Deconstructing Nepotism

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Abstract

We use a laboratory experiment in to test the relative strength of two motivations for engaging in nepotistic behavior; beliefs and identity. We adapt the trust game by giving the first mover the ability to choose the group from which their responder is drawn – either a member of their primary group (in-group), or a member from the general population. In-group members are less productive by design. We find that individuals with strong group identity, higher beliefs of in-group individual performance, and risk aversion are more likely to engage in costly nepotism. We also show that implementation of a basic anti-nepotism policy reduces trust and reciprocity. Partnering with an in-group member is profitable, however.

Keywords: Nepotism, Corruption, Group Identity, Discrimination, Trust, Reciprocity

"Better to dance with the devil you know than the angel you don't." – English proverb

I. Introduction

Nepotism is widely regarded as inefficient and discriminatory, and is a manifestation of the corruption that plagues developing countries. Although it is generally acknowledged that nepotism leads to lowered morale and decreased performance, there is little agreement about why nepotism is so widespread or how it affects economic performance.

Traditional economic theory suggests that engaging in nepotism will reduce profit, since restricting employment choices to a favored group yields a less qualified candidate, on average, than an open, full search would produce (Becker 1971). Current empirical research supports the general finding that nepotism is damaging for firm profitability (Bennedsen et al. 2006, Perez-Gonzalez 2006). Similarly, studies note the impact of nepotism on nonprofit and government organizations (Bowman et al. 2003, Tangri and Mwenda 2001). Despite its impact on performance, nepotism persists.

There is a mixed literature that points to the motivation to engage in nepotism at the individual level. Some studies claim that nepotism is based on beliefs regarding reciprocity, arguing that in-group or family members are expected to work harder (McConaugby et al. 2001, Kets de Vries 1993, Alexander 1974, Davis et al 1997, Donaldson and Davis 1991). Others believe that nepotism results from in-group favoritism, or a desire to confer benefits on the in-group member (Vanhanen 1999, Sidanius et al 1994, Brewer 1979, Brewer 1999, Brandts and Sola 2010, Belot and van de Ven 2009). While both motives are plausible, it has been difficult determine which contributes more strongly to nepotism. This is due, in part, to the inherent difficulty of observing motives for nepotism in the field.

We turn to a laboratory experiment in order to test the relative strength of each motivation for engaging in nepotistic behavior. Specifically, we use experiments to test whether the ability to choose a partner in a trust game (Berg et al.1995) affects individual behavior. The standard trust game involves two players, a proposer and a responder, both with an initial endowment of $X. The proposer can choose to send any amount of his endowment to the responder; the amount sent is tripled by the experimenter and given to the responder. The responder can then choose an amount to return to the proposer from the total, including the amount he received and his endowment. The proposer's move is a measure of "trust", as he is putting his wellbeing in the hands of the responder. The responder's decision represents "reciprocity". This game is ideal for an investigation of nepotism because it allows strategic interaction in an exchange relationship involving a key aspect of inter-group relations: trust and reciprocity. We adapt this game by giving the first mover the ability to choose the group from which their responder is drawn – either a member of their primary group (in-group), or a member from the general population. In-group members are less productive by design: they have a lower multiplier of 2.5, while non in-group members have the standard trust game multiplier of 3.

We find that individuals with strong group identity, higher beliefs of in-group individual performance, and risk aversion are more likely to engage in costly nepotism. We also show that implementation of a basic anti-nepotism policy reduces trust and reciprocity. Partnering with an in-group member is profitable, however. In the next section we discuss related literature, section III presents hypotheses, and section IV presents the experimental design. Section V provides experimental procedures, and section VI presents the results of our study. Section VII concludes and discusses some policy implications as a result of this study.

II. Related Research

Observational studies on corruption have shown that it is associated with lower levels of overall well-being in developing countries, and poses a significant challenge to the legitimacy of political institutions (Johnston 2005). Furthermore, evidence shows there is a detrimental impact of corruption on economic growth (Mauro 1995, Treisman 2000, Tanzi and Davoodi 2002), income inequality (Gupta et al. 2002, You and Khagram 2005), private investment (Knack and Keefer 1995, Lambsdorff 2003), public investment (Mauro 1998, Shleifer and Vishny 1993, Gupta et al 2001), poverty (Gupta et al. 2002, Krishna 2007), as well as a negative impact on a battery of "good" societal outcome variables such as health and education (Holmberg et al. 2009). The key finding that has emerged indicates that corruption is detrimental to development.

Corruption has many facets, including bribery, extortion, patronage, malfeasance, nepotism, etc.[1] Of particular interest in this study is nepotism and what it contributes to corruption. While relatively little attention has been given to nepotism at the individual level, at the macro-level it is shown to be an important element of corruption (Nye 1967, Robertson-Snape 1999, Treisman 2000). Several studies on nepotism confirm that it leads to rent seeking. For example, Fatton (1990) examines the case of establishing liberal democracy in Africa following the demise of colonial governments. He argues that these governments are likely to fall back on traditional ethnic divisions, intensifying competition for scarce resources. This leads to inefficient allocations based on ethnicity rather than merit. Englebert (2000) makes a similar argument, noting that countries with colonial institutions that are in greater conflict with historical formal or informal institutions are more likely to experience such a reversion, with associated ethnicity-based nepotism.

[1] Broadly speaking, corruption has been defined as the abuse of political office for private gain, and while this

Sun (1999) studies the differences between China and Russia, arguing that corruption is more of a hindrance to economic growth in Russia due to the instability of both the political and economic regimes, which allowed the Russian mafia to make greater inroads in both arenas, thereby taking control of a large sector of the economy. In-group favoritism among the mafia serves to increase barriers to entry in the sectors they control, especially for small entrepreneurs. In China, the stability of the political regime allows corruption to thrive, but still provides access to the highest bidder. Thus, both approaches are inhibitive to growth, but the Russian experience includes group-based considerations which serve to exacerbate the corruption problem. This stream of research indicates that traditionalist countries introduce these considerations when formulating policies at the expense of policies promoting development and growth. Thus, as political institutions cater to these considerations, economic growth declines and corruption increases when government officials allocate scarce resources.

Nepotism is a widespread phenomenon within professional groups. To name two examples, Lentz and Laband (1989) show that children of doctors are 14 percent more likely to be admitted to medical school than are comparable other candidates,[2] and Singell and Thornton (1997) find that dairy farmers in Utah regularly make hiring decisions based on family and group ties, and that these farms underperform when compared with farmers that do not. Similarly, Brick et al. (2006) find that excess compensation of boards of directors, which they interpret as evidence of cronyism, predicts future firm underperformance.

In the political realm, there are many studies showing the impact of nepotism on policy decisions, of which we mention only a few important examples. Johnson and Mitton (2003) show that, during the Asian financial crisis, firms with strong ties to the ruling regime in

[2] Their research cannot rule out the effects of legacy and donations on college acceptance, and note that intergenerational human capital transfers may also be a likely reason for larger acceptance rates.

Malaysia were more likely to receive bailouts and subsidies. Robertson-Snape (1999) argues that the Suharto regime in Indonesia set import quotas to provide monopoly power to Panca Holdings, whose main beneficiaries were Suharto's cousin and his sons. Faccio (2006) conducts a cross-national survey to study the impact of politically connected firms on policy decisions and shows that, while countries with high levels of corruption are more likely to have politically-connected firms, the impact of political connections is mixed. The presence of politicians on corporate boards has no consistent positive effect on company valuation. This could reflect two offsetting forces: benefits may accrue to the firms, but politicians simultaneously extract rents, offsetting the benefit of their appointment. Firm valuation does increase when a businessman enters high-level politics, indicating the possibility of high future benefits from the appointment. Overall these studies point to an important influence of nepotism on government policy.

Why does nepotism persist if it is welfare-reducing? There are two dominant explanations. First, nepotism may be seen as a more profitable or favorable strategy, either because it is less risky or because of greater expected payoffs. Both of these considerations are motivated by expectations of reciprocity by the trusting party. Furthermore, the risk associated with trusting an individual who is not part of one's primary social group may be exacerbated by untrustworthy political institutions. For example, in societies with weak legal institutions, nepotism can serve to establish levels of trust among parties when reciprocity cannot be guaranteed by formal structures. Reliance on one's social network substitutes for the legal safeguards that are present in democratized societies and developed countries. Fearon and Laitin (1996) point out three factors that enhance interethnic trust and cooperation. They find that within ethnic groups, there is the presence of greater information regarding other members of the group, individual reputations that are sustainable and credible, and the availability of sanctions

from within the group when defection is observed. All of these factors serve to reduce uncertainty and risk associated with trusting another person.

For example, McConaugby et al. (2001) argue that family-controlled firms are more likely to hire in-group members as a solution to the agency problem, and that reduced monitoring costs can yield higher firm valuations. Even if family or in-group members are less qualified, they may be more likely to engage in reciprocal behavior, effectively working harder than their more-qualified counterparts. Strong group identity yields high motivation for reciprocity (on average), and results in a greater preference for nepotism. Davis et al. (1997) argue for the "stewardship theory" as a direct opponent of agency theory in organizations. They suggest that individuals from the primary social group derive higher utility from pro-organizational collectivist behavior rather than self-interested income-maximizing behavior, and thus are more likely to reciprocate at higher levels at their own expense for the sake of the group.

The second dominant explanation for nepotism is that individuals with a strong sense of group identity may be more likely to partner with their group members due to in-group favoritism.[3] That is, they engage in nepotism in order to benefit members of their in-group, or because they value interactions with the in-group. Tajfel and Turner's (1979) social identity theory suggests that individuals derive utility from group membership and actively work towards maintaining ties within the group, culminating in in-group favoritism.[4] Behavior favoring the in-group is a commonplace in these studies (for reviews, see Brewer and Brown,1998; Messick and Mackie, 1989). In contrast, several studies find in-group denigration. Lewis and Sherman (2003) document two such situations. They show that individuals are more likely to hire out-

[3] In a separate strand of research, Akerlof and Kranton (2000, 2009) note that the importance of identity in the decision-making process can explain why individuals make decisions that may appear to be detrimental to outsiders.
[4] Much of the research in this area utilizes lab experiments, and employs the minimal group paradigm (Billig and Tajfel), which induces relatively weak group identity in the lab. The procedure creates an in-group as well as a complementary out-group.

group members when both applicants are unqualified (for qualified candidate the favoritism result holds), or when a qualified out-group member might confirm a negative stereotype about the in-group.

Several experimental studies illustrate these two motives for nepotism. Brandts and Sola (2010) find higher reciprocity among friends in a lab experimental study using the trust game. They find that friends were likely to reciprocate at higher levels indicating the rationale behind selecting friends as partners, even when their productivity was, by design, lower. Moreover, they show that individuals are more likely to hire their friends even when they are less productive than non-friends. Fershtman et al. (2005) establish the presence of nepotism (defined as "discrimination in favor" of the primary group) using a unique pool of subjects in Belgium and Israel. They find that Orthodox Jews trust other Orthodox Jews more than the general population, however university subjects in Belgium trust identifiable out-groups less (Flemish vs. Walloon). However, neither of these studies is able distinguish between the two motives we discuss here as explanations for observed nepotistic behavior because they do not collect information on expected reciprocity or strength of friendship.[5]

In a field experiment with children aged 6-8 and 10-12, Belot and van de Ven (2009) demonstrate the importance of nepotism. They show that children in the younger group are more likely to select friends as group members regardless of performance, illustrating that our second motive dominates their decisions. Performance enters the decision criteria for older children, showing the first motive at work. They also find that favoritism improves performance, as selected in-group members try harder. In another field experiment in a fruit-picking firm, Bandiera et al. (2009) provide evidence that managers favor workers who are socially close to them when it is costless to do so, but when it is costly, such favoritism is eliminated.

[5] We revisit this study, which is closely related to our own, in the discussion below.

Evidence for greater levels of altruism and cooperation has been found in prisoner's dilemma and coordination games (Goette et al 2006). Whitt and Wilson (2007) conduct a study in postwar Bosnia and find that preferential group treatment exists in a dictator game, where the likely motive is altruistic. Finally, Goeree et al (2010) demonstrate the importance of social networks in a dictator game. Their results indicate that generosity among friends is higher and decreases inversely to social distance.

While these studies are informative, they are unable to establish the relative strengths of the two motives contributing to nepotism and trust: (1) beliefs regarding reciprocity, and (2) in-group bias. Thus, we address whether nepotism is caused by reciprocal expectations, in-group bias, or both, and assess how each contributes to nepotism and trust. We use laboratory experiments to examine which behavioral factors influence nepotism. Laboratory experiments are particularly useful in this setting because we can establish the appropriate counterfactuals to investigate the impact of behavior modifying policies, something we would be unable to do outside of the lab due to ethical and political constraints.

In addition to underlying factors influencing nepotism, our design allows us to investigate the impact of implementing a basic anti-nepotism policy on individual behavior, i.e. we remove the possibility of selecting an in-group member as partner in the trust game. We study the impact of this policy in terms of trust, reciprocity, individual earnings, and efficiency. We find that restricting partner choice yields reductions in overall earnings and efficiency and (relatedly) has a detrimental effect on trust and reciprocity.

III. Hypotheses

We operationalize nepotism in the following manner: Nepotism is the choice of a partner in the trust game from an individual's own primary group, when a more productive partner, who is not a member of the group, is available. As described above, the standard trust game involves 2 players, a proposer and a responder, both with an equal endowment of $X. The proposer decides an amount to send, and this amount is tripled and given to the responder. The responder can then choose to send any amount back to the proposer from the total amount. For an individual to engage in nepotistic activities by choosing the less-productive in-group member, they must expect some form of pecuniary or non-pecuniary return. Clearly, then, the individual engaging in nepotism either must have some prior belief that they can trust the appointee's performance, or they may be motivated by a desire to increase the wellbeing of the in-group member.

Beliefs regarding the level of trustworthiness (or reciprocity) of in-group members, relative to the general population, will impact the decision to choose in-group members as partners, and trust levels overall. Since first movers have interacted with individuals from their in-group to a greater degree than the population in general and have a significant long term relationship, they may expect higher trustworthiness in the context of that relationship. Ashraf et al. (2006) demonstrate the importance of beliefs in trust decisions. They find that expectations of trustworthiness explain a significant portion of the variation in the decision to trust. In our framework, higher expected reciprocity will create incentives for first movers to choose in-group members as partners.[6] This yields our first set of hypotheses:

H1a: Higher expectations of returns would increase the likelihood for individuals to choose their in-group members as partners in the trust game.

[6] This is true as long as the expectation holds that an in-group member would return enough to offset the reduced multiplier

H1b: Higher expectations of returns would increase levels of trust overall.[7]

Finally we turn to in-group favoritism. As noted above, in-group favoritism is understood as discriminating in favor of the primary group of the individual (Brewer 1979, Tajfel 1982). Once individuals establish their identities as part of a particular group, pro-social behavior towards their group members increases based on this linkage. Thus, the stronger an individual identifies with their group, the greater the instance of pro-social behavior that should be observed. Based on these considerations, we expect the likelihood of choosing an in-group member as a partner to increase for an individual the stronger his ties are to the primary group. This yields our second two hypotheses:

H2a: The stronger an individual identifies with the primary group, the greater the likelihood of choosing an in-group member in the trust game.

H2b: The stronger an individual identifies with the primary group, the greater the level of trust.

We have argued that the propensity to engage in nepotistic behavior is driven by two main variables: beliefs about in-group reciprocity, and in-group favoritism.[8] An additional factor that might play a role is the risk tolerance of the decision maker. Ben-Ner and Putterman (2001) argue that trust is necessarily a risky decision due to lack of information between partners. When dealing with an anonymous or unfamiliar appointee, the first mover has little information regarding the second mover. In this setting, the decision to trust is inherently risky due to the possibility of betrayal. Therefore, a risk-averse individual should exhibit lower levels of trust in

[7] Note that since we do not have a measure of expectations that are exogenous to out measure of trust, we do not test this hypothesis.

[8] A contributing factor for in-group favoritism may be shared ethnicity between participants (Brewer and Miller, 1996). This is controlled by the design of our study wherein the ethnicity of participants is never revealed, and since allocation to the primary group is random, it is inherently controlled for by design.

this game. Indeed, the Nash equilibrium of the trust game[9] is based on the inference that a rational income-maximizing individual will not return anything, and hence there is no incentive to trust.

Evidence about the relationship between trust and risk in lab experiments, however, is mixed. Eckel and Wilson (2004) report a weak relationship between the trust game and three measures of risk aversion. Using subjects from villages in rural Paraguay, Schechter (2007) finds a strong significant relationship between willingness to take risks and trust. Houser et al. (2010) investigate the relationship between trust and risk in detail and show that while risk attitudes do not predict trust decisions with human counterparts, the willingness to participate in trust games increases among individuals that are more risk tolerant. Trust decisions carry uncertainty regarding behavior of the counterpart (which Houser at al. refer to as "strategic uncertainty") that becomes less uncertain in interactions between individuals with a common social identity.

Risk aversion may also affect the decision to select a partner in the trust game. We expect a positive relationship between risk-aversion and partner choice, with risk averse individuals more likely to choose in-group members. This is in line with the discussion in the previous section. Nepotism involves choosing counterparts with which there is a long-term relationship. Individuals choosing between in-group partners and "others" have a shared history with their in-group members, allowing them to better calibrate reciprocity beliefs. Conversely, the perceived distribution of reciprocity levels in the general population is larger, which in turn makes the choice of an individual from the general population a riskier prospect. Therefore, even in the presence of efficiency costs, a risk-averse individual is more likely to choose an in-

[9] In the subgame perfect Nash equilibrium of the game, a self-interested second mover is assumed to return nothing to the first mover, and the first mover, anticipating this behavior, sends nothing.

group member as their counterpart, because that group member is inherently the less-risky prospect. Since the counterpart from the general population is more productive (i.e., nepotism is costly), risk-neutral or risk-seeking individuals would be less likely to select their in-group members as counterparts. This yields our next two hypotheses:

H3a: Risk-averse individuals will be more likely to choose their in-group members as partners in the trust game.

H3b: Risk-averse individuals will trust less overall.

Our final hypothesis deals with a different motive for reciprocity, and its impact on nepotism. As argued above, individuals with a shared group identity are more altruistic and cooperate at greater levels with each other. Evidence for greater levels of altruism and cooperation has been found in a variety of settings noted previously. However, it is also the case that the act of choosing group members triggers responses to strength of group identity among members of the primary group such that reciprocity is higher upon being chosen: favoritism improves performance. Belot and van de Ven (2009) find this result among school children.[10] Partner choice may interact with identification of the primary group to yield greater levels of reciprocity for individuals with a shared identity. That is, the fact of being chosen by an in-group member is likely to induce greater levels of reciprocity. This yields our final hypothesis:

H4: Partner choice induces reciprocity in the in-group members.

IV. Experimental Design

[10] However, Slonim and Garbarino (2008) show that partner choice induces higher levels of trust, but has no effect on reciprocity. Their design minimized the possibility of gratitude on the part of second movers because, while participants knew that they were being chosen, they were not aware of the characteristics of their partner. Our design differs from theirs in that second movers knew that they were being chosen by members of their group.

We modify the standard trust game (developed by Berg at al 1995) in two ways. First, we allow the proposer to choose either an in-group responder for the trust game or a responder that is not in the proposer's in-group. By design, there is no identifiable out-group. This is an important distinction since in-group favoritism is not the same as out-group dislike (as pointed out by Brewer 1999).[11] Our approach is to use naturally occurring groups, but no explicit out-group, facilitating clear inference about the motives driving behavior. By structuring the game in this way, we are able attribute any preferential treatment shown the in-group members as favoritism, rather than out-group dislike.

A second modification of the trust game is the decision to use naturally occurring groups, which is likely to be important for observing nepotism. The alternative approach is to use the minimal group paradigm as investigated by Tajfel (1982). However, when utilizing this procedure, results relating to nepotism may be confounded due to lack of previous interaction and shared history. For this reason, we observe groups that have been randomly assigned (to avoid self-selection biases), and have shared histories and previous interactions.

We conduct two treatments, called the "Partner Choice" and "No Choice" treatments. The only difference between the two is that the former allows proposers to choose their partners, while the latter does not have this option. The No Choice treatment serves as our baseline treatment wherein subjects make decisions for all games based on groups. It represents an institution where anti-nepotism laws are in effect.[12] This allows us to focus on the impact partner choice has on trust and reciprocity in virtually identical settings.

[11] Brewer (1999) argues that in-group favoritism and out-group discrimination are separable phenomena, and thus it may be unclear whether there is a preference for the in-group or dislike towards the out-group that drives behavior.
[12] As previously stated, nepotism is observed when an in-group member selects another in-group member as counterpart in the trust game. The only difference between the two treatments is the possibility of partner choice, otherwise the treatments are identical.

The experiment includes three games and two surveys, in addition to the modified trust game. The games designed to gauge altruism and risk aversion are described in more detail below, while the surveys collect attitudinal and demographic information.

Nepotism Game

The nepotism game is a modification of the trust game. Proposers and responders are endowed with 20 tokens.[13] Proposers can participate in the trust game with a responder from their in-group, or a responder from the overall university population.

Proposers are informed that partnering with an individual from their in-group has consequences. If the responder group is their in-group, the amount sent is multiplied by 2.5; otherwise a multiplier of 3 is utilized. This difference in multipliers serves as an implicit cost for engaging in nepotism. That is, the inefficiency of nepotism is captured by design. Subjects make their decisions for both groups: one for responders from the in-group and another for responders from the overall university population.

In the Partner Choice treatment, proposers make three decisions; (1) they choose the group their responder belongs to, (2) they choose how much of their endowment they want to send to the responder, and (3) they provide an estimate how much they expect to receive back from the responder.[14] The subjects are asked to make the same decision for both groups (with the group that is not selected serving as their second choice). Responders make two decisions; (1) estimate how much they will receive from the proposer[15] and (2) how much they want to send back to the proposer for all possible amounts sent (strategy method). Both proposers and responders in the Partner Choice treatment are aware that the proposers are choosing the groups, and that actual matching is based on this choice, but is random across individuals.

[13] Each experimental token is worth 50 cents so as to maintain comparison with the standard trust game.
[14] This estimate is incentivized using a binary scoring rule. Subjects receive a small bonus if they estimate correctly.
[15] Again, this estimate is incentivized using the same binary scoring rule as above.

In the No Choice treatment, proposers make two decisions; (1) how much to send to the responder, and (2) estimate how much the responder will send back. They make these decisions for both the in-group, and the others. Responders make the same two decisions as above. Both proposers and responders are aware that actual matching is completely random. In the exit survey for this treatment, proposers are asked which group they prefer to be matched with if they can choose. Their response has no bearing on the matching protocol, they are indicating a preference.

Preference Controls

In order to measure subject's key preferences – altruism and risk aversion – we conduct three additional games designed to measure altruism towards in-group members and others, and individual risk preferences. In addition, we measure the strength of group identity using a 7-point likert scale survey question ("How strongly do you identify with members of [*primary group*]?") and use survey measures of generalized trust and perceptions of generalized fairness (from the World Values Survey).

Among our two measures of altruism are the Dictator and Comparative Dictator games. The dictator game consists of the standard game with a single modification. Proposers are endowed with 20 tokens ($10) and are asked how much they want to send to a responder (in 2 token increments). In the Partner Choice treatment, proposers make two decisions; (1) they choose the group their responder belongs to, (2) they take the dictator decision for this group. Subsequently, they take the dictator decision for the other group (as their second choice). Once they make both decisions, the game ends. The No Choice treatment is identical, but the decision regarding responder group is removed. Responders estimate how many tokens they will receive.

The Comparative Dictator game was structured exactly as the Dictator game above, except with one change. In this game any amount they choose to send is multiplied by the same factor as the corresponding trust-game pairing. When paired with a responder from the in-group, the tokens sent are multiplied by 2.5, and when paired with a responder not from the in-group, the tokens sent are multiplied by 3. The decisions in this task allow controls for altruistic motives in the decision to trust, as in as in the triadic design of Cox (2004). Responders estimate how many tokens they will receive. Again, depending on the treatment, proposers either choose, or be randomly matched with a responder.

For measuring risk preferences, we implement the Eckel-Grossman risk measure (2002) where subjects are asked to select one of six possible gambles. Figure 3 displays a screenshot of the gambles viewed by the subjects. Gambles one through five increase in both expected value and variance (risk). Gamble six increases in variance, but holds the expected value the same as in gamble five. Each gamble has a 50% chance of paying out a low amount or a high amount.

V. Experimental Procedures

We conducted the experiment at Rice University, making use of their residential college system. Upon entrance to the university as freshmen, undergraduates are randomly assigned to one of eleven residential colleges. Colleges have their own dining halls, dorms, and faculty advisors, which cultivates a strong group identity. These residential colleges serve as the primary group affiliation for undergraduates on campus.[16] Experiments conducted explicitly make reference to the primary college under observation in order to establish a basis for engaging in nepotism. All partners are anonymous, and no identifiable characteristics (other than group membership) were

[16] For more information on the residential college system, please see: http://www.futureowls.rice.edu/futureowls/Residential_Colleges1.asp?SnID=2059130588

revealed. Subjects were recruited during lunch and dinner hours at the dining hall for each particular college.[17]

Sessions were conducted at the Behavioral Research Lab at Rice University in April and October 2009. A total of 150 subjects participated in the study, with 72 subjects in the No Choice treatment and 78 subjects in the Partner Choice treatment. There were between 4 and 24 subjects in each session. Each session had between 1 to 2 in-groups participating. In all cases, the in-groups were labeled in accordance with the name of the residential college.

The experiment was structured with an initial short entry survey (collecting demographic information), the four games (Dictator, Comparative Dictator, Nepotism, and Risk, described above), and followed by an exit survey recording responses to game specific questions. Each game started with instructions, two examples, a short quiz to test understanding, and the game itself. Order of the games was randomized for each session to control for order effects. None were observed in the data.

Upon arriving at the lab, subjects were asked for their residential college name and then promptly seated at the terminal.[18] Instructions referred to in-group subjects by the name of their college (for example, "individuals in Baker College") and others were referred to as "individuals not in Baker College but from the Rice University population."[19] Subjects earned money in the form of "tokens" with an exchange rate of 50 cents per token earned in the session. No feedback was provided on earnings during the experiment. At the end of the session, the experimenter entered the lab area and asked for a volunteer. The volunteer rolled an eight-sided die in order to

[17] By utilizing this recruiting strategy based on dining and residential halls, we were able to identify the residential college that subjects belonged to without explicitly stating so.
[18] In most sessions we had a ratio of 3 in-group subjects (i.e. individuals belonging to the same residential college) and 1 other. The "others" were students from a residential college other than the primary group under observation.
[19] Note that the "others" belonged to Rice University, which constitutes another in-group for the subjects, but one that is not as salient as their own college.

determine the game that would be paid for in the session. Only 1 of the 4 games was eligible for payment in any given session. If the risk game was selected for payment, subjects were directed to the payment area and rolled a six-sided die. A roll of 1 through 3 gave them the low amount, and the roll of 4 through 6 gave them a payout of the high amount.

Subjects were assigned to one of two roles at the beginning of the session, either a proposer or a responder. Subjects kept this role through the entire session. Three of the four games require subjects to be paired. In all sessions, all proposers belonged to the in-group, while approximately half of the responders belonged to the in-group. The remaining responders belonged to any one of the remaining residential colleges, but not the in-group's residential college. All participants were aware of this.

Figures 1 and 2 are screenshots of the proposer and responder decision screen respectively. In the Partner Choice treatment, proposers had the option to select the group that their counterpart would be drawn from for each task. In the No Choice treatment, subjects were not given this option, but were told that there would be "approximately a 50% chance" that they would be matched with a responder from either group (i.e. their own group, or the "other" group).

Subjects were paired using a matching algorithm that is a variation on one developed by Castillo and Petrie (2010) for eliciting preferences for partners in a public goods game. For the Partner Choice treatment, a proposer was selected at random. His preferred group choice was noted, and then a responder was randomly selected from his preferred group. Next, a second proposer was randomly selected and given his first choice of group from the remaining candidate responders. This process continued until each proposer was matched with a responder in the session. In the event that the pool of responders from any particular group was exhausted, but

still has been requested by a proposer, then the proposer was matched with a responder from the alternate group. In the No Choice treatment, each proposer was matched with a responder at random, regardless of group preference. The matching algorithm was triggered once all subjects had completed all tasks and the surveys. Each proposer was matched with a single responder, with no overlap.

VI. Results

In this section we discuss the results of the study in light of the hypotheses outlined above. We first discuss the impact of our three predictors of nepotism, i.e. (1) expectations, (2) group identity and (3) risk aversion. Next, we discuss the impact of partner choice on trust. We then discuss the impact of nepotism on reciprocity, both for in-group and "other" responders. Finally, address the question of whether nepotism is profitable.

Tables 1 and 2 provide descriptive statistics for proposers and responders, for all the variables used in our analysis. Note that in-group responders are preferred by 44.44% of the proposers in the No Choice treatment, and selected by 43.59% of proposers in the Partner Choice treatment. This difference is not significant across treatments, but is significantly different from 0. Not surprisingly, subjects are willing to participate in the trust game with individuals from their primary group even in the presence of costs.

Impact of Risk Preferences, Beliefs, and Group Identity on Partner Choice

We examine the likelihood of preferring an in-group member as responder, either by making a selection in the Partner Choice treatment, or indicating a preference in the No Choice treatment. Overall, about 44% of subjects preferred their own group members as counterparts in the nepotism task. Nepotism -- a preference for being paired with a less productive in-group

member when a more-productive alternative is available – is examined in detail in table 3. We report logit-regression marginal effects on the probability of indicating a preference for an in-group member as counterpart. Model 1 contains variables from the experiment including the treatment (Choice), the difference between proposer expected returns from in-group members less expected returns from others, and risk preferences (using the Eckel-Grossman risk measure). Model 2 adds variables for gender, subjects' identification with the primary group, a survey question on generalized trust, and a survey question on generalized fairness. This allows us to test hypotheses 1, 2, and 3 above.

Expectations of returns (i.e. the greater the difference between expected returns from in-group as opposed to others), significantly increases the likelihood of choosing an in-group member as counterpart. This supports our first hypothesis, that higher expectations of returns from in-group members drive nepotistic behavior. If an individual expects an in-group member to send a single token more (in absolute terms) than a non in-group member, this increases the probability of choosing an in-group member by 5% as counterpart. Thus, this difference in expectations among groups has a significant positive impact on the probability of an individual to engage in nepotistic behavior. A related question on this is whether these expectations are accurate. We will discuss expectations in detail at the end of this sub-section.

Subjects that identify strongly with their primary group are more likely to choose individuals from their own group as counterparts in the trust game, providing support for hypothesis 2. A single point increase in the variable measuring group identity yields an approximately 13% increase the probability of choosing an in-group member as counterpart. Group identity has an independent effect of the probability of engaging in nepotism such that when group identity is particularly salient, individuals may engage in nepotism even though they

are risk-seeking and do not necessarily expect more back from in-group members, underlining the importance of in-group bias.

We see that choosing an in-group member is driven by individual risk preferences such that risk-averse individuals are more likely to choose individuals from their own group as counterparts, which supports hypothesis 3. A single point increase in accepting risk (i.e. selecting higher gambles) yields a 10% decrease in the probability of choosing an in-group member as counterpart. Gender, treatment (Partner Choice vs, No Choice), generalized trust and generalized fairness do not impact the likelihood of in-group partner choice.

In sum, subjects with stronger group ties are more likely to choose in-group members as responders, while subjects that are risk seeking are less likely to do so. The probability of being chosen is also driven by expectations of returns from the responder. The expectations for in-group member behavior remain largely the same across treatments, indicating that in-group proposers expect in-group responders to behave the same way regardless of being chosen. In-group responders, however, are closer to expectations only when being actively chosen by in-group members.

Impact of Partner Choice on Trust

In this section we analyze the amounts sent by proposers in the trust game across the No Choice and Partner Choice treatments.[20] Comparing trust levels across treatments allow us to estimate the impact partner choice has on overall trust. Figure 4 presents the results of these two treatments by amounts sent to the in-group, and amount sent to others.

[20] Recall that in the No Choice treatment, subjects can indicate a preference for participating in the trust game with a member of their own group, or a randomly selected individual from the overall Rice University student pool. This preference has no bearing on who they are ultimately matched with. In the Partner Choice treatment, counterparts are matched in accordance to the subject's group choice. In each treatment, subjects are asked to take both decisions (one for an in-group responder and another for a responder not in the in-group).

We first note that the Partner Choice treatment increases the amount sent overall by approximately 2.5 tokens ($p<0.06$), indicating that, similar to Slonim and Garbarino (2008), partner choice induces trust in individuals. In order to study this further, we break down this analysis by amounts sent based on group preference. In the No Choice treatment the overall amount sent to in-group members is higher than the amount sent to others ($p<0.01$)[21], but this difference is not significant in the Partner Choice treatment ($p<0.29$), indicating that when subjects choose their partners, there is more equitable treatment of others (as compared to in-group members). Furthermore, the amount sent to in-group members is not significantly different across treatments ($p<0.21$), but the amount sent to others is higher in the Partner Choice treatment ($p<0.02$).

Partner choice allows individuals to self-select, such that subjects who trust their in-group more choose the in-group partners, and those who are not willing to forego the higher productivity of the non-in-group member choose (and trust) that type of counterpart more. Partner choice increases trust in strangers, but the mechanism by which trust is being induced is complex. We conjecture that this is due (in part) to history among group members, in that subjects know how much to trust their in-group members both with and without the presence of partner choice, but the presence of this choice causes subjects to become more optimistic about the performance of strangers.[22]

Table 4 provides a formal analysis of the decision of how much to trust, using OLS regressions, with errors clustered by individual.[23] Model 1 includes a dummy variable for the treatment (equaling 1 for the Partner Choice treatment), a dummy variable for the in-group

[21] Unless otherwise stated, all p-values are obtained using two sample t-tests for differences in means.
[22] This is also evidenced by expectations. Expectations regarding trustworthiness are significantly raised for others across treatments.
[23] Each subject makes two decisions, one for their own group members as responders and another for responders not in their own group.

responder decision, and a dummy variable for the proposer's first choice (equaling 1 for the decision that is the preferred group). Model 2 adds the altruism measure towards the relevant group (measured as the amount sent in the Comparative Dictator game) and the risk preference measure. Model 3 adds additional controls, including a variable for gender, the extent to which the subject identifies with the primary group, and 2 survey questions regarding whether subjects perceive other individuals as trustworthy and / or fair.

The Partner Choice variable is positive and marginally significant across models 1 and 2 while becoming significant at 5% in model 3, confirming the previous result that providing proposers with the power to choose increases the overall level of trust. In addition, the estimates on the dummy variables for the in-group and the proposer's first choice are also significant. Adding additional controls renders the in-group dummy variable insignificant. This indicates that the higher amounts sent to in-group responders are driven by differential altruism, i.e. the higher the giving in the Comparative Dictator game to an individual (regardless of group affiliation), the higher the amount sent in the trust game. Furthermore, in line with hypothesis 3, trust is a risky decision in this context, with more risk-tolerant individuals sending more to the responders (as evidenced by Schechter 2007). These estimates are robust to additional controls. Women send significantly less than men. The level of identification with the primary group does not have a direct impact on trust, thus rejecting hypothesis 2.[24] The survey measure of trust is correlated with amount sent, indicating that individuals who perceive others as generally trustworthy are likely to send larger amounts.

Impact of Partner Choice on Reciprocity

[24] Note that we have not explicitly controlled for expectations in the regressions, since expectations are based primarily on the amount sent in the trust game and are, therefore, endogenous.

We now analyze responder trustworthiness (or reciprocity) in order to test our fourth and final hypothesis. The second stage of the trust game allows responders to return some (or all) of the amount gained from the proposer. We utilize the strategy method in measuring the trustworthiness levels of responders, i.e. responders make decisions on every possible amount sent by proposers. We then examine whether in-group responders exhibit greater levels of trustworthiness (as compared to others) in the presence of partner choice.

We measure trustworthiness as the amount returned in the trust game. Hence, responders make 11 decisions in total (for each possible level of tokens received per the strategy method). Subjects could return any amount in the full range of available tokens (including their initial endowment of 20 tokens). Figure 5 displays the results of responder trustworthiness.

Average trustworthiness levels are not significantly different between in-group responders and other responders in both treatments.[25] However, in-group responders reciprocate at significantly higher levels under the Partner Choice treatment (p-values at all amount levels except 0 and 20 are less than 10%). This suggests that knowledge of being selected as responder induces higher levels of reciprocity in in-group members, but not in others. Thus, we find that in-group responders are more trustworthy, but only when they know they have been chosen, i.e. responding to partner choice. Further, only in the partner choice treatment does trust "pay," in that amounts returned are higher than the amounts sent. In the No Choice treatment, amounts sent are lower than the 45 degree line for both in-group responders and others.

In table 5, we report OLS regression estimates with clustering around individuals. The dependent variable is defined as the amount returned by responders. In model 1, we regress the amount returned on the amount received (in tokens) in order to capture the relationship between the amount returned and the amount received: It is upward sloping and robust. In model 2, we

[25] With the exception of decision 2 in the choice treatment which is marginally significant at 10%.

add dummy variables for in-group responders in the Partner Choice treatment, other responders in the Partner Choice treatment, and in-group responders in the No Choice treatment.[26] This analysis confirms that in-group members send back a higher amount, but only under Partner Choice.

As noted in the graph, we have an upward sloping response function, such that as the amount received increases, the amount returned does so as well. In addition, the partner choice induces trustworthiness in the in-group, i.e. being selected induces trustworthiness in responders, thereby confirming hypothesis 4. Partner choice has greater significance on the decisions of in-group members (as hypothesized), such that the decision to trust an in-group member (even under the presence of exogenous costs) is not wholly without merit. Since the proposers choose to participate in the game with a member of their primary group, the in-group member is induced to provide greater levels of benefits to the proposer.

Impact of Partner Choice on Earnings and Efficiency

The above analysis allows us to study the motivations for nepotism. We have found that partner choice induces trust in strangers, but trust in in-group members remains largely the same. Furthermore, we have also seen that partner choice induces higher levels of reciprocity among in-group members. This allows us to address the question of whether nepotism is profitable.

Since we collected both allocation decisions from proposers,[27] we can compare efficiency and earnings counter-factually: we can address what efficiency and earnings would have been if the proposers were paired with their first and second choices. Figures 6 and 7 present these results. To calculate hypothetical earnings, we matched the data of proposers based on their group choice to average returns from responders. For proposers, earnings are significantly

[26] The comparison group is other responders in the No Choice treatment.
[27] One allocation decision for the in-group and one decision for others.

higher when paired with in-group responders for both "Nepotists" and "Non-Nepotists" in the Partner Choice treatment (approximately 23 tokens for in-group matches versus 20 tokens for others, yielding a $p < 0.001$ in both cases). In the No Choice treatment, however, earnings are always significantly lower when paired with an in-group member (approximately 18 tokens for in-group matches versus 19 tokens for others, yielding a $p<0.01$ in both cases). Thus, engaging in nepotism is beneficial for proposers when responders know they are being chosen. Subjects that chose to trust others would have been better off selecting their own group members in the presence of costly nepotism. Responders not in the in-group earn the most overall in the Partner Choice treatment and when they are chosen (39.39). This is higher than in-group responders in the same treatment (earning 31.76 tokens yielding a p-value < 0.001).

Figure 7 presents the results on the No Choice treatment. We are able to address whether or not nepotism is efficient in this setting. When comparing "Nepotists" to "Non-Nepotists", efficiency is not significantly higher when "Nepotists" are forced to be paired with others in the Partner Choice treatment (67.21% versus 67.94% yielding a p-value <0.81). We find that efficiency is highest in the Partner Choice treatment for "Non-Nepotists" (75.23%), which is marginally higher than proposers paired with their in-group members (68.41% yielding a p-value <0.0001). Thus, in terms of efficiency, we find that "Nepotists" partially compensate for the loss of efficiency (due to costly nepotism) through higher levels of trust. However, overall efficiency is higher for "Non-Nepotists".

Figure 9 presents the results of efficiency for nepotists across treatments. Given that the nepotists engage in costly behavior, and it is their behavior that anti-nepotism laws seek to constrain, we can ask whether anti-nepotism laws generate inefficiencies. By comparing the efficiency levels of nepotists across the two treatments, we see a significant drop in efficiency for

nepotists when forced to pair with others. Thus, the appropriate comparison here is to look at the efficiency generated by nepotists when matched with their in-group members under the Partner Choice treatment (67.21 %) as compared to the efficiency generated by nepotists when paired with others under the No Choice treatment (58.13 %). The t-test for difference in means yields a p-value <0.01, indicating that nepotists generate higher efficiency when allowed to choose their in-group members as partners in the game. Thus, in the most general sense, when an anti-nepotism law is implemented in its most basic form, nepotists are forced to partner with individuals outside of their in-group, which yields a drop in trust which is not compensated by the efficiency gain due to productivity. Anti-nepotism laws may be harmful in terms of the individual behavior for the nepotists. What this result indicates is that for people with strong ties to their in-group, anti-nepotism laws do not "solve" the problem. They force the "nepotists" to be matched with others, yielding no significant gain in efficiency even though others are more productive. One way to interpret these results is in the context of societies that have high degree of fractionalization. Anti-nepotism laws may not be successful for these societies in the short run given individual responses. For the non-nepotists, however, there is a loss in efficiency when matched with others across treatments, but this difference is not significant ($p<0.18$).

With hypothetical matching and in the presence of partner choice, proposers are always earning more when paired with members of their own group. "Nepotists" compensate for the loss in efficiency through higher trust in in-group members. From a social standpoint, however, the highest level of efficiency is generated by "Non-Nepotists" being paired with others. This indicates that at the societal level, anti-nepotism laws are justified given Becker's original assumption of lower productivity. However, there is a reduction in efficiency generated by nepotists when implementing the policy. Furthermore, at the individual level, earnings are still

highest for proposers when paired with individuals from the primary group. Thus, while anti-nepotism laws do not generate greater efficiency due to the behavior of nepotists in the sample, there is an overall increase in the level of efficiency when comparing the mean level of efficiency in No Choice (63.99 %) versus the Partner Choice (69.97 %) treatments ($p < 0.05$). Trust compensates for inefficient nepotism, but overall efficiency increases when partner choice is allowed for our sample.

VII. Conclusions and Policy Implications

In this paper we present the results of a study designed to examine the factors that motivate nepotistic behavior. The study uses a variation on a well-studied experimental game: the trust game. We explored the factors that predict the individual choice to engage in nepotistic behavior as well as the impact that partner choice has on trust, reciprocity, and efficiency.

We find that the possibility of nepotism (partner choice) induces both trust and reciprocity. It yields higher levels of trust, but not in in-group members. Rather, the increase in trust is due to treatment of others. We interpret this as individuals having a relatively well-calibrated notion of how much to trust their in-group. The increase in trust is driven by the increase of trust in members that are not part of the in-group. Nepotism also has an impact on reciprocity; we see that in-group members significantly increase their level of reciprocity when they are chosen to perform.

Secondly, preferences for engaging in nepotism are driven by three factors: risk preferences, beliefs, and group identity. The experiment allows us to categorize individuals based on nepotistic preference: those that prefer (or choose) to be matched with an in-group member, and those that do not. Individuals that are risk seeking; have a weaker notion of group

identity; and lower expectations of in-group member performance are much more likely to trust strangers.

So, does nepotism pay? Perhaps. We find that individuals earn more when they choose their in-group members as respondents even though this choice is costly by design. We show that the ability to choose partners significantly increases overall levels of efficiency. Nepotists compensate for the loss in efficiency by increasing levels of trust. In the No Choice treatment, when nepotists are forced to be matched with others, there is a significant decrease in efficiency due to the lack of trust nepotists have in strangers. This implies that when implementing anti-nepotism laws, the behavior of nepotists being forced to interact with strangers leads to an overall decline. Furthermore, the data show that partnering with the in-group results in higher earnings, but only when partners are being chosen. When an anti-nepotism law is in effect, it does not pay to partner with a friend, i.e. friends must be chosen for higher trust to be rewarded.

Implementing anti-nepotism laws are costly however. Earnings are reduced since in-group members have less of an incentive to reciprocate, and are less productive. Efficiency is also reduced since nepotists reduce their level of trust in strangers when their choice set is constrained. This suggests that institutions with stringent rules against nepotism may well reduce this form of discrimination, but are unable to tap into social efficiency driven by group relationships. Furthermore, given the higher level of reciprocity between group members, these data suggest that polarization can occur over the long run if the trust game was repeated, such that non-nepotists may choose in-group members in order to secure a higher payoff. A repeated game is needed to ascertain whether repeated play will increase polarization. In the (very) short run, however, partner choice is an important component of trust, and suggests that organizations that preclude the possibility of nepotism incur inefficient outcomes. Bureaucracies are a case in

point; however, one should note that this is conditional on whether the function of a bureaucracy is in gaining efficiency or inducing meritocracy.

Our stylized representation of nepotism differs from the "real world" form of nepotism in two important ways. First, the analysis we present is static, i.e. the trust game is played a single time and ends. Nepotism may have a significant long term component with impacts on inequality and meritocracy that we do not address here. In addition, these repeated interactions may provide further incentives for individuals to engage in inefficient behavior. Further research is needed to estimate the long run impact of engaging in such behavior. Second, this paper is divorced from externalities. One major reason for anti-nepotism laws and policies is that there is an overall negative impact on the population. Nevertheless, we are concerned with the impact of nepotism in a single period divorced from impacts of this decision on other members of the population.

With these two caveats in mind, our results have interesting implications for policy. First, it shows clear incentives for group polarization. First, partnering with in-group members pay off, even for individuals that are not precluded to doing so. Organizations that do not allow nepotism may not be availing themselves of productivity enhancements due to group-based considerations. Second, even when information on productivity is present a significant proportion of the population has the predisposition to be nepotistic. This is driven by risk preferences, beliefs, and group identity. So, should we introduce policies to reduce nepotism? We should in terms of societal outcomes, but recognize that a key contributor to growth (i.e. efficiencies associated with group based considerations) may be lost.

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Figure 1: Nepotism Task Proposer Decision Screenshot

Task 2: Decision

You are a proposer and have been given 20 tokens.

Recall that if the responder you are paired with is in the **Baker** group, any amount that you send will be **multiplied by 2.5**. Otherwise the amount will be **multiplied by 3**.

You have chosen to send 12 tokens to the responder NOT in the Baker group.

This responder will receive (12 × 3) = 36 tokens from the proposer for a total of (20 + 12 × 3) = 56 tokens.

Please enter the number of tokens you expect the responder to return to you.

Please select an option below	
◉	In the Baker group.
○	NOT in the Baker group.

Amount to send (Baker group)		Amount to send (NOT Baker group)	
○	0 tokens	○	0 tokens
○	2 tokens	○	2 tokens
○	4 tokens	○	4 tokens
○	6 tokens	○	6 tokens
○	8 tokens	○	8 tokens
◉	**10 tokens**	○	10 tokens
○	12 tokens	◉	**12 tokens**
○	14 tokens	○	14 tokens
○	16 tokens	○	16 tokens
○	18 tokens	○	18 tokens
○	20 tokens	○	20 tokens

Prediction (Baker group)	Prediction (NOT Baker group)
Expected return (0-45): 12	Expected return (0-56):

Continue

If you have any questions, please raise your hand.

Figure 2: Nepotism Task Responder Decision Screenshot

You have been given 20 tokens. In addition to this amount, the proposer will be sending you some amount of their choosing.

Any amount this proposer chooses to send will be **multiplied by 2.5** and added to your account. You must now choose how much you would like to send back to this proposer.

Please make your decision for all possible cases below.

Proposer Sends	Amount in my Account	Amount to Return	Amount to Keep
0 tokens	20 + 0 × 2.5 = **20**	0	20
2 tokens	20 + 2 × 2.5 = **25**	3	22
4 tokens	20 + 4 × 2.5 = **30**	12	18
6 tokens	20 + 6 × 2.5 = **35**	10	25
8 tokens	20 + 8 × 2.5 = **40**	14	26
10 tokens	20 + 10 × 2.5 = **45**	15	30
12 tokens	20 + 12 × 2.5 = **50**	12	38
14 tokens	20 + 14 × 2.5 = **55**	12	43
16 tokens	20 + 16 × 2.5 = **60**	26	34
18 tokens	20 + 18 × 2.5 = **65**	34	31
20 tokens	20 + 20 × 2.5 = **70**	16	54

Continue

Figure 3: Eckel-Grossman Risk Measure Screenshot

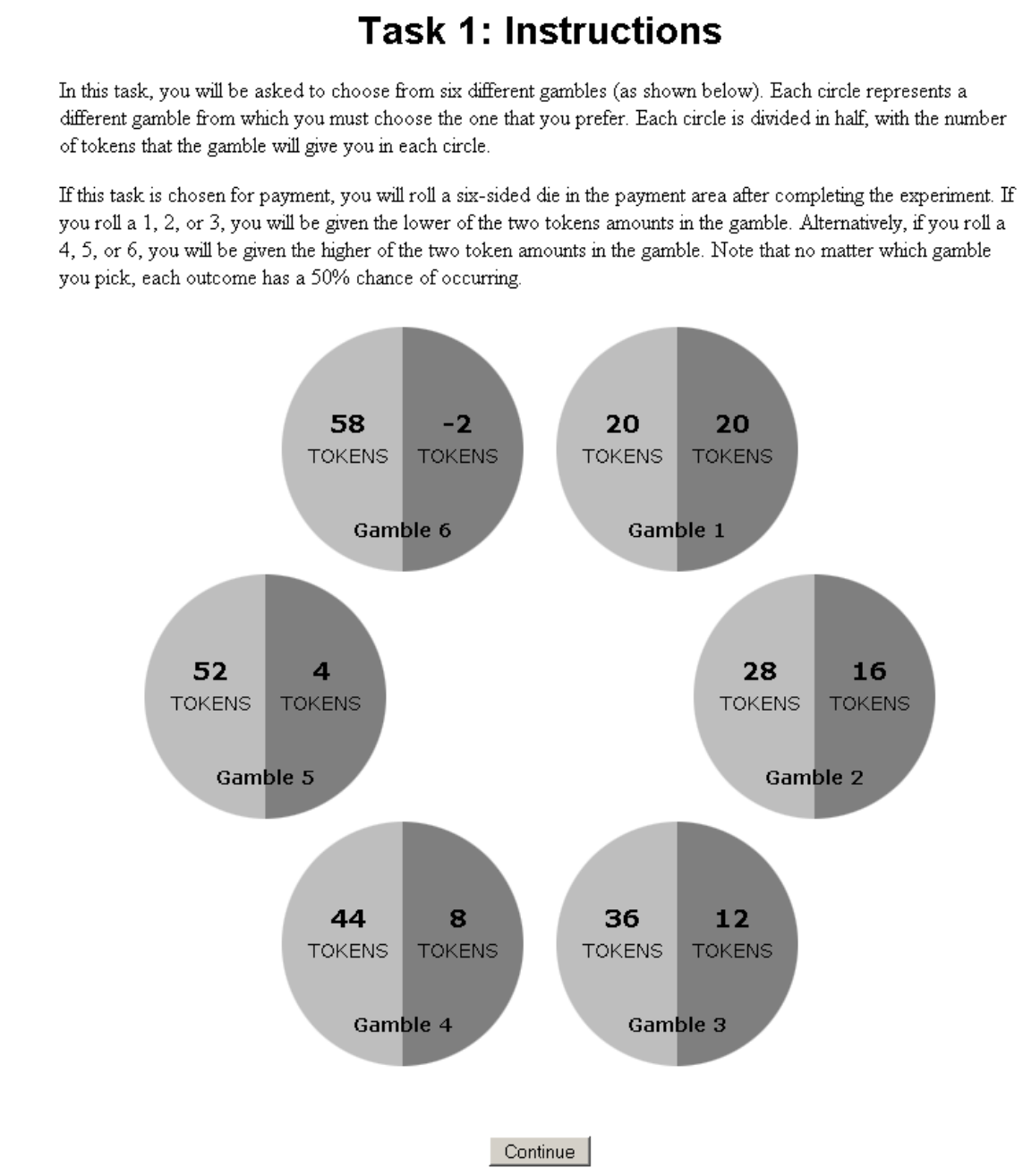

Table 1: Proposer Data Descriptive Statistics by Treatment

No Choice Treatment					
Variable Name	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Altruism Towards In-group	36	5.278	4.972	0	20
Altruism Towards Others	36	3.111	4.041	0	20
Nepotism-Amount Sent to In-group	36	7.667	6.297	0	20
Nepotism-Amount Sent to Others	36	5.444	5.789	0	20
Expected Return From In-group	36	11.556	11.190	0	35
Expected Return From Others	36	9.167	11.597	0	40
Gamble Choice	36	3.944	1.620	1	6
Gender (Female = 1)	36	0.333	0.478	0	1
Identifying with In-group Members	36	5.722	1.233	2	7
Generalized Trust	36	3.944	1.638	1	7
Generalized Fairness	36	4.167	1.612	1	7

Partner Choice Treatment					
Variable Name	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Altruism Towards In-group	39	5.231	4.556	0	20
Altruism Towards Others	39	4.923	4.809	0	20
Nepotism-Amount Sent to In-group	39	9.538	6.332	0	20
Nepotism-Amount Sent to Others	39	8.821	6.353	0	20
Expected Return From In-group	39	14.077	12.021	0	45
Expected Return From Others	39	14.718	13.111	0	50
Gamble Choice	39	3.769	1.564	1	6
Gender (Female = 1)	39	0.385	0.493	0	1
Identifying with In-group Members	39	5.077	1.676	1	7
Generalized Trust	39	3.564	1.353	1	6
Generalized Fairness	39	3.487	1.537	1	6

Table 2: Responder Data Descriptive Statistics by Treatment

No Choice Treatment					
Variable Name	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Proportion In-group	36	0.417	0.500	0	1
In-group-Expected Altruism	15	6.400	5.302	0	20
Other-Expected Altruism	21	5.429	3.854	0	12
In-group-Reciprocity	165	6.945	9.178	0	35
Other-Reciprocity	242	8.781	10.268	0	40
In-group-Expected Trust	15	8.267	6.840	0	20
Other-Expected Trust	21	8.571	5.697	0	20
Gamble Choice	36	3.667	1.586	1	6
Gender (Female = 1)	36	0.500	0.507	0	1
Identifying with In-group Members	36	4.250	1.873	1	7
Generalized Trust	36	3.861	1.624	1	6
Generalized Fairness	36	4.167	1.558	1	7

Partner Choice Treatment					
Variable Name	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Proportion In-group	39	0.410	0.498	0	1
In-group-Expected Altruism	16	6.125	5.772	0	20
Other-Expected Altruism	23	4.174	3.904	0	12
In-group-Reciprocity	176	12.455	11.988	0	63
Other-Reciprocity	253	10.802	12.484	0	72
In-group-Expected Trust	16	8.875	5.265	0	20
Other-Expected Trust	23	7.652	4.849	0	20
Gamble Choice	39	3.179	1.467	1	6
Gender (Female = 1)	39	0.359	0.486	0	1
Identifying with In-group Members	39	3.282	1.959	1	7
Generalized Trust	39	3.590	1.517	1	6
Generalized Fairness	39	3.744	1.666	1	7

Table 3: Probability of Selecting (Preferring) an In-group Member as Responder

Logit Regressions - Marginal Effects				
Dependent Variable: In-group responder preferred / selected	I		II	
Choice	0.108		0.162	
	(0.133)		(0.140)	
Expected Returns from In-group Less Expected Returns from Other	0.055	***	0.049	**
	(0.021)		(0.020)	
Gamble Choice (Risk Seeking = 6)	-0.078	*	-0.097	**
	(0.042)		(0.048)	
Gender (Female = 1)			-0.009	
			(0.151)	
Indentifying with In-group Members			0.127	**
			(0.057)	
Generalized Trust			-0.023	
			(0.053)	
Generalized Fairness			0.009	
			(0.049)	
Pseudo R2	0.172		0.228	
Log Likelihood	-42.600		-39.694	
Observations	75		75	

Table reports marginal effects. Standard errors in parentheses.
* p<0.1; ** p<0.05; *** p<0.01.

Table 4: Amount Sent by Proposer

OLS Regressions						
Dependent Variable: Proposer Amount Sent	I		II		III	
Choice = 1	2.624	*	2.273	*	2.458	**
	(1.353)		(1.180)		(1.228)	
In-group = 1	1.584	***	0.805		0.844	
	(0.507)		(0.502)		(0.508)	
First Choice	1.203	**	0.592		0.623	
	(0.507)		(0.465)		(0.471)	
Altruism			0.589	***	0.559	***
			(0.117)		(0.117)	
Gamble Choice (RiskSeeking = 6)			0.961	***	0.701	**
			(0.360)		(0.327)	
Gender (Female = 1)					-1.789	**
					(0.886)	
Identifying with In-group Members					-0.179	
					(0.429)	
Generalized Trust					0.889	**
					(0.39)	
Generalized Fairness					-0.162	
					(0.38)	
Constant	5.162	***	-0.403		-0.497	
	(1.000)		(1.122)		(2.944)	
R2	0.065		0.306		0.354	
Observations	150		150		150	

OLS regressions with Clusters by Individual. Standard errors in parentheses.
* p<0.1; ** P<0.05; *** p<0.01.

Figure 4: Average Amount Sent by Proposers by Treatment to Both Groups

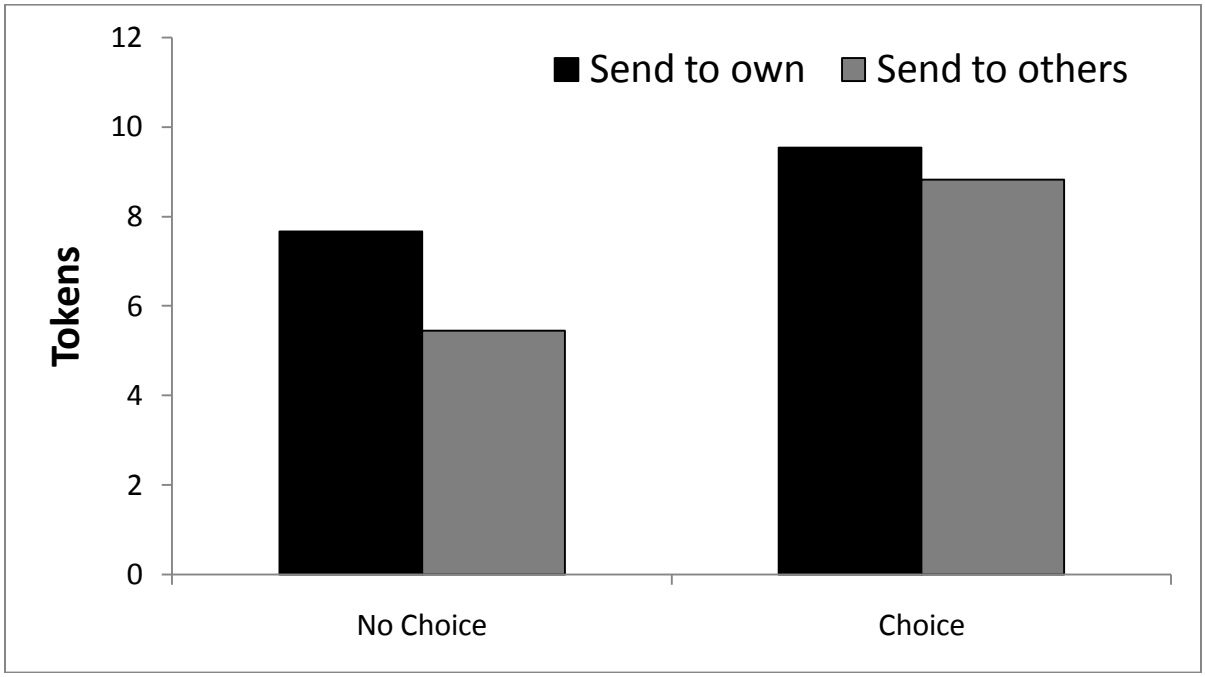

Figure 5: Average Returns across Treatments by In-group Members and Others

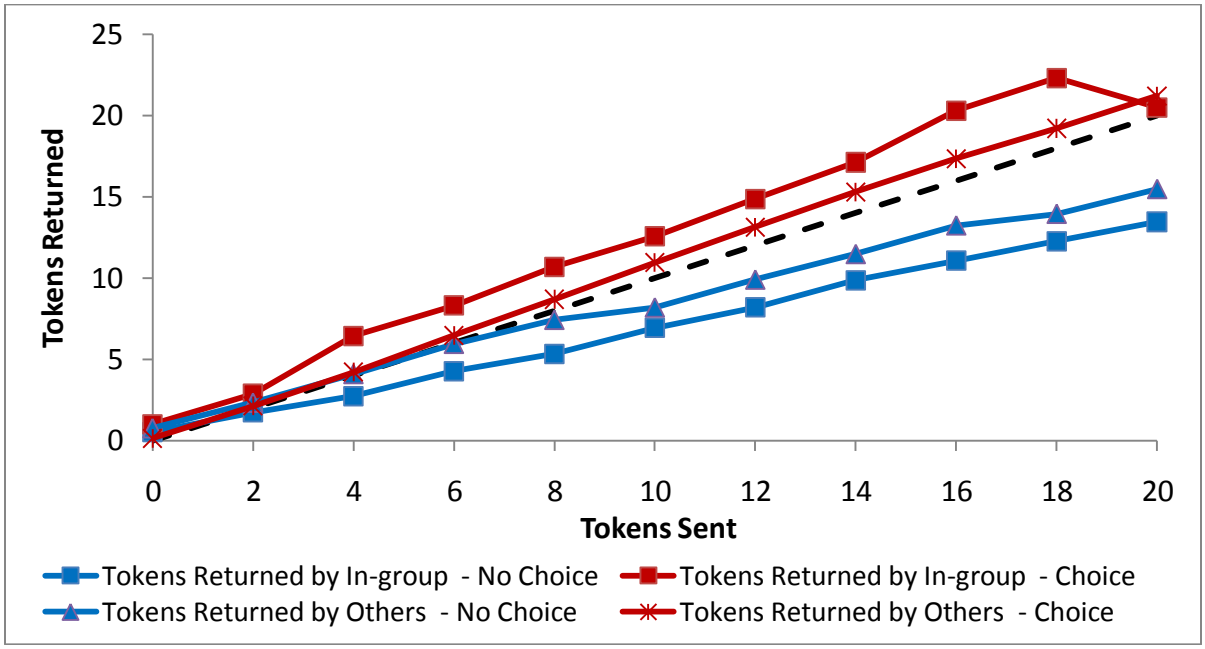

Table 5: Amount Returned by Responders

OLS with Clustering by Individual				
Dependent Variable: Responder Amount Returned	I		II	
Amount Received	0.313	***	0.319	***
	(0.035)		(0.034)	
In-group Responders in Choice			5.613	**
			(2.656)	
Other Responders in Choice			2.365	
			(2.474)	
In-group Responders in No Choice			0.103	
			(2.419)	
Constant	0.990	**	-1.134	
	(0.429)		(1.417)	
R2	0.244		0.280	
Observations	825		825	

Standard errors in parentheses.
* p<0.1; ** P<0.05; *** p<0.01.

Figure 6: Earnings by Preference and Pairing in Partner Choice Treatment

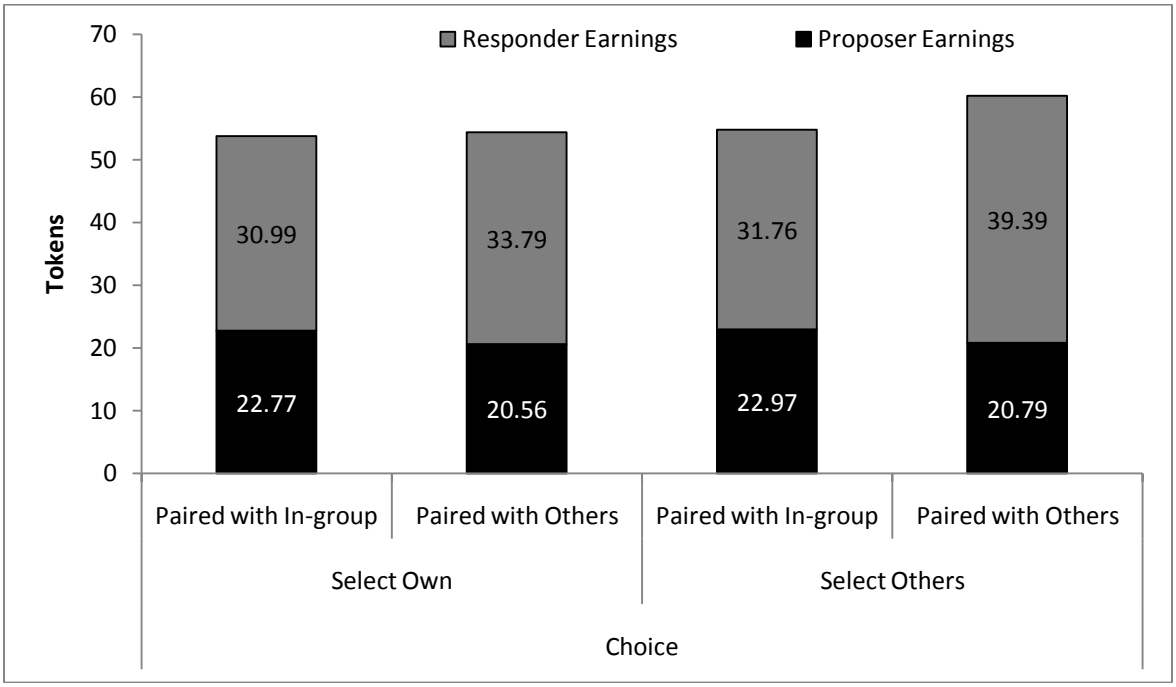

Figure 7: Earnings by Preference and Pairing in No Choice Treatment

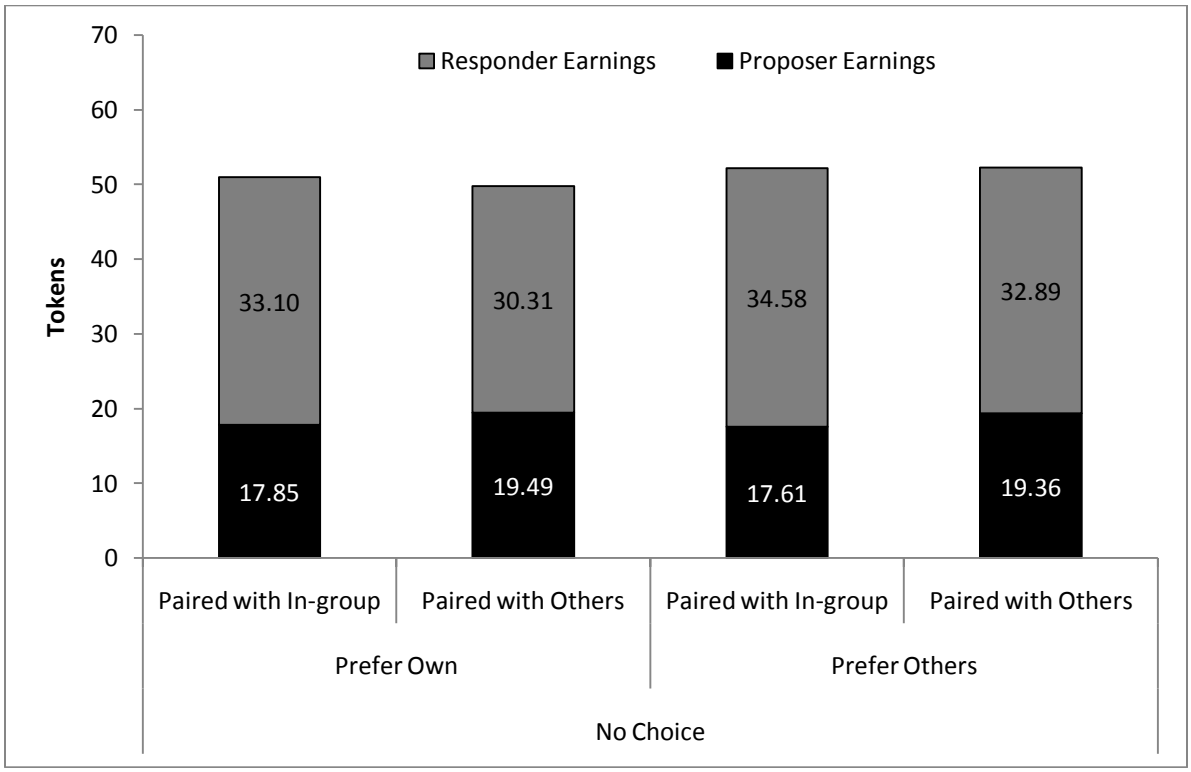

Figure 8: Social Efficiency by Preference and Pairing in Partner Choice Treatment

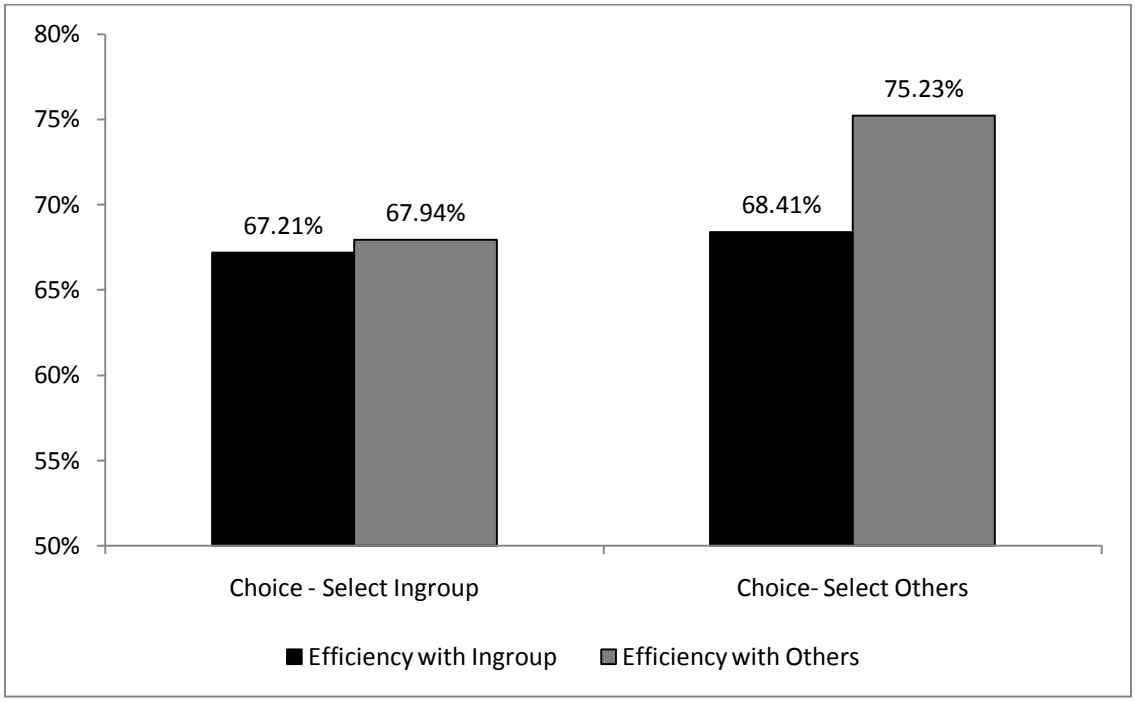

Figure 9: Social Efficiency by Preference and Pairing in No Choice Treatment