Pro-social preferences and self-selection into the public health sector: evidence from an economic experiment

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Motivational crowding-out theory establishes that the effectiveness of financial incentive schemes, like pay-for-performance, crucially depends on the underlying social preferences of health workers. In this paper we study the extent to which heterogeneity in the strength and structure of social preferences is related to career choices by testing whether preferences vary systematically between Tanzanian health worker students who prefer to work in the private for-profit health sector and those who prefer to work in the public health sector. Despite its important policy implications, this issue has received little attention to date. By combining data from a questionnaire and an economic experiment, we find that students who prefer to work in the public health sector have stronger pro-social preferences than those who prefer to work in the private for-profit sector.

Keywords Pro-social preferences, career choice, economic experiments, health workers

KEY MESSAGES

- Tanzanian health worker students who prefer to work in the public health sector are found to have stronger pro-social preferences than those who prefer to work in the private for-profit sector.
- Managers in the public sector should be careful when importing payment schemes that have worked effectively in the private for-profit sector.
- It is possible that newly recruited health workers in the public sector are in possession of a type of motivation that could be more appreciated and possibly also cultivated.

Introduction

Economists no longer question whether people have pro-social preferences,1 asking instead how and when such preferences will influence economic and social decisions (Fehr and Schmidt 2006). Apart from revealing that individuals tend to share and co-operate even when such actions lower their own material pay-off, economic experiments have documented substantial individual heterogeneity in the strength and structure of pro-social preferences (Camerer 2003; Fehr and Schmidt 2006). In this paper we use the results from both an economic experiment and survey questions to study how such differences relate to career choices.

Human capital theory predicts that individuals choose careers to maximize their expected net lifetime earnings (Becker 1964; Boskin 1974), while another strain of research on occupational choices leans more towards psychological explanations such as personal interest (Strong 1935; Betz and Borgen 2000) and vocation (Heyes 2005).2 In the empirical literature, career choices have been found to relate closely to a series of individual characteristics and preferences, as well as to the
attributes of alternative workplaces (see for example Antolin and Bover 1997; Chomitz et al. 1998; Awases et al. 2004; Dussault and Franceschini 2006; Serneels et al. 2007; Hanson and Jack 2008; Kolstad 2011). Recent studies have also argued that pro-social preferences affect career choices (Besley and Ghatak 2003; Deëlgaauw and Dur 2008; Makris 2009). The argument is that individuals who are dedicated to work, not only for their own well-being or earnings but also for other people (i.e. individuals with pro-social preferences), are attracted to organizations that provide social services, which are typically financed and delivered by the public sector. According to this argument, the health sector should attract individuals who are strongly motivated to do good for others. However, it is not clear whether and how the ownership of health facilities affects health workers’ motivation to work at different facilities.

In this paper we pursue a somewhat speculative but nevertheless reasonable hypothesis: that ownership matters for where different types of health worker students prefer to work. Besley and Ghatak (2003) argue that some are simply attracted to the provision of social services, and that it matters less whether these services are provided by private or public agencies. We follow up on this and focus on the matching between different types of health workers and health service deliverers. Unlike Besley and Ghatak (2003), however, we explicitly study the relationship between differences in ownership of the health service providers and responses of health worker students with varying degrees of pro-social preferences. Deëlgaauw and Dur (2008) argue that public agencies have an exclusive pull on dedicated workers in general, i.e. that ownership matters more than the type of services provided.

We combine these thoughts and pursue the idea that people with strong pro-social preferences will seek employment in the public health sector rather than in the private for-profit health sector, even when both provide health care. Despite important policy implications, this hypothesis has received hardly any attention.3

Our data allow us to study the ownership preferences of a group that has already chosen to provide a typical social service, namely health services. More specifically, we seek to establish the extent to which individuals who prefer to work in the private for-profit health sector differ systematically from those who prefer to work in the public health sector, with respect to pro-social preferences. We test this by combining data from a questionnaire with data from an economic experiment conducted with nursing and medical students in Tanzania. We find that students who prefer to work in the public sector have stronger pro-social preferences than do those who prefer to work in the private for-profit sector, suggesting that the two sectors could consider different types of incentive packages, in particular for young, newly educated staff.

The remainder of the paper is organized as follows. We first present the Tanzanian context and briefly discuss self-selection mechanisms, before describing the data and outlining the econometric strategy. The results are then presented. Possible implications for payment schemes and the provision of health services are discussed before concluding remarks are given in the final section.

Pro-social preferences and selection into the public sector

The private and public health sectors in Tanzania

There is a long tradition in Tanzania of publicly provided health services. Since the 1977 ban of private for-profit actors in health service delivery, private actors have been not-for-profit only. In the 1980s, the country experienced difficult economic conditions and was forced to undergo tough structural adjustment programmes, including a public hiring freeze. As a consequence, in 1991, private for-profit organizations were allowed to re-enter the market for health care (Ministry of Health and Social Welfare 2005a) and have since dramatically increased in number. All in all, private actors (both for-profit and not-for-profit) run 44% of the health facilities in Tanzania (National Bureau of Statistics and Macro International 2007: 18). Rural areas are mainly serviced by the public sector and by private not-for-profit organizations, and in some rural areas the private not-for-profit sector is the only health care provider. In urban areas, however, health services are provided mainly by the private for-profit sector and by the public sector. The former is practically absent in rural areas.

Due to the shortage of health workers, medical degree and nursing students are in great demand in Tanzania (Munga and Maestad 2009). Students can choose to work for the public or the private sector. Twelve per cent of Tanzanian hospitals are run by the private for-profit sector, compared with 46% which are run by the public.3 Only 3% of health centres are run by private for-profit organizations. Medical doctors are more likely to be employed at hospitals and health centres; thus a medical degree student is more likely to get a job in the public sector. Nurses also work at dispensaries, of which 17% are run by the private for-profit sector. Hence all else being equal, both nursing and medical degree students are more likely to get a job in the public sector, although a relatively high share of nursing/medical degree students may be employed by the private for-profit sector.

Due to the public hiring freeze in the 1990s, the private for-profit sector was for a while able to attract health workers with relatively low wages. However, as the public sector started hiring staff again, the situation changed and the private sector has increased salaries in order to compete for qualified staff. The differences in salary levels are probably smaller or non-existent today, but job security is different between the public and private sectors. In the former it is more common to move non-performing health workers between facilities rather than dismissing them on the spot. Studies of clinical quality in health provision in Tanzania (Miliga 2003; Leonard et al. 2007) have found that private sector organizations hold workers responsible for performance (rewarding good performance and punishing poor performance) to a larger degree than do public organizations; conscientious workers in private organizations can expect to be rewarded, while those who shirk or perform poorly run the risk of being dismissed.

The stated objectives of the two sectors also differ. The main objective of the public health services in Tanzania is to facilitate the provision of basic health services that are of good quality, equitable, accessible, affordable, sustainable and gender-sensitive’ (Ministry of Health and Social Welfare
Selection into the private for-profit and public health sectors

Several studies have found that student preferences differ across disciplines (Marwell and Ames 1981; Carter and Irons 1991; Frank et al. 1993), and discussed whether different disciplines attract different types of individuals (Carter and Irons 1991) or change their preferences (Frank et al. 1993). It is not unlikely that medical and nursing schools attract individuals with strong pro-social preferences compared with, say, business schools; however, even if these schools do attract students with strong pro-social preferences, there could still be considerable heterogeneity when it comes to how much weight these students put on such preferences. In this paper we investigate whether one could make the case that individuals with stronger pro-social preferences will seek employment in the public sector.

There are at least two plausible reasons why students with stronger pro-social preferences could prefer to work in the public sector. First, along the line of the argument of Ellingsen and Johannesson (2007), employees who desire recognition for pro-social behaviour may wish to attain this from a management with similar preferences. Hence, even if two providers deliver similar health services to the same population group, students who care strongly for others and desire recognition for pro-social behaviour may prefer to work in the public sector, where concern for profit is less explicit. If services are not similar however, for example if efficiency and access to equipment is better in the private sector, it is less clear how an individual with pro-social preferences will behave. Nonetheless, and this brings us to the second reason, private for-profit facilities do not operate in rural areas. In contrast to several other African countries, such as Uganda, private for-profit facilities in Tanzania are not located in the areas where health worker density is lowest, namely in the rural areas (Munga and Mæstad 2009). Although some private for-profit facilities likely do help the poor, the majority of poor people in Tanzania have to rely on public health services in urban areas, and on public services and private not-for-profit organizations in rural areas. Thus, if we assume that students with stronger pro-social preferences care more about bringing health services to the poor, implicitly aiming for more equal access to health services, the public sector is likely to be the preferred alternative in the Tanzanian context.

Methods

Data were collected in autumn 2008 in Dar es Salaam, Tanzania. Some 40 medical degree students and 40 nurse students were recruited at Muhimbili University for Health and Allied Sciences (MUHAS) and invited to participate in a ‘social science research project aimed at learning more about health worker motivation’. Students were presented with the possibility of earning a maximum of 20,000 Tanzanian Shillings (TSH), equivalent to around US$20 at the time of the experiment. The data collection received ethical clearance from the National Institute for Medical Research (NIMR) and the researchers had a research permit from the Tanzania Commission for Science and Technology (COSTECH). Participation was voluntary and all participants signed a consent form.

We collected data on social preferences with two different tools: an extensive questionnaire and an economic experiment. The questionnaire consisted of questions about gender, age, income and other socio-economic variables, as well as questions meant to capture different aspects of motivation, such as altruism.

After completing the questionnaire, students participated in a dictator game. The dictator game is frequently used to study how willing people are to share as compared with maximizing their own material benefit (Camerer 2003). Hence, we believe the dictator game, combined with the questionnaire, will allow us to investigate pro-social preferences among students with different prospective career paths.

In the dictator game each student was given an envelope marked ‘mine’ containing 10,000 TSH, equivalent to around US$10 at the time. They were told that they could choose whether and how to distribute the money between themselves and four other students in another room. The money was placed in four designated envelopes for the four recipients: a Medical Doctor (MD) student, an MD student with the opportunity to return an anonymous feedback message, a nursing student, and a nursing student with the opportunity to return an anonymous feedback message. Our dictator game is an extension of the original dictator game and was originally designed to study the willingness of nursing and MD students to share and co-operate with the other cadre. During the analysis, however, an interesting pattern of behavioural differences between students preferring to work in public and private for-profit health facilities emerged.
Empirical strategy
In the questionnaire, students were asked in what sector they would like to work when they finished their studies, and their answers were then categorized into the public sector, the private for-profit sector, faith-based organizations (FBOs) or non-governmental organizations (NGOs). Fifty-three preferred the public sector, six preferred an FBO, three an NGO and 16 the private for-profit sector. Two students responded ‘anywhere’. It is not clear whether FBOs and NGOs are more similar to the public or the private for-profit sector when it comes to incentive systems, patient groups and stated missions. In most FBOs and NGOs, incentives are relatively high-powered compared with those in the public sector (Miliga 2003), while the mission statement and patient groups may be more similar to those found in the public sector. Although FBOs receive both funds and some of their workers (seconded) from the government, local managers continue to have a greater say in decisions concerning their workforce.13

Furthermore, students may not ignore differences between these two types of owners: working for an FBO may give an extra spiritual reward, while NGOs have a reputation for paying well. Since we have relatively few observations in these categories, we have decided to exclude them from the analysis in order to avoid unnecessary ambiguity. We have also excluded the observations of the two students who wanted to work anywhere; thus we ended up with a total sample of 69 students. We then created a dummy variable taking the value 0 if students wanted to work in the private for-profit sector and 1 if they wanted to work in the public sector.

To compare the two groups’ behaviour in the economic experiments, we apply simple comparisons of the means. The significance of the differences is tested with a non-parametric test; the two-sample Wilcoxon rank-sum test, also known as the Mann–Whitney two-sample statistic; and with a simple two-sided t-test. Furthermore, we study the distributions of amounts sent in the two experiments, in order to investigate whether there are distributional differences between the two groups.

Results

Descriptive statistics
In Table 1, we report answers to the questionnaire on pro-social behaviour for students who plan to work in the public and private for-profit sector, respectively. Students who prefer to work in the public sector are 30 percentage points more likely to fully agree with the statement ‘I tend to give money to others, even if I don’t know them, if I think they need the money more than I do’ (P = 0.040). The same students are 22 percentage points more likely to report that they often share books and reading material with others (P = 0.058).

A closer look at our third measure of pro-social preferences, annual donation to the poor, also shows a greater number of pro-social students in the group preferring the public sector; they donate on average 2.68 times as much as the students in the group preferring the private for-profit sector (P = 0.076).

The dictator game
Table 2 reports the results from the dictator game. The main result is that 83% of the students who prefer to work in the public sector donated a positive amount of money, compared with only 56% of students who prefer to work in the private for-profit sector (P = 0.03).

Students who prefer to work in the public sector furthermore donate on average 51% more than students who prefer to work in the private for-profit sector: 828 TSH compared with 1252 TSH (P = 0.078 with a non-parametric two-sample Wilcoxon rank-sum test; not significant with the t-test). From Table 2 we see that these results are driven by a larger number of non-contributors among those preferring to work in the private for-profit sector. There is thus a higher share of students who prefer to work in the private for-profit sector that complies with the prediction of the material self-interest hypothesis. Sharing in a dictator game is seen as evidence of pro-social preferences (Levitt and List 2007; Camerer 2003). Hence, our results suggest that students who prefer to work in the public sector have stronger pro-social preferences. This observation lends general support to the survey findings.

We have also regressed the variables measuring pro-social preferences from the survey on the mean donation in the dictator game, and found that ‘donations to the poor’ are positively correlated with mean donation (P = 0.042 with an ordinary least square (OLS), P = 0.045 with a Tobit regression).

As discussed earlier, the survey demonstrated that students who prefer to work in the public sector donate more money to the poor than do students who prefer to work in the private for-profit sector. Hence, both the survey and the behaviour in the dictator game point to the conclusion that students who prefer to work in the public sector have stronger pro-social preferences.

Discussion
The main results from this study are that students who prefer to work in the public sector report more pro-social behaviour when they answer survey questions and display more pro-social behaviour in the dictator game. Some aspects of the study will be addressed before more general implications are discussed.

External validity
Economic experiments have become increasingly popular as a method to gain insight about self- and other-regarding preferences, and they are frequently used both to test theories and to generate new theories. However, it is not unproblematic to use simple laboratory experiments to make extensive inferences on individual motivation. Falk and Heckman (2009) sum up the three main critiques of experiments as: (1) lack of realism; (2) too small or biased samples; and (3) too low stakes. Researchers critical of the method argue that these problems make it difficult to draw inferences outside the lab.
Realism

The issue of realism may pose a real problem, as the interest of this paper is in the general pro-social preferences toward other people, not in pro-social preferences toward participants in an experiment per se. Nevertheless, the fact that participants display similar preferences in response to survey questions gives some indication that the results in the experiment reflect deeper underlying preferences rather than phenomena arising in the lab.

However, it is well known that answers to survey questions may be strategic and that they may not necessarily reflect the real opinions of respondents, but rather what the respondents expect the researchers to appreciate. This may be the case regarding the questions about pro-social preferences, but it is less likely that respondents knew what the researchers would appreciate when it comes to their preferred sector. Students had the opportunity to choose both FBOs and NGOs in addition to public and private for-profit organizations, and it is not obvious that they should choose public to please the research team or to put themselves in a flattering light.

Similarly, individuals may act differently when taking part in an experiment; though donations are anonymous, they still know they are part of an experiment and may wish to act congruently with what they see as the expectations of the organizers (Levitt and List 2007). In this case it is not clear what the expectations of the organizers of the experiment might be, but the most likely perception of this would be that the organizers would appreciate generous behaviour. The behaviour in the dictator game does not support this notion however; there is a substantial group of participants that are non-contributors. A problem arises if this group is consistent with participants preferring to work in one of the studied sectors, but again there is little support for this in the data; there are non-contributors among both students who prefer to work in the public sector and among those who prefer the private for-profit sector. Furthermore it should be noted that findings from the dictator game indicate that participants do not react to social scrutiny from peers. Thus, although possibly important, none of these issues are likely to explain the difference in behaviour between the two groups.

Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>No. public/private</th>
<th>Public Mean (SD)</th>
<th>Private Mean (SD)</th>
<th>Diff. Mean (SD)</th>
<th>Wilcoxon test*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tend to give money to others who need it        </td>
<td>51/16</td>
<td>0.61 (0.49)</td>
<td>0.31 (0.48)</td>
<td>0.30 (0.30)</td>
</tr>
<tr>
<td>Sharing of books and material        </td>
<td>52/16</td>
<td>0.85 (0.36)</td>
<td>0.63 (0.50)</td>
<td>0.22 (0.22)</td>
</tr>
<tr>
<td>Annual donation to the poor        </td>
<td>49/16</td>
<td>13.57 (18.77)</td>
<td>5063 (5422)</td>
<td>8508 (8508)</td>
</tr>
<tr>
<td>MD students        </td>
<td>53/16</td>
<td>0.31 (0.50)</td>
<td>0.63 (0.31)</td>
<td>0.12 (0.12)</td>
</tr>
<tr>
<td>Age        </td>
<td>53/15</td>
<td>25 (5.04)</td>
<td>24 (1.83)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Female        </td>
<td>53/15</td>
<td>0.64 (0.48)</td>
<td>0.53 (0.52)</td>
<td>0.11 (0.11)</td>
</tr>
<tr>
<td>Dependents        </td>
<td>52/16</td>
<td>1.10 (2.22)</td>
<td>1.31 (3.11)</td>
<td>0.21 (0.21)</td>
</tr>
<tr>
<td>Wealth        </td>
<td>53/16</td>
<td>2.81 (0.76)</td>
<td>3 (0.73)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Rural        </td>
<td>53/16</td>
<td>0.25 (0.43)</td>
<td>0.13 (0.34)</td>
<td>0.12 (0.12)</td>
</tr>
</tbody>
</table>

Notes: *Two-sample Wilcoxon test of the difference between the two groups, P-values reported. – not significant.
1Based on agreement with the following statement: ‘I tend to give money to others, even if I don’t know them, if I think they need the money more than I do’. The variable was originally ordinal, where 4 was total agreement. Since all respondents except two ticked 3 or 4, a dummy was constructed, taking the value 1 if total agreement, 0 otherwise.
2Based on answers to the following question: ‘How often do you share books or reading materials with another student?’ The variable was originally ordinal, where 4 was often. Since all respondents except three ticked 3 or 4, a dummy was constructed, taking the value 1 if ‘often’ was the answer, 0 otherwise.
3Zero donations are included.
4Based on the answers to the following question: ‘Compared with Tanzanian families in general, would you say that your family’s income is 1–5?’, where 1 is far below average, 5 is far above average. The variable is thus ordinal. This poses no problem for the tests we have applied.
5A dummy taking the value 1 if the respondent prefers to work in a rural area after completing the studies.

Table 2: Donations in the dictator game

<table>
<thead>
<tr>
<th>%</th>
<th>Public (n = 53)</th>
<th>Private (n = 16)</th>
<th>Mean donation</th>
<th>Public (n = 53)</th>
<th>Private (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donated no money</td>
<td>0.17</td>
<td>0.44</td>
<td>**</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Donated all the money</td>
<td>0.28</td>
<td>0.19</td>
<td></td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Donated some money</td>
<td>0.55</td>
<td>0.37</td>
<td></td>
<td>1004</td>
<td>958</td>
</tr>
<tr>
<td>Positive donation</td>
<td>0.83</td>
<td>0.56</td>
<td>**</td>
<td>1508</td>
<td>1472</td>
</tr>
<tr>
<td>Average donation</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1252</td>
<td>828</td>
</tr>
</tbody>
</table>

Note: ** The difference is significant at the 5% level with both two-sided t-test and the two-sample Wilcoxon rank-sum test.
Sample size and selection
We deliberately invited medical degree and nursing students to participate in the economic experiments because this subject pool represents the future health care workers of Tanzania; doing so also allows us to focus on selection into the two sectors, as we can rule out differences in preferences being a result of working within those sectors. Furthermore, since all students undergo the same medical training, we can also rule out differences being created by study institutions. However, the pool remains relatively small, so we must be careful generalizing results from this study to all health workers in the two studied sectors. Although some of the students in our sample have earlier experiences from the health sector, the majority are relatively young and inexperienced. Our study is therefore not well suited to say much about pro-social preferences and incentive systems for health workers already employed in the public or private for-profit sectors. Indeed, the situation for these health workers may be very different, as the organizational culture and other characteristics of the two sectors may influence the motivation and preferences of health workers over time. For instance, it is not difficult to imagine that newcomers in the public sector become demoralized and that pro-social preferences become less important if they experience that facilities in the sector lack equipment, leadership and dedicated role models.

Stakes
With regard to stakes being too low, we realize of course that decisions made in economic experiments may have less grave consequences than decisions made in real life, and that they cannot be ‘equalized’ as such. However, we do not claim that because someone is generous with a relatively small, one-time stake, they will make a lifetime decision that could change their total earning significantly; we simply state that there is an association between which sector the participants say they would like to work in and the decisions they make in the dictator game. It is left to revealed preference studies to verify whether this is so in real life, but since the same pattern appears in the survey data, there is some reason to expect to find similar patterns in real life. Could the stakes have been increased in order for the behaviour in the experiment to become more credible? Available evidence from the experimental literature show that results do not change dramatically when the stakes are increased in an ultimatum or in a dictator game (Erickson and Herzberg 1987; Falk and Fehr 2003). Moreover, the stakes were already relatively high.

Possible implications
Clearly, it is too early to draw any definitive conclusions about heterogeneity in preferences. However, if students who prefer to work in the public sector have stronger pro-social preferences, this can imply that some payment schemes will be more effective for newly educated health workers in the public sector than in the private for-profit sector, and vice versa.

In economics, payment schemes are normally discussed within the agency framework in which individuals are routinely assumed to be self-interested. Within this framework, payment schemes are used to align the preferences of the employer with those of the employee (see Eisenhardt 1989). If employees are motivated mainly by material self-interest and are paid a fixed monthly salary, they have no incentive to exert effort above what is required to stay employed. This is in essence the moral hazard problem, and suggests that the principal could consider some sort of flexible payment, such as performance-based pay, to better promote the desired behaviour.

However, health workers with strong pro-social preferences are likely to genuinely care for their patients. As a consequence, moral hazard may be less of a problem. In the extreme case, when social preferences dominate all other preferences, workers will do what is in the patient’s best interest whether the employer can observe them or not. Following this argument, it is likely that a relatively high share of the students preferring the public sector are not as susceptible to moral hazard as those preferring the private for-profit sector. This has two possible implications.

First of all, for people with strong pro-social preferences, flexible payment schemes such as performance-based pay may actually lower performance and motivation. Crowding-out theory shows that incentive schemes that involve performance monitoring may be perceived as controlling, and that well-meant extrinsic incentives provided to reward improved performance may actually crowd out intrinsic motivation (Frey 1997; Frey and Jegen 2001; Benabou and Tirole 2003). Thus, if young newly educated workers with pro-social preferences are more prevalent in the public sector, managers in that sector should be careful when importing payment schemes that have worked effectively in the private for-profit sector.

Secondly, it is possible that newly recruited health workers in the public sector are in possession of a type of motivation that could be more appreciated and possibly also cultivated. As mentioned briefly earlier, health workers in the public sector are normally not found to provide higher quality services or to be more motivated than those in the private sector (Boller et al. 2003). Furthermore, in many countries the public sector has a reputation of being corrupt and paternalistic, and of having few resources for equipping health facilities properly. These are all indications that health workers in the public sector also need monitoring and extrinsic incentives. However, it is worth reflecting on the fact that this may be something that happens once internalized in the sector; there may thus be a large potential in intrinsically motivated young health workers, which the public sector as it operates today in many countries is just wasting.

Conclusion
Students who prefer to work in public facilities display more pro-social behaviour in a dictator game than do students who prefer to work in the private for-profit sector. Our results suggest that the difference in pro-social behaviour is affected by the extent to which the two groups of students care about others.

If there is indeed a self-selection of students with pro-social preferences into the public sector, this has important policy implications. However, before recommendations can be made, more research is needed; our study is relatively small, with few observations. Moreover, our sample does not allow us to
address the preferences of experienced health workers employed in the two sectors. It could thus be an interesting exercise to learn more about revealed preferences by following participants over time. Furthermore, different pro-social preferences (e.g. altruism, reciprocity, inequality aversion, duty, adherence to social norms, guilt aversion, etc.) can have different implications for policy. Other complementary economic experiments, combined with larger samples than ours, may prove particularly useful in disentangling these effects.

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Conflict of interest
None declared.

Endnotes
1 We define pro-social preferences very generally as all types of concern for other people. This concern for others could originate in several more profound psychological concepts like altruism, reciprocity, fairness ideals, guilt aversion, duty, need for social acceptance, etc. (Basu 2000; Fehr and Schmidt 2006; Cappelen et al. 2007; Ellingsen et al. 2010).
2 Heyes refers to vocation as ‘a desire by an individual to be directly engaged in a worthy activity’. It should also be noted that in Heyes (2005) the focus is not on career choices but rather on optimal incentives for workers with vocations.
3 In parallel but unrelated to our work, Serra et al. (2010) carried out an economic experiment to investigate pro-sociality and career choices in a similar setting with Ethiopian health worker students. Their analysis is based on the return decisions these students made in a trust game (not a dictator game).
4 The public sector runs 46% of all hospitals, 87% of all health centres and 67% of all dispensaries. In comparison, the private not-for-profit sector runs 41% of hospitals, 10% of health centres and 15% of dispensaries. Private for-profit providers run only 12% of hospitals, 3% of health centres and 17% of dispensaries. Adapted from the Ministry of Health Statistical Abstract (Ministry of Health 2000).
5 Furthermore, even if the stated objectives were similar to those of the public sector, it is common knowledge among people in Tanzania that health services in the private for-profit sector are not equitable, accessible or affordable for all.
6 They do not distinguish between private not-for-profit and private for-profit facilities.
7 Answers to survey questions need not reflect pro-social preferences. People sometimes reply to survey questions with the intent of portraying themselves in a more flattering manner to a surveyor (Bertrand and Mullainathan 2001). To learn whether these differences in answers to survey questions reflect behaviour, we need to observe actual behaviour.
8 In comparison, a freshly educated clinical officer (a cadre between nurses and MDs) earned approximately 200 000 TSH per month at the time the experiments were conducted.
9 The instructions given to participants in the dictator game can be provided on request.
10 Finding neither a significant difference between these two groups, nor a significant difference between those who had the opportunity to send feedback messages and those who did not, we shifted our focus to career choice.
11 After the dictator game, students also played a trust game. The return decision in the trust game is to a certain extent also about sharing, and is sometimes compared with the dictator decision. However, other things like revenge or reciprocity could also drive the return decision in the trust game, so such an exercise is at best suggestive. The fact that there was a very high share of non-contributors in the first stage of the game furthermore complicated a comparison by leaving too small a sample.
12 Theoretically, an FBO is also an NGO; however, we differentiate between faith-based NGOs (FBOs) and other types of NGOs.
13 For a discussion of the success, or failure, of the decentralization reforms to increase the managerial power of local authorities see Munga et al. (2009).
14 Contributions in the dictator game are usually interpreted as a violation of the material self-interest hypothesis, since keeping the entire endowment is what an individual mainly motivated by material self-interest would do (Camerer 2003).
15 Separate comparisons of means were done for donations to those able to give feedback and those unable to do so. We could expect an increase in generosity towards others when it was possible to observe generous behaviour (Adhikari et al. 2009). However, we found no differences in how the two groups react to the possibility of receiving a message, i.e. receiving praise or criticism from peers.
16 The moral hazard problem arises in the principal agent framework when the agent (the employee) has more information about his or her actions than the principal (the employer), because the principal usually cannot completely monitor the agent. The agent may then have an incentive to act inappropriately (from the viewpoint of the principal) if the interests of the agent and the principal are not aligned.
17 Although we know that flexible pay schemes can induce workers to work harder and smarter in the manufacturing and construction industries (Prendergast 1999), Holmstrom and Milgrom (1991) argue that flexible pay schemes may be less effective in the health sector. Within the delivery of health care, important tasks are difficult to monitor and incentivize, and with the notable exception of Basinga et al. (2011) there is scant evidence that flexible pay is more effective than fixed pay. In fact, in a systematic review of pay-for-performance schemes in the health sector, De Bruin et al. (2011: 3) conclude that ‘hardly any information is available about the effects of such schemes on health care quality and costs’.
18 In health care pro-social preferences and intrinsic motivation are very likely to overlap. See Frey and Jegen (2001) for a survey of the empirical evidence.

References