[CrossRef\]](#)



© 2018 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).