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PRO- SOCIAL PREFERENCE AND
SELF- SELECTION INTO THE
PUBLIC HEALTH SECTOR:
EVIDENCE FROM ECONOMIC
EXPERIMENTS



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

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Abstract

There is growing interest in the role of pro-social motivation in public service delivery. In general, economists no longer question whether people have social preferences, but ask how and when such preferences will influence their economic and social decisions. Apart from revealing that individuals on average share and cooperate even when such actions lower their own material pay-off, economic experiments have documented substantial individual heterogeneity in the strength and structure of social preferences. In this paper we study the extent to which these differences are related to career choices, by testing whether preferences vary systematically between Tanzanian health worker students who prefer to work in the private health sector and those who prefer to work in the public health sector. Despite its important policy implications, this issue has received hardly any attention to date. By combining data from a questionnaire and two economic experiments, 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 sector. We also show that the extent to which these students care about others can be conditional and linked to inequality aversion. A systematic self-selection of pro-socially motivated health workers into the public sector suggests that it is a good idea to have two sectors providing health services: this can ensure efficient matching of individuals and sectors by allowing employers in the two sectors to use different payment mechanisms tailored to attract and promote good performance from different types of health workers.

Keywords: pro-social preferences, career choice, economic experiments, health workers.

1. 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 cooperate even when such actions lower their own material payoff, 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 two types of economic experiments to study how such differences relate to career choices.

Human capital theory predicts that individuals choose careers to maximise their expected net lifetime earnings (Becker, 1964, Boskin, 1974). 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 e.g. 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, 2010). Recent studies have also argued that pro-social preferences affect career choices (Besley and Ghatak, 2003a, Delfgaauw 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 organisations 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

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. For more on these matters, see *e.g.* (Fehr and Schmidt, 2005, Cappelen et al., 2007, Ellingsen et al., 2010, Basu, 2000).

² Heyes refers to vocation as ‘a desire by an individual to be directly engaged in a worthy activity’; vocation it is often discussed in relation to typical public services such as health services and teaching. 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.

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 (2003b) argue that some workers are simply attracted to the provision of social services, and that it matters less whether these services are provided by private or public agencies. Similarly, we focus on the matching between different types of health workers and health service deliverers. Unlike Besley and Ghatak (2003b) 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. Delfgaauw 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. Hence, inspired by Delfgaauw and Dur (2008), we 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 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 two economic experiments 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 sector. Our results suggest that the existence of two sectors providing health services can ensure an efficient matching of individuals and sectors, by allowing

³ Parallel but unrelated to our work, Serra et al. (2010) have carried out an economic experiment to investigate pro-sociality and career choices in a similar setting with Ethiopian health worker students. The students participate in a trust game (not a dictator game), and the analysis is based on the return decision therein. Though this study resembles our work, its focus is somewhat different and it does not comment on the type of pro-sociality discussed.

employers in the two sectors to use different payment mechanisms tailored to attract and promote good performance from different types of health workers.

The remainder of the paper is organised as follows: we present the Tanzanian context and briefly discuss self-selection mechanisms in Section 2. Section 3 describes the data; Section 4 outlines the econometric strategy. Section 5 presents the results. Implications for payment schemes and the provision of health services are discussed in Section 6. Section 7 offers concluding remarks.

2. Pro-social preferences and selection into the public sector

2.1 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 programs, including a public hiring freeze; as a consequence, in 1991, private for-profit organisations were allowed to re-enter the market for health care (The United Republic of Tanzania: Ministry of Health and Social Welfare, 2005a) and have since dramatically increased in number. All in all, private actors (both private for-profit and not-for-profit) run 44% of the health facilities in Tanzania (National Bureau of Statistics and Macro International, 2007:18). The rural areas of Tanzania are mainly serviced by the public sector and by private not-for-profit organisations, 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 public hiring freeze in the 1990s, the private for-profit sector was able to attract health workers with relatively low wages. However, as the public sector has started hiring staff again, the situation has 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 in the public and private sectors. In the former it is more common to move non-performing health workers between facilities rather than firing them on the spot. Studies of

clinical quality in health provision in Tanzania (Mliga, 2003, Leonard et al., 2007) have found that private-sector organisations hold workers responsible for performance (rewarding good performance and punishing poor performance); hence, conscientious workers in these organisations can expect to be rewarded, while those who shirk or perform poorly run the risk of being fired.

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*' (The United Republic of Tanzania: Ministry of Health and Social Welfare, 2005b). The government's vision is to promote a healthy population, improve individual welfare, and foster the nation's development. Private for-profit providers are surely also focused on delivering high-quality health services, as this is an important way to recruit customers, but by their nature profit must also be a major concern; they can and will operate only as long as they break even or earn enough profit to satisfy the owners. All else being equal, this profit could be spent to provide more health services; a health worker concerned with the welfare of others would thus likely prefer the public sector.⁴

Studies of health care quality in Tanzania (Mliga, 2003, Leonard et al., 2007) have looked primarily at differences between private not-for-profit providers and public providers, documenting lower quality in public facilities. We are not aware of any studies that focus explicitly on health care quality in private for-profit facilities in Tanzania; however, there are examples of comparisons of quality between both types of private sectors⁵ and the public sector (Boller et al., 2003), which similarly conclude that quality is higher in the private sector, however disappointingly low in both sectors. These comparisons also provide evidence that private health care providers charge more both for consultations and for additional services. Patients attending these clinics are found to have a higher socioeconomic status than patients using public-sector services (Boller et al., 2003).

⁴ 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.

⁵ They do not distinguish between private not-for-profit and private for-profit facilities.

2.2 Selection into the private 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 to, 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 these preferences. We will argue that those with stronger pro-social preferences will prefer to work in the public sector.

There are at least two plausible reasons why students with stronger pro-social preferences would prefer to work in the public sector. First, it has been argued that people prefer to work for employers with whom they can identify (Ellingsen and Johannesson, 2007). Hence, even if two providers deliver similar health services, students who care strongly for others will prefer to work in the public sector, where concern for profit is less explicit.⁶ Secondly, private for-profit facilities are not located in the areas where health worker density is lowest, namely rural areas (Munga and Mæstad, 2009). Also, private for-profit facilities charge user fees, which the poor may not be able to pay; 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 organisations 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.

3. Data

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

⁶ This assumption is valid given the potential conflict between profit concerns and reaching as many as possible with quality health services. However, if the efficiency of the private sector is higher, it may be possible to reach just as many with similar quality of services in spite of the profit concern, and it may be less clear which sector those with stronger pro-social preferences would choose.

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 TSH. The data collection received ethical clearance from the National Institute for Medical Research (NIMR) and the researchers had a research permit from COSTECH.⁷ Participation was voluntary and all participants signed a consent form.

We collected data on social preferences with three different tools: an extensive questionnaire and two types of economic experiments. 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.⁸

After completing the questionnaire, students participated in a dictator game and a trust game. The dictator game is frequently used to study how willing people are to share as compared to maximising 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. However, as others (Serra et al., 2010) have argued that the return decision in the trust game is also well suited to reveal pro-social preferences, we include results from both the dictator and trust games. We believe that both games in combination may shed more light on types of and differences in pro-social preferences than either one would in isolation. Trust games involve contracting under moral hazard without opportunity for contractual enforcement (Camerer, 2003), allowing us to learn more about how pro-social preferences affect behaviour in interaction among players. The two games are described below.

The students started by playing an extensive form of the well-known dictator game. Each student was given an envelope marked 'mine' containing 10,000 TSH.⁹ They

⁷ Commission for Science and Technology (in Tanzania).

⁸ Answers to survey questions need not reflect pro-social preferences. In fact, 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.

⁹ 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.

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 four recipients: an MD student, an MD student with the opportunity to return an anonymous message, a nursing student, and a nursing student with the opportunity to return an anonymous message. Our dictator game was originally designed to study the willingness of nursing and MD students to share and cooperate with the other cadre.¹⁰ During the analysis, however, an interesting pattern of behavioural differences between students preferring to work in public and private health facilities emerged.¹¹

In the trust game, participants were given 4,000 TSH in an envelope marked ‘mine’ and told that they were player 1 and that they could send some or none of the money (0, 1,000, 2,000, 3,000, or 4,000 TSH) to a player 2 in another room. Player 1 was informed that the research team tripled the amount sent to player 2; thus, if player 1 sent 1,000 TSH, player 2 would receive 3,000 TSH. After sending money, participants were told they would also play the role of player 2, and would have to decide whether to return any money to player 1.¹²

4. Empirical strategy

In the questionnaire, students were asked whether they would like to work in the public sector, in the private for-profit sector, in a faith-based organisation (FBO), or in a non-governmental organisation (NGO) when they finished their studies. Fifty-three preferred the public sector, 6 preferred an FBO, 3 an NGO¹³ 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 to those in the public sector, while the mission statement and patient groups may be more similar to those found in the public sector. Furthermore, students may not ignore differences between these two

¹⁰ Finding no significant differences between these two groups, we shifted our focus to career choice.

¹¹ The instructions given to participants in the dictator game can be provided at request.

¹² The instructions given to participants in the trust game can be provided at request.

¹³ Theoretically, a faith-based organisation is also a non-governmental organisation; however, we differentiate between faith-based NGOs (FBOs) and other types of NGOs.

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 indicating whether students wanted to work in the private for-profit or 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.

When analysing the return decision in the trust game, we discard all individuals who received nothing in the first step of the game.¹⁴ Also, as different amounts were received in the first step, we compare shares returned rather than absolute figures.

5. Results

5.1 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 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 ($p=0,058$).

¹⁴ Player 1 was never informed about where player 2 preferred to work, so this cannot have influenced how much player 2 received from player 1 and should thus not pose a problem for analysis of differences between those preferring public- and private-sector work.

Table 1
Descriptive statistics

	No. Pub/Priv.	Public Mean	SD	Priv. Mean	SD	Diff.	Wilcoxon test ^a
Tend to give money to others who need it ^b	51/16	0,61	0,49	0,31	0,48	0,30	0,040
Sharing of books and material ^c	52/16	0,85	0,36	0,63	0,50	0,22	0,058
Annual donation to the poor ^d	49/16	13571	18774	5063	5422	8508	0,076
MD students	53/16	0,51	0,50	0,63	0,5	-0,12	-
Age	53/15	25	5,04	24	1,83	1	-
Female	53/15	0,64	0,48	0,53	0,52	0,11	-
Dependents	52/16	1,10	2,22	1,31	3,11	-0,21	-
Wealth ^e	53/16	2,81	0,76	3	0,73	-0,19	-
Rural ^f	53/16	0,25	0,43	0,13	0,34	0,12	-

^a Two-sample Wilcoxon test of the difference between the two groups, p-values reported. Not sign. denoted -.

^b Based 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 off at 3 or 4, a dummy was constructed, taking the value 1 if total agreement, 0 otherwise.

^c Based 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.

^d Zero donations are included.

^e Based 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.

^f A dummy taking the value 1 if the respondent prefers to work in a rural area after completing the studies.

A closer look at our third measure of pro-social preferences, annual donation to the poor, confirms the 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 sector ($p=0,076$). The results are in line with previous surveys of health workers in a high-income context (Shaw et al., 1995, Steele, 1999, Graham and Steele, 2001). We find no differences with respect to education, age, sex, or socioeconomic status between the two groups. The t-tests are not reported in Table 1 as they gave exactly the same results as the non-parametric test.

5.2 The dictator game

Table 2 reports the results of 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 to only 56% of students who prefer to work in the private sector; the difference is significant ($p=0,03$).

Table 2
Donations in the dictator game

	%			Mean donation	
	Public (N=53)	Private (N=16)		Public (N=53)	Private (N=16)
Donated no money	0,17	0,44	**	0	0
Donated all the money	0,28	0,19		2500	2500
Donated some money	0,55	0,37		1004	958
Positive donation	0,83	0,56	**	1508	1472
Average donation	1	1		1252	828

** The difference is significant at the 5% level with both two-sided t-test and the two-sample Wilcoxon ranksum test.

Students who prefer to work in the public sector donate on average 51% more than do students who prefer to work in the private sector¹⁵: 828 TSH compared to 1,252 TSH. 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 sector. The higher share of students who prefer to work in the private sector complies with the prediction of the material self-interest hypothesis¹⁶ (see Table 2) compared to students who prefer to work in the public sector.¹⁷ 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.¹⁸ As discussed earlier, we know 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 sector. Hence, both the survey and the

¹⁵ p=0.078 with a non-parametric two-sample Wilcoxon ranksum test, not significant with the t-test.

¹⁶ 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).

¹⁷ Separate comparisons of means were done for donations to and from nursing and MD students, same and different cadres, and to those able to give feedback and those unable to do so. We may expect an increase in kindness towards others when it is possible to observe kind behaviour (Ellingsen and Johannesson, 2008). We find no differences in how the two groups react to the possibility of receiving a message, *i.e.* receiving praise or criticism from others. Tables can be provided upon request.

¹⁸ p=0.042 with an OLS, p=0.045 with a Tobit regression.

behaviour in the dictator game point to the conclusion that students preferring to work in the public sector have stronger pro-social preferences.

5.3 The trust game

In the first step of the trust game, the average amount sent was approximately 1,000 TSH, or around 25% of the initial endowment. Although the amounts sent by students who prefer to work in the public sector were somewhat higher than those sent by students who prefer to work in the private sector, the difference is not significant at any conventional level.

Table 3 displays the results from the return decision in the trust game, which is similar to the decision made in the dictator game.¹⁹ However, the behaviour we observed is different; students who prefer to work in the public sector returned less than half what the students preferring to work in the private sector did (11.3% versus 28.6%; the difference is significant with the non-parametric test ($p=0,02$) and not significant with the t-test).²⁰

A possible explanation for this apparent anomaly is that both groups care about fair outcomes but have different norms of fairness.²¹ On average, in the first step of the trust game, player 1 sent only 25% of his endowment. With this in mind, it seems that students who prefer to work in the public sector are more inequality-averse than are those who prefer to work in the private sector. If students perceive equal outcomes as fair, they should on average return little or nothing because they were given so little of the initial endowment. Assuming that students who prefer to work in the public

¹⁹ With two exceptions: first, the total endowment in the game is partly decided by player 1; second, the amount returned provides player 2 with a signal about player 1's type. The first implies that player 2 cannot decide by himself how to share the endowment, as part of the decision is already made for him. The second implies that player 2 may use this information to reciprocate. We have not been able to find evidence of reciprocal behaviour, and will thus not focus on this in the following discussion.

²⁰ Note that the number of observations is relatively small. We should thus be careful drawing definitive conclusions from these findings. On the other hand, significant differences in spite of the small number of observations give indicative support to differences in the behaviour of students who prefer to work in the public and private sectors, respectively. We also compared the returned shares after excluding the most extreme positive observation from the group preferring to work in the private sector, in order to check whether the results were driven by this observation. They were not.

²¹ Another explanation for this disparity could be that the two groups of students have different norms of reciprocity. If students who prefer to work in the public sector punish senders of low amounts harder than students who prefer to work in the private sector, this could explain the behaviour we observe in the second step of the trust game. We have tested this but are not able to identify any such behaviour.

sector are more inequality-averse might explain why many students donate money in the dictator game but refrain from doing so in the trust game. These findings square with the hypothesis put forward in the introduction: students who value the provision of health services to the poor are more likely to prefer a job in the public sector.

Table 3
Share returned in the trust game

	Public	Private	Total
Mean	0,113	0,286	0,145
Std. deviation	(0,267)	(0,254)	(0,270)
No. of donations	31	7	38

Note: The difference is significant ($p=0.0185$) with the two-sample Wilcoxon rank sum test, not significant with the two-sided t-test ($p=0.127$).

Students who prefer to work in the private sector on the other hand, returned higher shares in the second step of the trust game. This may reflect a notion that people are entitled to keep their endowments, *i.e.* that they subscribe to a libertarian ideal of fairness.²² This type of ideal would imply their donating nothing in the dictator game (because they got the money in the first place), and almost everything in the trust game (because what they received as player 2 in the trust game can be interpreted as player 1's endowment). Of course, students may have other concerns when they decide on how much to return; we do observe variations in the amounts returned.

6. Discussion

The main results from our survey and economic experiments 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. In the trust game their behaviour also fits with the notion that they are inequality-averse. Before discussing how this could affect payment mechanisms and who should provide public health services, it is necessary to look into the issue of external validity.

6.1 External validity

Economic experiments have become increasingly popular as a method to learn about self- and other-regarding preferences. Experiments are used both to test theories and

²² We refer interested readers to Nozick's seminal work on libertarianism (1974).

to generate new theories. However, it is not unproblematic to use simple laboratory experiments to make extensive inferences on individual motivation. Three problems in particular are discussed in the literature: Falk and Heckman (2009) sum up the critique 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.

The issue of realism may pose a real problem, as we are interested in general pro-social preferences toward other people and not in pro-social preferences toward a specific group in an experiment. Nevertheless, since participants display similar preferences in response to survey questions, we believe our results are likely to reflect deeper underlying preferences rather than phenomena arising in the lab. Furthermore, individuals may act differently when partaking 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 organisers (Levitt and List, 2007). However, these issues are unlikely to explain the difference in behaviour between the two groups. Both groups may be affected by the experiment, but it is notable that findings from the dictator game indicate that they do not react differently to social scrutiny.²³

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 generalising results to the entire population of students.

²³ As mentioned in a footnote earlier, the two groups did not react differently to the possibility of receiving a feedback message in the dictator game.

With regard to stakes being too low, we refer to studies showing that results do not change dramatically when the stakes are increased in an ultimatum and a dictator game (Cameron, 1999, Carpenter et al., 2005).

6.2 Effectiveness of payment schemes in the public and private sectors

If students who prefer to work in the public sector have more pro-social preferences, this can imply that different payment schemes will be more effective in the public sector than in the private 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.²⁴ If employees are motivated mainly by material self-interest and are paid a fixed monthly salary, the principal who is not able to monitor every single action of the employees can expect them to exert as little effort as they can get away with. This is in essence the moral hazard problem, and suggests that the principal should consider some sort of flexible payment, such as performance-based pay, to promote desired behaviour.²⁵

However, health workers with pro-social preferences may genuinely care for their patients; as a consequence, moral hazard may be less of a problem, as workers will do what is in the patient's best interest even when the employer cannot observe them. Following this argument, it is likely that a relatively high share of health workers in the public sector are not susceptible to moral hazard; however, it could still be tempting to use financial incentives to avoid agency problems among individuals motivated mainly by money and who prefer the public sector, as that sector has higher job security. Flexible payment schemes may not be a good idea if they lower performance and motivation among individuals with pro-social preferences. In fact,

²⁴ See Eisenhardt (1989) for an introduction to the agency model and problems.

²⁵ Because performance can be notoriously difficult to measure, it is not straightforward to use performance-based pay in the health sector, even when (and perhaps particularly when) individuals are motivated by material self-interest. Hence, flexible payment schemes need not be optimal even if the self-interest hypothesis is valid. Nevertheless, performance-based payment systems have received increasing attention over the last years, in particular as a means to reach the health-related millennium development goals.

for the public sector, fixed salaries may be preferable to more flexible payment schemes due to motivational crowding-out.

According to motivational crowding-out theory, monetary incentives may crowd out intrinsic motivation (Frey, 1997, Frey and Jegen, 2001, Benabou and Tirole, 2003). Health workers who help others because of pro-social preferences will also be intrinsically motivated if they derive pleasure from doing so. In health care, pro-social preferences and intrinsic motivation are likely to overlap, at least to some extent. Incentive schemes that involve performance monitoring may be perceived as controlling, and the extrinsic incentives provided to reward improved performance may crowd out intrinsic motivation.²⁶

If workers with pro-social preferences are more prevalent in the public sector, managers in that sector should be careful importing payment schemes that have worked effectively in the private for-profit sector.

6.3 Who should provide health services?

Unlike Besley and Ghatak (2007), who argue that it is mainly the services provided that attracts workers and not the ownership of the facility, our results suggest that ownership matters in students' decisions on where to work. However, in Tanzania health care delivery to the poor is provided mainly by the public sector (and the private not-for-profit sector), and we cannot rule out that provision of services to the poor is as important as ownership in explaining what attracts students to the two sectors. In any case, our results provide weak support to Delfgaauw and Dur (2008) and their assumption that the public sector attracts more dedicated workers.

However, even if the public sector attracts more individuals with pro-social preferences (which can solve some agency problems), the private for-profit sector may be better at cutting costs and efficiently providing some types of health services. It seems timely to ask, then, whether it is possible to increase social welfare by contracting out publicly financed health services to the private sector. Francois and

²⁶ See (Frey and Jegen, 2001) for a survey of the empirical evidence.

Vlassopoulos (2008) argue that this is not a good idea, because the private for-profit sector has residual claimants. Workers with pro-social preferences may be reluctant to work hard if they believe owners of private for-profit clinics, rather than patients, will benefit from the fruits of their labour. Such a situation could occur if owners decide to reduce staff so that the remaining staff members are forced to work harder.

The other side of the coin is whether the public sector should provide all health services. However, if there is indeed such heterogeneity in pro-social preferences, as our experiments suggest, this may not be a good idea either. In fact, the existence of two sectors may allow for a matching of individuals and employers, allowing employers in the two sectors to use different payment mechanisms tailored to attract and promote good performance from different types of health workers.

7. Concluding remarks

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. Furthermore, the results of the trust game suggest that the extent to which these students care about others is conditional and linked to inequality aversion.

Self-selection of students with pro-social preferences into the public sector has important policy implications. However, before recommendations can be made, more research is needed; our study is relatively small, with few observations. 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 economic experiments, combined with larger samples than ours, may prove particularly useful in disentangling these effects. Moreover, it could be an interesting exercise to learn more about revealed preferences by following participants over time.

Finally, teachers resemble health workers in many ways; they too have decided to provide a social service typically financed by the public sector, but may differ in their

emphasis on pro-social preferences. Hence, our results may be relevant for this group of workers as well. Experiments similar to ours, only conducted with teaching students, are another interesting avenue for further research on pro-social preferences and selection into public social services.

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