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Morals and Mores: Experimental Evidence on Equity and Equality

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Abstract

What rule is fair? This experimental study considers *equality* and *equity* (i.e., allocations that are proportional to individual contributions). Impersonal third parties, or *spectators*, favor equity. Distributive preferences move progressively toward equality, however, with the introduction of personal factors, such as sharing stakes with another (i.e., being a *stakeholder*) and lifting anonymity conditions. These findings are remarkably robust with respect to a wide range of non-ethics variables that almost never matter, including nationality, culture, race, income, and gender, and have important implications for the need to distinguish social preferences in descriptive analysis from those in prescriptive research and policy.

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"It is argued that whoever does the best he can deserves equally well, and ought not in justice to be put in a position of inferiority … On the contrary side it is contended that society receives more from the more efficient laborer; … that, if he is only to receive as much as others, he can only be justly required to produce as much" – John Stuart Mill, 1861.

I. Introduction

What allocation rule is fair? Countless field and experimental studies have, by now, made a compelling case that fairness is an important economic force, including in labor markets, product markets, income and wealth redistribution policies, and government regulation. Nevertheless, fundamental questions that Mill raised about fairness persist almost one and one half centuries later. On the one hand, equality preferences are consistent with observed intra-firm salary compression, e.g., Frank (2004), and with the high incidence of equal splits in economics experiments, which has informed leading models of social preferences that integrate equality as an argument, e.g., Bolton and Ockenfels (2000), Charness and Rabin (2002), and Fehr and Schmidt (1999). As Crawford, Gneezy and Rottenstreich (2008) demonstrate, equal payoffs facilitate coordination, and equality has been central to much normative work, as with Rawls (1971) and Walzer (1983). On the other hand, labor markets are characterized by increasing wage inequality, which Lemieux, MacLeod and Parent (2009) trace in part to productivity differences. Moreover, in practice, most voters do not support the kind of radical redistribution equality implies, even in the most egalitarian societies, and very few people endorse equality even as a hypothetical goal: Kluegel and Smith (1986) report only 3% of survey respondents support equality or near equality of income, whereas 83% agree with paying more to more productive workers. The standard for inequality in most justice research is proportionality of rewards to contributions, which we will call "equity" (in keeping with the usage in most of the social sciences and as a way to differentiate it from equality). Equity figures importantly in philosophy, e.g., in the writings of Aristotle (1925) and Corlett (2003), and empirical studies substantiate its economic importance, e.g., Gächter and Riedl (2005), Güth (1994), Konow (2000) and Selten (1978). Equity and equality imply very large and important differences in the allocation of social and economic resources, but no consensus has yet emerged about what rule is fair, or, if multiple rules are fair, under what circumstances each rule applies.

This paper reports the results of an experiment that explores possible determinants of preferences for equity and equality. The experiment is a variation on the dictator game, in which

matched subjects first perform a task that generates earnings, and then selected subjects unilaterally decide the allocation of earnings among the group. The chief question we address is whether the relative importance of equity and equality depends systematically on personal factors, i.e., how personal the relationship is between individuals.[1] At the one extreme, we have impersonal third party dictators, or impartial *spectators*, who are paid a fixed fee to allocate earnings between other subjects. In other treatments, personal factors are interjected, e.g., dictators are *stakeholders* paired with recipients, identities are revealed, and decisions are made by teams. Research elsewhere has shown that even minor personal factors can affect allocations, e.g., Charness and Gneezy (2008) find that dictators are significantly more generous when they know the family names of their otherwise anonymous counterparts. Our question is whether personal considerations affect choices between equity and equality. Such a distinction, if found, has important consequences for theory and policy. Impersonal fairness preferences apply when personal stakes are of little or no significance. For instance, impersonal, and hence impartial, views are relevant for normative economic analysis, for third parties in experiments (e.g., Fehr and Fischbacher, 2004), and for much voting behavior as suggested, for example, by the relatively frequent incidence of affluent liberal voters and less wealthy conservative ones. Personal fairness preferences, on the other hand, arise in a host of different contexts, including with the compensation of co-workers at a firm, the distribution of assets among the beneficiaries of an estate, and the behavior between fellow stakeholders in experiments.

This study examines the propensity to act on equity or equality in relation not only to personal factors but also to the widest set of variables ever, to our knowledge. Of the five categories of variables that Camerer (2003) identifies in connection with social preference experiments, we consider ones in his four top categories, including *methodological* variables (stakes) and *demographic* variables (gender, race, age, income, etc.). Moreover, we include *cultural* and *structural* variables, which Camerer cites as having the most significant and robust effects. Regarding culture, this experiment was conducted in the US and Japan, and subjects were also evaluated using a two dimensional individualism-collectivism survey instrument.

[1] In a related study, D'Exelle and Riedl (2008) find that personal networks impact the level of giving. Our focus is, instead, on how personal relations affect the relative importance of the two main contenders for fairness rules in most justice research. The meaning of *personal* coincides here with the Webster dictionary definitions of "done without intervention of another," and "carried on between individuals directly."

Structural variables, though, are the chief ones addressed in this study, consistent with Camerer's view that they "are the most useful to study because they connect simple games to richer economic structures … and also provide the most direct clues to the psychology underlying social preference" (pg. 75). Structural variables include here entitlement, identity and anonymity.

Entitlement is the core element in equity. In the laboratory, entitlement is typically conveyed through tasks completed by subjects, which usually produce significant effects, e.g., on bargaining in Ball, Eckel, Grossman and Zame (2001) and on public good contributions in Kroll, Cherry and Shogren (2007). Studies using entitlements indicate that relative preferences for equity or equality vary across individuals, e.g., Cappelen, Hole, Sørensen and Tungodden (2007) and Frohlich, Oppenheimer and Kurki (2004), and depend on the context, e.g., Gächter and Riedl (2006) and Konow (2000). The current study builds on and unifies these contributions by identifying general forces that impact preferences for equity and equality while revealing heterogeneity in individual responsiveness to these general forces.

Studies of possible cultural differences in social preferences have come to differing conclusions. The seminal paper of Roth et al. (1991) found that ultimatum game offers are higher in the US and Slovenia than in Japan and Israel. On the other hand, Okada and Riedl (1999) discover no significant differences between Austrian and Japanese subjects in a variation of the ultimatum game, and Brandts, Saijo and Schram (2004) also find no significant differences in public goods contributions across subjects in the US, Japan, the Netherlands and Spain. Even when behavior is the same across countries, though, Holm and Danielson (2005) argue that the underlying preferences can differ, as suggested by combined consideration of behavioral relationships and responses to survey questions. The current study similarly employs both behavioral and self-report measures to explore culture, and its results suggest an explanation for the similarities and differences in cross-cultural studies.

The laboratory method, which we employ, has both strengths and weaknesses for understanding social preferences. In light of such considerations, one suggestion of Levitt and List is "to 'nest' laboratory experiments within one another" so as "to 'net out' laboratory effects and thus reveal more about deep structural parameters" (2007, pg. 170). The design of this experiment, therefore, incorporates multiple treatments that incrementally adjust certain parameters in this manner. Indeed, our findings demonstrate the importance of this approach by indicating that actualized preferences can vary between equity and equality depending on

contextual elements found in the real world. These design features build, in part, on the relationship between social preferences and social distance that has been found not only among Western (e.g., Hoffman, McCabe and Smith, 1996) but also Asian subjects (e.g., Buchan and Croson, 2004). Moreover, we study the effects on allocation decisions of both stakeholder and spectator choices as in Konow (2000), of knowing the identity of one's counterparts (e.g., Bohnet and Frey, 1999, and Rege and Telle, 2004) and being able to communicate (Xiao and Houser, 2007), of varying the size of stakes (Johansson-Stenman, Mahmud and Martinsson, 2005), and of making individual versus team decisions (e.g., Cason and Mui, 1997).

The results show that personal factors influence the choice of equity and equality. Spectators display an exclusive preference for equity that is strikingly consistent across cultural and demographic boundaries. Nevertheless, even the weakest possible personal factor, namely being a stakeholder paired anonymously with another person, suffices to cause a significant shift toward equality. Personalizing the relationship additionally by lifting anonymity produces a further shift toward equality. Indeed, non-anonymous stakeholders equalize completely, controlling for the size of stakes. Holding constant personal factors, however, larger stakes produce more proportionate allocations. Together, these results are consistent with an impersonal preference for equity combined with a preference for equality that depends monotonically on the strength of personal considerations. In addition, average allocations do not usually differ significantly from average contributions to earnings, consistent with List's (2007) finding that tasks strengthen the sense of entitlement. Exceptions to this include a self-interested bias among anonymous big spenders and anonymous US (but not Japanese) stakeholders acting both individually and in groups. In addition, this study contributes to research on teams and finds that, although individuals are less selfish than groups, selfish groups produce individuals who are even more selfish than their groups. Other variables rarely matter, including age, income, work hours, race, gender, and cultural measures of individualism and collectivism.

Collectively, we interpret the evidence of this study as suggesting that people share a common set of social preferences and a common set of factors that impact those preferences but that there are individual, and sometimes national, differences in the weights placed on self-interest versus social preferences or on one type of social preference versus another (here equity vs. equality). We believe that this is not only the most persuasive approach to organizing the results of this study but that this interpretation can also reconcile ostensibly conflicting evidence

from many studies of social preferences. Indeed, we conclude this paper by proposing that equity and equality are but one example (albeit perhaps the most important example) of a more general distinction between two types of moral preferences, which we call *morals* and *mores*. Morals refer to the moral preferences of an impersonal or impartial third party, whereas mores are the moral preferences activated by personal considerations. In the context of these fairness rules, morals correspond to equity and mores to equality. In conclusion, we suggest that this framework can explain additional puzzles, e.g., in Crawford et al. (2008), and relate it to important recent research on identity and moral norms, e.g., Akerlof and Kranton (2000), Brekke, Kverndokk and Nyborg (2003), Ellingsen and Johannesson (2008) and McLeish and Oxoby (2007).

This paper is organized as follows. Section II reviews in greater depth the potential causes of equity and equality. Section III details the experimental design and procedures. Section IV presents and analyzes the results, and Section V contains the discussion and conclusions.

II. Equity versus Equality

Equality has a prominent place in justice research; indeed, some people equate equity with equality. Here, however, we are referring not to equal opportunity, equal rights or equal ratios, but rather to equal outcomes, i.e., *egalitarianism*. Equity, by contrast, refers in this paper to the *accountability principle* (Konow, 2000), which states that fair rewards are in proportion to the contributions that individuals control (e.g., effort and other choices). As Alesina and Angeletos (2005) show, beliefs about fairness in this vein have widespread and important implications for redistribution policies. Whereas it seems likely that equity is typically chosen simply because of a preference for it, one can think of various other explanations for why people might choose equality. One possibility is that equality occurs as a *special case* of a more general principle that otherwise generates inequality, e.g., according to the accountability principle, fair rewards are equal if the contributions people control are equal. Another reason for equality is the *ceteris paribus assumption*: when information about relevant differences is either unavailable or unreliable, people usually assume away any such differences. Evidence in favor of these two explanations for equality is reviewed in Konow (2003).

The current study examines a number of additional factors that might cause or influence the choice of equality. First among these are *structural variables*, as previously mentioned. These include the entitlement, which is implemented with a task, and various treatment variables related to personal factors, such as personal stakes, anonymity, and group (or team) decisions.

We supplement the behavioral measure of allocation decisions with self-reported evidence on motives: the study elicits subject responses about the perceived control over performance in the experimental task (known as the "locus of control" in psychology) that is relevant to the accountability principle, and about subjects' general views on the importance of the potentially competing distributive goals of equality, need and efficiency.

Second, *demographic variables* include measures of parents' income, expenditures, age, work hours and earnings. For non-anonymous decisions, we are also able to explore possible effects when the gender or race of one's counterpart is known. As Croson and Gneezy (forthcoming) report, experimental evidence on gender and social preferences is mixed. For example, Eckel and Grossman (2001) find that women are more generous and exhibit greater solidarity with one another than men, whereas Ben-Ner, Kong and Putterman (2004) find the opposite. In Dufwenberg and Muren (2006), what is mostly relevant is the gender of the recipient: women receive more than men. The evidence on race and social preferences is similarly mixed: blacks are more generous in the ultimatum study of Eckel and Grossman (2001) whereas race does not significantly affect average dictator giving in Fong and Luttmer (2009).

Third, we explore possible effects of *nationality and culture* on distributive preferences among US and Japanese subjects.[2] One criticism of multi-national economics experiments is that they fail to distinguish nationality from culture, whereas our data allow us to do so at the individual level (something that might be particularly useful when dealing with a culturally diverse country like the US). Previous multi-national economics experiments have examined cooperation, trust and reciprocity. To our knowledge, this study is unique among such inquiries, however, in isolating distributive preferences both from intentional preferences and from self-interest in a cross-national context.

National differences in justice, if present, can be interpreted in a number of ways. One

[2] There are four reasons we chose the US and Japan for this study. First, they are the two largest economies in the world and represent, therefore, a substantial fraction of world economic activity. Second, the largest volume of experimental economics has been conducted in the US, and Japan is probably the other country that has most frequently been used in international comparisons. This assists efforts to generalize findings by facilitating connections between this study and others. Third, the US and Japan are often said to represent two sides of the most commonly cited cultural divide, viz., Eastern collectivism versus Western individualism. Fourth, our chief interest is in preferences for equality versus inequality, and much cross-national research places these two countries on opposite sides of this issue.

view is that justice is simply not as strong a value in Eastern as in Western countries (Greenberg 2001), which seems consistent with findings of Mattila and Patterson (2004). The most common interpretation, however, is probably that Westerners favor equity whereas Easterners prefer equality, in line with the results of Mann, Radford and Kanagawa (1985) and Kashima et al. (1988). Traditionally, Japan experienced one of the lowest levels of income inequality in world, which Tachibanaki (2005) attributes to the strong "egalitarian principle prevalent among the Japanese" (pg.110). Although inequality has increased substantially in recent decades, this does not seem to reflect a change in values. Rather, Ohtake and Saito (1998) point out that the income distribution by age has remained relatively constant, and they attribute the increasing overall inequality to Japan's rapidly aging population. Yet another explanation for cross-national differences in behavior is that, independent of whether or not people hold to the same justice concepts, they differ in their inclination to act on them. Cason, Saijo and Yamato (2002), for example, find that Japanese subjects are more inclined to punish low contributions in a public good game than are US subjects.[3] For this reason, we find it helpful in this study to distinguish the choice of fairness rules from the degree of rule compliance.

Fourth, a potentially important variable is the size of the *stakes*. Summarizing a set of experiments, Güth (1988) concludes that the basic rule of distributive justice is proportionality but observes that smaller stakes are often associated with equality. Although one can consider stakes a methodological variable, we propose that its effects are not merely artifactual. Instead, this provides an additional means to test the hypothesized trade-off between equity and equality: for given personal factors, higher stakes should increase the importance of equity. This also mirrors questions outside the laboratory: one common real world example is the tendency to "split the tab" in restaurants when the orders of diners do not differ greatly, thereby avoiding various costs, notably goodwill, of a more exact reckoning. A more economically significant case is the reluctance by employers (and even employees) to support fully compensating productivity differences within a firm in the interests of promoting collegiality, whereas such differences are more acceptable across industries or for national income policies. We are unaware of any previous empirical test of this trade-off.

[3] Their study also indicates that US and Japanese subject pool effects are mostly due to national differences rather than institutional differences: their experiment was conducted at two universities in the US and two in Japan, and they found significant between-country differences but comparatively minor within-country differences.

III. The Experiment

A. *Design*

There are two phases to the experiment. In the production phase, twelve subjects in room X and twelve in room Y perform a task that generates earnings (described in section *III.B*). In the subsequent allocation phase, subjects are matched and their joint earnings are allocated among them dictator style. The three treatments of the experiment, which are summarized in Figure I, differ with respect to who makes the allocation decision (i.e., who is dictator), how subjects are matched, and the level of anonymity. In the Spectator treatment, subjects in Rooms X and Y are anonymously matched in pairs. Usually, subjects differ considerably in their performance on the task and, therefore, in the earnings that can be attributed to them individually. The matching protocol takes advantage of this to produce the widest range of productivity differences within pairs by pairing, for each session, the most productive X subject with the least productive Y subject, the second most productive X subject with the second least productive Y subject, etc. Then a spectator, or third party, makes the eponymous dictator decision. Specifically, twelve spectators are located in a third room, called Z, and each is individually and anonymously matched with a single X/Y pair. Spectators are paid a fixed fee, unrelated to their allocation decisions, to distribute the earnings generated by their X and Y counterparts between them.

FIGURE I. Experimental Design

Treatment	Decision	Dictators → Recipients	Anonymity
Spectator	Spectator	Z → X, Y	Anonymous
Anonymous Stakeholder	Anonymous Stakeholder	X → X, Y	Anonymous
Group Stakeholder	1. Group	X (XA/XB) → X (XA/XB), Y (YA/YB)	Anonymous between X and Y Known between A and B
	2. Known Stakeholder	XA → XA, XB YA → YA, YB	Known

The Anonymous Stakeholder treatment is closer to the standard version of the dictator game. Subjects in rooms X and Y (again twelve each) first generate earnings and are then anonymously matched into pairs as in the Spectator treatment, but there is no third party Z. Instead, X subjects are arbitrarily chosen to allocate the earnings generated by their pair between themselves and their Y counterparts. Each X subject does this individually and anonymously for his or her pair. Thus, the only difference between the Anonymous Stakeholder and Spectator

decisions is whether or not the dictator is also a recipient, i.e., a party to the earnings being distributed, the weakest personalization of a relationship where material stakes are involved.

The Group Stakeholder treatment begins with the same production phase as the other treatments, but the allocation phase involves two stages and a different matching protocol. Instead of pairs, subjects are initially matched into quadruples consisting of two X subjects, called XA and XB who form Group X, and two Y subjects, called YA and YB who form Group Y, and the earnings of all four subjects are pooled. The first allocation involves a Group decision. XA and XB subjects are re-seated to meet face-to-face, are informed of the total (but not individual or group) production and earnings of their quadruple, and jointly choose how much to take for their own Group X and how much to give to Group Y. YA and YB also meet face-to-face and are informed of the Group X decision. Then, A and B subjects in both rooms return to their original seats. Although A and B subjects in both rooms meet one other, X and Y groups never meet and remain anonymous to one another.

The second decision in the Group Stakeholder treatment is an individual one. Subject XA is arbitrarily chosen to allocate the Group X earnings they just selected for themselves between himself and his XB counterpart. Similarly, the YA subject is arbitrarily chosen to distribute the earnings Group X gave to them in the earlier decision between herself and her YB counterpart. These decisions are all made individually, but they are not anonymous: A and B subjects have met and know one another's identity. This Known Stakeholder decision is similar to the Anonymous Stakeholder decision in that the dictators are individual stakeholders but differs in that they are known by and known to the recipients in this case. Thus, comparison of these two decisions identifies the effect on individual stakeholder allocations of lifting anonymity.

The matching mechanism in the Group Stakeholder treatment is a bit more involved. In each room, A and B subjects are separately matched so as to maximize productivity differences, i.e., the most productive A with the least productive B, etc., analogous to the subject X and Y pairings in the other treatments. Then these X groups (each consisting of an XA and XB) and Y groups (consisting of YA and YB) are matched to form quadruples, specifically, the most productive X group is matched with the most productive Y group, the second most productive X group with the second to most productive Y group, etc. This results in relatively large average differences in productivity between A and B subjects but relatively small average productivity differences between X groups and Y groups. This allows us to focus on aspects of self-interest in

the first Group decision and on equity in the second Known Stakeholder decision. Specifically, this treatment also relates to the research on team decision making. Cason and Mui (1997) find that individuals act more selfishly than groups, although most other work in this area, including Luhan, Kocher and Sutter (2009), indicate the opposite. This study tends to corroborate the latter and adds to the evidence on the effects of groups on individuals, as explained in section IV.[4]

B. *Procedures*

A total of 432 subjects participated in this experiment: 144 in the Spectator treatment, 96 in the Anonymous Stakeholder treatment and 192 in the Group Stakeholder treatment. Each of these totals consisted of equal numbers of subjects from the undergraduate campuses of universities in Los Angeles, California and Osaka, Japan. Subjects were invited by campus wide emails and flyers posted around campus to sign up at designated websites. All sessions had twelve subjects per room, and the Spectator treatment was conducted with three rooms (X, Y and Z), or 36 subjects total, per session, whereas the Anonymous Stakeholder and Group Stakeholder treatments each involved two rooms (X and Y), or 24 subjects total, per session. All subjects initially showed up at a single location to register and receive their show up fees before being assigned to their rooms in order to dispel doubts about the existence of counterparts in other rooms (see Frohlich, Oppenheimer and Moore, 2001, for evidence on the effects of such doubts).

After random assignment to separate rooms, subjects are told that there are two phases of the experiment and then given more specific instructions for the first phase.[5] In the production

[4] There are two additional reasons for this sequence of decisions and for matching subjects so as to maximize A/B differences and to minimize Group X/Group Y differences. First, our aim is to investigate incrementally the impact of personal relations on the choice of equality or equity, and the latter requires significant differences in productivity between subjects. In this sense, the next increment from the Anonymous Stakeholder decision in the Group Stakeholder treatments is the second Known Stakeholder decision, not the first Group decision. Moreover, given the statistical pattern of subject productivity, one must choose to maximize differences between either the one or the other: when disparate A and B subjects are paired, the A/B (i.e., the group) totals do not vary much. Indeed, many group totals varied only by one or two units (in fact, the A/B pairs in one group all produced exactly the same total). The reason information about group totals is not provided to X groups is because group totals do not vary much anyway and the focus, therefore, of the Group decision is on self-interest versus equality. Second, we are also interested in looking at the effect of pie size (i.e., the amount of earnings to be distributed), and a natural way to create variation without losing A/B differences is to have the Group decision precede the Known Stakeholder decision: one can expect considerable variation in how much X groups leave to Y groups, although usually less than one-half, and this expectation was borne out.

[5] As in previous experiments of this kind, subjects were initially only informed in general terms

phase, subjects prepare letters for mailing, a task that has been previously shown to produce a clear and strong sense of entitlement (Konow, 2000). Each letter correctly prepared in the six minutes allotted generates 100 points, which is also stated in local currency (i.e., US dollar or Japanese yen). After the task is complete and the letters counted, the pooling of earnings for their particular treatment is explained, the dictators are identified for the first time (although they are merely identified as subjects X or Z), and dictators are given five minutes to allocate points between subjects. The Group Stakeholder treatment is a bit more involved. First, the X groups are given five minutes to allocate the total of the quadruple between themselves and the Y group.[6] Then, the Known Stakeholder allocations take place: the A subjects in each room are given five minutes to allocate the group X (or Y) totals between themselves and B subjects. Finally, all subjects complete a questionnaire, viz., the Singelis et al. (1995) four scale individualism-collectivism instrument, whereby dictators also answer a question asking why they allocated as they did, after which subjects are paid privately and permitted to leave.

Although the primary focus of this study is not culture, we controlled for country conditions in a number of ways. Subjects at both venues were recruited in the same manner described above from across a wide range of undergraduate disciplines. The two universities are located in comparably sized metropolitan areas, which in both cases are the second largest in their respective countries. Subjects in both locations were screened to exclude non-citizens and were recruited and assigned to rooms so as to maintain an approximately equal number of men and women, where possible, particularly in the dictator rooms. We controlled for purchasing power parity using OECD conversion rates. On this approximate basis, show-up fees were $5 in the US and 750 yen in Japan, and each letter in the US earned $1 (1 point = 1 cent) and in Japan earned 150 yen (1 point = 1.5 yen). The instructions were written in English, translated into Japanese and then back-translated by a separate translator into English to check for consistency. The first author was present at both locations to verify that the recruitment, procedures, and even

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about allocation procedures in order to avoid any effect on effort and productivity in the first stage that might subsequently impact allocations and confound inferences about distributive motives. The experiment was partially, but not completely, computerized for logistical reasons, viz., one of the labs did not have separate computerized rooms, but the use of pencil and paper for allocation decisions probably also helped reinforce that dictator decisions were anonymous to recipients. For practical reasons, though, decisions were not blind to the experimenter.

[6] The X groups are told that, if at the end of the five minutes they fail to agree, one of the X subjects will be randomly chosen to decide, although it never came to that.

physical set-up were equivalent. For language reasons and in order not arouse suspicion, the experiment was conducted solely by Americans in the US and Japanese in Japan, and the lead experimenter in the dictator rooms (except for the YA decisions) was always the same person (Konow in the US and Akai in Japan). The experimental protocol is contained in the Appendix.

IV. Results and Analysis

Participants in this experiment earned, on average, $18.14 in the US and 2121 yen in Japan (or about US$20 at contemporaneous exchange rates or about $15 in US purchasing power) including show up fees for sessions that lasted, on average, about 50 minutes. After receiving their payments, 99% of American subjects and 94% of Japanese subjects responded that they would be willing to participate in other economics experiments. In section IV.A, we review and analyze the results on the relationship of equity and equality to the structural variables of interest, i.e., entitlement, personal factors and stakes. Section IV.B addresses other potentially related considerations, including demographic variables and nationality/culture.

A. *Equity, Equality and Structural Variables*

Entitlement, stakeholding and anonymity

TABLE I
SUMMARY OF MEAN RESULTS

	Spectator	Anonymous Stakeholder	Known Stakeholder	Group Stakeholder
Allocations				
Mean	0.45	0.57	0.54	0.59
(Std. Err.)	(0.036)	(0.029)	(0.015)	(0.023)
Entitlements				
Mean	0.45	0.49	0.52	0.46
(Std. Err.)	(0.033)	(0.028)	(0.019)	(0.006)
Differences in means				
t-statistic	0.01	1.89	0.84	5.63
p-value	0.994	0.061	0.401	0.001
No. of obs.	48	48	91	48

Notes: There are only 91 decisions by Known stakeholders (48 XA and 43 YA subjects), because five of the 48 X Groups allocated nothing to their Y Groups leaving no decisions for the corresponding five YA subjects.

Table I summarizes the mean allocations to X (or A, in the case of Known Stakeholders) as fractions of total earnings for the four allocation decisions. The entitlement is the mean

fraction of earnings produced by X or A, respectively. Two-tail t-tests of differences between mean allocations and mean entitlements demonstrate no significance difference for Spectator and Known Stakeholder allocations, whereas Anonymous Stakeholders take 8 percentage points more than their entitlement, a difference that is marginally significant. Only Group Stakeholder allocations exceed the fraction they produced at conventional levels of significance, although remember that, for practical design reasons, these dictators were informed only about the total earnings of their quadruple but not about the letters produced separately by groups or individuals. Nevertheless, their allocations also differ significantly from the equal splits that are consistent with the aforementioned ceteris paribus assumption, which is appropriate under these information conditions ($t=4.04$, two-tail p-value < 0.001). Thus, these results suggest variation in bias toward one set of subjects ranging from no significant bias when, at the one extreme, dictators are informed third parties in the Spectator treatment to a large and significant effect of self-interest when, at the other extreme, groups of uninformed stakeholders who are known to one another but anonymous to recipients allocate in the Group Stakeholder treatment.

TABLE II
TYPE OF ALLOCATION BY DECISION
(percentage of each type)

	Dictator Decision			
Allocation Type	Spectator	Anonymous Stakeholder	Known Stakeholder	Group Stakeholder
Proportional	81	57	45	NA
Equal	19	30	49	90
Selfish	NA	13	6	10

Table II presents a simple but somewhat more detailed summary of the results. It categorizes each decision into one of three types, viz., proportional, equal or selfish, based on a calculation of whether it is closest in absolute terms from its respective entitlement, equality or giving X (or A in the Known Stakeholder decision) the entire pie (ties are counted one-half to each type). The first column illustrates that 81% of Spectator decisions are closest to being proportional and 19% to being equal (the selfish category is not applicable here, since the dictators in this treatment are third parties). The percentage of proportional decisions falls to 57% and the percentage of equal ones rises to 30% for Anonymous Stakeholders, while 13% of decisions are closest to the completely selfish allocation. A further trend toward equality and away from proportionality is found for Known Stakeholders, although selfish allocations fall

somewhat. Thus, these results imply a shift away from proportionality and toward equality when decision-makers are stakeholders and again when they are known to and by their recipients. Finally, we see that, although Group Stakeholders deviate, on average, significantly toward self-interest, as reported above, 90% of their allocations are still closer to equality than to taking the entire earnings. Here the proportional category is not meaningful, since these dictators receive no information about relative production. This is also the reason for concentrating on the three individual decisions in most of the following analysis, which concerns equity versus equality.

(a) Spectator (b) Anonymous Stakeholder (c) Known Stakeholder

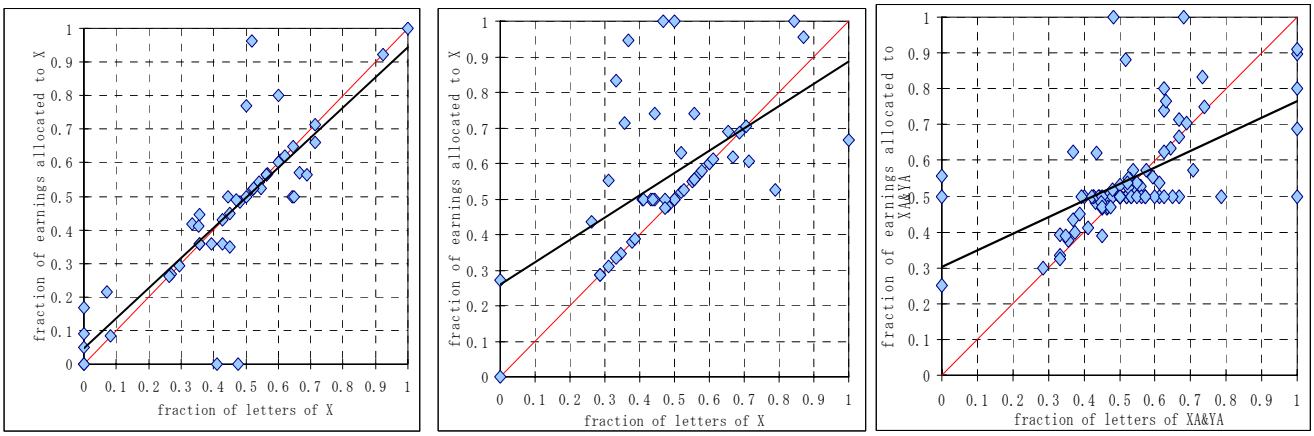

FIGURE II. Dictator Allocations

The dictator allocations of Z subjects in the Spectator treatment are illustrated in Figure IIa. The horizontal axis represents the fraction of letters produced by the X subject and the vertical axis the fraction of earnings allocated to the same X subject by the Spectator. If spectators value equality, the allocations should lie along a horizontal line at 0.5. Equity, on the other hand, calls for proportionality: fair allocations, or the *entitlement*, lie along the lighter 45 degree line where fractional allocations equal fractional contributions (ignore the dark lines for now). Apart from a few outliers, most decisions appear to be quite close to the entitlement.

Figure IIb presents the results of the Anonymous Stakeholder treatment. The points refer again to the X subjects, but the fractional earnings on the vertical axis are those chosen by the X subjects to themselves (rather than those chosen by a third party). As with Spectators, a number of these allocations equal the entitlement, but departures from this line are more prominent. The Known Stakeholder treatment in Figure IIc illustrates the dictator allocations of A subjects in rooms X and Y to themselves, whereby they are known to and by their B counterparts. The frequency of equal split allocations appears to be greater here than in the other treatments.

These impressions are reinforced and further illuminated by regression analysis. The dark lines in Figure II result from the following OLS regression of fractional allocations on fractional entitlements for the three individual decisions:

(1) $\text{Allocation}_i = a + b \cdot \text{Entitlement}_i + \varepsilon_i$

Equality corresponds to an intercept of one-half (a=0.5) and a slope of zero (b=0), whereas equity predicts an intercept of zero (a=0) and a slope of one (b=1). Since the dependent variable is left- and right-censored, however, we also ran two-sided Tobit regressions for these and the other regressions reported in this paper.[7] Table III reports these regressions and the results of F-tests of the joint hypotheses for the equity and equality cases. For the Spectator decisions, there is strong support for equity and no support for equality, confirming the impressions from Table II and Figure II. Allocations in the two stakeholder decisions, however, fall between equity and equality and differ significantly from those two sets of predictions, as seen in Table III. Comparing slope coefficients to those of Spectators, dictators equalize more as Anonymous Stakeholders (t-statistic=–2.12, $p<0.05$) and Known Stakeholders (t-statistic=–3.97, $p<0.01$), indicating that personalizing the interaction has an equalizing effect. Joint tests of the hypothesis of no change in intercepts and slopes similarly indicate significant differences in Spectator allocations relative to those of Anonymous Stakeholders (F-statistic=5.34, $p<.01$) and Known Stakeholders (F-statistic=10.55, $p<.01$).

The significant slope coefficients in all three regressions demonstrate that the entitlement, and therefore equity, matters in every condition, although to differing degrees. Spectators allocate according to equity, whereas Anonymous Stakeholders respond to but are less sensitive than spectators to differences in entitlement while their allocations reflect a marginally significant influence from self-interest, as we know from Table I. Dropping anonymity in the Known Stakeholder decision reduces the roles of equity and of self-interest, according to Tables I, II and III.[8]

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[7] For the findings reported in this paper, OLS and Tobit regressions result in conclusions that are qualitatively, and even quantitatively, very close. Nevertheless, it is worthwhile establishing the robustness of the results, given the focus of this study on preferences for equality: stakeholders might allocate in a more self-interested manner resulting in disproportionate censoring of the allocations of more productive dictators and lower OLS slope coefficients, even if their fairness rule were equity. This is a problem of right censored data, which these Tobit regressions correct.

[8] This last effect is consistent with the results of Hoffman et al. (1996), but see also Dufwenberg and Muren (2006) whose novel findings indicate the opposite.

TABLE III
TOBIT REGRESSION ANALYSIS

	Spectator	Anonymous Stakeholder	Known Stakeholder
Intercept	0.01	0.24***	0.30***
	(0.049)	(0.072)	(0.037)
Entitlement	0.96***	0.67***	0.47***
	(0.097)	(0.138)	(0.067)
F-statistics			
Equity (a=0, b=1)	0.11	7.61***	33.16***
Equality (a=0.5, b=0)	52.39***	15.67***	31.40***
Adjusted R^2	0.70	0.33	0.34
No. of obs.	48	48	91

Notes: Standard errors are in parentheses. Adjusted R^2 are from OLS.
Significant at *10%, **5%, ***1% level.

The results in Figure II suggest patterned differences in the application of fairness rules not only across treatments but also across subjects. One explanation for this is that subjects fundamentally agree on equity and equality but differ in their interpretation of the appropriateness of the rules in the context, e.g., some stakeholders believe that merely being paired with another person requires that they equalize (or equalize somewhat) whereas others believe the relationship must be more personal before relinquishing proportionality. We consider two other conjectures about individual heterogeneity related to beliefs about accountability and its importance. First, different allocation decisions might reflect differences across subjects in how they interpret accountability in the context of the experimental task: those who allocate proportionally see the task as being under the control of subjects whereas those who equalize do not. Another possibility is that subjects differ fundamentally in the importance they attach to accountability versus other distributive goals such as equality, need and efficiency.

The experimental questionnaire contains five questions (11 through 15 in the Appendix) that ask for agreement or disagreement with statements motivated by these two conjectures. Question 11 addresses accountability in the experimental task and the other questions concern general distributive preferences, viz., need in question 12, equality in 13, efficiency with equality in 14, and efficiency with equity in 15. In analysis not shown here, we add five variables to equation (1) for each of the five questions and conduct three separate regressions for the

Spectator, Anonymous Stakeholder and Known Stakeholder decisions. In all of these regressions, the entitlement continues to be positive and significant, but none of the questions is significant. There are still no significant coefficients on these questions if we interact them with the entitlement and conduct the regressions separately for each of the five questions and three decisions. These findings suggest that differences in dictator allocation behavior are not due to differences in the interpretation of accountability in the experiment or to more general differences in the distributive preferences of subjects. Indeed, an examination of the raw responses indicates broad consensus among subjects in favor of accountability and about the relative importance of other distributive principles.[9] Instead, the results tend to support differences associated with the personal factors (i.e., personal stakes and anonymity) and how subjects interpret and respond to these factors.

Finally, remember from Table I that Group Stakeholders take a larger fraction of earnings than any other set of individual decision makers in this experiment, consistent with most previous work. Nevertheless, additional Tobit analysis (not shown here) indicates that the subsequent allocations of Known Stakeholders in Group X to themselves are significantly positively related to the fraction the X group took for itself. Luhan, Kocher and Sutter (2009) find that, after being in groups, individuals behave more selfishly than they did before, but not that they are more selfish than the groups. Here, however, the implication is that individuals who belonged to selfish groups subsequently act more selfishly than even their selfish groups. This is especially noteworthy, given that individual dictators allocated to recipients known to them, unlike similar prior experiments in which individual decisions were anonymous.

Size of stakes

As previously discussed, one reason sometimes given for equality is that people forgo proportional accounting when the stakes are not very large, in particular, when decisions are not

[9] For question 11, 79% of subjects agree that "the performance of subjects on the task in this experiment was due mostly to things that they could control" (collapsing agree and strongly agree into one category and disagree and strongly disagree into another). For question 12, 64% agree "the basic needs of people for food, clothing and shelter differ greatly across individuals," the lowest level of consensus for any of the questions. On question 13, 86% disagree with the statement that "there should be the same income guarantee for all people." For question 14, 90% disagree that "the way for companies to be most productive and efficient is by minimizing differences in pay across workers," whereas, on question 15, 87% agree that "the way for companies to be most productive and efficient is by paying workers according to their productivity."

anonymous. This provides a separate test of equity as an impersonal rule and equality as a personal one: when personal factors are held constant within a given decision, higher stakes should increase the weight given to equity considerations. To test this prediction, we include the size of the Stakes in OLS and Tobit versions of the following regression:[10]

$$\text{(2)} \qquad \text{Allocation}_i = a + b\cdot\text{Entitlement}_i + c\cdot\text{Stakes}_i + d\cdot\text{Entitlement}_i\cdot\text{Stakes}_i + \varepsilon_i$$

If the prediction about stakes is correct, the coefficient on *c* should be negative and the coefficient on *d* positive: as stakes increase, dictators increasingly depart from equality and approach proportionality.

TABLE IV
EFFECT OF STAKES ON KNOWN STAKEHOLDER ALLOCATIONS

Variable	Parameter estimate (Std. Err.)
Intercept	0.511***
	(0.103)
Entitlement	–0.023
	(0.180)
Stakes	–0.252**
	(0.111)
Entitlement × Stakes	0.556***
	(0.196)
Adjusted R^2	0.41
Number of observations	91

Notes: Tobit regressions with adjusted R^2 from OLS.
Significant at *10%, **5%, ***1%.

We focus on the Known Stakeholder results, since only this case fits the story involving non-anonymous decisions, and since it is the only decision in this experiment with sufficiently large variance in stakes to test meaningfully its effect.[11] The Tobit regression results are

[10] To ease interpretation, the Stakes variable was created as follows: the total points available to each X/Y or A/B pair, respectively, are divided by the average total points across all pairs in the Spectator, Anonymous Stakeholder and Known Stakeholder decisions. Thus, the average stakes across these decisions equal 1, while the allocation and entitlement continue to be measured as fractions of the individual stakes.

[11] The variance of standardized stakes in the Spectator and Anonymous Stakeholder decisions are both 0.06, whereas it is 0.27 (more than four times greater) in the Known Stakeholder

presented in Table IV and confirm all predictions of the hypothesis: larger Stakes significantly decrease the intercept, with an estimated coefficient of –0.252, and significantly increase the slope, with a parameter estimate on the interaction term of 0.556. Thus, larger stakes are associated with significantly more proportional allocations, or, put differently, dictators allocate more equally with smaller stakes.[12] Indeed, this regression provides the strongest evidence of equality: controlling for the size of stakes, allocations in this, the most personalized, treatment do not differ significantly from an intercept of 0.5 and a slope coefficient of 0 on the Entitlement.

In unreported analysis, we consider an alternate conjecture about stakes being correlated with an omitted variable that causes more equal allocations. Specifically, suppose whether or not one was previously in a position of power affects one's subsequent equality preferences. That is, YA dictators might equalize more, on average, not because of the smaller stakes they typically receive, but because of sympathy or solidarity with YB dictators who were similarly powerless in the first round. We add a dummy variable for YA Known Stakeholders and an interaction term with the entitlement to equation (2) to test this conjecture, but these terms are not significant. Thus, it appears that the size of stakes per se drives these results.

B. *Other Potential Factors*

This subsection considers the potential effects of other variables on the magnitude of dictator generosity and on the question of whether it is motivated by a preference for equity or equality. Although we test for a large set of possible effects, statistically significant factors turn out to be rather rare, suggesting that moral preferences dominate behavior in these cases.

Nationality and Culture

We begin by comparing mean allocations and mean entitlements for the three individual decisions by country in Table V. Of the six decision/country comparisons, the only significant difference between allocations and entitlements is for the US Anonymous Stakeholder case. Thus, there is no significant evidence of bias in any decisions of Japanese subjects, and the one indication of bias, which was marginally significant in the pooled sample with Anonymous

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decision, significantly larger than the former two and a much better basis for evaluating the potential impact of stakes. Indeed, in separate regressions for Spectators and Anonymous Stakeholders, neither *c* nor *d* is significant in the US, Japan and pooled samples.

[12] The results remain qualitatively the same, if we run this regression using OLS or on the US and Japanese sub-samples: the estimates of a and d are significantly positive, c significantly negative and b insignificant.

Stakeholders, is actually due only to self-interest on the part of US subjects.[13]

TABLE V
SUMMARY OF MEAN RESULTS BY COUNTRY

	Spectator		Anonymous Stakeholder		Known Stakeholder	
	US	Japan	US	Japan	US	Japan
Allocations						
Mean	0.40	0.50	0.57	0.57	0.56	0.53
(Std. Err.)	(0.058)	(0.039)	(0.040)	(0.044)	(0.021)	(0.020)
Entitlements						
Mean	0.38	0.52	0.47	0.52	0.52	0.53
(Std. Err.)	(0.053)	(0.037)	(0.047)	(0.023)	(0.023)	(0.029)
Differences in means						
t-statistic	0.20	–0.309	2.06	0.79	1.31	0.00
p-value	0.839	0.758	0.045	0.434	0.195	0.999
No. of obs.	24	24	24	24	44	47

The Group Stakeholder decisions suggest a similar pattern of self-interest as the Anonymous Stakeholders. Remember that groups do not know entitlements in this decision, so we compare group allocations to equal splits. In the US, X Groups allocated, on average, a fraction of 0.64 (SE=0.036) to themselves, or an amount that differs significantly from one-half of joint earnings (t=3.93, two tail P-value < 0.001). Japanese X Groups, on the other hand, allocated an average of 0.54 (SE=0.025) to themselves, a difference from one-half that is only marginally significant (t=1.72, two tail P-value = 0.098).

[13] One conjecture about the lower level of self-interest in Japan is that it is due to single-blind anonymity: Japanese subjects might be more inclined than US subjects to alter their decisions in order to present themselves more favorably to the experimenter. As mentioned previously, we did not see a way to conduct this experiment double blind, but any concern about this should, in any case, be allayed by a number of facts. First, the lead experimenter in the dictator room helped with registration, and whenever he recognized a subject, the subject was specifically assigned to a different room. Second, the lead Japanese experimenter was a graduate student who, in both countries, has lower social status than a professor, who was used in the US. Third, we know of no evidence that single blind procedures prompt any different response among Japanese subjects than among Western ones. For example, Okada and Riedl (1999) use the single blind method and find no significant difference, indeed, evidence elsewhere does not support any strong experimenter effect in general (e.g., Cason and Mui, 1997, and Bolton et al., 1998). Moreover, our primary interest is in equity versus equality, and if Japanese allocations are a response to the experimenter, then why, for example, is the tendency of Japanese Stakeholders to equalize not also observed among Japanese dictators in the Spectator treatment?

Table VI presents Tobit regression results similar to those in Table III but decomposed into US and Japanese subjects. The results for these national sub-samples are quite similar to those for the pooled sample, according to F-tests. Spectators in both countries are striking in their adherence to equity: their allocations do not deviate significantly from proportionality but do differ from equality. Stakeholder allocations lie between equity and equality with Known Stakeholders equalizing more than Anonymous ones. Moreover, US and Japanese do not differ greatly with respect to equalization, although there are mixed results on Anonymous Stakeholders in Japan: their regression coefficients imply they equalize somewhat more but joint F-tests of intercept and slope suggest their departure from equity drops slightly in significance ($p<0.10$ with Tobit although $p<0.05$ with OLS). Overall, therefore, these findings suggest a similar pattern of distributive preferences and, in any case, provide no significant support for the claims that Japanese value equality more than Americans.

TABLE VI
TOBIT REGRESSION RESULTS BY COUNTRY

	Spectator		Anonymous Stakeholder		Known Stakeholder	
	US	Japan	US	Japan	US	Japan
Intercept	–0.01	0.04	0.22*	0.23**	0.33***	0.27***
	(0.070)	(0.072)	(0.116)	(0.099)	(0.068)	(0.040)
Entitlement	1.06***	0.88***	0.75***	0.66***	0.44***	0.49***
	(0.156)	(0.132)	(0.239)	(0.175)	(0.126)	(0.071)
F-statistics						
Equity	0.09	0.71	5.27**	2.86*	12.33***	26.12***
Equality	27.32***	22.36***	7.07***	8.85***	10.85***	26.39***
Adjusted R^2	0.69	0.65	0.28	0.37	0.22	0.49
No. of obs.	24	24	24	24	44	47

Notes: Standard errors are in parentheses. Adjusted R^2 are from OLS.
Significant at *10%, **5%, ***1% level.

Although this analysis reveals no striking differences in preferences for equity and equality between the US and Japan, one cannot rule out some cultural influence on these preferences that is orthogonal to nationality. Indeed, even when behavioral differences do emerge between subjects in different countries, there is a potential ambiguity about the source. Are they due to nation-specific attributes or to more general cultural traits, which might vary

both within and across different countries? To address these questions and to give culture its best shot, this experiment identifies culture separately from nationality. Specifically, after the allocation decision, subjects in both countries completed a questionnaire that included a measure of individualism vs. collectivism. A typical view is that Eastern societies are more collectivist (i.e., they define themselves as a group), whereas Western societies are more individualistic (i.e., they define themselves as individuals). We use the Singelis et al. (1995) instrument, which is one of the richer measures of culture and is particularly well suited to our topic. It is based on a distinction along two dimensions pertaining to in-group/out-group and equality/inequality preferences. Collectivists prefer their in-group (e.g., class or caste), whereby *vertical collectivists* (VC) accept in-group inequalities (e.g., India), whereas *horizontal collectivists* (HC) do not (e.g., Kibbutzim). Individualists do not make stark in-group/out-group distinctions, and in the vertical version (VI) individual inequality is accepted (e.g., France), whereas in horizontal individualism (HI), each person is more or less equal (e.g., Sweden). This instrument consists of four culture scales corresponding to these four types (HI, VI, HC and VC), each containing eight questions. Each scale can assume values between 8 and 72 inclusive, where higher values indicate a stronger cultural orientation in that direction.[14] Singelis et al. suggest that the US and Japan have mixed cultural orientations, but that the former is mostly VI and the latter mostly VC.

Table VII summarizes the mean scores on these scales for all subjects by country. US subjects score significantly higher on all scales, save VI, where the two groups do not differ significantly. This provides no support, therefore, to the expectation of Singelis et al. that Americans are more VI or that Japanese are more VC. We test the effects of culture on allocations by adding all four scales as regressors to equation (1) in addition to interacting these scales with the entitlement. We ran three separate regressions for Spectators, Anonymous Stakeholders and Known Stakeholders in pooled samples of US and Japanese subjects (not shown). None of the culture scales is significant, except the VC scale in the regression for Known Stakeholders. In this regression, the only significant variables are the entitlement, VC and the interaction of VC with the entitlement. Specifically, the signs on these variables indicate that Known Stakeholders take more, the larger the fraction of earnings they generated, and that

[14] Subjects respond to statements on a scale from 1 to 9, and each culture scale is formed by simple addition of these responses for its respective eight questions. The individual items can be found in the Appendix, whereby HI is formed from questions 1-8, VI from 9-16 with 16 reverse scored, HC from 17-24, and VC from 25-32.

those with a greater VC orientation equalize less and allocate more proportionately. This seems consistent with the notion that vertical collectivists accept more in-group inequalities. On the other hand, what is particularly noteworthy about these results is the relative unimportance otherwise of these cultural measures for allocations.

TABLE VII
MEAN CULTURE SCORES BY COUNTRY

	US		Japan		Test of Difference in Means (Ho:US=JP)
	No of Obs.	Mean score (Std. Err.)	No of Obs.	Mean score (Std. Err.)	t-statistic (P-value, two tail)
Horizontal Individualism (HI)	216	54.26 (0.450)	216	43.62 (0.548)	15.01 (0.000)
Vertical Individualism (VI)	215	43.92 (0.744)	215	44.27 (0.587)	-0.37 (0.713)
Horizontal Collectivism (HC)	216	58.16 (0.522)	215	48.81 (0.621)	11.52 (0.000)
Vertical Collectivism (VC)	215	44.67 (0.648)	216	38.50 (0.573)	7.15 (0.000)

To summarize, we find little evidence of cultural variation in allocation behavior according to the individualism-collectivism instrument used. Fairness preferences do not appear to differ between US and Japanese subjects: spectators apply equity, and stakeholders strike a balance between equity and equality, whereby lifting anonymity causes a further shift toward equality and away from equity. The only national differences we find are the significant self-interest of US subjects, both individually and in groups, when they are anonymous stakeholders, compared with the absence of significant self-interest among any set of Japanese subjects.

Demographic Variables

In analyses not reported here, we examined the effect of various demographic variables on dictator giving. First, we added the following regressors to equation (1): age, student expenditures during the school year, student earnings, parents' annual income (in seven discrete categories), work hours per week, and dummy variables for gender, Asian, black, latino and Middle Eastern. We ran these regressions separately for Spectator, Anonymous Stakeholder and Known Stakeholder decisions and for US, Japan and pooled US/Japan subjects resulting in nine estimations. The entitlement continues to be positive and significant in every equation, but

almost nothing else is significant: age, earnings, parents' income, work hours and race are never significant at conventional levels. Gender is significant (P-value=.033) in only one case: Japanese women give the X subject somewhat more in the Spectator treatment, but that is most likely apocryphal. Student expenditures are also insignificant, except in the Anonymous Stakeholder decisions, where expenditures are directly related to the fraction taken by US (P-value=.047), Japanese (P-value=.014) and pooled dictators (P-value=.004). This seems reasonable: "big spenders" take more for themselves when they are able to so do (i.e., are stakeholders) and can do so with impunity due to anonymity.

The Known Stakeholder decision offers the opportunity to explore whether dictators allocate differently based not just on their own race or gender but also on the race or gender of their recipients.[15] To examine possible in-group/out-group race biases, dummy variables are added to the right hand side of equation (1) for each of the following dictator/recipient pairings: Asian/Asian, Asian/non-Asian, black/black, black/non-black, latino/latino, latino/non-latino and white/non-white, whereby white/white is the omitted category (there were no other racial groups represented in this decision). None of the race dummy variables is significant at conventional levels. Another possibility is that racial bias is not based on the in-group/out-group distinction but rather on the race of the recipient, e.g., it could be that non-blacks as a group are less generous towards blacks. To test this, we add dummies to equation (1) for the following dictator/recipient pairings: Asian/Asian, non-Asian/Asian, black/black, non-black/black, latino/latino, non-latino/latino and non-white/white, whereby white/white is the omitted category. Again, none of the coefficients on the race dummies is significant.

We can also examine whether knowing the gender of one's recipient significantly impacts allocations in the Known Stakeholder decision. On average, men take 55% of the pie and women 54%, roughly equal shares. But both groups take somewhat more for themselves when matched with men (56% for both male and female dictators) than when matched with women (53% for male dictators and 51% for female dictators). These are averages for the pooled sample, but we can analyze gender differences by nationality and controlling for entitlements. Table VIII reports the results of Tobit regressions of A subject (i.e., XA and YA) allocations on

[15] Since the Japanese subjects were all Asian, the racially diverse pairings in the following analysis were entirely in the US sample. All of these findings hold, though, for both the US sample alone and the pooled US/Japan sample.

the entitlement and dummies for three dictator/recipient pairings: male with female, female with female and female with male, where male with male is the omitted category. The estimated intercept and entitlement slope coefficients and their significance are consistent with previous estimates of Known Stakeholder allocations, indicating as before a mixture of equality and equity. Interestingly, gender does not matter for Japanese dictators or in the regression for the pooled sample. American dictators of both genders, however, take less when paired with female counterparts, although this is only marginally significant in the case of male dictators. In the US, women matched with women take 17 percentage points less (relative to men matched with men). This pattern differs from the lesser generosity of women toward other women in Ben-Ner, Kong and Putterman (2004) but is consistent with the greater generosity toward women (especially by women) in Dufwenberg and Muren (2006) and Eckel and Grossman (2001).[16] The absence of a gender effect in Japan might be related to the fact that Japanese Known Stakeholders are less selfish than their US counterparts, leaving little room for them to be even fairer to women.

TABLE VIII
TOBIT REGRESSIONS FOR KNOWN STAKEHOLDER ON GENDER

	NATIONALITY OF DICTATOR		
Indep. Var.	US	Japan	Pooled US/Japan
Intercept	0.50***	0.27***	0.31***
	(0.10)	(0.04)	(0.04)
Entitlement	0.37***	0.51***	0.46***
	(0.12)	(0.07)	(0.07)
Male with female	–0.14*	0.01	–0.01
	(0.07)	(0.04)	(0.03)
Female with female	–0.17**	–0.03	–0.03
	(0.07)	(0.09)	(0.03)
Female with male	–0.11	–0.05	–0.02
	(0.07)	(0.03)	(0.03)
Adjusted R^2	0.24	0.49	0.33
No. of obs.	44	47	91

Notes: The omitted category is male dictator matched with male recipient.
Significant at *10%, **5%, ***1%.

[16] Consistent with conclusions in Dufwenberg and Muren (2006) and Holm and Engseld (2005), Olof Johansson-Stenman has suggested to us that this might be a case of the experiment impacting the external world rather than vice versa: subjects might be compensating in the experiment for perceived disadvantages of women outside the lab.

V. Discussion and Conclusions

The results of this study support two fairness rules, equity and equality, the relative importance of which depends systematically on personal factors. Impersonal third parties prefer equity, i.e., allocating rewards in proportion to contributions individuals control. Fairness preferences shift away from equity and toward equality as personal factors are added: stakeholders equalize more than spectators and again more when known by and to their counterparts. Consistent with a trade-off between equity and equality, Known Stakeholders weigh equity more heavily when stakes are higher; indeed, controlling for the size of stakes, dictators in this condition completely equalize allocations. The main findings are robust across a wide range of personal characteristics, including nationality, culture, race and gender.

We believe the results of this experiment are interesting, not only for the variables that are significantly related to allocation behavior, but also for the type and large number of those that are not. Fairness preferences appear to be unrelated to a considerable array of variables, including age, income, work hours, race, cultural orientation, and, usually, gender and expenditures. The only systematic difference across countries is the stricter compliance with fairness rules, whether equity or equality, by Japanese subjects contrasted with evidence of self interest on the part of anonymous American stakeholders, both individually and in groups.

By nesting experimental conditions and examining a wide range of variables, this study produces results about the importance of structural parameters that auger well for efforts to construct behavioral theories of social preferences. The findings are consistent with shared moral preferences, indeed, even with a shared sense of the relative importance of moral rules when multiple rules conflict, as with equity and equality. Although most non-ethics variables are not significant, the exceptions relate not to differences in values but in the willingness to act on them, as with the greater self-interest of anonymous big spenders and anonymous US stakeholders. In addition, individuals who belonged to more selfish groups became themselves more selfish in subsequent decisions, a result that can be seen as relevant to calls for corporate accountability and the development of an ethical business culture as means to discourage individual impropriety. Of course, these findings can only be validated with replication, but we believe that the results of many existing studies are consistent with the view that there are common moral preferences but individual heterogeneity in the interpretation of the rules and in the trade-off between rules and self-interest. For example, the difference between spectator

equity and the stakeholder shift toward equality is also observed in Gächter and Riedl (2006) and Konow (2000). And many studies have found considerable individual heterogeneity in weights placed on self-interest versus fairness, e.g., Fehr and Schmidt (1999), and between different rules of fairness, e.g., Cappelen, Hole, Sørensen and Tungodden (2007) and Charness and Rabin (2002). Regarding national differences, a greater general tendency for Japanese to comply with moral rules relative to Americans could also explain the fact that the former punish low contributions to public goods more vigorously, e.g., Cason, Saijo and Yamato (2002). Indeed, such differences in the relative salience of moral rules or in the willingness to act on them can reasonably explain a wide range of differences in international bargaining experiments, e.g., Henrich, et al. (2001).

Understanding what triggers equity and equality preferences is also potentially important for empirically based normative theory and for more effective economic policy. The accountability principle does not, as mentioned earlier, necessarily imply large inequality, since productivity differences should only be compensated to the extent they result from variables individuals control, such as effort or choices, and not from those they do not, such as brute luck or birth. There was widespread agreement that subjects were responsible for their performance on the task in this experiment, so the fairness of proportional allocations was not seriously in dispute. As Alesina and Angeletos (2005) point out, however, perceptions of responsibility for contributions vary systematically and have important implications for the perceived fairness of market outcomes and for redistribution policies (which, in turn, can affect the fairness of outcomes). Thus, it seems likely that observed patterns of support for redistribution both within and across countries reflect mostly differences in perceived responsibility, rather than differences in support for equity or equality per se.

This paper concludes with some brief thoughts about how the typology it proposes for fairness rules might be generalized to moral preferences as a whole. We relate this to the rapidly growing literature on identity and norms and suggest how this conceptual distinction might help provide explanations for other puzzles. We distinguish two types of moral preferences: *morals* and *mores*. Morals refer to the moral preferences of an impartial or impersonal party, and we call their rules *moral principles*. In the context of this experiment, equity is a moral principle. Mores, by contrast, are the moral preferences that are distinct to personal relationships, and their rules are referred to as *moral norms*. In our study, equality is a moral norm.

This choice of terminology reflects our attempt to stay close to common usage (although, of course, these terms have often been used interchangeably in the social preferences literature). Whereas morals usually connote general views of right and wrong, mores are often thought of as the "morally binding customs of a particular group," which implies a certain specificity to social context. Brekke, Kverndokk and Nyborg (2003) provide a theory and empirical evidence of how moral norms can adjust endogenously to context, sometimes with unexpected policy implications. Moral norms (and social norms generally) are also often associated with real or potential sanctions. Testing implications of the model of identity that Akerlof and Kranton (2000) introduced into economics, McLeish and Oxoby (2007) report experimental evidence of both cooperation and punishment consistent with material sanctions. Indeed, Ellingsen and Johannesson (2008) find that even the anticipation of anonymous verbal feedback increases altruistic behavior. These and other studies demonstrate the importance of social norm enforcement. But we argue this is not the defining feature of norms. People also punish and reward others for self-interested reasons, as in repeated games, and Fehr and Fischbacher (2004) demonstrate that even third parties are willing to incur costs to punish others. Moreover, the current study shows that people enforce norms even when sanctions are ruled out and only unilateral and anonymous decisions are allowed. Instead, we believe that personal factors are the critical feature that distinguishes norms from principles.

Naturally, morals and mores need not conflict, and the typical absence of such a distinction reflects the implicit assumption that they usually do not. Nevertheless, one can easily find cases of moral principles diverging from moral norms, for instance, in comparisons of third party allocations with the decisions of participants in social dilemmas, such as public good games. Third parties care about entitlements, as observed in the current study, as well as unequal endowments, as witnessed in Fehr and Fischbacher (2004). Yet contributions to public goods are often characterized by attempts to match contributions irrespective of endowment heterogeneity, as Buckley and Croson (2006) show, and of whether endowments are earned, as Cherry, Kroll and Shogren (2005) find. These results imply that a simple norm of equality sometimes replaces more complicated principles as means for solving coordination problems among stakeholders, consistent with the findings of Crawford et al. (2008).[17]

[17] That study employs a level-*k* model to account for variation in the effects of focal points. The authors suggest that certain results inconsistent with that model be explained by team reasoning.

Future research could explore other factors that might impact the trade-off between equity and equality, such as the content of communication between agents or the nature of employer-employee relationships. One might also examine possible differences between principles and norms with other types of moral preferences. For example, Croson and Konow (2009) find such differences in reciprocal preferences: stakeholders punish more and reward less than spectators. Other work could explore how moral norms evolve and how and why they sometimes differ from moral principles, including questions of how they relate to the principles of efficiency or need and potentially affect cooperation in social dilemmas.

A simple alternative (though not mutually exclusive) explanation for those inconsistencies is that higher types believe that the non-strategic type prefers equality. Level-*k* thinking anchored on this type provides an additional reason to expect the equality norm to emerge in such situations.

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