Esteem and Social Information: On Determinants of Prosocial Behavior of Clinicians in Tanzania*

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Abstract

We report experimental findings on the role of social information and esteem for prosocial behavior of medical clinicians in Tanzania. We first investigate lab behavior in a standard dictator game and two variants which (i) give dictators information about socio-economic characteristics of their recipient and (ii) change the procedure for how dictators and recipients are matched by allowing recipients to chose "their" dictator and informing dictators of this fact. We find that both modifications increase total giving and reduce the proportion of subjects who give a trivial amount. We then link the lab behavior to the clinician's quality of care for their patients in the field. We show that clinicians who are responsive to information and to being chosen exert more average effort in the field. The variance of effort, as another quality dimension, is greater for those who respond to information but smaller for those who respond to being chosen. Our combination of lab and field results suggests that pro-social preferences are responsive to social context and esteem-seeking and that the lab behavior is informative of clinicians' choices in their actual workplace.

JEL Classification: C91, C93, I1, O1, O2
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1 Introduction

Mechanisms to secure a good performance by workers have received substantial attention in the literature. While the economic literature has long focused on monetary incentives, the last decades have seen a substantial interest in non-monetary rewards. This may be particularly important in settings where monetary incentives are not available or hard to implement. The public service sector, in particular in developing countries, may serve as an example.

In this paper, we explore the role of esteem for behavior of medical clinicians in Tanzania both in the lab as well as in their workplace. The idea that self-esteem or the feeling of being esteemed may be important for economic interactions has been formalized by Benabou and Tirole's (2003) "looking glass self" and Ellingsen and Johannesson's (2008) type-based value of esteem.[1] Examples where esteem may impact behavior include face to face interactions as between doctors and their patients, loan officers and potential clients or sales people and customers. In addition to esteem which may be triggered by being chosen to serve a specific client, the personal interaction also reveals information about personal characteristics of the client. In this study, we therefore try to separate the impact of esteem and social information on prosocial behavior.

We first explore the value of esteem using a laboratory experiment designed to provoke esteem reciprocation. Specifically our subjects participated in three types of dictator games: the standard game, a game in which the dictator was given some basic socio-demographic information about the recipient and a game in which they dictator knew that the recipient chose him or her based on similar demographic information. Using a within-subjects design, we identify behavior which we label as generous, social information responsive and esteem responsive. We examine the same participants in their normal workplaces: outpatient clinics in hospitals and health centers in urban and suburban Arusha, in northern Tanzania. This is a setting in which we are able to measure effort provided on behalf of patients. We examine

[1] Kuhnen and Tymula (2012) study the interaction between performance feedback and self-esteem.

the links between the types we identify in the laboratory and the level and variance of effort provided in the field setting. We show that clinicians who are both social information and esteem responsive provide greater effort to their patients than other clinicians. In addition, clinicians who are social information responsive have a higher effort variance and clinicians who are esteem responsive have lower effort variance.

There is a substantial literature on the role of social information and the responsiveness to social context (see Andreoni and Petrie (2008) for a review). Providing social information reduces anonymity of a recipient or partner in the laboratory, cuing the social context and eliciting compassion or group identification for the decision maker. However, less research has addressed how dictators respond to the perception of being chosen. In our esteem-building treatment, the recipient moves first by choosing which dictator they want for their partner. Holm and Engseld (2005) look at the partner preferences of recipients in an ultimatum game, but their design does not allow them to determine how proposers' giving changed according to the recipients' partner preferences. Mohlin and Johannesson (2008) also test a treatment where recipients move first, but in their experiment the move is active communication with the dictator partner. They find that written communication from a recipient increases dictator giving relative to no communication, controlling for how personal or impersonal the communication is. Such a treatment makes it difficult to separate the feeling of esteem from social information.

Our choice of the field context is based partially on the ability to measure effort and partially on the welfare implication of increased effort. In outpatient settings, clinicians see a large number of patients that they do not know personally. They have some discretion over the effort exerted for these patients and are not compensated directly based on their effort choice. In theory, reputation concerns, employer sanctions or even the fear of malpractice suits might result in positive effort. However in practice, and particularly in this setting, there is ample evidence that pro-social preferences can lead to increased effort levels.[2] If a

[2]See for example, Leonard and Masatu (2006, 2010) and Kolstad (2013).

doctor values the good opinion of her patients, she may work harder to gain their esteem. Receptiveness to patient esteem will also depend on the clinician being aware of the social context. For example, the degree to which praising the provider results in better care for a patient will depend on the sensitivity of the provider to the identity of the client. Hence, we look at how responsiveness to each of these incentives in the laboratory may be correlated with effort in the field.

Our paper thus incorporates the importance of esteem and social context in economic decision making, linking the theoretical work of Benabou and Tirole (2003) and Ellingsen and Johannesson (2008) with the empirical findings of Bohnet and Frey (1999) and Eckel and Grossman (1996) and others. We use laboratory and field data for the same sample of clinicians to evaluate the importance of social information and social rewards in determining doctor behavior. This combinations of information about our sample allows us to show that esteem matters, both in the laboratory and the field.

The paper proceeds as follows. Section 2 reviews the literature on esteem and social information as non-material incentives for generosity. Section 3 describes our experiment in more detail and lays out our predictions. Section 4 discusses the results both from our lab experiment as well as in combination with the field data. Section 5 concludes.

2 Related Literature

We view esteem as one channel through which reciprocal behavioral can be triggered. Generally reciprocity implies that people may reward actions which are perceived as kind or generous and punish unkind ones (Cox, 2004; Dufwenberg and Kirchsteiger, 2004; Falk and Fischbacher, 2006; Rabin, 1993) Similarly, choosing someone as dictator in our experiment, may trigger a positive emotion, for example a boost to self-esteem, as a result of his own assumptions about the intention behind the selection process.[3] The feeling of being esteemed

[3]This does not preclude the possibility that the giving esteem to another is part of a long-term strategy that bears economic returns down the line. We do not look at this type of dynamic interaction in our

(the approval or perceived approval) may therefore lead to generous acts. This interpretation is consistent with Benabou and Tirole (2003), who approach implicit reciprocity as a behavior motivated by the"looking glass self".

Ellingsen and Johannesson (2008) explicitly consider the impact of feeling esteemed on altruistic behavior. Like Falk and Fischbacher (2006), they use a utility function that includes a kindness-weighted reciprocity term, which they call "the feeling of being esteemed" or "pride". In both models, the source of reciprocity is the intentions and/or actions of the first mover. There is evidence of this effect in doctors, who will alter their effort at work when given the opportunity to gain peer esteem (Leonard and Masatu, 2006). That a clinician offers more effort for a patient when he is being observed by a peer suggests that the peer's esteem motivates increased utility from increased effort. Further, individuals may seek to gain the esteem of others and esteem can be used to motivate generosity.

Closely related to the feeling of being esteemed is pride. Recent work in both economics and psychology suggests that pride can have a positive impact on other-regarding behavior (Ellingsen and Östling, 2010; Oveis et al., 2010). In the psychology literature, pride is defined as a "self-conscious" emotion involving complex self-evaluative processes" (Tracy and Robins, 2007). Pride is essentially a social emotion, arising from social comparison and thus requiring awareness and sensitivity to a social context. According to (Oveis et al., 2010) it is rank-related emotion and advances in the social hierarchy trigger pride (Tracy and Robins, 2004; Williams and DeSteno, 2009). Ashton-James and Tracy (2012) identify pride as a distinct and recognizable emotion with two manifestations: hubristic pride and authentic pride. Hubristic pride is associated with arrogance and self-aggrandizement. Conversely, authentic pride is associated with self-confidence and accomplishment.

Our esteem-building treatment may trigger either hubristic or authentic pride. Hubristic pride is egoistic and can have the opposite effect on a decision maker from authentic pride, emphasizing his individualism and reducing any feeling of obligation to the 'greater good'

paper. The doctor-patient interactions in our sample are one-shot interactions. This is an artifact of the way outpatient care is organized in Tanzania.

(i.e. reducing altruism). In service oriented professions, where the client's needs are the focus, responsiveness to social information may influence a service provider's effort for the better. But in many of these professions, such as in health care, the service provider also occupies a position of authority or even status. In such settings, pride or responsiveness to esteem-building may counteract the positive influence from being sensitive to social context.

Responding to social context, or social cues, is an integral part of social learning and part of our integration into society (Bandura, 1969). Social cues in the form of appearance, speech patterns, etc. are important in economics because they can provide additional information on important characteristics that are only indirectly observable, e.g. education and income levels. Social cues can be efficiency enhancing by facilitating communication and willingness to cooperate in contract negotiations (e.g. Small and Loewenstein, 2003), but may also trigger strategic decision making or discriminating behavior (Ayres and Siegelman, 1995; Filippin and Guala, 2013). Specifically, it has been shown that identity of givers and receivers matters for other-regarding behavior (Eckel, 2007; List, 2004), public good provision (Andreoni and Petrie, 2004), effort provision in the workplace (Akerlof and Kranton, 2000, 2008) and discrimination in some labor markets (Lang and Lehmann, 2012). Several characteristics have been identified where information impacts pro-social behavior: a recipient's race (Glaeser et al., 2000), ethnicity (Fershtman and Gneezy, 2001), last name (Charness and Gneezy, 2009) and level of deservedness (for a charity, (Eckel and Grossman, 1996), towards low income recipients, (Braas-Garza et al., 2010). A related literature looks at generosity and cooperation among recipients who do or do not share a common group identity (e.g. Chen and Li, 2009). Thus, group and individual identity along a variety of dimensions are potentially important in economic decision making.

We contribute to this literature by studying a non-student population, namely clinicians, and matching clinicians with potential patients where information may be given on multiple characteristics (age, gender, tribe, and income level).

3 The Experimental Environment

We first describe the design of the lab experiment, before turning to the description of the field study of the performance of the medical clinicians.

3.1 The laboratory experiment

The aim of the experiments was threefold: to determine the extent to which clinicians exhibit pro-social behavior toward (potential) patients in a lab; to establish whether knowledge of partner identity increases giving in this sample; and to reveal whether a non-material, esteem-based incentive (i.e. being chosen by the recipient) changes the clinicians' degrees of pro-social behavior. In order to create contextual parallels between the field and the laboratory, the dictator was always a clinician, while the recipient was an ordinary citizen recruited from a busy market place. Prior to the experiment we asked all subjects (dictators and recipients) to fill out two (identical) characteristics forms. Forms collected data on age, sex, income, years of education, tribe and area of work, which we refer to as social information. We designed forms to maximize legibility; most fields were multiple choice and one field required the subject to fill in the blank (for area of work). Forms were in Swahili, the dominant language where we did our research. We went over the forms item by item and assisted subjects who could not fill in the written section.

The experiment comprises three variants of a dictator game where subjects are asked to allocate 100 tokens between themselves (P1) and a partner (P2). The first variant was a standard dictator game (T1) which randomly matched dictators and recipients from the respective subject pools without providing any further information.

The second variant was a social information treatment (T2) in which dictators decided on the amount to give after having received the social information about the characteristics of the randomly matched recipient. This treatment mimics the daily situation of receiving a patient and allows us to measure social information responsiveness. Due to the dictator game

there are no opportunities for reciprocity. Note that social information is provided along multiple dimensions (rather than just one). We chose this combination of characteristics as it reflects the situation upon which a doctor will determine any socially motivated effort choice in the real world. The third variant was an esteem treatment (T3) where dictators (P1) did not know the characteristics of their partners, but instead knew that their partners had chosen them after reviewing demographic information of at least two potential P1 partners. We implemented the following procedure for this choice: P2 players were given information about at least two P1 players by distributing two randomly selected characteristics forms from two separate dictators. Recipients reviewed the information from these two possible P1 partners and ranked the potential partners according to preference. We then match each P2 with either their first or second choice P1 player using Microsoft Excel, inputting the first and second choice for each P2 player into a spreadsheet and populating cells according to a pre-written algorithm. Before they made their allocation decision, we informed the dictators that they had been chosen according to the first or second choice of the receivers (without telling them how many options P2 players had) based on the demographic information they had provided. They do not receive information about their partners by whom they have been chosen in T3.

Treatment T3 was designed to test the impact of being chosen on giving behavior. It thereby tests for reciprocity due to esteem-based incentives. T3 can also be compared to an involuntary trust game, with the first stage is a choosing one's partner and in the second stage that partner, knowing the recipient is a person that has chosen them, makes a continuous choice of how much money to send back. Because of the design of our game, the opportunity to be the dictator was not contingent on being chosen, and therefore any reciprocity is due to how the dictators perceive being chosen, rather than to a material benefit bestowed by the first mover. We ran the lab experiments in June 2010 in Arusha, Tanzania with 68 medical clinicians as dictators and 69 non-clinicians as recipients. Table 1 provides a summary statistics of their characteristics.

We implemented the experiment in two sessions and each session consisted of three rounds. Each round corresponded to one of the treatments. In both sessions, Round 1 corresponded to T1, the standard dictator game and baseline treatment. In the first session, Round 2 corresponded to T2 and Round 3 corresponded to T3. The order of T2 and T3 was switched for the second session. Importantly, our within subject design allows to determine the impact of social information and esteem on allocation decisions at the individual subject level and further separates the impact of esteem and the impact of social information. Payoffs were in terms of local currency, Tanzanian shillings (Tshs). Participants received 150 Tshs for every token earned in a randomly selected payment round. The maximum possible earnings from any of the rounds, 15,000 Tshs, was equal to about three days work for non-clinicians reporting the median income and three day's work or less for clinician subjects. For most clinicians in the sample, 15,000 Tshs is roughly equal to one day's earnings.

We were able to preserve anonymity between partners while also making the interaction real for this group, who had never participated in economics experiments in the past. We did this by parading the non-clinician group across the grounds of the campus where the experiments took place, within view of the clinicians but far enough away so that no individual could be identified. Thus clinicians and their non-clinician partners never came into contact and were only able to see each other from a distance.[4]

3.2 The Field Environment

The field data we use in this study is from 60 clinicians and 879 patients, in the semi-urban area of Arusha, Northeast Tanzania. Our data is from a subset of the data collected for a larger project, which ran from November 2008 until August 2010 and included a field experiment.[5] We use the part of the data that was collected before the field experiment

[4]Allowing clinicians and non-clinicians to see each other from a distance was an important step in establishing with the subjects that their partners were real and that they were from a certain sector of the population (which one could discern at the distance from the clothing each group habitually wore).

[5]Finally, there were two times during the course of the research when a clinician from our team met with each clinician subject, but did not collect data. In order to avoid anomalies in the data with respect to the

began. Also, our sample only includes clinicians surveyed in the field who also participated in the laboratory experiment.

The sample for this study includes public, private, and non-profit/charitable facilities. We sampled 100 percent of the healthcare facilities in the area with outpatient departments, though some facilities were excluded based on convenience; they were either too difficult to reach or had too small a patient volume. Clinicians were randomly sampled within each healthcare facility enrolled in the study. Any selection bias in facilities and clinicians that result from the voluntary nature of the laboratory experiments will limit the external validity of the result. We provide descriptive statistics of clinicians and patients in the field in Table 6.

We restrict our attention to clinicians because they are the primary health workers who provide the outpatient care in the area. They fill the role of "doctor", though the majority of them do not have full medical degrees. The four cadres of clinicians include: assistant clinical officer (ACO), clinical officer (CO), assistant medical officer (AMO), and medical officer (MO). Each of these titles requires a specific degree. Typically, with no other degrees and 4 years of secondary school, it requires 3 years of training to become a CO. ACO's have less training. AMO's have on average 3.5 years of schooling, though again this depends on whether they already have their CO. MO's have the equivalent of a United States MD degree. Data was collected for each clinician at the patient level and consists of observations of the clinician with his or her patients as well as patient exit interviews.

The data from each clinician is from between one and two days of seeing patients. Data collection visits were staggered and the days on which we collected data for any given clinician were not announced in advance. In an initial visit we obtained consent and collected data on clinician characteristics. On each day of data collection we interviewed all the patients the clinician saw that day.[6]

relationship being examined resulting from these intermittent meetings, we limit our analysis to the first three data collection visits.

[6]The data used for this study correspond with data for a larger study, part of which involved direct clinician observation. We include a dummy for consultations completed while the doctor was being observed in our regressions to control for the fact that average clinician effort is higher under direct observation.

None of the facilities approached declined participation, and attrition was only a minor problem for the individual doctors involved in the study. Only 2 clinicians that had originally consented opted out later. There was additional attrition as a result of clinicians taking their annual leave or attending compulsory continuing education seminars. Whenever possible, we maintained contact with these clinicians and continued to collect data when they returned to work. None of these types of attrition are correlated with observable clinician characteristics or quality of care, except for very high quality doctors whose advanced degrees did not necessitate continuing education and who took little vacation.

This study uses data from 2 different data collection instruments. The first is a small survey that we used to collect clinician characteristics, such as age, education, and income. We administered this instrument during the consent process, before the research began. The second instrument, the Retrospective Consultation Review (RCR), was administered during each data collection visit for each clinician. The RCR is an exit interview survey designed to measure clinician effort. It is administered to patients after their visit to the doctor has ended. The RCR we use is a slightly modified version of the instrument used in (Leonard and Masatu, 2006).[7]

The RCR asks the patient what their symptoms are (including the dominant symptom) and what tasks the doctor performed during their consultation (by symptom where appropriate). The data from the RCR are at the patient level and observations are uniquely identified by the two variables doctor and patient. Each patient was interviewed only once during the course of the study. The RCR also asks patients' socio-economic questions such as their job (if employed), the materials used to build their home, their education level, ownership of various assets and patient sex and age. In the case of accompanied minors we collected the socio-economic information of their guardian. In the analysis, patient age and sex refer to the minor (patient) themselves and education refers to the guardian. This allows us to include patient characteristics that would be correlated with illness (type and sever-

[7]Effort measured using RCR data is an accurate approximation of what the doctor is actually doing for the patient (Leonard and Masatu, 2006).

ity), where guardian education is a proxy for family income. Combined with the laboratory data, the information from these two instruments permits us to evaluate the impact of social preferences on effort in the field.

3.3 Predictions

Based on previous work on the impact of social information on giving in the laboratory, we predict that T2 will motivate an increase in average giving relative T1. Based on the theories by Benabou and Tirole (2003) and Ellingsen and Johannesson (2008) and related work on pride and esteem discussed above, we predict giving to also increase in T3 relative to T1, unless being chosen stimulates hubristic pride, in which case we can expect T3 giving to be less than T1 giving. We do not a priori have hypotheses about the magnitude of the effect of being chosen and its comparison to the impact of social information. As for the standard dictator game (T1) treatment, we expect to see more giving than in experiments with students' populations since dictators (clinicians) were informed that recipients stem from a pool of ordinary citizen and therefore could be expected to have substantially less income.

For the analysis combining field and laboratory data, we use laboratory data to categorize subjects as either social information responsive, esteem responsive, or both. Categorizing subjects rather than using continuous changes in giving (compared to T1) is a conservative choice; since subjects only play each treatment once, responses are imprecise measures of attitudes. Using categories rather than continuous values acknowledges this and puts the emphasis on the trends in giving, rather than strength of the difference. We define these terms according to what is expected based on the literature. We thus define as social information responsive those who give more when they know the set of observable characteristics of their partner. Similarly, we define those who give more in the T3 than in T1 as being esteem responsive.

We expect that those clinicians who are responsive to both social information and esteem

will provide higher than average effort. However, the interaction term may also be null or negative due to hubristic pride effects. Based on descriptive statistics in the sample, we know that patients and clinicians in this sample are not socially similar patients are typically of a lower socio-economic status. If the value of esteem is determined by the patient being the same as the clinician or in some way superior, then we would not expect a positive coefficient on the interaction term.

We further look at the relationship between these characteristics and variance of clinician effort. We predict that those who may be tailoring care by patient type in order to generate higher approval, and thus more implicit rewards, will have higher variation in care. Those who tailor effort by patient type but who do not care about implicit rewards will also show higher variation in care. Finally, those who care about implicit rewards but are relatively insensitive to the social context may have less variation in care as they would not be tailoring care by patient type.

In summary, the combination of lab and field observations allows to determine if a clinician exhibits pro-social behavior toward (potential) patients in a lab in an abstract dictator game; to investigate if knowledge of partner identity increases giving in this sample; and to reveal whether being chosen changes the clinicians' degrees of pro-social behavior. Combining the lab data with field, allows us to study if (social) behavioral patterns in an abstract lab environment correlate with subjects' behavior in their actual workplace.

4 Results

4.1 Laboratory results

Table 2 presents a summary of giving across treatments. We first note that average giving in this experiment is higher than among typical university student populations. This is most likely due to an expected income difference as in our lab experiment (as in the field) the imbalance between dictators (doctors) and recipients (average residents or patients) is

explicit.

Overall, we see that increased personal information about recipients induces more giving than in the baseline (T2 versus T1 giving). This is consistent with previous findings discussed above. Also, when compared with baseline (T1), being chosen (T3) increases giving. Differences between choices in T1 and T2 and between T1 and T3 are significant at the 5% level using Wilcoxon signed-rank test.[8] Tokens given in T2 is also greater than in T3, but the difference is not significant. Results from these tests appear in Table 3. Interestingly, responsiveness to social information and to esteem is correlated: subjects who are social information responsive, i.e. give more in T2 than in T1, are also much more likely to respond positively to being chose in T3 (esteem responsive) (we reject equality of T1 and T3 giving at $p<0.001$ using a Wilcoxon signed rank test). Conversely, considering the subsample of subjects who do not respond to social information with increased giving (not information responsive), we cannot reject equality of the underlying distributions of giving in T1 and T3.

The standard dictator game (T1) results in nearly 30% of subjects choosing the fair allocation. Fewer subjects give the fair amount in T2 (24%) because more subjects give more than 50 tokens (22%, compared to 8% in T1). Also, in T3 17% of dictators allocate more than 50 tokens, with many moving from below 50 to the fair allocation. Thus, although the fair allocation is prominently represented, giving varies quite a bit from treatment to treatment. These results appear in Table 2.

Even though giving on average is more generous than among typical students populations, selfish players exist (see Figure 1). However, only 3 subjects give zero in T1, 1 in T2 and 0 in T3 which may be driven by some norm of giving at least some positive amount. If we define a selfish choice as giving amounts of 10 tokens or less, percent of selfish decision by treatment goes up to 21% in T1, 18% in T2 and 21% in T3 which is close to commonly reported patterns of giving in dictator games.[9]

[8] Figure 1 suggests that the results are not distributed normally and rather are right skewed with a heavy left hand tail. Thus we opt for the non-parametric Wilcoxon signed-rank test, rather than the more powerful t-test.

[9] Frequency distributions of giving in the three treatments are presented in Figure 1. Tokens given results

In T3, the second player may respond reciprocally because either (1) they feel more generous to the recipient due to having been chosen or (2) they are sensitive to their own reduced anonymity. It is likely that sensitivity to own reduced anonymity plays a part in response to being chosen. However, Burnham (2003) and Andreoni and Petrie (2004) find small or insignificant effects when providing information about dictators to recipients. These results suggest that positive impacts from our esteem treatment (T3) are not due to reduced anonymity of the dictator, but rather driven by the esteem from being chosen.

The non-parametric results on average giving and selfish choices are confirmed through a series of regressions (Table 5). These regression results also show that being chosen and social information may influence subjects' likelihood of giving the fair amount; 20% fewer subjects give 50 tokens in T2 than in T1. In T3 50% more subjects choose the fair allocation. These differences are, however, not statistically significant and, in a regression analysis, the result is sensitive to how we define fair giving.[10] Generosity, defined as giving more than 50% of the endowment to one's partner, is prevalent and more likely in T2 ($p<0.10$) and T3 ($p<0.10$) than in T1.

In conclusion, the laboratory results show that decision-makers do respond reciprocally toward a partner who has chosen them and also behave more generously on average when providing with social information of recipients.

in T1 and T3 have bimodal distributions. Secondary peaks are at 10 tokens given, further suggesting that there are two primary types in this population: those that give 10 and those that give 50. T2 does not appear to have a secondary peak, suggesting a continuum of types in terms of response to social information. While the distribution of giving for T2 is somewhat similar to that of T1 and T3, T2 has fever subjects choosing the equal allocation and at least 10% more players giving over 50% of the endowment, which contributes substantially to pushing the T2 mean higher than the other two treatments.

[10] For example, if we restrict the definition of fair to those who give 50%, the significance of the correlation between the esteem treatment and "fair giving" approaches 0.30. When fair is instead defined as giving 50-55, significance approaches conventional levels ($p=0.17$). This is an interesting result because while esteem does not increase average giving over social information, it may increase fair giving. This may be because being chosen by one's partner takes the charity aspect away from the allocation task and brings it more into the realm of sharing with an active partner decision makers are free of the social influence that may encourage generosity to strangers.

4.2 Field combined with Laboratory Results

Beyond the basic laboratory results, we obtain additional insights by exploiting the fact that the subjects from the laboratory experiments are the same as the ones for whom we have field data. We use the giving patterns in the laboratory in order to classify clinicians as being responsive to social information, esteem responsive or both as defined above. Using clinician effort in the field as the dependent variable, we determine how important these attributes are in clinicians' effort choices in the workplace. We focus on the interaction term for those responsive to both social information and esteem.

We also control for baseline giving by categorizing subjects who give 50 or more tokens in T1 as generous.[11] Nearly half of the sample responded with higher giving to the social information and esteem treatments, but only one-third responded to both treatments. Roughly one-third of the participants can be considered generous types.

We use an ordinary least squares model with facility level fixed effects, c_j, to evaluate the importance of these attributes in clinicians' effort choices. It is given by

$$EFFORT_{ijk} = c_j + \beta S_i + \delta X_{ik} + e_{ijk}.$$

Here, $EFFORT_{ijk}$ is the average performance of clinician i at facility j for patient k. S_i is a vector of the four social preference measures and Xik is a vector of patient and clinician characteristics including patient age, gender, education level and wealth. Including patient attributes controls for case mix, which is invariably important in clinician effort as a sicker patient requires more effort and it may be more difficult to provide a given proportion of the required care for very sick patients than for relatively healthy patients.

Facility fixed effects are necessary because effort could be correlated with average patient characteristics defined by the fees and geographic location of the facility. Within a facility, fees (and location) do not vary, all health workers will have similar qualifications patients

[11] Results do not change for alternate definitions of the generous that exclude giving over 50 tokens (i.e. only includes fair types).

will have similar aggregate characteristics. In an outpatient setting, unobserved patient attributes should not be correlated with doctor characteristics. Thus, we treat patients as having been randomized across doctors and assume that medical characteristics of patients are not correlated with doctor characteristics; patients who are sicker and demand more effort may choose a particular facility but cannot choose a particular doctor in that facility. The residual sum of squares from the model with facility fixed effects is smaller than that of the restricted model (without fixed effects) at a less than 1% significance level; thus we fail to reject the presence of facility level fixed effects. Results are reported in Table 7.

We also consider this model with variance of effort as the dependent variable to explore the possibility that clinicians with certain social attitudes have more inconsistent care. For example, a clinician who may be sensitive to the social context and also receptive to esteem may show a higher variance in care, as he will adjust his effort to gain praise from a certain types of people. Table 8 shows results from regressions of variance of effort on social attitudes. In these regressions we control for case mix using averages of patient characteristics by clinician.

Level Effects: The key variables of interest in this regression are the social preference variables, S_i. In particular, we are interested the interaction term between esteem responsiveness and social information responsiveness. We observe that those subjects who respond reciprocally to being chosen and are social information responsive provide better average effort than their peers who are responsive to either esteem social information. The coefficient on the interaction term is positive and highly significant in all model specifications (equal to 0.10 at 1% significance in the baseline regression). On the other hand, responsiveness to esteem or social information alone does not appear to influence workplace effort. For the clinicians responsive to both social information and esteem, knowing more about the patient is likely a source of motivation. These are potentially the clinicians who gain esteem from the service aspect of their job – a feeling of being esteemed is triggered by the personal interaction. Generosity tends to mean higher effort on average, but the coefficient is half the

size of the interaction term of interest. This suggests that in this clinician-patient context preferences for generosity are not as important as other social attitudes in determining work-place effort. We also reject the linear hypothesis that all coefficients on the social attitudes variables are equal to zero at $p < 0.05$.

Patient and illness characteristics do impact average effort, as expected. Clinician age and experience are also highly significant in some specifications. As a specification check, we perform the same regression analysis with different error structures. Our baseline model includes robust standard errors, which is appropriate if one considers each patient-doctor interaction as having its own unique variance. If instead the variance is the same within a facility or within a clinician, clustering is the more appropriate technique. Results reported in Table 7 show that clustering at the facility or clinician levels does not change the primary results. It must be noted however, that the significance of the positive coefficient on the interaction term goes up to 1% with facility clusters and down to 10% with clinician level clusters. Thus the estimates from the specifications with clustered standard errors serve as bounds on the significance of being both social information and esteem responsive for explaining variation in effort.

Variance Effects:

In the level effects regression, we see that clinicians responsive to both social information and esteem provide better average care. Results from the variance regressions are opposite of what we find with the level effects. Significant coefficients are associated with being responsive to only social information or only esteem in the laboratory; variance in care is higher and lower, respectively. Variance is also lower for generous types. The interaction term is insignificant in all specifications. These results suggest that clinicians only responsive to social information in the laboratory are acting strategically on the job, providing more or less effort according to patient observables, perhaps re-optimizing with each new interaction. On the other hand, esteem responsive clinicians have more consistent care; social cues do not appear to matter for these clinicians and their esteem responsiveness, while not impacting

average care, instead takes the form of reducing variance.

We also look at whether a negative or any change between the social information and dictator game treatments is correlated with variance in effort. While for the level effects, alternative definitions of social information responsive do not make much sense, theoretically, it is consistent with the theory to consider those who change their giving in the social information treatment as being responsive. Thus, those who reduce their allocation and those who increase their allocation should have greater variance in the field. Those who give less in the social information treatment may have been paired with someone whose characteristics they did not favor and this type of reaction will increase variance in the field. However, we do not see evidence for this in the field data; there appears to be no relationship between alternative definitions of social information responsive and variance of effort. Finally, having less variance associated with behaving reciprocally to our esteem incentive and with behaving generously is robust to various definitions of social information responsive being in the regression. These level and variance results suggest that social preferences do impact effort in the workplace and speak to the accuracy of the Ellingsen and Johannesson (2008) and Bénabou and Tirole (2006) theories as complements to models of equity-seeking (e.g. Fehr and Schmidt (1999)). More generally, this analysis shows that attributes measured in the lab can illuminate patterns in field data that would be otherwise difficult to identify.

5 Conclusions

We report experimental findings on the role of social information and esteem for prosocial behavior of medical clinicians in Tanzania. Clearly, the salience of esteem incentives relies critically on social context. We test in the laboratory whether subjects respond reciprocally to the being chosen by their partner. We compare this to the effect on dictator generosity from knowing someone's identity and extend the analysis to field data from the same sample of clinicians, thus shedding light on the potential value of esteem as a performance incentive

in a real work setting. The investigation in the field is inspired by the idea that patients may provide non-monetary social rewards to their doctors, such as esteem, that can be important for clinician effort choices.

Past research suggests that social identity influences generosity among university students. With this paper, we extend this literature to a sample of healthcare providers (i.e. non-student sample), while mimicking the client-physician relationship in the laboratory by choosing clinicians as dictators and ordinary citizen as recipients in a dictator game.

We also show the importance of esteem-based incentives which also increase average giving, along the same magnitude as social information, even when the dictator knows nothing about their partner. The dictators potentially experience a good feeling from being chosen. Interestingly, being chosen appears to be important even when the partners are of a lower socio-economic class, as in a typical clinicians-patients interaction for our subjects. Combining laboratory and field data, we find that clinicians who are responsive to esteem only do not provide higher effort unless they are also responsive to social information. Further, generosity in the lab is also positively correlated with effort, but the coefficient is half the size of the esteem-social information responsiveness interaction term. This suggests that preferences for generosity in an abstract lab setting are not as important as other social attitudes in determining workplace effort in a clinician-patient context. In addition to measuring the quality of performance of clinicians by their average effort, we also gained interesting insights into their consistency, i.e. the variance of the effort level: being responsive only to social information leads to an increased variance. Conversely, being responsive to esteem (or being generous) leads to more consistent care.

Based on our results, we can draw several important conclusions: (i) our results are suggestive of Ellingsen and Johannesson's (2008) theory of social preferences wherein the interaction of social identity and esteem motivates pro-social behavior. (ii) our measures of esteem- and information responsiveness as derived from lab behavior are informative of the performance of the clinicians in their work environment, (iii) esteem and social information

responsiveness is correlated with both the average as well as the consistency of effort choices, (iv) we add to the understanding of drivers of employee motivation by considering the importance of client-based motivation. We believe that a further investigation of this type of non-monetary incentives for pro-social behavior beyond clinicians in our developing country context provides a fruitful line of research.

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Table 1: Descriptive statistics, laboratory

Characteristics		Respondents	Dictators
N		69	68
Sex			
	Male	31	47
	Female	38	20
Age			
	Mean	32.71	42.16
	St. Dev.	-10.74	-9.53
	Minimum	18	24
	Maximum	66	65
Education (years)			
	Mean	9	16.14
	St. Dev.	-2.98	-1.69
	Minimum	4	11
	Maximum	19	22
Income			
	<100	47	0
	100-200	13	4
	201-300	1	12
	301-400	2	23
	401-500	0	11
	>500	0	19

Note: One participant did not report their gender. Income is thousands of Tanzanian shillings (Tshs) reported by month. $1USD is approximately equal to 1300 Tshs.

Table 2: Summary of laboratory results

	Mean	SD	Median	% with TG=0	% with 0<TG <50	% with TG=50	% with TG>50
Standard Dictator Game (T1)	34.66	19.60	40	4%	59%	29%	8%
Dictator Game with information (T2)	41.84	25.53	40	2%	52%	24%	22%
Dictator Game with esteem (T3)	39.34	23.48	50	2%	47%	34%	17%

Note: TG is tokens given to recipient. 68 subjects were dictators. Mode is equal to 50 tokens given for all treatments.

Table 3: Difference in average giving between treatments

	Dictator game with information (T2)	Dictator with esteem (T3)
Dictator game (T1)	6.82**	4.68**
	(0.015)	(0.028)
Dictator game with information (T2)		-2.5
		(2.65)

Note: Difference is column minus row, tested with Wilcoxon signed rank tests. p-value in parentheses. *** (**,*) indicates significance at 1% (5%, 10%) level.

Table 4: Distribution of selfish giving, by treatment

Giving Range	Dictator game	Dictator with information	Dictator with esteem
0	3	1	0
1 to 9	3	4	7
10	8	7	7
0-10	14	12	14

Figure 1: Frequency distribution of token given across treatments

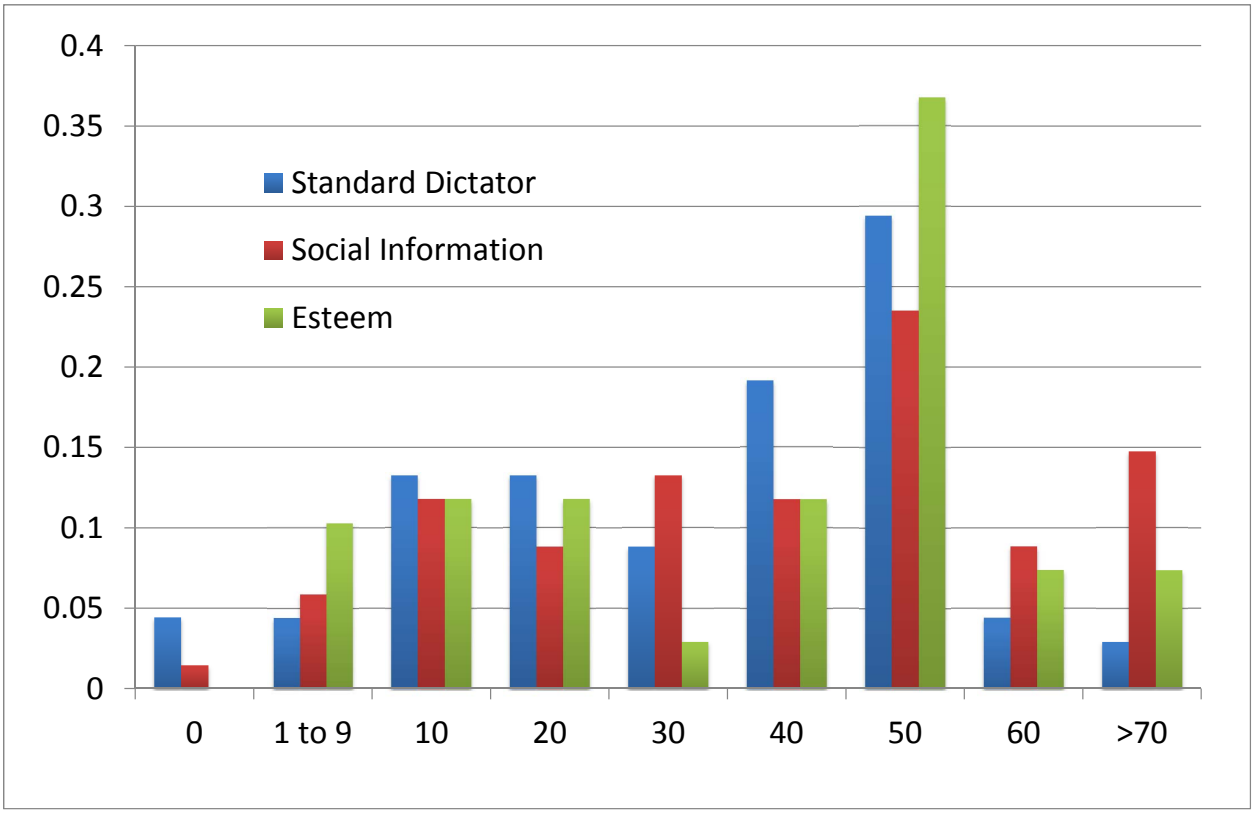

Table 5: Maximum likelihood estimates of treatment effects with: column 1 - tokens given on treatment dummies and individual random effects and column 2,3 and 4 - probit models of dictators' type on choices

	Linear fixed effects model, tokens given (TG)	Probit regressions selfish=1	fair=1	generous=1
Social information treatment dummy	7.18***	-0.21	0.12	1.11*
	(2.48)	(0.47)	(0.30)	(0.49)
Esteem treatment dummy	4.68**	-0.18	0.47	1.30*
	(2.31)	(0.44)	(0.29)	(0.58)
Constant	34.66***	-2.74***	-0.69***	-2.32***
	(2.51)	(0.68)	(0.26)	(0.66)

Note: Baseline is the standard dictator game dummy. Standard errors in parentheses. *** (**,*) indicates significance at 1% (5%, 10%) level. p-value for the pride treatment in the fair probit is 0.106.

Table 6: Sample characteristics, field sample

	Mean age	Mean years of education	Percent female	Avg. years experience as a health worker
Clinician characteristics	41.92	16.01	0.33	17.91
	(9.33)	(1.63)		(9.28)
Patient characteristics	21.03	8.68	0.55	NA
	(16.81)	(2.77)		

Note: Standard errors are in parentheses.

Table 7: OLS regression of average effort by consultation on social attitudes, with facility level fixed effects and various error structures

	clustered, facility level	robust	clustered, clinician level
Responsive to social information 1	-0.023	-0.023	-0.023
	(0.052)	(0.052)	(0.045)
Responsive to esteem	-0.053	-0.053	-0.053
	(0.054)	(0.054)	(0.039)
Responsive to both	0.104***	0.104***	0.104*
	(0.034)	(0.034)	(0.059)
Generous	0.053**	0.053**	0.053**
	(0.021)	(0.021)	(0.025)
Clinician sex	-0.047	-0.047	-0.047
	(0.031)	(0.031)	(0.035)
Clinician age	-0.004**	-0.004**	-0.004
	(0.002)	(0.002)	(0.002)
Clinician years edu.	-0.004	-0.004	-0.004
	(0.009)	(0.009)	(0.010)
Clinician income	-0.023	-0.023	-0.023
	(0.022)	(0.022)	(0.021)
Data collection visit 2, dummy	0.044**	0.044**	0.044*
	(0.022)	(0.022)	(0.024)
Data collection visit 3, dummy	0.010	0.010	0.010
	(0.021)	(0.021)	(0.025)
Patient Characteristics	Included	Included	Included
Constant	0.921***	0.921***	0.921***
	(0.215)	(0.215)	(0.181)
Observations	879	879	879
Adj. R2	0.099	0.099	0.099
LL	121.59	121.59	121.59

Note: (1) includes clustered s.e.'s. (2) incudes robust s.e.'s. (3) inlcudes errors clustered at the clinician level (non-nested). Standard errors in parentheses. *** (**,*) indicates significance at 1% (5%, 10%) level. Sample includes 879 patient interactions. Case mix controls included are patient age, sex, education, illness severity (proxied with an AM/PM dummy) and presence of fever, cough or diarrhea as a primary symptom.

Table 8: OLS regression of effort variance by clinician on social attitudes, with facility level fixed effects and robust standard errors

	Variance of effort over all patient interactions		
	with sdtype (TG1 <TG2)	with sdtype2 (TG1 >TG2)	with sdtype3 (TG1 ≠ TG2)
Responsive to esteem (TG3 >TG1)	-0.094**	-0.097***	-0.072
	(0.041)	(0.037)	(0.063)
Generous (TG1 ≥ 50)	-0.048*	-0.057**	-0.056**
	(0.025)	(0.026)	(0.028)
Responsive to social information 1	0.070*		
(TG1 <TG2)	(0.038)		
Responsive to both 1	-0.035		
	(0.049)		
Responsive to social information 2		-0.076	
(TG1 >TG2)		(0.062)	
Responsive to both 2		0.060	
(SI 2 * Esteem)		(0.098)	
Responsive to social information 3			0.020
(TG1 ≠ TG2)			(0.037)
Responsive to both 3			-0.014
(SI 3 * esteem)			(0.074)
Data collection visit 2, dummy	-0.189*	-0.220*	-0.253**
	(0.114)	(0.120)	(0.120)
Data collection visit 3, dummy	0.099	0.098	0.092
	(0.071)	(0.075)	(0.078)
Clinician sex	0.085***	0.067**	0.080**
	(0.029)	(0.030)	(0.034)
Clinician age	0.003	0.004	0.003
	(0.002)	(0.003)	(0.002)
Clinician years of edu.	0.013	0.007	0.011
	(0.008)	(0.009)	(0.010)
Clinician income	0.040*	0.022	0.029
	(0.022)	(0.025)	(0.024)
Patient Characteristics	Included	Included	Included
Constant	0.078	0.273	0.151
	(0.225)	(0.250)	(0.265)
Adjusted R2	0.023	-0.099	-0.220
Log-Likelihood	139.82	136.29	133.16

Note: Standard errors in parentheses. *** (**,*) indicates significance at 1% (5%, 10%) level. Sample includes 60 clinicians. Case mix controls are averages by clinician and include patient age, sex, education, illness severity (proxied with an AM/PM dummy) and presence of fever, cough or diarrhea as a primary symptom.