

Do We Prefer People Who Are Similar to Us?
Experimental Evidence on Giving and Work Behaviors

by Avner Ben-Ner & Amit Kramer

Carlson School of Management

University of Minnesota

We are attaching 1.5 papers (because we have not quite finished the paper announced in the program). The first paper develops theoretical concepts for understanding identity-based differentiation, and examines data from experiments in which each subject faced *seriatim* dozens of hypothetical other persons, each characterized by a single identity category from among 13 categories (such as gender, musical preferences and religion). The half ‘paper’ contains an analysis of experiments in which subjects were paired *seriatim* with 12 hypothetical individuals who were each described in terms of six identity categories (gender, race, musical preference, family financial background, religion and political leaning). Both papers classify the relationship between each subject and other (imaginary) persons in terms of similarity and difference in their identities, and assess the importance of similarities and differences for giving in the dictator game context, and interacting in work situations. The papers construct hierarchies of identity categories. The second ‘paper’ also analyzes the effects of subjects’ identity, gender and personality on their proclivity to treat ‘self’ more or less favorably than ‘other.’

Identity and Self-Other Differentiation in Work and Giving Behaviors: Experimental Evidence*

Avner Ben-Ner, Brian P. McCall, Massoud Stephane, and Hua Wang

University of Minnesota

August 2006

Abstract

We show that the distinction between Self and Other, ‘us’ and ‘them,’ or in-group and out-group, affects significantly economic and social behavior. In a series of experiments with approximately 200 Midwestern students as our subjects, we found that they favor those who are similar to them on any of a wide range of categories of identity over those who are not like them. Whereas family and kinship are the most powerful source of identity in our sample, all 13 potential sources of identity in our experiments affect behavior. We explored individuals’ willingness to give money to imaginary people, using a dictator game setup with hypothetical money. Our experiments with hypothetical money generate essentially identical data to our experiments with actual money. We also investigated individuals’ willingness to share an office with, commute with, and work on a critical project critical to their advancement with individuals who are similar to themselves (Self) along a particular identity dimension than with individuals who are dissimilar (Other). In addition to family, our data point to other important sources of identity such as political views, religion, sports-team loyalty, and music preferences, followed by television-viewing habits, dress type preferences, birth order, body type, socio-economic status and gender. The importance of the source of identity varies with the type of behavior under consideration.

* Ben-Ner, McCall and Wang are in the Industrial Relations Center (IRC), Carlson School of Management, University of Minnesota, and Stephane is at the Department of Psychiatry, Veterans Administration and University of Minnesota.

Identity and Self-Other Differentiation in Work and Giving Behaviors: Experimental Evidence

I. Introduction

Identity is “a person’s sense of self” (Akerlof and Kranton, 2000, p. 715); it is the concept that individuals come to realize when they answer the elemental question of “who am I?” The answer, typically, includes multiple dimensions or attributes such as gender, facial features, and height, as well as religion, ethnicity, social-group affiliation, sports-team loyalty, family, profession, artistic preferences, culinary preferences, and place of origin. These attributes represent how a person views himself or herself, and are likely to have different weights to the sense of self. For example, one may identify oneself primarily as a music lover, tall, who loves to eat health food, while being a Protestant, female, or a fan of a certain team sports could be of less importance.

Generally, people act more favorably towards persons who share with them an important attribute of their identity compared to persons who differ significantly on that attribute. For example, fans of the same sports team give each other high-fives but jeer fans of a rival team; enthusiasts of certain musical groups may work more readily with those who share their preferences than with others; and members of some religious groups sacrifice their own lives but take the lives of members of other groups to advance their group’s cause. Even arbitrary assignment of identity in the context of a psychology experiment can elicit partisan behavior (Tajfel and Turner 1979; see also examples in Akerlof and Kranton 2000, p. 720).

The difference in how someone treats a person of the same identity – *self* – as compared to a person of a different identity – *other* – is likely to depend on several factors: the identity attribute in question, the circumstances of the interaction between subject and object, as well as the subject’s individual characteristics. Many questions with regard to how different identity

attributes affect behavior remain unaddressed in the social scientific literature. For example, does religion evoke more passion than ethnicity? Are all differences in identity fertile grounds for discrimination? Do differences affect equally various social and economic behaviors?

Identity is often the source of positive and desirable outcomes, such as the warm feeling of amity and affiliation, constructive and cooperative behavior in the context of social, ethnic, and religious organizations, and desirable diversity and variety. However, identity is also the basis for hatred and discrimination, exclusion, enmity, sports riots, national and religious wars, ethnic ‘cleansing’ and extermination, and other undesirable behaviors and outcomes. In this paper, we attempt to examine the weight of different attributes of identity on behavior and whether the weight of a given attribute depends on the specific behavior or activity in question.

Although it is driven by a theoretical conceptualization, the thrust of the paper is empirical and represents an exploratory analysis aimed at uncovering potential relationships between identity and behavior. We study a fairly homogenous sample of young men and women who have very little experience with strife associated with religious, national, or ethnic identities, the kind of conflicts that fuel much of the most visible identity-based behaviors. Such a sample is likely to inform about the presence or absence of deep-seated, perhaps hard-wired, sentiments about the differentiation between ‘Self’ and ‘Other,’ and behaviors driven by such sentiments, possibly mixed with culturally-transmitted values regarding such differentiation, but with only limited contribution from direct life experiences.

In a series of paper and pencil experiments, we asked the subjects to engage in various behaviors towards other (imaginary) persons bearing various identity attributes. In one experiment, subjects are invited to consider sharing an endowment of \$10 with different persons who are characterized by various social, economic, cultural and other identities. In

other experiments, subjects are asked to indicate their willingness to work on a project crucial to their career, to share an office, and to commute with different imaginary persons. The behaviors elicited in these experiments correlate with altruism, cooperation and concern for others, instrumental considerations at work and in leisure activities, and also with identity attributes. The behaviors studied in our experiments do not include explicit conflict; subjects could not take money away from others, and the most they could do is to express lack of willingness to engage in the work or leisure activities described in the experiment.

There is a large and expanding body of literature on identity in several disciplines.¹ The unique contributions of the present paper include a simultaneous examination of multiple categories of identity and of their comparative strength, and a consideration of varied forms of behavior. Our results run counter to social desirability bias because even though most people in the society from which these subjects were drawn tend to behave in public in a politically correct or socially desirable manner, our subjects generally differentiated between Self and Other over several categories of identity. The paper finds significant bias in favor of Self over Other in all four forms of behavior studied in our experiments.

The paper is organized as follows: Section II explores the concept of identity and its key dimensions. Section III links identity and behaviors aimed at Self and Other. Section IV offers key hypotheses. Section V describes the experiments, the sample, the behaviors studied in these experiments, the attributes of identity under consideration, and the categories of identity that can be constructed from these attributes. Section VI compares empirically behaviors towards Self and Other across 13 identity categories. Section VII concludes the paper.

II. The concept of identity and its attributes, and key categories of identity

Identity, or a person's sense of self, is the outcome of a developmental process whereby differentiation between Self and Other occurs. It is a process that starts in early childhood from the undifferentiated unit of mother and child (Klein, 1969). In adulthood, identity is associated with identification with groups or categories such as gender, ethnicity, religion, musical preferences, and dressing style. A sense of self and group belonging is also observed among animals, who display the ability to recognize their kin (Fletcher and Michener 1987 and Hepper 1991).

Identity is the concept of which individuals become aware when they answer the elemental question of "who am I?" The answer is characteristically given with reference to multiple groups or categories and represents how a person views himself or herself (Hamachek 1992; Akerlof and Kranton 2000). For example, one may identify oneself as tall, a music lover, who loves to eat health food, a Protestant, a fan of certain sports teams, and so on. 'Identity' is thus a composite of multiple attributes. The relative composition and weight of each of these attributes may vary over a person's life cycle, across people, and with the circumstances of their lives (Hamachek 1992). For example, musical preferences may be very important and religion only marginal in some persons' concept or sense of identity; the weight of ethnicity may be enhanced by the presence of multiple ethnics groups or ethnic confrontation at the expense of other attributes such as cultural or musical preferences.

Identity has genetic, cultural and neural bases grounded in an evolutionary process (Cavalli-Sforza and Feldman 1981). Genetic relatedness, whether observed and known or only inferred and assumed, offers a strong basis for answering the question of "who am I?" If we are our genes, then the people with whom we share a greater proportion of our genes are an

immediate instance of ‘us’ as compared to less related people. Going from identical twins, who are genetically identical, to members of an extended family, who are closely related, to members of a tribe, who share only a small proportion of common genes, and so on, the declining proportion of shared genes provides an instant basis for increasing differentiation between Self and Other; this is the key insight of Hamilton’s (1964) theory of *inclusive fitness*. Since genetic similarity can only rarely be observed directly, individuals may use clues that may be correlated with genetic identity: ethnicity, skin complexion, religion, culinary preferences, place of origin, physical similarity, etc. (van den Berghe 1999).

Evolutionary theorists, biologists and psychologists, note the value of steady affiliation with a group, and claim that the desire to belong to a group may be hard wired in some species, including humans. Group affiliation provides physical protection (Shaw and Wong 1989), facilitates the ability to read facial, behavioral, or linguistic clues regarding feelings such as guilt and the detection of lying, which confers an obvious advantage (Wilson 1978), and facilitates reciprocity, a key element of sustained cooperation (Ben-Ner, Putterman, Kong and Magan 2004).

Other sources of identity may have little to do with genetic relationship. Group affiliation may be based on demographic characteristics such as age and generation, or on functional association, such as a work group, neighborhood, common interest, culture, or hobby; therefore, the range of possible identities is very large. One theory that advances this view, *social identity theory* (Tajfel and Turner 1979), is widely accepted among sociologists and social psychologists.²

Many identity attributes have been recognized in the literature, and those have been aggregated into a set of broad, partly overlapping categories. Most of these categories can be

derived without much stretch from all three theories. The panel below lists the most important categories that appear in the literature, and when available, cites references that elaborate on each category from diverse theoretical perspectives.

Broad Identity Categories

<i>Identity Category</i>	<i>Literature</i>
Family and kinship	Shaw and Wong (1989); Sökefeld (1999); Alderfer (1997); van den Berghe (1999)
Gender	Davis (2000); Akerlof and Kranton (2000); Barkow (1989); Dickson and Pollack (2000); Wade (2001)
Occupation	Spreitzer et al. (1974); Cartwright et al. (1978); Becker and Carper (1956); Savickas (1999)
Ethnicity	Barkow (1989); Dien (2000); Alderfer (1997); Davis (2000); Devos (1974); van den Berghe (1999)
Culture	Sökefeld (1999); Dien (2000); Davis (2000); Devos (1974)
Nationality	Dien (2000); Wade (2001)
Race	Abdullah (1998); Alderfer (1997); Davis (2000); Hirschfeld (1995); Wade (2001)
Religion	Barkow (1989); Miller et al. (2001); Sökefeld (1999)
Political philosophy	Miller et al. (2001)
Dress style	Miller et al. (2001); Dickson and Pollack (2000); Hayes (2000)
Community type	Hummon (1986); Davis (2000)
Interests	Hummon (1986); Pitts (2002)
Hobbies and leisure	Spreitzer et al. (1974); Anderson and Farris (2001); Baughman (2000); Dickson and Pollack (2000)
Knowledge	Hummon (1986)
Sentiment	Hummon (1986)
Generation and age	Alderfer (1997); Dickson and Pollack (2000)
Socio-economic status	Cartwright et al. (1978); Akerlof and Kranton (2000); Devos (1974)
Musical preference	Brown (2000); Pitts (2002); Tarrant et al (2001); Wade (2001)
Sexual preference	Brown (2000); Wade (2001)

The literature suggests that individuals tend to assign people with whom they interact to a class of Self or Other (‘us’ or ‘them’) according to these categories. The Self-Other differentiation may go beyond a stark dichotomy; for instance, individuals distinguish among immediate relations such as parents and siblings, more distant relatives, such as cousins, and even more distant members of an extended family, and likewise, some religions or denominations within broad religions may be considered closer to each other than to others. However, there is also a strong tendency to make a simple division between Self and Other, in-group and out-group, ‘us’ and ‘them;’ we will follow such a dichotomy in the remainder of this paper.³

III. Identity and behavior: behaviors aimed at Self and Other

Humans seem to have a deep-rooted propensity to respond emotionally to symbolic representations of members of their in-group by exhibiting spontaneous joy, pride, and so on (Isaacs 1975; Tönniesmann 1987), and these emotions are aroused and reinforced through the language of kinship and the use of rituals, flags, anthems, marches, and so on (Johnson 1995). It has been widely noted that individuals engage in more favorable behaviors towards people who share with them some salient identity attributes than towards people who are different from them. Behaviors and relationships affected in this fashion by the Self-Other differentiation or 'us' vs. 'them' have been discerned in many contexts, such as conflict (Shaw and Wong, 1989), teacher-student relations (Akerlof and Kranton 2002; Hamachek 1992), manager-subordinate interactions (Boone et al. 1999; Akerlof and Kranton 2000), job performance (LePine and Van Dyne 2001), and occupational choice (Cartwright et al. 1978).

The preference for a partner in an activity is likely to be affected by identity considerations, along with other factors. Similarity in identity may entail more trust, reciprocity, efficiency due to shared language, norms, or understandings, and fewer concerns about being taken advantage of, as well as engender in some individuals a greater willingness to make sacrifices. Identity may also be a clue to possession of instrumental skills (such as occupational and educational status), or for a special need (such as socio-economic status), in which case similarity and difference in identity may be less important. Identity and other considerations may be mutually reinforcing in a certain behavior, such as in the case of potential cooperation between two professionals whose qualifications play an important role in

their identities, or may counteract each other, for example with a champion swimmer saving a non-swimmer from drowning.

The theories reviewed earlier predict that individuals will treat more favorably other individuals whom they consider Self than those whom they regard as Other. The theory of inclusive fitness suggests that an individual will act more solicitously towards those who share with him or her greater proportion of their genetic material, because genes that incline their bearers to be caring toward those who carry similar genes would have been selected in the process of human evolution. As noted earlier, some kin relationships, particularly if distant, may not be known specifically to the affected individuals, yet they may be correlated with observable or knowable characteristics such as looks, ethnicity, religion, and place of origin; individuals who are similar with respect to such characteristics may therefore treat each other more favorably than individuals who are dissimilar. More generally, fitness advantages may have accompanied those individuals who were willing to commit strongly to groups in terms of choosing actions that favor those within a group more strongly than those outside the group. Evolutionary theory then implies these individuals would become more prevalent in populations over time. Thus, individuals may have a hardwired tendency for group commitment. Moreover, evolutionary theory predicts that the strength of this commitment across different types of groups should vary directly with the group's ability to affect an individual's and his or her descendants' survival. The social identity theory equally predicts that behavior towards in-group members will be more favorable than towards out-group members. Studies have demonstrated that people generally favor Self over Other in distribution of rewards (Brewer 1979; Tajfel and Turner 1986; Brewer and Brown 1998), and that they attribute more positive views to in-group members than to out-group members (Allen 1996;

Rustemli, Mertan, and Ciftci 2000).⁴ This theory does not provide a criterion for predicting the degree of solicitousness towards groups belonging to different categories of identity, as the inclusive fitness theory does with respect to family relations.

Indeed, there is ample direct evidence that identity matters for behavior: ethnic, national, and religious wars dot history, discrimination on the basis of almost any conceivable grounds is commonplace, and a visit to a schoolyard during recess shows how children divide into random teams to play a ball game and develop instantly strong feelings towards members of their own team and their temporary adversaries. In a series of experiments, Tajfel and Turner (1986) divided subjects arbitrarily into groups according to preferences for painting styles, and then asked members of different groups to share money with members of their own preference group or other groups. Those who were assigned to a particular preference favored persons who were assigned the same preference. These dictator-game like experiments showed how important are in-group and out-group identities, irrespective of their arbitrariness. Other studies found a gender effect on giving in dictator-game experiments (see Andreoni and Vesterlund 2001 and Ben-Ner, Kong and Putterman 2004) and trust game experiments showed differences in trusting on ethnic and national lines (see Glaeser et al. 2000, Fershtman and Gneezy 2001, and Bornhorst et al. 2004).

In summary, theory suggests that identity affects behavior in a way that favors Self relative to Other in different identity categories. The inclusive fitness theory suggests that family and kin relations constitute the most important identity category, with other categories possibly associated with genetic similarity following suit. Evolutionary theory predicts that long-term affiliation is valuable, pointing to the same categories as inclusive fitness theory, and to groups with which individuals tend to be attached for long periods of time and where they

can get to know each other, such as small communities and workplaces, membership organizations, and so on. Social identity theory only identifies the importance of social categories for belonging without providing a clear basis for their ordering in terms of importance for behavior.

Is differentiation between Self and Other the only engine of behavior? Of course not: there are additional influences on individual behavior.⁵ In particular, rational individuals may well temper their identity-based instinct with instrumental considerations, leading to the possibility that identity plays a greater role in situations where instrumental considerations are less important, such as in leisure activities, and a lesser role in activities such as work where skills and knowledge are crucial. On the other hand, similarity in identity may provide advantages from enhanced trust and cooperation,⁶ generating the alternative possibility that identity plays a greater role in situations such as the workplace and many business interactions where cooperation and trust are important. We conjecture that the balance between these two forces will vary across activities relative to their requirements of skill, knowledge, trust and cooperation.

IV. Hypotheses

The foregoing discussion's main conclusions can be summarized in the form of three principal hypotheses.

A. Self is favored over Other in economic, work, social, and leisure interactions.

B. Identity categories have varying degrees of influence over how much Self is favored over Other; the strongest source of identity is kinship.

C. The effects of identity vary across activities and behaviors.

V. The experiments

We designed four experiments that capture various behaviors in social and economic situations aiming to: 1) test the hypothesis that the Self-Other differentiation affects behavior, 2) explore the differences in the strength of different identity categories, and 3) investigate differences across types of behavior relative to identity categories. In the four experiments subjects were asked to express their willingness to give money to, work with, share an office with, and commute with different persons characterized by various identity attributes. Information was gathered about subjects through a background survey, a personality inventory, and a cognitive ability test that subjects completed at the end of the experiments. The survey permitted the creation of Self and Other variables indicating whether a subject was similar to or different from each of the various imaginary persons with whom they were paired. Our subjects were 220 first-year undergraduate students at the University of Minnesota.

1. Experimental design

The first experiment was designed as a zero-sum, one-shot game, where the subjects were asked to “... *imagine yourself in a situation in which you are given \$10, which you can keep to yourself or give to another person, all or any portion of it.*” Subjects were asked to consider sharing their hypothetical (imaginary) \$10 endowment with another (imaginary) person. This experiment mimics the familiar dictator game that is carried out with actual money. The dictator game is a one person decision process: one player, the ‘dictator,’ divides a fixed amount of money between himself or herself and another person, the recipient, who is entirely passive and has no say in the decision. In this situation, giving any amount to the other person costs the subject exactly that amount, dollar for dollar. Because a selfish subject who

understands the extremely simple structure of the game would give nothing, the common interpretation is that any giving implies caring, altruism and unconditional cooperation towards the other person. This experiment is thus especially relevant to the question concerning differential caring for Self and Other. Although this experiment involved no real money, the findings derived from it are very similar to those from similarly-structured economic dictator-game experiments carried out with a \$10 endowment and with a similar pool of subjects. Subjects give essentially the same amounts from a \$10 endowment, whether the endowment consists of an actual or of a hypothetical endowment (Ben-Ner and Levy 2005). Moreover, since in this study we are interested in differences in levels of giving between self and other rather than the level of giving itself, our results are valid even under the weaker assumption that these differences are similar between actual and hypothetical giving experiments.

In addition to the explicitly economic situation of giving money, we examined hypothetical behaviors in work and social situations. In three other separate experiments subjects were asked to answer ‘yes’ or ‘no’ to three questions: “*do you want, or not want, to commute daily to school with a particular person,*” “*do you want, or not want to work with a particular person on a project critical to your career advancement,*” and “*whether you like or dislike sharing an office with this person.*” Working on a project critical to one’s promotion requires a choice of partner who can be trusted to cooperate, reciprocate and generally act favorably to one’s interests, and who is likely to be a good worker. Sharing an office is an ongoing activity that has milder instrumental implications and stronger social-compatibility requirements. Commuting together is an activity of short duration that entails social interactions without any instrumental elements. Note that the questions were phrased in terms

of “want” with respect to working and sharing office, and in terms of “like” regarding commuting.

Our expectation has been that identity would engender stronger differentiation in the ‘giving’ and ‘working together’ than in ‘sharing an office’ or ‘commuting.’ In each experiment subjects were paired separately and sequentially with 91 different persons characterized in ways that are directly associated with an identity category. Experimental instructions are included in Appendix A.

2. The subjects

All freshmen at the University of Minnesota (approximately 5,000) were invited by email to participate in economic-psychological experiments; nearly 10% responded, with 222 actually showing up at the experiment. The average age of the sample was 18.8 years with 92.8% of individuals being between 18 and 21. A majority of the sample was female (64.0%) and 71.4% were Caucasian.

After the completion of the experiments, we administered a personality inventory, a cognitive-ability test, and a background survey. These are not analyzed in this paper, and therefore will not be described here.

3. Empirical specification of Self and Other and of identity categories

In this paper, of the 91 imaginary persons listed in the experiments we used only those that fit into one of the following categories of identity: family, political views, sports-team loyalty, music preferences, nationality, religion, socio-economic status, television viewing habits, food preferences, birth order, body type, dress type, and gender. These 13 categories correspond to most of the categories presented in section II. Table I illustrates the bases for creating the Self and Other variables. This was done by matching persons listed in the

experiments with corresponding characteristics reported in the background survey. For example, if a subject indicated on the survey that s/he is Protestant, then the Self-Other variable was coded as Self for a person described as Protestant in the experiment list, and was coded as Other for a person described as Buddhist, Muslim, or Jewish.⁷ For a subject shorter than 66” (for males), the variable was coded as Self for a person described in the experiment as short, and Other for tall.

An identity category generally consists of multiple attributes or items, and we create the giving, commuting with, working with, and sharing office with variables by taking the average over the items in each category. For example, there are multiple musical preferences, several religions, different ways of characterizing body type, and so on. In the body type category, for example, we use the average of two items, height and weight. In the sports-team loyalty, we use only one item, fan of one’s team versus fan of a rival team. In most categories, the Self and Other designations are natural differences, or even opposites. In the family and kinship category, Self includes family relations of varying degrees, as well as persons described as “looks like you” and “resembles you.” The last two items were included because clues to genetic closeness are associated with looks. ‘Other’ for this category is the person described as a ‘stranger,’ the obvious non-kin.⁸

VI. The relationship between identity and behavior: empirical findings

Figure 1 displays the sample averages and proportions broken down by Self and Other for each identity category, by type of behavior. The upper left panel shows that for all identity categories, with the exception of gender, mean levels of giving are larger for Self than for Other. The differences are particularly large for the family, religion, political views, sports-

team loyalty and music preferences categories. Similar results are seen in the remaining panels of Figure 1 for the proportions of subjects liking to share an office, wanting to commute, or wanting to work with another person. The identity categories in Figure 1 are listed from the smallest Self-Other difference in giving to the largest. The *largest* average difference for all four behaviors is for the family category: for giving, the Self-Other difference is \$2.93, while for the share office, commute and work behaviors the Self-Other differences are 0.28, 0.52 and 0.53, respectively. The *smallest* average Self-Other difference for giving is for the gender category (\$-0.14), for share office the body type category (-0.016), for work is the body type category (-0.005), and for commute is the gender category (-0.013). A slightly higher proportion of subjects favor Other than Self in the gender category, for the giving and commute behaviors; Other in the body type identity category is also shown a slightly more favorable attitude, on average, than Self in the share office, work and commute behaviors but not in giving.

The raw averages presented in Figure 1 suggest that (a) Self is treated more favorably than Other, with very minor exceptions, (b) there are marked differences in the way Self and Other are treated across identity categories, and (c) there are differences across behaviors. The remainder of this section explores these points in more detail and relative to the hypotheses enumerated in section IV.

(a) In order to further investigate Self-Other differences by identity category and behavior type, we estimated fixed-effects regression and fixed-effects logit models. For the level of giving, we assumed that

$$g_{iq} = \beta_0 + \alpha_{is} + \alpha_{io} + \sum_{c \in C} \beta_{sc} I(q = \{c, s\}) + \sum_{c \in C} \beta_{oc} I(q = \{c, o\}) + \varepsilon_{iq} \quad (1)$$

where i denotes the individual, q denotes the particular imaginary person that subject i is paired with, c denotes the identity category under consideration, $c \in \{1, \dots, C\}$, s denotes whether the imaginary person q is of the Self type and o the denotes whether the imaginary person q is of the Other type. The parameters α_{is} and α_{io} are individual fixed effects for imaginary people who fall into the Self and Other types, respectively. Thus, these parameters measure the average giving to Self and Other across all identity categories for a particular individual. By allowing for individual fixed effects for Self and Other our estimates, which are based on the hypothetical dictator giving game, will be valid estimates for an actual dictator giving game even if the general individual levels of giving and the differences in these levels between self and other differ between the actual and hypothetical dictator games; all that is required is that the difference in differences across identity categories are the same. The parameters β_{sc} and β_{oc} measure the category deviation from the person-specific mean for Self and Other types. For simplicity, we have assumed that these deviations themselves are not person specific. Finally, ε_{iq} is an individual-imaginary person specific error term. For the commute, work and share office behaviors the fixed-effects logit model

$$\ln\left(\frac{p_{iq}}{1-p_{iq}}\right) = \beta_0 + \alpha_{is} + \alpha_{io} + \sum_{c \in C} \beta_{sc} I(q = \{c, s\}) + \sum_{c \in C} \beta_{oc} I(q = \{c, o\}) \quad (2)$$

is estimated, where p_{iq} represents the probability that individual i says “yes” to the question posed that pertains to imaginary person q .

Table II presents estimates of $\hat{\beta}_{sc} - \hat{\beta}_{oc}$, the Self-Other differences, by identity category, in the four experiments; these estimates are based on the estimates of the fixed-effects models described by equations (1) and (2). The full set of fixed-effect estimates is presented in the Appendix Table A1. Column (1) presents estimates based on the fixed-effects regression

estimates for the giving experiment, whereas columns (2)-(4) present estimates based on the fixed-effects logit estimates for the share office, work and commute experiments, respectively.

The message conveyed by Table II is rather strong: Self is significantly favored over Other in all four experiments in nearly all identity categories. Exceptions are glaringly few: a small and statistically insignificant difference in preference for giving to Other than Self in the socio-economic status category (probably explained by the fact that many who are well-off, as well as most others, prefer to give money to the poor rather than the well-off), and a small advantage given to Other over Self in the gender category (probably explained by asymmetries in ways that men and women treat each other detected in dictator game experiments by Ben-Ner, Kong and Putterman 2004). We conclude that hypothesis A is supported by our experimental evidence.

(b) The results in column (1) show large differences in giving to Self versus Other for the family, sports-team loyalty, political views, food preferences, religion, music preferences and nationality categories, smaller yet statistically significant differences for birth order, dress type and body type, and negative but insignificant differences for the socio-economic and gender categories. For giving, we can reject the null hypothesis that the Self-Other difference is independent of identity category ($F = 21.99$, $p\text{-value} = 0.000$). For sharing an office, and commuting and working with another individual, we also soundly reject ($p\text{-value} = 0.000$) the null hypothesis that the Self-Other difference is independent of identity category ($\chi^2(12) = 115.83$, $\chi^2(12) = 208.93$, $\chi^2(12) = 201.56$, respectively). Thus, while individuals tend to favor individuals who are similar to themselves over individuals who are different, the extent of such favoritism varies substantially across identity categories. Table II therefore provides support for the main part of hypothesis B.

In order to explore hypothesis B in more detail and gain insight into the relative importance of various identity categories, we analyzed the relative ranks of the Self-Other differences by identity category. Our point estimates for the giving experiment show that the family category has the largest Self-Other difference followed by sports-team loyalty, political views, and religion and music preferences. What is the likelihood that this ordering is due to chance? We used bootstrapping techniques using 1000 replications to examine the rank-order distribution. Bootstrapping treats the sample as a population and then re-samples with replacement a number of times and computes relevant statistics for each replacement sample. The empirical distribution of the bootstrapped sample statistics are then used to address questions of statistical significance (see Efron and Tibshirani 1993 for details). Here we analyze the bootstrapped samples' empirical distribution of relative ranks. Because of the computational complexity of estimating the fixed effects logit model, the rank order of Self-Other differences was bootstrapped only for the giving experiment, which was based on a fixed-effects regression model. The results are presented in Table III. For each identity category, the table reports the mean rank and the 5th and 95th percentiles of the rank distribution based on the 1000 replications. For example, the Self-Other difference for the religion category was ranked on average 4.5 across all identity groups while in the upper 5% of the replications the difference was ranked third or higher and in the lower 95% of the replications the difference ranked sixth or lower.

The Self-Other difference was largest for the family category in all 1000 replications. The next two highest mean ranks were for the sports-team loyalty and political views categories. However, since sports-team loyalty was ranked higher than political views only in 55% of the replications, the difference in mean ranks is not statistically significant. The fourth

and fifth highest mean ranks for giving were the religion and music preferences categories, respectively. Since the Self-Other difference for religion was larger than that for music preferences in only 52% of the replications, the rank differences are not statistically significant. When comparing sports-team loyalty to the religion and music preferences categories, the Self-Other differences for the sports-team loyalty category are larger than both religion and music preferences categories in over 95% of the replications. Thus, the rank differences are statistically significant. The political views Self-Other difference was larger than the religion and music preferences differences for giving in 90 and 91% of the replications, respectively. The evidence is therefore not as strong as for sports-team loyalty.

The rank ordering of identity categories obtained from bootstrapping replications is, not surprisingly, essentially the same as that implied by the relative magnitude of differences in giving across identity categories in the fixed-effects regression reported in column (1) of Table II. The rank ordering of different identity categories for the other behaviors presented in columns (2)-(4) is similarly implied by the relative magnitude of the estimated differences for each behavior. The order of importance of identity categories varies across the four columns, but the preeminent role of family persists across behaviors. Family is far ahead of other categories in terms of the preference given to those who are Self versus Other with respect to giving (estimated difference of 4.264 as compared to 2.586 for sports-team loyalty, the next largest difference), work (estimated difference of 9.225 as compared to 6.798 for music preferences, the next largest difference), and commute (estimated difference of 9.938 as compared to 5.364 for nationality, the next largest difference); in the share-office experiment the estimated difference between Self and Other for family is just slightly smaller than the difference for music preferences (7.063 versus 7.475). Thus, in addition to the main point of

hypothesis B, the key secondary postulate generated by the inclusive fitness theory, that kin relations constitute the most important identity category, is also supported by our findings. The postulate regarding the importance of identity categories linked to long-term affiliation cannot be tested without classifying identity categories according to the duration of affiliation. Such a classification is not available in the literature, and is a task that is well beyond the scope of this paper.

(c) Hypothesis C suggests that the importance of similarity in identity varies across behaviors. While we are unable to compare directly parameter estimates from regression and logit analyses, we can do so across the logit analyses concerning the share office, work, and commute behaviors. In order to evaluate the importance of *similarity* for a given identity category we tested the equality of the (Self) $\times$ (identity category) coefficients across the share-office, work and commute behaviors; the chi-square tests reject the null of equality at the 1% level for the identity categories of family, music preferences, and sports-team loyalty (and for dress type and birth order at the 10% level). As the parameter estimates on (Self) $\times$ (identity category) in Appendix Table A1 suggest, our subjects value more commuting and working with their kin than sharing an office with them, and they prefer commuting with someone who shares their musical preferences and sports-team loyalty, but this similarity does not seem to be very important for sharing an office and certainly not for working on a critical project. In other categories similarity (rather than difference) in identity does not seem to play a role.

To explore this hypothesis in more detail we compared behaviors towards Self and Other across the three behaviors by carrying out pair-wise tests of equality between the logit estimates in columns (2)-(4) of Table II for each identity category. The chi-square tests and direction of the difference in estimates are presented in Table IV. There bias in favor of Self

versus Other is statistically different and substantial across the three types of behaviors in the case of only two identity categories: family and music preferences. The differentiation between Self and Other in the family category is greater in the work and commute behaviors than in the share-office behavior, whereas in the case of music preferences the bias is larger for the share office and commute behaviors than for work. The music preferences category is likely to bear more on compatibility in social situations such as commuting and sharing an office than on trust and cooperation and therefore the order we just discussed makes sense. The family category probably bears more on trust and cooperation than on compatibility in social settings and therefore should be more important for work than sharing an office or commuting; the former relationship is found in our data, but not the latter. Less significant differences (at the 5% level) concern sports-team loyalty, which is more important for sharing an office and commuting than for work, similar to music preferences, and dress type, which is more important for commuting than for work, again similar to music preferences.

Hypothesis C is thus generally supported by these findings, which suggest that some identity categories are more important for activities in which trust and cooperation is central (work), and others are more important for behaviors that entail a large element of social interaction. However, for the several remaining identity categories there is no strong differential impact by identity on behavior.

VII. Conclusions

The assumption that behavior is independent of the identity of those who participate in an economic interaction is central to economists' understanding of how markets operate, how firms work internally, how nations trade with each other, and much else. On the basis of this

assumption economists have been strong proponents of globalization, of the diminution of economic and political boundaries, and of the expansion of market principles to non-economic arenas. In this paper we show that the distinction between Self and Other, ‘us’ and ‘them,’ or in-group and out-group, affects significantly economic and social behavior. In a series of experiments with Midwestern students as our subjects we found that they favor those who are similar to them on any one of a wide range of categories of identity over those who are not like them. Whereas family and kinship (including persons described as “looks like you” and “resembles you” in addition to various relatives) are the most powerful source of identity in our sample, it appears that there is no inconsequential source of identity: if an identity category happens not to affect one type of behavior then it will affect other behaviors.

Our findings indicate that people are more willing to give to, share an office with, commute with, and work on a critical project critical to their advancement with individuals who are similar to themselves (Self) along a particular identity dimension than with individuals who are dissimilar (Other). However, the magnitudes of these differences depend on the particular identity category. In particular, we found strong evidence that in the context of a dictator game experiment, the Self-Other differences in giving behavior are largest for the family and kinship category. The evidence also points towards this conclusion for working and commuting preferences, and essentially so in sharing an office preference. These results are consistent with evolutionary models of inclusive fitness.

Other identity categories in which the Self-Other distinction is important are political views, religion, sports-team loyalty, and music preferences. Although other interpretations are possible, the first two identity categories (and to some extent the third) may be viewed as modern-day equivalents of tribal or hunting-band affiliation of yore when belonging to groups

was particularly important for survival and, thus, may have evolutionary roots. From the same theoretical perspective we would expect that nationality would be a strong basis for identity; surprisingly, although it is a source of differentiation between Self and Other for our subjects, nationality ranks low for the giving behavior, lower than television viewing and dress type, for example, and is really high only for the commuting experiment.⁹

The finding of strong differentiation between Self and Other along so many diverse sources of identity and over such a wide range of behaviors suggests that attention must be paid to the role of identity. Ignoring the influence of identity does not advance economic analysis, and certainly does not supply a solid basis for good policy. Our findings of course do not mean that globalization, the diminution of economic and political boundaries, and the expansion of market principles to non-economic arenas are not desirable. Nor do our findings mean that diversity in the workplace is not desirable, or that discrimination can be justified because it may be due in part to tendencies inherited over many generations. But these findings do call attention to the need for much more nuanced analyses than what the standard economic assumption would beg.

Our sample exhibited significant identity-based behaviors, but given the sample's very specific demographic characteristics it is impossible to generalize our findings to other samples. The large literature on identity has shown that identity matters in a variety of samples; however, there is no literature that evaluates different identity categories' relative importance, or the effect of identity for different activities, and it would be valuable to study other samples in order to throw light on the question whether the ranking of identity categories varies with culture, historical experiences, and other circumstances.

As it provides tentative answers to several questions, the paper also stimulates additional research questions: (a) how do individual differences in personality, cognitive ability, family background, personal experiences and more affect identity-based behavior, (b) what is the interplay between rational economic action and action driven by identity considerations, and (c) what happens when identity is under stress from changes in the environment?¹⁰ Answering these questions may throw additional light on the role of identity in complex economic life and further our understanding of how individuals from diverse backgrounds may interact with each other in the workplace and in the marketplace, and how larger groups including nations, homogeneous on some dimensions but not on others, may manage affairs of mutual concern.

References

- Akerlof, George A. and Rachel E. Kranton, "Economics and Identity," *The Quarterly Journal of Economics*, 115 (August 2000), 715-753.
- Akerlof, George A. and Rachel E. Kranton, "Identity and Schooling: Some Lessons for the Economics of Education," *Journal of Economic Literature*, 40 (December 2002), 1167-1201.
- Alderfer, Clayton P., "Embedded Intergroup Relations and Racial Identity Development Theory." In C. E. Thompson (Ed.), *Racial Identity Theory: Application to Individual, Group, and Organizational Interventions* (Mahwah, NJ, US: Lawrence Erlbaum Associates, Inc. 1997), 237-263.
- Allen, Ben P., "African Americans' and European Americans' Mutual Attributions: Adjective Generation Technique (AGT) Stereotyping," *Journal of Applied Social Psychology*, 26 (1996), 884-912.
- Anderson, Cheryl B., George D. Farris, "Athletic Identity Among 8th-grade Adolescents: Definitions, Ratings, and Physical Activity," *Medicine & Science in Sports & Exercise*, 33 (Supplement 5 2001), 222.
- Andreoni, James and Lisa Vesterlund, "Which is the Fair Sex?" *Quarterly Journal of Economics*, 116 (February 2001), 293-312.
- Barkow, Jerome H., *Darwin, Sex, and Status: Biological Approaches to Mind and Culture*. (Buffalo, NY, US: University of Toronto Press. 1989)
- Baughman, K. R., "The Social-Psychological Benefits of Sports and Fitness Identities," *Dissertation Abstracts International*, 61(3-A), (2000), 1180.
- Becker, H. S. and J. W. Carper, "The Development of Identification with an Occupation," *American Journal of Sociology*, 61 (1956), 289-298.
- Ben-Ner, Avner and Ori Levy, "Economic and Hypothetical Dictator Game Experiments: Incentive Effects at the Individual Level," Working Paper, Industrial Relations Center, Carlson School of Management, University of Minnesota (March 2005).
- Ben-Ner, Avner, and Louis Putterman, "On Some Implications of Evolutionary Psychology for the Study of Preferences and Institutions," *Journal of Economic Behavior and Organization*, 43 (2000), 91-99.
- Ben-Ner, Avner, Fanmin Kong, and Louis Putterman, "Share and Share Alike? Gender-Pairing, Personality, and Cognitive Ability as Determinants of Giving," *Journal of Economic Psychology*, 25 (October 2004), 582-589.

- Ben-Ner, Avner, Louis Putterman, Fanmin Kong and Dan Magan, "Reciprocity in a Two Part Dictator Game," *Journal of Economic Behavior and Organization*, 53 (March 2004), 333-352.
- Boone, Christophe, Bert De Brabander and Arjen van Witteloostuijn, "The Impact of Personality on Behavior in Five Prisoner's Dilemma Games," *Journal of Economic Psychology*, 20 (1999), 343-377.
- Bornhorst, Fabian, Andrea Ichino, Karl Schlag and Eyal Winter, "Trust and Trustworthiness among Europeans: South-North Comparisons," Department of Economics, European University Institute, Working Paper (May 2004).
- Brewer, Marilyn B., "In-group Bias in the Minimal Intergroup Situations: A Cognitive Motivational Analysis," *Psychology Bulletin*, 86 (January 1979), 307 – 324.
- Brewer, Marilyn B and Rupert J. Brown, "Inter-group Relations," Gilbert, Daniel T. and Susan T. Fiske, eds. *The Handbook of Social Psychology*, 1998, vol. 2 (4th ed.), 554-594.
- Brown, Steven, "Evolutionary Models of Music: From Sexual Selection to Group Selection," In Tonneau, F., and Thompson, N. S. eds., *Perspectives in Ethology: Evolution, Culture, and Behavior*. New York: Kluwer Academic/Plenum Publishers, 2000.
- Cartwright, R. A., H. J. Hargreaves and E. Sunderland, "Social Identity and Genetic Variability," *Journal of Biosocial Science*, 10 (January 1978), 23-33.
- Cavalli-Sforza, Luigi Luca, and Marcus W. Feldman, *Cultural Transmission and Evolution: A Quantitative Approach*. Princeton, New Jersey: Princeton University Press, 1981.
- Darity, William, Patrick Mason and James Stewart, "The Economics of Identity: The Origin and Persistence of Racial Identity Norms," *Journal of Economic Behavior and Organization*, 60 (2006), 283-305.
- Davis, Dena S., "Groups, Communities, and Contested Identities in Genetic Research," *Hastings Center Report*, 30 (June 2000), 38-45.
- Devos, George, "Social Stratification and Ethnic Pluralism: An Overview from the Perspective of Psychological Anthropology," *Race*, 13 (April 1972), 435-460.
- Dickson, Marsha A. and Ashley Pollack, "Clothing and Identity Among Female in-line Skaters," *Clothing and Textiles Research Journal*, 18 (February 2000), 65-72.
- Dien, Dora S., "The Evolving Nature of Self-Identity Across Four Levels of History," *Human Development*, 43v (January 2000), 1-18.
- Efron, Bradley and Robert J. Tibshirani, *An Introduction to the Bootstrap*. New York, NY: Chapman & Hall., 1993.

Ellemers, Naomi, Russell Spears and Bertjan Doosje, "Self and Social Identity," *Annual Review of Psychology*, 53 (2002), 161-186.

Fershtman, Chaim and Ury Gneezy, "Discrimination in a Segmented Society: An Experimental Approach," *Quarterly Journal of Economics*, 116 (March 2003), 351-377.

Fletcher, David JC. and Charles D. Michener, *Kin Recognition in Animals*. New York: John Wiley, 1987.

Fryer Jr., Roland G. and Matthew O. Jackson, "Categorical Cognition: A Psychological Model of Categories and Identification in Decision Making," NBER Working Paper 9579 (2003).

Giuriato, Luisa and Maria Cristina Molinari, "Rationally Violent Tactics: Evidence from Modern Islamic Fundamentalism," in Albert Breton, Gianluigi Galeotti, Pierre Salmon, and Ronald Wintrobe, eds. Cambridge University Press, 2002.

Glaeser, Edward L., David I. Laibson, José A. Scheinkman, and Christine L. Soutter, "Measuring Trust," *Quarterly Journal of Economics*, 115 (August 2000), 811-846.

Hamachek, Don E., *Encounters with the Self* (4th ed.), San Diego, CA, US: Harcourt Brace Jovanovich, Inc., 1992.

Hamilton, William D., "The Genetical Evolution of Social Behavior: I," *Journal of Theoretical Biology*, 7 (July 1964), 1-16.

Hayes, James B., "Antecedents and Consequences of Brand Personality," *Dissertation Abstracts International*, 61(1-A), 2001, 268.

Hepper, Peter G., *Kin Recognition*. Cambridge: Cambridge University Press, 1999.

Hirschfeld, Lawrence A., "The Inheritability of Identity: Children's Understanding of the Cultural Biology of Race," *Child Development*, 66 (1995), 1418-1437.

Hummon, David M., "City Mouse, Country Mouse: The Persistence of Community Identity," *Qualitative Sociology*, 9 (January 1986), 3-25.

Isaacs, Harold L. *Idols of the Tribe: Group Identity and Political Change*. New York: Harper & Row, 1975.

Johnson, Gary R., "The Evolutionary Origins of Government and Politics," in A. Somit & J.A. Losco, eds. *Research in Biopolitics*, 2 (1995), 243-305.

Leonard, Jonathan S. and David I. Levine, "Diversity, Discrimination and Performance." Institute of Industrial Relations Working Paper Series. 2003 University of California, Berkeley.
<http://repositories.cdlib.org/iir/iirwps/-091-03/>

- Klein, Melanie, *The Psycho-analysis of Children*. London, The Hogarth Press and the Institute of Psychoanalysis, 1969.
- Landa, Janet, *Trust, Ethnicity, and Identity*, Ann Arbor, The University of Michigan Press, 1997.
- LePine, Jeffery A. and Van Dyne, Linn, "Voice and Cooperative Behavior as Contrasting Forms of Contextual Performance: Evidence of Differential Relationships with Big Five Personality Characteristics and Cognitive Ability," *Journal of Applied Psychology*, 86 (April 2001) 326-336.
- Miller, Bruce L., William W. Seeley, Paula Mychack, Howard J. Rosen, Ismael Mena and Kyle Boone, "Neuroanatomy of the Self: Evidence from Patients with Frontotemporal Dementia," *Neurology*, 57 (September 2001), 817-821.
- Ortona, Guido, "De Bello Omnium, Contra Omnes," in Albert Breton, Gianluigi Galeotti, Pierre Salmon, and Ronald Wintrobe, eds. Cambridge University Press, 2002.
- Pitts, Stephanie E., "Changing Tunes: Musical Experience and Self-perception Amongst School and University Music Students," *Musicae Scientiae*, 6 (January 2002), 73-92.
- Rustemli, Ahmet, Biran Mertan and Orhan Ciftci, "In-group Favoritism Among Native and Immigrant Turkish Cypriots: Trait Evaluations of In-group and Out-group Targets," *The Journal of Social Psychology*, 140 (February 2000), 26-34.
- Shaw, R. Paul and Yuwa Wong, *Genetic Seeds of Warfare*. Cambridge, MA, US: Unwin Hyman, 1989.
- Sökefeld, Martin, "Debating Self, Identity, and Culture in Anthropology," *Current Anthropology*, 40 (April 1999), 417-447.
- Spreitzer, Elmer, Eldon Snyder E. and Doug Larson, "Age, Education, and Occupation as Correlates of the Meaning of Leisure," *Psychological Reports*, 82 (1974), 1105-1106.
- Tajfel, Henri and John C. Turner, "An Integrative Theory of Intergroup Conflict," in W.G. Austin, and S. Worchel eds., *The Social Psychology of Intergroup Relation*. Monterey, CA: Brooks-Cole, 1979, 33-48.
- Tajfel, Henri, John.C. Turner, "The Social Identity Theory of Intergroup Behavior," In S. Worchel & W.G. Austin, eds., *Psychology of Intergroup Relations*. Chicago: Nelson-Hall, 1986, 7-24.
- Tarrant, Mark, Adrian C. North and David J. Hargreaves, "Social Categorization, Self-esteem, and the Estimated Musical Preferences of Male Adolescents," *Journal of Social Psychology*, 141 (May 2001), 565-581.

Tönniesmann, Wolfgang, "Group Identification and Political Socialization," In: V. Reynolds, V. Falger, and I. Vine, eds., *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism, and Nationalism* London: Croom Helm, 1987, 175-89.

van den Berghe, Pierre L., "Ethnicity as Kin Selection: The Biology of Nepotism," In Harris, L. eds., *Racism: Key Concepts in Critical Theory*. Amherst, NY, US: Humanity Books, 1999, 50-73.

Wade, Peter, "Racial Identity and Nationalism: A Theoretical View from Latin America," *Ethnic and Racial Studies*, 24 (May 2001), 845-865.

Wilson, Edward O., *On Human Nature*. Cambridge: Harvard University Press, 1978.

Table I: ‘Self’ and ‘Other’ Definitions by Identity Category

Identity Category	Subject’s self-characterization in the background survey	The object is Self relative to the subject when the ‘other person’ is characterized in the experiment as	The object is Other relative to the subject when the ‘other person’ is characterized in the experiment as
Family and Kinship		Your brother	Stranger
		Your close relative	Stranger
		Your father	Stranger
		Your brother-in-law	Stranger
		Your stepfather	Stranger
		Your cousin	Stranger
		Resembles you	Stranger
		Looks like you	Stranger
Political Views	Politically liberal (1-3 on a 6 point scale)	Politically liberal	Politically conservative
	Politically conservative (4-6 on a 6 point scale)	Politically conservative	Politically liberal
Sports-team loyalty		Fan of your favorite sports team	Fan of your rival sports team
Music preferences	Bluegrass is a favorite type	Listens to bluegrass music	
	Alternative is a favorite type	Listens to alternative music	
	Contemporary pop/rock is a favorite type	Listens to contemporary pop/rock	
	New age is a favorite type	Listens to new age music	
	Rap/hip-hop is a favorite type	Listens to rap/hip-hop music	
	Opera is a favorite type	Listens to opera music	
	Bluegrass is not listed as a favorite type		Listens to bluegrass music
	Alternative is not listed as a favorite type		Listens to alternative music
	Contemporary pop/rock is not a favorite type		Listens to contemporary pop/rock
	New age is not a favorite type		Listens to new age music
	Rap/hip-hop is not a favorite type		Listens to rap/hip-hop music

	Opera is not a favorite type		Listens to opera music
Nationality	American	American	Chinese, and from France, Iraq, Argentina, Russia and Poland
	<i>Other nationalities: parallel treatment</i>		
Religion	Belongs to a Protestant denomination	Protestant, Lutheran	Muslim, Buddhist, or Jewish
	<i>Other religions: parallel treatment</i>		
Socio-economic status	Family experienced financial difficulties while growing up	Poor	Financially well-off
	Family was financially well-off	Financially well-off	Poor
	Had to work while in high school	Had to work while in high school	Did not have to work in high school
	Father is professional worker	Father is a physician	Father is a factory worker
	Father is unskilled or semiskilled worker	Father is a factory worker	Father is a physician
TV viewing	Watches TV for at least 3 hours a day	Watches a lot of TV	Hardly ever watches TV
	Watches TV at most 1 hour a day	Hardly ever watches TV	Watches a lot of TV
Food preferences	Convenience foods such as chips are favorite	Eats chips often	Eats salad often
	Vegetarian meal is favorite	Vegetarian	Eats hamburger often
Birth order	Youngest child	Youngest child	Oldest child
	Oldest child	Oldest child	Youngest child
Body Type	Taller than 73" if male, 68" if female	Tall	Short
	Shorter than 58" if female, 66" if male	Short	Tall
	Body mass index (definition in Table 4) ≤ 20 if female, 20.7 if male	Skinny	Overweight
	BMI ≥ 27 if female, 27.3 if male	Overweight	Skinny
Dress Type		Dresses like you	Dresses differently from you
Gender	Female	Female	Male
	Male	Male	Female

Table II: Estimated Differences in Behaviors towards ‘Self’ and ‘Other’ by Identity Category

<u>Variable</u>	<u>Regression</u>	<u>Logit</u>		
		Giving	Share office	Work Commute
		(1)	(2)	(3) (4)
Family	4.264***	7.063***	9.225***	9.938***
Nationality	0.992**	4.753***	4.048***	5.364***
Political Views	2.524***	6.353***	5.983***	5.289***
Television Viewing	1.549***	4.610***	3.747***	4.929***
Religion	2.007***	5.028***	4.321***	4.433***
Music Preferences	1.995***	7.475***	6.798***	5.163***
Food Preferences	1.415***	3.375***	3.144***	3.117***
Sports Team Loyalty	2.586***	6.006***	4.981***	4.410***
Socio-economic Status	-0.104	4.429***	2.924***	4.829***
Body Type	0.938**	2.184**	1.865**	2.186**
Dress Type	1.045**	1.783	2.692***	1.514
Birth Order	1.202**	2.957**	2.004*	2.468***
Gender	-0.714	-2.232**	-1.420*	-2.509**

Note: The table reports estimated differences in behaviors towards Self and Other based on the fixed-effect estimates reported in Appendix Table A1. Significance tests are based on two-sided asymptotic z-tests of differences in the Self-Other estimated coefficients for each identity category. One, two and three asterisks indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Table III: Ranks of Self-Other Differences for Giving
Summary Statistics from Bootstrap replications

<i>Variable</i>	<i>Mean Rank</i>	<i>5th Percentile</i>	<i>95th Percentile</i>
Family	1	1	1
Nationality	9.721	8	11
Political Views	2.761	2	5
Television Viewing	6.58	4	9
Religion	4.469	3	6
Music Preferences	4.509	3	6
Food Preferences	7.036	6	9
Sports Team Loyalty	2.521	2	3
Socio-economic Status	12.371	12	13
Body Type	10.015	8	11
Dress Type	9.269	7	11
Birth Order	8.361	6	11
Gender	12.387	10	13

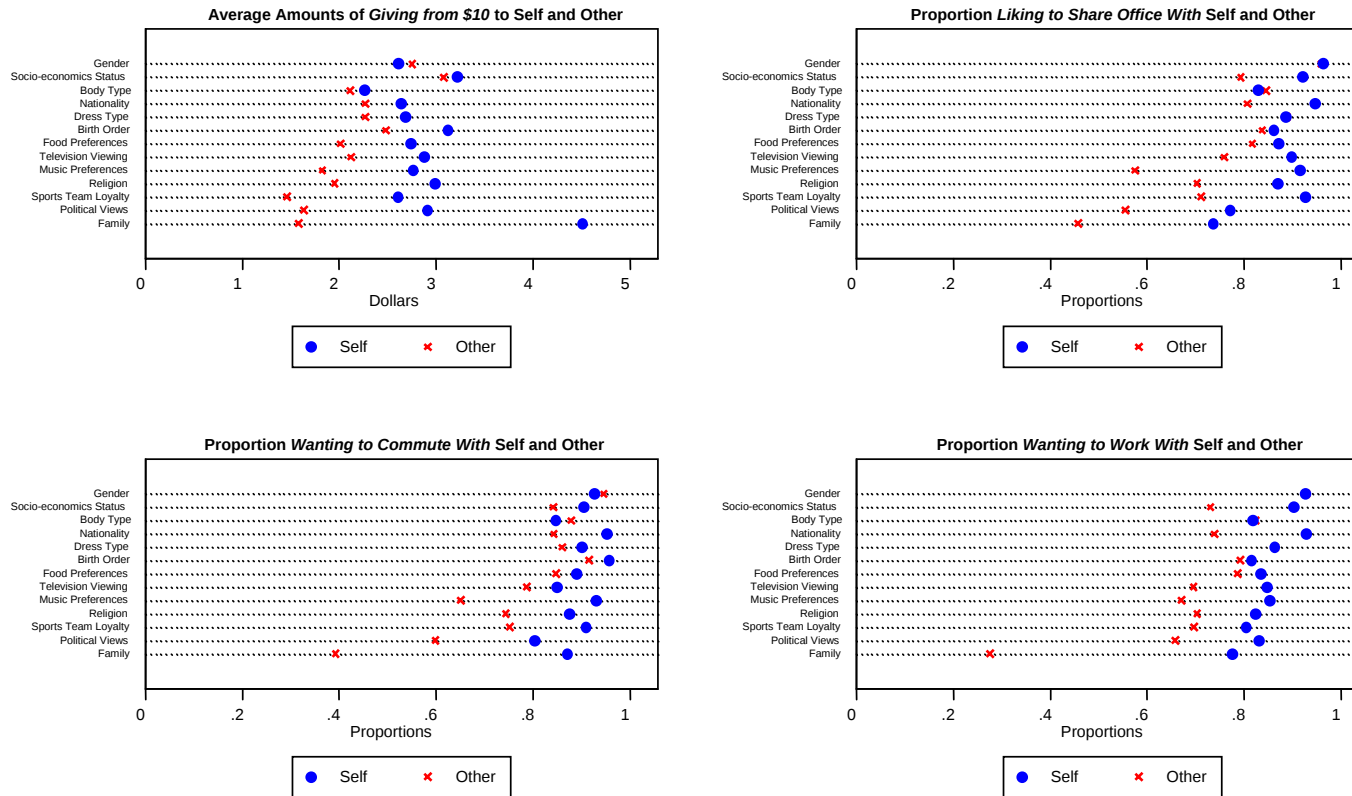
Table IV: Test of equality of coefficients across behaviors by identity category

	Share-Work	Share-Commute	Commute-Work
Family	11.61***(-)	9.01(-)***	0.03(+)
Nationality	0.16(-)	0.01(-)	0.08(-)
Political Views	2.17(+)	0.17(-)	3.02(+)*
Television Viewing	0.01(-)	0.01(+)	0.03(-)
Religion	1.34(+)	0.01(-)	1.15(+)
Music Preferences	11.28(+)**	0.02(-)	8.93(+)**
Food Preferences	0.45(+)	0.25(-)	1.26(+)
Sports Team Loyalty	4.94(+)**	0.05(+)	2.80(+)*
Socio-economic Status	0.04(-)	0.67(+)	1.15(-)
Body Type	0.11(+)	0.24(-)	0.63(+)
Dress Type	0.35(-)	2.33(-)	4.58(+)**
Birth Order	0.56(+)	0.01(+)	0.28(+)

Note:

Each cell shows the chi-square test statistic. (-) indicates that the estimate on the first-listed behavior presented in Table 2 is smaller than the estimate on the second-listed behavior; (+) indicates the opposite. One, two and three asterisks indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Figure I: ‘Self’ and ‘Other’ Comparisons by Identity Category



Source: see text for details

Appendix

Table A1: Fixed-Effects Regression and Fixed-Effects Logit Estimates

<i>Variable</i>	<i>Regression</i>		<i>Logit</i>	
	Giving (1)	Share Office (2)	Work (3)	Commute (4)
Family	-1.175***	-5.084	-5.985	-5.074
	(0.213)	(0.48)	(0.423)	(0.422)
Nationality	-0.485	-2.702	-2.716	-1.8
	(0.163)	(0.456)	(0.379)	(0.39)
Political Views	-1.071	-4.655	-3.418	-3.884
	(0.224)	(0.486)	(0.424)	(0.427)
Television Viewing	-0.629	-3.087	-3.107	-2.401
	(0.192)	(0.474)	(0.399)	(0.412)
Religion	-0.809	-3.562	-3.05	-2.737
	(0.168)	(0.458)	(0.382)	(0.392)
Music Preferences	-0.936	-4.372	-3.249	-3.402
	(0.166)	(0.457)	(0.381)	(0.39)
Food Preferences	-0.683	-2.625	-2.291	-1.857
	(0.179)	(0.468)	(0.394)	(0.405)
Sports Team Loyalty	-1.284	-3.505	-3.08	-2.669
	(0.213)	(0.485)	(0.417)	(0.426)
Socio-economic Status	0.353	-2.838	-2.761	-1.791
	(0.172)	(0.462)	(0.385)	(0.398)
Body Type	-0.643	-2.282	-1.9	-1.441
	(0.173)	(0.465)	(0.391)	(0.404)
Dress Type	-0.485	-1.732	-1.306	-1.604
	(0.213)	(0.517)	(0.451)	(0.447)
Birth Order	-0.35	-2.471	-2.155	-0.799
	(0.205)	(0.529)	(0.419)	(0.458)
Self x Family	2.374	-0.284	1.462	2.697
	(0.537)	(0.895)	(0.958)	(0.597)
Self x Nationality	-0.208	-0.187	0.133	0.826
	(0.538)	(0.947)	(0.995)	(0.692)
Self x Political Views	0.738	-0.537	0.133	0.826
	(0.563)	(0.919)	(0.986)	(0.636)
Self x Television Viewing	0.206	-0.72	-0.653	-0.079
	(0.583)	(0.985)	(1.019)	(0.701)
Self x Religion	0.484	-0.77	-1.131	0.162
	(0.531)	(0.897)	(0.952)	(0.6)
Self x Music Preferences	0.344	0.876	-0.604	2.005
	(0.535)	(0.916)	(0.96)	(0.643)
Self x Food Preferences	0.018	-1.417	-1.615	-0.138
	(0.536)	(0.908)	(0.961)	(0.62)

Table A1 (continued):

Variable	Regression	Logit		
	Giving (1)	Sharing (2)	Working (3)	Commute (4)
Self x Sports Team Loyalty	0.587	0.259	-1.187	0.888
	(0.555)	(0.944)	(0.974)	(0.659)
Self x Socio-economic Status	-0.465	-0.646	-0.446	-0.289
	(0.49)	(0.834)	(0.897)	(0.498)
Self x Body Type	-0.419	-2.335	-2.224	-0.996
	(0.547)	(0.919)	(0.974)	(0.637)
Self x Dress Type	-0.154	-2.183	-2.301	-0.333
	(0.555)	(0.948)	(1)	(0.668)
Self x Birth Order	0.138	-1.756	-2.197	-0.216
	(0.563)	(1.019)	(0.991)	(0.801)
Self x Gender	-0.714	-2.231	-2.505	-1.418
	(0.555)	(1.076)	(1.058)	(0.749)
Constant	2.978	-	-	-
	(0.255)			
Number of Observations	10660	8784	8695	8484
Person-Self-Other Groups	402	345	335	312
	$R^2=0.0752$	Log Likelihood= -2964.92	Log Likelihood= -2946.01	Log Likelihood= -2675.67

Note: Each observation corresponds to a particular person-identity category-Self/Other value. For the fixed-effects logit estimates, all observations in which Self/Other-identity category groups have no variation in the dependent variable are dropped from the estimations. One, two and three asterisks indicate statistical significance at the 10%, 5% and 1% levels, respectively; standard errors are in parentheses.

Appendix A: Experimental Instructions

Experiment 1

Imagine yourself in a situation in which **you are given \$10, which you can keep to yourself or give to another person, all or any portion of it.** You may give money only in increments of \$1. We are asking you to consider giving money to different persons, one at a time. That is, each time you are given \$10, which you can divide between yourself and another person. Each person is described in the table provided below. When making your decision, please consider only the information given on each line.

Please imagine the situation to be as close as possible to a real-life situation. Remember, all of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

Please indicate in the space provided the amount you give and the amount you keep; make sure that the amount given to the other person and the amount you keep for yourself add up to \$10.

Here are a few examples. Suppose that the other person is someone who listens to Broadway musicals – this is the only information you have about the other person. Assume that you decide to give \$0, thus keeping \$10. This decision should be recorded as indicated in the first line of the examples table shown below. Alternatively, suppose that the other person is your next-door neighbor (and that's all you know about this person), and you decide to give \$2 and keep \$8. This decision should be recorded as indicated in the second line of the examples table. As a final example, suppose that the other person is someone named James (again, this is the only information you have about the other person), and you decide to give \$10 and keep \$0. This decision should be recorded as indicated in the third line of the examples table.

Examples table

<i>The other person...</i>	<i>Money you give to this person</i>	<i>Money you keep to yourself</i>	<i>Total</i>
Listens to Broadway musicals	\$0	\$10	\$10
Is your next door neighbor	\$2	\$8	\$10
Is named James	\$10	\$0	\$10

These are only hypothetical examples, and the decision how much to give is of course entirely yours.

The experiment begins here. You have \$10 that you can keep to yourself, or give to another person, all or any portion of it in increments of \$1. Each line describes a different person. The only thing you know about this person is the information given on that line. Please consider each person separately. Write the amount of money you give to the other person and the amount to keep for yourself in the space provided.

<i>The other person...</i>	<i>Amount of money you give to this person</i>	<i>Amount of money you keep to yourself</i>	<i>Total</i>
Is from a small family			\$10
Listens to bluegrass music			\$10
Speaks English and additional languages			\$10
Was born and raised in Minnesota			\$10
Has parents who are still together			\$10
Has a father who is a physician			\$10
Is poor			\$10
Was an “A” student in high school			\$10
Listens to alternative music			\$10
Hardly ever watches TV			\$10
Is politically conservative			\$10
Speaks Spanish at home			\$10
Is your brother			\$10
Is the youngest child in their family			\$10
Listens to contemporary pop/rock music			\$10
Had to work while in high school			\$10
Has a steady dating partner			\$10
Is financially well off			\$10
Is someone you’ve seen at the checkout counter at the supermarket			\$10
Has many close friends			\$10
Was born and raised in a small town or village			\$10
Has many brothers and sisters			\$10
Was born and raised in the Midwest			\$10
Is your close relative			\$10
Is politically liberal			\$10
Is Protestant			\$10
Is a male			\$10
Is an American			\$10
Is a stranger			\$10
Is from your hometown			\$10
Has divorced parents			\$10
Is Jewish			\$10
Is an avid newspaper reader			\$10

Is your father			\$10
Dates a lot			\$10
Is the oldest child in their family			\$10
Was your classmate in high school			\$10
Immigrated recently from another country			\$10
Is a friend of your parents			\$10
Didn't have to work while in high school			\$10
Has a father who works in a factory			\$10
Is Buddhist			\$10
Is from France			\$10
Listens to new age music			\$10
Is Muslim			\$10
Has few close friends			\$10
Is someone from your own church			\$10
Grew up in a large town			\$10
Watches a lot of TV			\$10
Attends regularly religious services			\$10
Is your closest friend			\$10
Is from Argentina			\$10
Speaks English only			\$10
Dresses differently from you			\$10
Looks like you			\$10
Went to a private high school			\$10
Is tall			\$10
Is of Chinese background			\$10
Listens to rap/hip-hop music			\$10
Is from Russia			\$10
Dresses like you			\$10
Listens to opera music			\$10
Is a "C" student			\$10
Is college educated			\$10
Is female			\$10
You have known for many years			\$10
Is white			\$10
Is your brother-in-law			\$10
Is from Iraq			\$10
Didn't finish high school			\$10
Went to a public high school			\$10
You've seen crossing the street			\$10
Has an advanced graduate degree			\$10
Is from Poland			\$10
Does not believe in God			\$10
Is your stepfather			\$10
Is short			\$10
Is skinny			\$10

Is a fan of your favorite sports team			\$10
Cheers for the rival of your favorite sports team			\$10
Is overweight			\$10
Is named Susan			\$10
Is Lutheran			\$10
Is named Mike			\$10
Is a foreigner			\$10
Eats chips often			\$10
Is your cousin			\$10
Eats salad often			\$10
Is a vegetarian			\$10
Resembles you			\$10
Eats hamburgers and fries often			\$10

Experiment 2

In this experiment you are faced with a simple choice: **do you want, or not want, to commute daily to school or work with a particular person.** We are asking you to consider this decision with respect to different persons, one at a time. Each person is described in the table provided below. In making your decision, please consider only the information given on each line.

Please imagine the situation to be as close as possible to a real-life situation. Remember, all of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

Please indicate your decision in the space provided in the table.

Here are a few examples. Suppose that the other person is someone who listens to Broadway musicals – this is the only information you have about the other person. Assume that you want to commute daily with this person; this decision should be recorded as indicated in the first line of the examples table below. Alternatively, suppose that the other person is your next-door neighbor (and that’s all you know about this person), and you do not want to commute with this person; this decision should be recorded as indicated in the second line of the examples table. As a final example, suppose that the other person is someone named James (again, this is the only information you have about the other person), and you want to commute with this person; this decision should be recorded as indicated in the third line of the examples table.

Examples table

<i>The other person...</i>	<i>Want to commute daily with this person</i>	<i>Do not want to commute daily with this person</i>
Listens to Broadway musicals	√	
Is your next door neighbor		√
Is named James	√	

These are only hypothetical examples, and the decision is of course entirely yours.

The experiment begins here. Please indicate whether you want or do not want to commute daily with each of the persons listed below. Each line describes a different person. The only thing you know about this person is the information given on that line. Please consider each person separately, and indicate whether you want or do not want to commute daily with this person.

<i>The other person...</i>	<i>Want to commute daily with this person</i>	<i>Do not want to commute daily with this person</i>
Is from a small family		
Listens to bluegrass music		
Speaks English and additional languages		
Was born and raised in Minnesota		
Has parents who are still together		
Has a father who is a physician		
Is poor		
Was an "A" student in high school		
Listens to alternative music		
Hardly ever watches TV		
Is politically conservative		
Speaks Spanish at home		
Is your brother		
Is the youngest child in the family		
Listens to contemporary pop/rock music		
Had to work while in high school		
Has a steady dating partner		
Is financially well off		
Is someone you've seen at the checkout counter at the supermarket		
Has many close friends		
Was born and raised in a small town or village		
Has many brothers and sisters		
Was born and raised in the Midwest		
Is politically liberal		
Is Protestant		
Is a male		
Is an American		
Is a stranger		
Is from your hometown		
Has divorced parents		
Is Jewish		
Is an avid newspaper reader		
Is your father		
Dates a lot		
Is the oldest child in the family		

Was your classmate in high school		
Immigrated recently from another country		
Is a friend of your parents		
Didn't have to work while in high school		
Has a father who works in a factory		
Is Buddhist		
Is from France		
Listens to new age/space music		
Is a Muslim		
Has few close friends		
Is someone from your own church		
Grew up in a large town		
Watches a lot of TV		
Attends regularly religious services		
Is your closest friend		
Is from Argentina		
Speaks English only		
Dresses differently from you		
Looks like you		
Went to a private high school		
Is tall		
Is of Chinese background		
Listens to rap/hip-hop music		
Is from Russia		
Dresses like you		
Listens to opera music		
Is a "C" student		
Is college educated		
Is female		
You have known for many years		
Is white		
Is your brother-in-law		
Is from Iraq		
Didn't finish high school		
Went to a public high school		
You have seen crossing the street		
Has an advanced graduate degree		
Is from Poland		
Does not believe in God		
Is your stepfather		
Is short		
Is skinny		
Is a fan of your favorite sports team		
Cheers for the rival of your favorite sports team		
Is overweight		

Is named Susan		
Is Lutheran		
Is named Mike		
Is a foreigner		
Eats chips often		
Is your cousin		
Eats salad often		
Is a vegetarian		
Resembles you		
Eats hamburgers and fries often		

Thank you for participating in this experiment!

Experiment 3

In this experiment you are faced with a simple choice: **do you want, or not want, to work with a particular person on a project critical to your career advancement.** We are asking you to consider this decision with respect to different persons, one at a time. Each person is described in the table provided below. In making your decision, please consider only the information given on each line.

Please imagine the situation to be as close as possible to a real-life situation. Remember, all of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

Please indicate your decision in the space provided in the table.

Here are a few examples. Suppose that the other person is someone who listens to Broadway musicals – this is the only information you have about the other person. Assume that you want to work with this person on a project critical to your career advancement; this decision should be recorded as indicated in the first line of the examples table below. Alternatively, suppose that the other person is your next-door neighbor (and that’s all you know about this person), and you do not want to work with this person on a project critical to your career advancement; this decision should be recorded as indicated in the second line of the examples table. As a final example, suppose that the other person is someone named James (again, this is the only information you have about the other person), and you want to work with this person; this decision should be recorded as indicated in the third line of the examples table.

Examples table

<i>The other person...</i>	<i>Want to work with this person on a project critical to your career advancement</i>	<i>Do not want to work with this person on a project critical to your career advancement</i>
Listens to Broadway musicals	√	
Is your next door neighbor		√
Is named James	√	

These are only hypothetical examples, and the decision is of course entirely yours.

The experiment begins here. Please indicate whether you want or do not want to work with each of the persons listed below on a project critical to your career advancement. Each line describes a different person. The only thing you know about this person is the information given on that line. Please consider each person separately, and indicate whether you want or do not want to work with this person on a project critical to your advancement.

<i>The other person...</i>	<i>Want to work with this person on a project critical to your career advancement</i>	<i>Do not want to work with this person on a project critical to your career advancement</i>
Is from a small family		
Listens to bluegrass music		
Speaks English and additional languages		
Was born and raised in Minnesota		
Has parents who are still together		
Has a father who is a physician		
Is poor		
Was an "A" student in high school		
Listens to alternative music		
Hardly ever watches TV		
Is politically conservative		
Speaks Spanish at home		
Is your brother		
Is the youngest child in the family		
Listens to contemporary pop/rock music		
Had to work while in high school		
Has a steady dating partner		
Is financially well off		
Is someone you've seen at the checkout counter at the supermarket		
Has many close friends		
Was born and raised in a small town or village		
Has many brothers and sisters		
Was born and raised in the Midwest		
Is politically liberal		
Is Protestant		
Is a male		
Is an American		
Is a stranger		
Is from your hometown		
Has divorced parents		
Is Jewish		
Is an avid newspaper reader		
Is your father		

Dates a lot		
Is the youngest child in the family		
Was your classmate in high school		
Immigrated recently from another country		
Is a friend of your parents		
Didn't have to work while in high school		
Has a father who works in a factory		
Is Buddhist		
Is from France		
Listens to new age/space music		
Is a Muslim		
Has few close friends		
Is someone from your own church		
Grew up in a large town		
Watches a lot of TV		
Attends regularly religious services		
Is your closest friend		
Is from Argentina		
Speaks English only		
Dresses differently from you		
Looks like you		
Went to a private high school		
Is tall		
Is of Chinese background		
Listens to rap/hip-hop music		
Is from Russia		
Dresses like you		
Listens to opera music		
Is a "C" student		
Is college educated		
Is female		
You have known for many years		
Is white		
Is your brother-in-law		
Is from Iraq		
Didn't finish high school		
Went to a public high school		
You have seen crossing the street		
Has an advanced graduate degree		
Is from Poland		
Does not believe in God		
Is short		
Is skinny		
Is a fan of your favorite sports team		
Cheers for the rival of your favorite sports team		

Is overweight		
Is named Susan		
Is Lutheran		
Is named Mike		
Is a foreigner		
Eats chips often		
Is your cousin		
Eats salad often		
Is a vegetarian		
Eats hamburgers and fries often		

Thank you for participating in this experiment!

Experiment 4

In this experiment you are asked to consider the following situation. **You have been assigned to share an office with another person. You are asked to state whether you like or dislike sharing an office with this person.** Please note that there are no other options and you have to indicate a preference – like or dislike – on each line. We are asking you to consider this decision with respect to different persons, one at a time. Each person is described in the table provided below. In making your decision, please consider only the information given on each line.

Please imagine the situation to be as close as possible to a real-life situation. Remember, all of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

Please indicate your decision in the space provided in the table.

Here are a few examples. Suppose that the other person is someone who listens to Broadway musicals – this is the only information you have about the other person. Assume that you would like to share an office with this person; this preference should be recorded as indicated in the first line of the examples table below. Alternatively, suppose that the other person is your next-door neighbor (and that's all you know about this person), and you would dislike sharing an office with this person; this preference should be recorded as indicated in the second line of the examples table. As a final example suppose that the other person is someone named James (again, this is the only information you have about the other person), and you would like to share an office with this person; this preference should be recorded as indicated in the third line of the examples table.

Examples table

<i>The other person...</i>	<i>Like to share an office with this person</i>	<i>Dislike to share an office with this person</i>
Listens to Broadway musicals	√	
Is your next door neighbor		√
Is named James	√	

These are only hypothetical examples, and the decision is of course entirely yours.

The experiment begins here. Please indicate whether you would like or dislike sharing an office with each of the persons listed below. Each line describes a different person. The only thing you know about this person is the information given on that line. Please consider each person separately, and indicate whether you like or dislike to share an office with this person.

<i>The other person...</i>	<i>Like to share an office with this person</i>	<i>Dislike to share an office with this person</i>
Is from a small family		
Listens to bluegrass music		
Speaks English and additional languages		
Was born and raised in Minnesota		
Has parents who are still together		
Has a father who is a physician		
Is poor		
Was an "A" student in high school		
Listens to alternative music		
Hardly ever watches TV		
Is politically conservative		
Speaks Spanish at home		
Is your brother		
Is the youngest child in the family		
Listens to contemporary pop/rock music		
Had to work while in high school		
Has a steady dating partner		
Is financially well off		
Is someone you've seen at the checkout counter at the supermarket		
Has many close friends		
Was born and raised in a small town or village		
Has many brothers and sisters		
Was born and raised in the Midwest		
Is politically liberal		
Is Protestant		
Is a male		
Is an American		
Is a stranger		
Is from your hometown		
Has divorced parents		
Is Jewish		
Is an avid newspaper reader		
Is your father		
Dates a lot		
Is the youngest child in the family		
Was your classmate in high school		

Immigrated recently from another country		
Is a friend of your parents		
Didn't have to work while in high school		
Has a father who works in a factory		
Is Buddhist		
Is from France		
Listens to new age/space music		
Is a Muslim		
Has few close friends		
Is someone from your own church		
Grew up in a large town		
Watches a lot of TV		
Attends regularly religious services		
Is your closest friend		
Is from Argentina		
Speaks English only		
Dresses differently from you		
Looks like you		
Went to a private high school		
Is tall		
Is of Chinese background		
Listens to rap/hip-hop music		
Is from Russia		
Dresses like you		
Listens to opera music		
Is a "C" student		
Is college educated		
Is female		
You have known for many years		
Is white		
Is your brother-in-law		
Is from Iraq		
Didn't finish high school		
Went to a public high school		
You have seen crossing the street		
Has an advanced graduate degree		
Is from Poland		
Does not believe in God		
Is short		
Is skinny		
Is a fan of your favorite sports team		
Cheers for the rival of your favorite sports team		
Is overweight		
Is named Susan		
Is Lutheran		

Is named Mike		
Is a foreigner		
Eats chips often		
Is your cousin		
Eats salad often		
Is a vegetarian		
Eats hamburgers and fries often		

Thank you for participating in this experiment!

Notes

¹ See the review article by Ellemers, Spears, and Doosje (2002), and literature reviews in Akerlof and Kranton (2000) and Leonard and Levine (2003).

² For an expansive discussion of this and related theories, see Ellemers, Spears, and Doosje (2002). Economists Darity, Mason and Stewart (2006) advance this theory by developing an evolutionary game model to show how racial identity may evolve in a society in which individuals are easily identified by racial criteria.

³ For an argument that human beings process information with the aid of categories rather than more detailed attributes, see Fryer and Jackson (2003).

⁴ Allen (1996) found an in-group bias effect for individuals of European and African descent, such that both groups attributed more positive traits to members of their respective in-group.

⁵ See for example Ben-Ner and Putterman (2000) who attempt to sort out conceptually various influences.

⁶ This is the familiar trade-off between loyalty and expertise in family-owned firms or state-owned firms in communist countries. Also ethnically homogenous middlemen groups confer benefits (as well as sanctions) on its members and arise to reduce the transaction costs associated with exchange uncertainty (Landa, 1997).

⁷ For various reasons, we did not include race and ethnicity in our experiments ("Jewish" was included in the religion category).

⁸ Other characterizations, such as "someone you've seen crossing the street" and "someone you've seen at the checkout counter at the supermarket" are less loaded than the term "stranger" but produce similar results.

⁹ We conjecture that the categories of race and ethnicity, not included in this experiment, might belong to this group of identity categories.

¹⁰ We are exploring question (a) in a forthcoming paper. Akerlof and Kranton (2000) established some principles for dealing with questions (b) and (c). An elegant treatment of one aspect of question (b) is provided by Ortona (2002) who proposes a theory of mass ethnic violence produced by rational subjects fueled by various 'non-economic' passions. An initial step in the direction of question (c) is made by Giuriato and Molinari (2002) who study some effects of 'lacerations in identity.'

Do We Prefer People Who Are Similar to Us?

Experimental Evidence on Giving and Work Behaviors

by Avner Ben-Ner & Amit Kramer

Very partial and very preliminary – June 1, 2007

This draft paper constitutes an extension of the previous paper in two principal ways. First, we ask experimental subjects to consider giving to and working with 12 imaginary other persons who are each described in terms of six identity categories (gender, ethnicity, musical preferences, family financial background, religion and political leanings); this substitutes for consideration of dozens of persons who are described in terms of one category at a time (out of 13 categories). The goal of this extension is to investigate the possibility that some identity categories dominate other categories when they are presented together describing the same person. Second, we investigate the effects individual background and personality have on behavior towards ‘self’ and ‘other’ in these experiments. The objective of this extension is to examine whether some individual characteristics are associated with greater proclivity to discriminate, and on the basis of which identity categories.

We focus on six identity categories only, instead of the 13 that were used in the previous paper. The reason for that was the desire to keep the experiment reasonably simple and short.¹

¹ We excluded the categories of family, nationality, television viewing, food preferences, sports team loyalty, body type, dress type and birth order, and added ethnicity. Because we are not using exactly the same attributes in the two papers, the identity categories that bear similar titles are not identical.

METHOD

Sample and Experimental Design

Subjects were students at a Midwestern university. Several experimental sessions were held in which the subjects completed over computers the two experiments that appear in Appendix 1 and Appendix 2, as well as other experiments that are not relevant to the current study.² Subjects were paid for their participation in the study but their compensation was not related to their actions in these experiments. Subjects also completed a comprehensive background questionnaire several days before the experiments were held. Later, experiments results and background questionnaires were matched based on subject identification number. Of the 357 subjects who completed the background questionnaire and participated in the experiments, complete data was available for 315 subjects.

Measures

Variables are defined in detail below. Descriptive statistics of all variables are presented in Table 1.

Dependent Variables

Amount given to the other person. In the first experiment (Appendix 1), subjects were asked to imagine themselves in a situation in which they are given \$10, which they can

² These experiments were conducted after a series of experiments on ‘interactive decision-making’ that lasted about three-quarters of an hour and involved subjects seated in different room interacting with other subjects over computers, and using actual money. The experiments reported in this paper lasted less than 10 minutes, and subjects interacted with imaginary others, and used imaginary money.

keep for themselves or give to another person, all or any portion of it (in increments of one dollar).³ We then asked them to consider giving money to different persons as follows. Each subject was paired with 12 imaginary persons described along six attributes (categories) of identity: gender, race, musical preference, family financial background, religion, and political orientation. Each subject was asked to decide how much money, if any, to give out of \$10 to each of these 12 imaginary persons, every time starting with a \$10 endowment. On average over the 12 different persons, our 315 subjects gave \$3.74.⁴

Desire to work with the other person. In the second experiment (Appendix 2) subjects were presented with the same 12 imaginary persons, but this time they were told to imagine that they were asked to put together a work team of 12 people to work on a project that requires close cooperation among its members and considerable reliance on each other. They were also told that the success of the project is critical to their career advancement. They were then asked to rate on a scale of one (most desirable) to four (least desirable) how much they want to work with each imaginary person. The scale was then recoded such as higher score indicates higher desirability to work with other. On average over the 12 different persons, our 315 subjects' rating was 2.86, showing some desire to work with these persons.⁵

³ This experiment is known as the dictator game. We have also conducted dictator game experiments with actual money and with actual people on both sides (and with the same identity categories), and compared them with giving in experiments with imaginary money and imaginary others. The amounts given in the two experiments are statistically indistinguishable. See Ben-Ner and Levy (2007) at http://webpages.csom.umn.edu/hrir/abenner/web/papers/Economic_and_Hypothetical.pdf.

⁴ This is similar to what subjects from the same university gave in terms of actual money; for example, male subjects gave on average \$3.71 to female subjects. See Ben-Ner, Kong and Putterman (2004).

⁵ This experiment differs from the similar experiment reported in the previous paper in two ways. First, in that paper the question was about wanting or not wanting to work with a person on a project critical to the subject's career advancement. Second, it was a yes/no answer.

Independent variables

Self/other scores. We composed self/other scores for each subject, for every one of the 12 imaginary persons based on information about each subject's characteristics drawn from the background questionnaire matched with the identity attributes of each person.⁶ For each identity attribute the score is 1 for same or 'self' and 0 for different or 'other.' Consider a subject who, on the basis of the background questionnaire, is female, white, rated 3 on 1-6 scale asking how much she loves country music, described her family financial background as fairly comfortable on a scale from 1 (very well-off) to 4 (fairly hard-up), belongs to a Protestant denomination and rated 2 on a scale of 1-6 concerning her political leaning (where 1 is very conservative and 6 is very liberal). When this subject interacts with the first person (who was described as male, white, prefers country music, is from a well-off family, has no religion, and has a conservative political leaning) the self/other score are 0 for gender (female subject interacting with male), 1 for ethnicity (both are white), 0 for musical preferences (different preferences), 1 for family financial background (both are well off), 0 for religion (subject is Protestant and other person has no religion), and 1 for political leaning (both are conservative).

The remaining variables are based on the background questionnaire and describe the subjects.

Gender. Males were coded as 0 and females were coded as 1. A little over half of our subjects were female.

⁶ We followed closely the matching protocol described in detail in the previous paper.

Race. Nearly three-quarter of subjects were white, 16% were Asian, and the remaining 10% were drawn from various backgrounds (including 10 black subjects). We created a white-other dummy to deal with the particular composition of our sample.

Musical preferences. Subjects were asked how much they like different music styles, including rock and country, on a scale that ranged from 1 (dislike very much) to 6 (like very much). For the self/other categorization they were coded as rock lovers or country music lovers if they scored above 3 on the respective questions.

Family financial background. Subjects were asked to rate the financial situation of their family when they were growing up on a scale of 1 to 4, where 1 was “fairly hard-up financially,” 2 was “a little squeezed financially,” 3 was “fairly comfortable financially,” and 4 was “very well-off financially.” The mean is 2.7. For the self/other categorization they were coded as coming from a hard-up financial background if their scores were 1 or 2 and as coming from a well-off financial background if they scored 3 or 4.

Religion. Subjects were asked to report their family religious preference. They had 14 options including none, Buddhist, Catholic, Eastern Orthodox, Hindu, Jewish, Muslim, Mormon, and five types of Protestant denominations. They could also report whether they had more than one religion background in their family or other religious background. Given the distribution of religious backgrounds in our sample, we categorized subjects into three groups: Catholics (over one-quarter), Protestants (nearly half), and others.

Political leaning. Subjects were asked to rate their political views on a scale from 1 to 6, where 1 was “very conservative” and 6 was “very liberal”. For the self/other categorization they were coded as liberals if they scored between 4 and 6 and conservatives if they scored between 1 and 3. A minority (29%) of subjects were classified as conservatives, the rest as liberals.

Age. Age was measured by self-report of the subjects, with a mean of 23.16 years (the subjects included undergraduate and graduate students).

Body mass index (BMI). Body mass index was calculated based on self-reported height and weight. The calculation is based on the following standard formula:

$$\text{BMI} = (\text{Weight in Pounds} \times 703) / (\text{Height in inches})^2$$

Only child. Subjects were asked whether they have any siblings. If they had no siblings they were coded as 1, 0 otherwise. Almost 8% of our subjects are only children.

Single-parent family. Subjects were asked to indicate separately if at age 7 and 15 they had their mother, father, stepfather or stepmother living with them in the same household. If they had only one of these adults living with them they were coded as 1 and 0 otherwise. At age 7, 4.3% of our subjects reported to have had just one parent present in the household, whereas 11.2% had just one parent at age 15.

Religiosity. Religiosity was calculated from four different items. Subjects were asked to indicate (a) their religious views from very liberal (1) to very conservative (6); (b) their opinion regarding the role of religion in public life on a scale from 1 to 6, where 1 is "not enough" and 6 is "too much;" (c) how important is religion to the subject on a scale from 1 to 6 where 1 is "not important" and 6 is "very important"; and (d) their faith in god on a scale from 1 to 6, where 1 is "do not believe/agnostic" and 6 is "very strong belief." The first two items were recoded. Factor analysis indicated one factor structure. The items were then averaged ($\alpha=.84$).

Frequency of meeting friends in high school. Subjects were asked to indicate how often they met their friends outside of school while they were in high school, on a scale of 1 "hardly ever" to 4 "practically every day."

Personality. The big five personality traits of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness were measured using the NEO-FFI questionnaire. We also measured risk aversion as derived from responses to a series of questions regarding preferences for either receiving an amount with certainty, or a 50/50 chance of getting a higher amount or nothing.⁷

Analysis

We seek to understand the determinants of two experimental behaviors, the amount given to others and the desire to work with others. To uncover differences in subjects'

⁷ A risk aversion score was only created for subjects that answered the questions in a consistent manner, resulting in 30 subjects not having a risk aversion score. Including or excluding these subjects does not change any of the results reported below.

behaviors towards imaginary persons who are similar to them and those who are different from them, we perform regression analyses in which the dependent variable is a subject's behavior exhibited towards each of the 12 persons, and the key explanatory variables are the self/other variables that indicate the similarity or difference between the subject and the imaginary person along the six identity categories. We also use variables that describe subjects' own identity along the same six categories to investigate the question whether self-other differentiation varies across identity attributes.⁸ In addition, we control for variables that past research has shown to affect similar behaviors, such as demographic variables and personality. Finally, in order to understand how background variables and personality affect not just the experimental behaviors of giving and desirability to work with others, but specifically the proclivity to treat self and other differently, we interact some of these variables with the self/other scores. Specifically, we interact all five personality factors with the self/other scores, and run separate regressions by gender, religion (Catholic and Protestant),⁹ political orientation (conservative-liberal dichotomy), and family financial background (low-high dichotomy).¹⁰

For each subject there are 12 observations of giving to the other person and 12 observations of the desire to work with the other person, one for each of the 12 different imaginary persons. We investigate the two types of behaviors separately. We use random effects generalized least squares (GLS) regression for all analyses, so that the fact that the

⁸ The identity of the other person can be inferred from the self/other variables in combination with the subjects' identities, so it should not be entered in addition to these variables.

⁹ We omit the table for the smaller and heterogeneous group of other religions.

¹⁰ Some of the tables have not been completed at this time.

12 observations associated with each subject is taken into account.¹¹ In total, we had 3,768 observations of giving behavior and 3,744 observations of desirability to work with others.¹²

RESULTS

Tables 2a-e present estimations of *amount given to the other person* for the entire sample, males and females, Catholics and Protestants, subjects from financially well-off and hard-up families, conservatives and liberals. Tables 3a-e focus on estimations of *desire to work with the other person*. Each table contains three models. Model 1 includes only the key explanatory variables, the self/other scores, and is intended to provide a benchmark answer to the question whether the self-other differentiation on the six identity categories matters. The second model adds variables that may affect giving or working behaviors; the variables describe the subjects in terms of the identity categories, additional background variables (age, body mass index, only child status, single-parent family status, religiosity and frequency of meeting friends in high school), and personality. The third model includes interactions between each of the six self/other scores and each of the five personality factors, and aims at capturing the effect of personality on self-other differentiation.

¹¹ Pooled OLS regression is inappropriate because the assumption of independence of observations is violated.

¹² The small difference is due to the fact that a few subjects missed, apparently in error, to mark their choices for one or two other persons.

For the purpose of clarity of presentation, the tables include estimates on the self/other scores, on subjects' identity categories, personality and on statistically significant interactions between personality categories and the self/other scores. Included in estimations but not shown in the table are estimates for age, BMI, only child, single parent family, religiosity, and frequency of meeting of friends during high school, but a brief discussion of these variables is included. Also excluded from the table are the statistically insignificant estimates on interactions between personality and self/other scores.

Amount given to the other person

Table 2a shows that our subjects show tendencies to favor those who share their racial background, musical preferences and political leanings, favor those of different religion from their own and show no preferential treatment according to gender and financial background. These results hold across the three models. The findings for financial background seem to be dominated by most subjects' willingness to give more to those from a hard-up financial background than to those from well-off families. Gender does not matter in this aggregate analysis, possibly because of differential and asymmetric treatment of and by males and females (we come to this issue in the next table). All these results but for the negative sign on religion conform to the findings in the previous paper, and will be addressed in detail in the discussion of Table 2e.¹³ Gender and religious background do not explain the level of giving, so it is important to look at the interaction

¹³ The religious identification, as described in the previous subsection, allowed subjects to self-identify in multiple Protestant denominations, which may not feel as 'self' to each other. Furthermore, the designation 'none' for religion may have been variously interpreted as no religion, or possibly not Catholic and not Protestant but other.

between these identity categories and the self/other score, which we do in subsequent tables. It is important to note the composition of our sample in terms of race, religion and other identity categories; we obviously cannot say anything about the behavior of groups not substantially represented in the sample.

Personality has little effect on giving, and the interactions with the self/other scores add little to the explanation of variation in the amount given; the few significant interactions, shown in the table, do not seem to make for a pattern. Other control variables, included in the regressions but not shown in the table, have small and statistically insignificant effects, with the exception of having only one parent in the household at age 15, which is associated, in all three models, with approximately one dollar less in giving.

Turning now to Table 2b, which splits the sample by gender, we note that there are very few differences between male and female subjects, with a few exceptions, mostly notably the preference of women for giving to members of religions other than their own, and in contrast, slightly stronger tendencies on the part of women to favor persons from their own race and their musical preferences.

In Table 2c the split is on the basis of family financial background. We note that the coefficient on the self/other race variable is now insignificant, as compared to highly significant and positive in Tables 2a and 2b, which was indicative of subjects favoring members of their own race. In this table, subjects from hard-up financial background give slightly more (but not in a statistically significant way) to members of other races,

whereas those from well-off background give the same amount. (The reason for this might be some correlations we cannot figure out at this moment...) In terms of the financial background itself, it is now clear that both groups give more to persons who are hard-up financially, but those subjects who are from a hard-up background themselves give more than those from a well-off background (for example, in Model 1 it is \$1.693 versus \$1.085).

Table 2d considers differences between Catholics and Protestants. We note that Catholic subjects give more to members of their own race than to others by a substantially larger magnitude than do Protestants. In terms of giving according to religious background, Catholics give more to Catholics whereas Protestants give less to Protestants than to others. This result may be due to the fact that those whom we classify as Protestants, such as subjects from Methodist, Assembly of God, and even Lutherans, do not always regard themselves as Protestants, so they may regard Protestants as ‘other.’¹⁴

Table 2e ...

Desire to work with the other person

The main results in Table 3a suggest that our subjects favor, for purposes of working in a team, those who share their musical preferences, religion and political leanings; the subjects show no preference on the basis of race, gender or financial background. These

¹⁴ In addition, family financial background plays a role only for Protestants in that the well-off give less than the hard-up. The openness personality factor increases giving by Protestants but not Catholics. The interactions between personality and the self/other dummies seem to play a greater role for the identity-based giving for Catholics than for Protestants.

findings hold across the three models. The main differences between Tables 2a and 3a concern religion and race. Subjects give more to people from the same race, but do not discriminate on the basis of race when asked with who they prefer to work. Subjects prefer to work with their co-religionists but give less to them than to persons from other religions.¹⁵

Table 3b shows that male subjects are more discriminating on the basis of religion and female subjects on the basis of political leanings.

Table 3c indicates that subjects from well-off families discriminate on the basis of religion, unlike subjects from financially hard-up families.

To be continued.

¹⁵ Statistical tests for equality of coefficients have not been performed yet for any comparisons offered in this section.

Table 1. Descriptive Statistics				
Variable	Mean	S.D.	Min	Max
<i>Experiment results</i>				
Amount given to the other person	3.738	2.845	0	10
Desire to work with the other person	2.863	.936	1	4
<i>Demographics & background variables of sender</i>				
Female	.545	-	0	1
White	.738	-	0	1
Asian	.158	-	0	1
Rock music	4.872	1.175	1	6
Country music	2.851	1.660	1	6
Family financial background	2.708	.865	1	4
Protestant	.477	-	0	1
Catholic	.275	-	0	1
Other religion/none	.248	-	0	1
Conservative (vs. liberal)	.288	-	0	1
Age	23.163	6.337	17	59
BMI (body mass index)	23.427	3.955	16.2	46.2
Only child	.079	-	0	1
Single parent family (at age 7)	.043	-	0	1
Single parent family (at age 15)	.112	-	0	1
Religiosity	3.113	1.357	1	5.75
Frequency met friends in high school	3.038	.849	1	4
<i>Identity of other person</i>				
Female	.334	-	0	1
Black	.333	-	0	1
Rock music lover	.583	-	0	1
Hard up family financial background	.582	-	0	1
Protestant	.334	-	0	1
Catholic	.332	-	0	1
Liberal political leaning	.584	-	0	1
<i>Self/Other dimensions</i>				
Self/Other gender	.485	-	0	1
Self/Other race	.502	-	0	1
Self/Other music	.643	-	0	1
Self/Other financial background	.523	-	0	1
Self/Other religion	.284	-	0	1
Self/Other political leaning	.536	-	0	1
<i>Personality</i>				
Neuroticism	20.984	7.894	2	44
Extraversion	29.443	6.293	11	45
Openness to experience	31.332	6.031	17	42
Agreeableness	31.094	5.603	13	48
Conscientiousness	31.879	6.144	15	47
Risk aversion	2.913	1.421	1	6

Table 2a. Random effects GLS regression for <i>amount given to the other person</i>			
Variable	Model 1	Model 2	Model 3 Standardized
Self/other gender	-.017 (.079)	-.045 (.082)	-.036 (.042)
Self/other race	.488** (.090)	.475** (.095)	.224** (.048)
Self/other music	.632** (.094)	.641** (.098)	.294** (.048)
Self/other financial background	-.057 (.076)	-.080 (.080)	-.040 (.040)
Self/other religion	-.207* (.087)	-.211* (.091)	-.108** (.042)
Self/other political leaning	.474** (.075)	.483** (.079)	.237** (.039)
<i>Demographics and background of subject</i>			
Gender	-	-.143 (.270)	-.127 (.269)
White	-	.158 (.329)	.168 (.329)
Rock music	-	-.104 (.121)	-.101 (.120)
Country music	-	.005 (.079)	.009 (.079)
Family financial background	-	-.017 (.162)	-.024 (.158)
Catholic	-	-.315 (.380)	-.328 (.378)
Protestant	-	-.272 (.354)	-.253 (.353)
Conservative	-	-.042 (.312)	-.057 (.310)
<i>Personality</i>			
Neuroticism	-	.025 (.019)	.201 (.154)
Extraversion	-	.027 (.024)	.185 (.154)
Openness to experience	-	.057* (.024)	.360* (.154)
Agreeableness	-	.026 (.025)	.139 (.145)
Conscientiousness	-	.026 (.022)	.162 (.142)
<i>Interactions</i>			
Extraversion * S/O gender	-	-	.080† (.047)
Neuroticism * S/O race			-.101† (.055)

Neuroticism * S/O finance	-	-	-.151** (.048)
Openness * S/O finance	-	-	-.128** (.043)
Conscientiousness * S/O finance	-	-	-.093* (.046)
Constant	2.876** (.158)	.219 (1.949)	5.779** (1.402)
N	3,242	3,060	3,060
(Groups)	(272)	(255)	(255)
Overall R ²	.028	.076	.085

† $p < .10$; * $p < .05$; ** $p < .01$

Notes to Tables 2a-2e

- We also controlled for subjects' age, body mass index (BMI), only child, single-parent family at age 15, religiosity, and frequency of meeting friends in high school. In the interest of space, estimates for these control variables are not presented but are discussed in the text.
- Standard errors are in parentheses.
- Interactions were calculated between all five NEO personality traits and all six self/other measures (30 interactions). Only significant interactions are presented.

Table 2b. Random effects GLS regression for *amount given to the other person*, by gender

<i>Variable</i>	Model 1		Model 2		Model 3 (standardized)	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Self/other gender	.196 (.136)	-.133 (.112)	.145 (.140)	-.140 (.117)	.075 (.077)	-.098 (.061)
Self/other race	.417** (.143)	.504** (.118)	.390** (.149)	.514** (.126)	.139† (.084)	.287** (.067)
Self/other music	.499** (.155)	.641** (.128)	.500** (.161)	.677** (.135)	.177* (.088)	.332** (.067)
Self/other financial background	-.078 (.121)	-.020 (.099)	-.133 (.125)	-.004 (.104)	-.089 (.068)	.022 (.054)
Self/other religion	-.075 (.140)	-.283* (.112)	-.073 (.145)	-.303** (.117)	-.008 (.074)	-.175** (.056)
Self/other political leaning	.511** (.120)	.459** (.097)	.533** (.124)	.461** (.101)	.284** (.068)	.264** (.053)
<i>Demographics and background of subject</i>						
White	-	-	.697 (.585)	.158 (.409)	.734 (.608)	.125 (.429)
Rock music	-	-	-.101 (.191)	-.114 (.159)	-.088 (.197)	-.115 (.166)
Country music	-	-	.137 (.140)	-.032 (.097)	.163 (.145)	-.032 (.101)
Family financial background	-	-	.078 (.267)	-.046 (.193)	.077 (.277)	-.059 (.202)
Catholic	-	-	-.850 (.626)	.009 (.479)	-.889 (.648)	.019 (.500)
Protestant	-	-	-1.210* (.614)	.280 (.426)	-1.212† (.637)	.311 (.445)
Conservative	-	-	-.974† (.503)	.340 (.412)	-.956† (.521)	.302 (.430)
<i>Personality</i>						
Neuroticism	-	-	.041 (.032)	.030 (.024)	.372 (.279)	.257 (.204)
Extraversion	-	-	.016 (.043)	.038 (.028)	.156 (.294)	.229 (.195)
Openness to experience	-	-	.008 (.044)	.091** (.028)	.016 (.290)	.544** (.190)
Agreeableness	-	-	.061 (.045)	.002 (.030)	.292 (.273)	.037 (.186)
Conscientiousness	-	-	-.040 (.038)	.042 (.027)	-.211 (.254)	.301 (.184)
<i>Interactions</i>						
Openness * S/O gender	-	-	-	-	-	-.124* (.060)
Conscientiousness * S/O gender	-	-	-	-	-	.128† (.068)

Neuroticism * S/O religion	-	-	-	-	-	.113† (.064)
Agreeableness * S/O religion	-	-	-	-	-	.121* (.060)
Neuroticism * S/O finance	-	-	-	-	-.155† (.079)	-.150* (.064)
Openness * S/O finance	-	-	-	-	-.214** (.074)	-
Conscientiousness * S/O finance	-	-	-	-	-.196** (.073)	-
Constant	2.74** (.251)	2.97** (.206)	-.38 (3.505)	.03 (2.34)	2.81 (2.693)	6.89** (1.698)
N	1,477	1,741	1,392	1,668	1,392	1,668
(Groups)	(124)	(146)	(116)	(139)	(116)	(139)
Overall R ²	.024	.034	.107	.135	.123	.152

Table 2c. Random effects GLS regression for amount given to the other person, by financial background

<i>Variable</i>	Model 1		Model 2		Model 3 (standardized)	
	<i>hard up</i>	<i>well off</i>	<i>hard up</i>	<i>well off</i>	<i>hard up</i>	<i>well off</i>
Self/other gender	-.157 (.139)	.091 (.089)	-.259† (.144)	.099 (.093)	-.147 (.074)	.038 (.047)
Self/other race	-.129 (.168)	.049 (.108)	-.197 (.178)	.008 (.114)	-.090 (.091)	-.004 (.058)
Self/other music	.325† (.171)	.314** (.108)	.303† (.179)	.298** (.113)	.118 (.092)	.139* (.055)
Self/other financial background	1.693** (.147)	-1.085** (.095)	1.727** (.152)	-1.152** (.100)	.846** (.078)	-.607** (.051)
Self/other religion	-.111 (.151)	.025 (.101)	-.200 (.157)	.065 (.106)	-.096 (.073)	.029 (.048)
Self/other political leaning	.516** (.133)	.475** (.085)	.521** (.138)	.489** (.089)	.248** (.069)	.251** (.045)
<u><i>Demographics and background of subject</i></u>						
Gender			-.074 (.414)	-.072 (.343)	-.041 (.417)	-.069 (.346)
White			.252 (.491)	.673 (.443)	.292 (.496)	.632 (.450)
Rock music			-.036 (.196)	-.088 (.151)	-.028 (.197)	-.087 (.153)
Country music			.086 (.135)	.105 (.098)	.096 (.136)	.106 (.099)
Catholic			1.612* (.645)	-1.315** (.470)	1.663** (.646)	-1.299** (.475)
Protestant			1.655** (.573)	-1.189** (.448)	1.717** (.575)	-1.155* (.453)
Conservative			-.564 (.523)	.001 (.389)	-.607 (.525)	-.041 (.393)
<u><i>Personality of sender</i></u>						
Neuroticism			.047 (.032)	.022 (.023)	.445† (.264)	.179 (.193)
Extraversion			.017 (.038)	.012 (.030)	.113 (.248)	.081 (.196)
Openness to experience			.110* (.045)	.061* (.029)	.694* (.287)	.357† (.190)
Agreeableness			.033 (.039)	-0.006 (.032)	.211 (.228)	-.041 (.188)
Conscientiousness			-.044 (.036)	.058* (.028)	-.250 (.237)	.377 (.182)
<u><i>Interactions</i></u>						
Neuroticism * S/O finance					-.284** (.096)	
Conscientiousness * S/O finance					-.213* (.087)	

Extraversion * S/O religion					.166*	
					(.082)	
Agreeableness * S/O politics					-.157*	0.076
					(.076)	
Conscientiousness * S/O politics					.131†	0.078
					(.078)	
Agreeableness * S/O gender						.126*
						(.055)
Agreeableness * S/O race						-.119†
						(.066)
Openness * S/O finance						-.335**
						(.054)
Constant	2.44**	3.68**	-1.87	1.29	3.57†	5.66**
	(.264)	(.198)	(3.390)	(2.428)	(2.059)	(1.800)
N	1,118	2,124	1,044	2,016	1,044	2,016
(Groups)	(95)	(177)	(87)	(168)	(87)	(168)
Overall R ²	.088	.052	.258	.124	.279	.142

Table 2d. Random effects GLS regression for *amount given to the other person*, by religion

<i>Variable</i>	Model 1		Model 2		Model 3 (standardized)	
	<i>Protest.</i>	<i>Catholics</i>	<i>Protest.</i>	<i>Catholics</i>	<i>Protest.</i>	<i>Catholics</i>
Self/other gender	-.046 (.107)	.131 (.162)	-.056 (.115)	.035 (.162)	-.055 (.059)	.040 (.083)
Self/other race	.250* (.119)	.994** (.180)	.262* (.127)	.982** (.184)	.106 (.065)	.401** (.095)
Self/other music	.640** (.131)	.662** (.192)	.658** (.141)	.656** (.193)	.303** (.072)	.268** (.092)
Self/other financial background	.100 (.105)	.104 (.158)	.151 (.112)	-.003 (.157)	.084 (.057)	-.061 (.081)
Self/other religion	-.780** (.114)	.797** (.171)	-.815** (.121)	.768** (.170)	-.366** (.056)	.295** (.079)
Self/other political leaning	.577** (.104)	.536** (.156)	.598** (.110)	.544** (.155)	.308** (.055)	.264** (.078)
<i>Demographics and background of subject</i>						
Gender			.190 (.414)	-.108 (.525)	.212 (.417)	-.072 (.504)
White			.723 (.547)	-.409 (.643)	.800 (.554)	-.326 (.621)
Rock music			-.087 (.186)	.156 (.258)	-.099 (.188)	.117 (.249)
Country music			-.001 (.115)	-.109 (.169)	.000 (.116)	-.085 (.163)
Family financial background			-.493* (.242)	-.158 (.310)	-.484* (.244)	-.093 (.298)
Conservative			-.379 (.454)	.014 (.729)	-.399 (.457)	.066 (.700)
<i>Personality of sender</i>						
Neuroticism			.018 (.029)	.008 (.034)	.165 (.238)	.067 (.272)
Extraversion			.042 (.034)	.023 (.044)	.290 (.226)	.144 (.279)
Openness to experience			.120** (.036)	.020 (.046)	.745** (.233)	.179 (.285)
Agreeableness			-.004 (.039)	.044 (.042)	-.051 (.228)	.282 (.236)
Conscientiousness			.011 (.033)	-.016 (.039)	.039 (.217)	-.069 (.246)
<i>Interactions</i>						
Extraversion * S/O gender					-.129† (.067)	
Conscientiousness * S/O gender					.126† (.070)	
Extraversion * S/O religion					.113† (.065)	
Neuroticism * S/O race						-.235*

Agreeableness * S/O race						(.101)
						-.301**
						(.099)
Conscientiousness * S/O race						-.212*
						(.102)
Neuroticism * S/O finance						-.494**
						(.087)
Openness * S/O finance						-.592**
						(.086)
Conscientiousness * S/O						-.335**
finance						(.090)
Openness * S/O politics						.167*
						(.082)
Conscientiousness * S/O						.219*
politics						(.087)
Constant	3.11**	2.16**	1.37	-.73	7.50**	2.65
	(.233)	(.296)	(2.834)	(3.843)	(2.075)	(2.761)
N	1,584	925	1,476	900	1,476	900
(Groups)	(132)	(78)	(123)	(75)	(123)	(75)
Overall R ²	.038	.055	.182	.105	.192	.168

Table 3a. Random effects GLS regression for <i>desire to work with others</i>			
Variable	Model 1	Model 2	Model 3 Standardized
Self/other gender	-.020 (.028)	-.039 (.032)	-.020 (.016)
Self/other race	-.017 (.032)	-.056 (.037)	-.033† (.019)
Self/other music	.130** (.033)	.119** (.038)	.051** (.019)
Self/other financial background	.009 (.027)	.002 (.031)	.004 (.016)
Self/other religion	.110** (.031)	.103** (.035)	.045** (.016)
Self/other political leaning	.436** (.027)	.462** (.030)	.226** (.015)
<i>Demographics and background of subject</i>			
Gender	-	-.108 (.077)	-.110 (.076)
White	-	.146 (.098)	.149 (.099)
Rock music	-	.013 (.036)	.012 (.036)
Country music	-	.005 (.022)	.006 (.022)
Family financial background	-	.011 (.045)	.011 (.045)
Catholic	-	.057 (.109)	.050 (.109)
Protestant	-	-.120 (.103)	-.119 (.102)
Conservative	-	.181* (.088)	.168† (.088)
<i>Personality</i>			
Risk Aversion	-	-.041† (.024)	-.041† (.024)
Neuroticism	-	-.004 (.005)	-.028 (.043)
Extraversion	-	-.008 (.007)	-.055 (.044)
Openness to experience	-	.008 (.007)	.049 (.046)
Agreeableness	-	.025** (.007)	.147** (.042)
Conscientiousness	-	-.007 (.006)	-.044 (.039)

<i>Interactions</i>			
Openness * S/O music	-	-	.039† (.022)
Agreeableness * S/O music	-	-	-.035† (.021)
Extraversion * S/O politics	-	-	-.036* (.018)
Openness * S/O politics	-	-	.073** (.017)
Conscientiousness * S/O politics	-	-	.038* (.017)
Constant	2.540** (.049)	2.486** (0.589)	3.284** (.437)
N	3,207	2,648	2,648
(Groups)	(271)	(223)	(223)
Overall R ²	.057	.131	.141

Notes to Tables 3a-3e

- We also controlled for subjects' age, body mass index (BMI), only child, single-parent family at age 7, religiosity, frequency of meeting friends in high school and risk aversion. In the interest of space, estimates for these control variables are not presented but are discussed in the text.
- Standard errors are in parentheses.
- Interactions were calculated between all five NEO personality traits and all six self/other measures (30 interactions). Only significant interactions are presented.

Table 3b. Random effects GLS regression for <i>desire to work with others</i>, by gender						
	Model 1		Model 2		Model 3 (standardized)	
Variable	Male	Female	Male	Female	Male	Female
Self/other gender	-.023 (.045)	-.068 (.043)	-.045 (.048)	-.070 (.050)	-.027 (.026)	-.039 (.026)
Self/other race	-.025 (.047)	-.011 (.045)	-.098† (.051)	-.026 (.053)	-.058* (.028)	-.016 (.028)
Self/other music	.137** (.050)	.114* (.049)	.145** (.055)	.091 (.058)	.052† (.030)	.032 (.028)
Self/other financial background	-.049 (.040)	.063† (.038)	-.045 (.042)	.064 (.044)	-.006 (.023)	.043† (.023)
Self/other religion	.149** (.047)	.084* (.043)	.146** (.050)	.069 (.050)	.053* (.025)	.026 (.024)
Self/other political leaning	.290** (.040)	.560** (.038)	.300** (.042)	.580** (.043)	.153** (.023)	.309** (.022)
<u><i>Demographics and background of subject</i></u>						
White	-	-	.198 (.157)	.093 (.146)	.232 (.161)	.110 (.147)
Rock music	-	-	-.044 (.050)	.061 (.057)	-.037 (.051)	.057 (.057)
Country music	-	-	-.007 (.036)	-.001 (.032)	-.004 (.037)	.000 (.032)
Family financial background	-	-	.081 (.070)	-.103 (.065)	.092 (.071)	-.095 (.065)
Catholic	-	-	.022 (.164)	-.021 (.166)	.021 (.167)	-.020 (.165)
Protestant	-	-	-.204 (.158)	-.089 (.149)	-.199 (.161)	-.082 (.148)
Conservative	-	-	.299* (.126)	.021 (.139)	.291* (.129)	.005 (.138)
<u><i>Personality</i></u>						
Risk aversion	-	-	-.028 (.037)	-.072* (.036)	-.023 (.038)	-.071* (.036)
Neuroticism	-	-	-.011 (.008)	.005 (.008)	-.078 (.071)	.039 (.067)
Extraversion	-	-	-.010 (.011)	-.004 (.010)	-.078 (.073)	-.037 (.065)
Openness to experience	-	-	.010 (.011)	.004 (.010)	.043 (.074)	.023 (.066)
Agreeableness	-	-	.016 (.012)	.032** (.010)	.103 (.071)	.197** (.060)
Conscientiousness	-	-	-.006 (.009)	-.001 (.009)	-.040 (.064)	-.006 (.058)
<u><i>Interactions</i></u>						
Openness * S/O music	-	-	-	-	.062† (.033)	-
Agreeableness * S/O music	-	-	-	-	-.074*	-

					(.033)	
Extraversion * S/O finance	-	-	-	-	.059*	-
					(.025)	
Openness * S/O finance					-.045†	
					(.026)	
Neuroticism * S/O religion	-	-	-	-	-.056*	-
					(.028)	
Openness * S/O politics	-	-	-	-	.048†	.090**
					(.025)	(.023)
Conscientiousness*S/O politics	-	-	-	-	.069**	-
					(.025)	
Conscientiousness*S/O religion					-	.041†
						(.025)
Neuroticism * S/O politics					-	-.060*
						(.026)
Extraversion * S/O politics					-	-.068**
						(.025)
Agreeableness * S/O politics					-	-.062*
						(.025)
Constant	2.61**	2.50**	2.23*	2.36**	2.34**	3.73**
	(.067)	(.071)	(.922)	(.852)	(.694)	(.635)
N	1,479	1,704	1,245	1,391	1,245	1,391
(Groups)	(124)	(145)	(104)	(118)	(104)	(118)
Overall R ²	.032	.094	.116	.180	.144	.199

Table 3c. Random effects GLS regression for *desire to work with others*, by financial background

<i>Variable</i>	Model 1		Model 2		Model 3 (standardized)	
	<i>hard up</i>	<i>well off</i>	<i>hard up</i>	<i>well off</i>	<i>hard up</i>	<i>well off</i>
Self/other gender	-.078† (.047)	.009 (.035)	-.072 (.054)	-.018 (.039)	-.045 (.028)	-.009 (.020)
Self/other race	-.093† (.056)	.042 (.042)	-.121† (.067)	-.005 (.048)	-.058† (.034)	-.005 (.025)
Self/other music	.140** (.057)	.132** (.042)	.114† (.067)	.113* (.048)	.062† (.034)	.050* (.024)
Self/other financial background	-.008 (.050)	.038 (.038)	-.022 (.058)	.030 (.042)	-.017 (.030)	.018 (.022)
Self/other religion	.068 (.051)	.129** (.040)	.063 (.059)	.122** (.045)	.013 (.028)	.055* (.021)
Self/other political leaning	.400** (.045)	.451** (.034)	.413** (.052)	.480** (.037)	.197** (.027)	.239** (.019)
<u><i>Demographics and background of subject</i></u>						
Gender			.066 (.120)	-.262** (.101)	.081 (.110)	-.273** (.099)
White			.070 (.148)	.027 (.138)	.091 (.139)	.018 (.136)
Rock music			.017 (.057)	.025 (.047)	-.005 (.053)	.025 (.045)
Country music			-.014 (.039)	.004 (.029)	-.013 (.036)	.004 (.028)
Catholic			.106 (.184)	-.036 (.141)	.180 (.170)	-.063 (.138)
Protestant			-.067 (.166)	-.166 (.135)	-.013 (.152)	-.187 (.132)
Conservative			.217 (.151)	.103 (.116)	.203 (.138)	.073 (.114)
<u><i>Personality</i></u>						
Risk aversion			-.032 (.041)	-.004 (.007)	-.032 (.038)	-.026 (.032)
Neuroticism			-.010 (.009)	-.018 (.009)	-.050 (.070)	-.027 (.055)
Extraversion			.005 (.011)	.012 (.009)	.025 (.068)	-.119* (.057)
Openness to experience			.000 (.014)	.023 (.010)	.005 (.079)	.068 (.057)
Agreeableness			.030** (.011)	-.007 (.008)	.172** (.061)	.139* (.055)
Conscientiousness			.005 (.011)	-.004 (.007)	.051 (.067)	-.047 (.050)
<u><i>Interactions</i></u>						
Neuroticism * S/O gender					-.084* (.035)	

						.067†	
Neuroticism * S/O music						(.039)	
Conscientiousness * S/O music						.086*	
						(.035)	
Extraversion * S/O finance						.064†	
						(.033)	
Conscientiousness * S/O politics						.073*	
						(.031)	
Openness * S/O music							.054*
							(.027)
Openness * S/O finance							-.042†
							(.027)
Openness * S/O politics							.090**
							(.021)
Constant	2.69**	2.43**	.90	3.57**	2.37**	4.26**	
	(.079)	(.065)	(1.072)	(.744)	(.627)	(.542)	
N	1,125	2,082	904	1,756	904	1,756	
(Groups)	(95)	(176)	(76)	(148)	(76)	(148)	
Overall R ²	.051	.063	.175	.147	.211	.154	

Table 3d. Random effects GLS regression for <i>desire to work with others</i>, by religion						
<i>Variable</i>	Model 1		Model 2		Model 3 (standardized)	
	<i>Protest.</i>	<i>Catholics</i>	<i>Protest.</i>	<i>Catholics</i>	<i>Protest.</i>	<i>Catholics</i>
Self/other gender						
Self/other race						
Self/other music						
Self/other financial background						
Self/other religion						
Self/other political leaning						
<u><i>Demographics and background of subject</i></u>						
Gender						
White						
Rock music						
Country music						
Catholic						
Protestant						
Conservative						
<u><i>Personality</i></u>						
Risk aversion						
Neuroticism						
Extraversion						
Openness to experience						
Agreeableness						
Conscientiousness						
<u><i>Interactions</i></u>						
Neuroticism * S/O gender						
Neuroticism * S/O music						
Conscientiousness * S/O						

music
Extraversion * S/O finance

Conscientiousness * S/O
politics
Openness * S/O music

Openness * S/O finance

Openness * S/O politics

Constant

N
(Groups)
Overall R²

Appendix 1 Experiment 1

Imagine yourself in a situation in which **you are given \$10, which you can keep for yourself or give to another person, all or any portion of it.** You may give money only in increments of \$1. We are asking you to consider giving money to different persons, one at a time. That is, each time you are given \$10, which you can divide between yourself and another person. Each person is described in the table provided below. When making your decision, please consider only the information given on each line.

Please imagine the situation to be as close as possible to a real-life situation. Please indicate in the space provided the amount you give and the amount that you keep; make sure that the amount given to the other person and the amount you keep for yourself add up to \$10.

<i>The other person is described as follows:</i>						<i>Amount of money you give to this person</i>	<i>Amount of money you keep yourself</i>	<i>Total</i>
Gender	Ethnicity	Musical Preferences	Family Financial Background	Religion	Political Leanings			
Male	White	Country	Well-off	None	Conservative			\$10
Male	Black	Rock	Well-off	Protestant	Liberal			\$10
Female	White	Country	Hard-up	None	Liberal			\$10
Female	White	Rock	Well-off	Protestant	Liberal			\$10
Female	Black	Country	Well-off	Catholic	Liberal			\$10
Male	White	Rock	Hard-up	Catholic	Conservative			\$10
Male	White	Rock	Hard-up	None	Conservative			\$10
Male	White	Country	Hard-up	None	Liberal			\$10
Male	White	Rock	Hard-up	Protestant	Liberal			\$10
Male	Black	Rock	Hard-up	Catholic	Conservative			\$10
Male	White	Rock	Hard-up	Catholic	Liberal			\$10
Female	Black	Country	Well-off	Protestant	Conservative			\$10

Appendix 2 Experiment 2

Imagine that you are asked to put together a work team of 12 people to work on a project that requires close cooperation among its members and considerable reliance on each other. The success of the project is critical to your career advancement.

Please rank the persons in the table below in terms of their desirability as team members, with 1 indicating most desirable and 4 least desirable.

Please Note: the only information you have about these people is what appears in the table, and that they passed tests that suggest that they are all equally competent to carry out the tasks associated with the project.

				Gender	Ethnicity	Musical Preferences	Family Financial Background	Religion	Political Leanings
(Most Desirable)			(Least Desirable)						
1	2	3	4						
☐	☐	☐	☐	Male	White	Country	Well-off	None	Conservative
☐	☐	☐	☐	Male	Black	Rock	Well-off	Protestant	Liberal
☐	☐	☐	☐	Female	White	Country	Hard-up	None	Liberal
☐	☐	☐	☐	Female	White	Rock	Well-off	Protestant	Liberal
☐	☐	☐	☐	Female	Black	Country	Well-off	Catholic	Liberal
☐	☐	☐	☐	Male	White	Rock	Hard-up	Catholic	Conservative
☐	☐	☐	☐	Male	White	Rock	Hard-up	None	Conservative
☐	☐	☐	☐	Male	White	Country	Hard-up	None	Liberal
☐	☐	☐	☐	Male	White	Rock	Hard-up	Protestant	Liberal
☐	☐	☐	☐	Male	Black	Rock	Hard-up	Catholic	Conservative
☐	☐	☐	☐	Male	White	Rock	Hard-up	Catholic	Liberal
☐	☐	☐	☐	Female	Black	Country	Well-off	Protestant	Conservative