

**OCCASIONAL PAPER SERIES 15/2022**

# **INSTITUTE OF PUBLIC POLICY (IPP)**

**The Role of Intrinsic Generosity  
in School Teacher Motivation:  
Evidence from a Lab-in-the-Field  
Experiment in Pune, India**

**Devarchan Banerjee**

**NATIONAL LAW SCHOOL OF INDIA  
UNIVERSITY (NLSIU)  
BANGALORE  
[www.mpp.nls.ac.in](http://www.mpp.nls.ac.in)**

# **The Role of Intrinsic Generosity in School Teacher Motivation: Evidence from a Lab-in-the-Field Experiment in Pune, India**

by

**Devarchan Banerjee\***

September, 2022

---

\*Devarchan Banerjee is currently Doctoral Scholar at Said Business School, Oxford University. He completed his Masters in Public Policy at National Law School of India University, Bangalore in 2016-2018. This paper is an abridged version of his dissertation as part of Masters programme. The full dissertation could be accessed at NLSIU library.

# **The Role of Intrinsic Generosity in School Teacher Motivation: Evidence from A Lab-in-the-Field Experiment in Pune, India**

**Devarchan Banerjee**

**Abstract:** Teacher attendance, motivation and effort are important constraints in India's public education system, which is plagued by low learning outcomes. While the literature has explained poor performance in education as a function of extrinsic incentives and institutional factors, the factors driving motivated performance are insufficiently studied . This study examines factors driving motivation and effort in 57 teachers from eight low income schools in Pune, India. The study uses a modified lab-in-the-field dictator game to measure intrinsic pro-social (altruistic) preferences of school teachers and collects data on socio-economic, demographic and school-level parameters. It also collects teacher performance indicators through self, peer and supervisor evaluation and creates an Index of Teacher Motivation (TMI). We find a significant association of intrinsic generosity with teacher performance outcomes, a preliminary result which needs further research in larger samples but may suggest the need for exploring beyond incentive-based performance management of school teachers.

# **The Role of Intrinsic Generosity in School Teacher Motivation: Evidence from a Lab-in-the-Field Experiment in Pune, India**

**Devarchan Banerjee**

## **Introduction**

Teacher attendance, motivation, and effort have been identified as important constraints holding back learning outcomes in developing countries. The sources of this motivation are inadequately understood, while the dominant view has focussed on the need for aligning and increasing incentives (Leaver et al. 2019; Duflo, Hanna, and Ryan 2012). Others have looked at management practices, social norms, organizational culture and stakeholder accountability and voice (Leaver, Lemos, and Scur 2019, Matthey-Prakash 2016). This study aims to understand the role that ‘moral-intuitions’ specifically, intrinsic pro-social preferences, as measured through a lab-in the field experiment have to play in motivation and effort undertaken by school teachers in 8 similar low-income schools in Pune. The scope of the study does not include the origin of such preferences, neither does it undermine the role of other factors that might play a role in motivation.

India’s primary education sector has seen drastic expansion in the last few decades. Enrolment has become near universal at 97% but learning outcomes have either stagnated or dropped. The Annual Status of Education Report (ASER), states that on an average only 44% of grade fifth students can read a third-grade text. Though this finding indicates some improvement as compared to the period from 2012-17, there is, however, a significant decline as compared to 53% who could read in 2008 (ASER 2018). Similar findings have been evidenced from countries like Nigeria and Uganda, with UNESCO calling this a “global learning crisis” (PASEC 2015; Bold et al. 2017).

In a nationally representative survey conducted by the World Bank in 2004, it was found that 25% of Indian school teachers were absent from school and only about 50% were actually

teaching on an average day. For states like Jharkhand the figure drops to 42% (Kremer et al. 2005). Poorer countries like Bangladesh (16%) and Zambia (17%) recorded a better performance in the same period. The country's teachers overall were better paid than their counterparts in countries of comparable GDP per capita. There is accumulating evidence in this regard, demonstrating that the increase in salaries of civil servants, especially in developing country contexts are not associated with increased productivity (Bau and Das 2017; Muralidharan 2012).

Teachers account for over 90% of spending on education in developing countries (Saijje 2011). It is estimated that 1.5 billion dollars are lost due to absenteeism (Muralidharan et al. 2017) and most experts agree, that teacher presence and quality is the most important variable for improving learning outcomes (Chetty, Friedman, and Rockoff 2014), which in turn is associated with a country's human development and overall economic performance (Hanushek and Woessmann 2012).

## **Conceptual Frameworks**

In this study we will be examining the factors that drive teacher motivation, this is premised on the understanding that teacher motivation is the prime driver of improved learning outcomes.

Michaelowa defines teacher motivation as the "willingness, desire or drive of individuals to engage in good teaching" (Michaelowa, 2002). A large amount of international evidence exists which suggests that such a motivation has a tremendous impact on student learning.

In a study done in Guatemala, Baeza, Chesterfiel and Moreno conclude that teacher attitude is the most important factor explaining the performance of teachers and the school (Baeza). In East Africa, Anderson (2001) reports that teacher motivation was a key factor in Aga Khan Foundation teacher training programs. In a rigorous cross-country study, which studied 12 developing countries in Africa, Bennell and Akyeampong (2007) single out teacher commitment as the most crucial determinant of learning outcomes. In the same study, Bennell and Akyeampong report that low motivation results in absenteeism, underutilization of class time, professional misconduct, reliance on traditional teaching practices, poor preparation, and secondary income-generating activities that distract from teaching duties. In India, Vimala Ramachandran and Madhumita Pal (2005) point out that faced against difficult odds teachers would get frustrated, give up, and become indifferent even if the children could read or write

Classical motivation thinker Herzberg (1966) separates influences into Hygiene factors and Motivators, arguing that the former, which includes job-security, salary and benefits, can only be the cause of dissatisfaction. That is, their absence can cause dissatisfaction but their presence does not lead to satisfaction. Motivators, which include recognition for one's accomplishments, responsibility, a chance to do something meaningful, decision-making power, and a sense of importance to the organization, are the ones that cause motivation. Chapman et. al, test Herzberg's theory in the school setting and find that economic incentives are related to attendance and job-satisfaction, but not motivated classroom practices (Chapman, 1993).

Benabou and Tirole (2003), in their seminal work on intrinsic and extrinsic motivation, try to reconcile economic literature which focuses on incentives with psychological literature on motivation. They conclude that performance incentives can adversely affect an agent's perception of a task. Incentives, according to them, are only able to influence preferences in the short run. In the long run, they dissipate. In a different article, "Incentives and Prosocial Behaviour", Benabou and Tirole, argue that prosocial behaviour stemming from both altruistic and esteem seeking preferences can be crowded out partially or wholly by external incentives (Bernabou & Tirole, 2006).

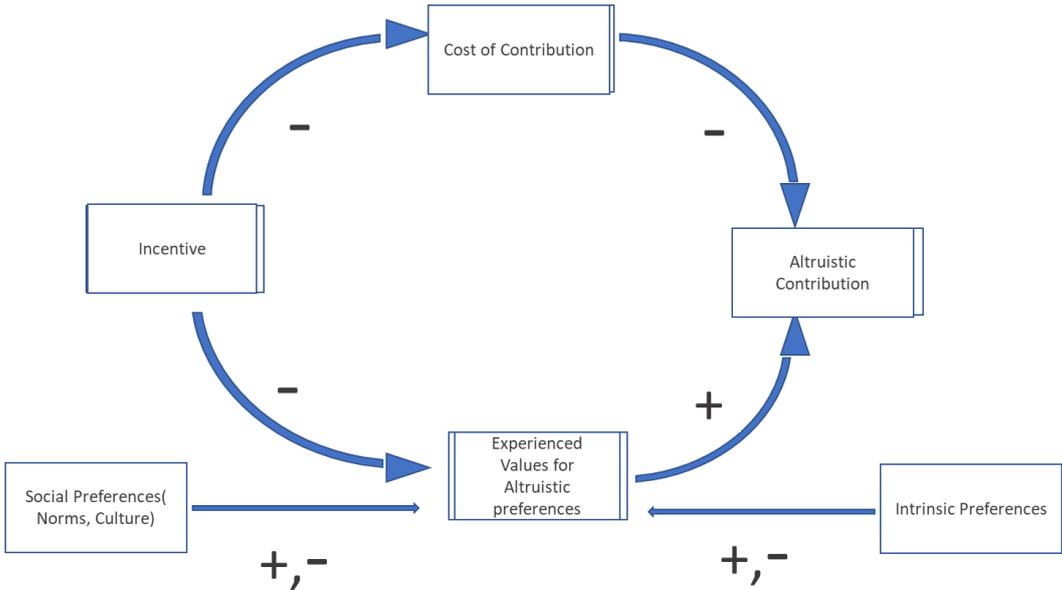


Figure 1: The Drivers of Altruism at work, source (author)

Jonathan Haidt through his moral foundation's theory, speaks of moral actions being driven by 'intuitions first', and moral reasoning being largely used post-hoc to rationalize actions and to convince others. Moral reasoning is possible but rare (Haidt 2012).

In experimental economics and behavioural economics, the dictator game has become one of the standard ways to measure prosocial behaviour. In the game, a "dictator" makes a one-shot division of an endowment between herself and an anonymous "recipient" who must accept the division. Because the dictator does not have any obligation to share his endowment with the beneficiary, the fairness of distribution of the endowment is regarded as proxy for prosocial preferences in the individual (Engel, 2011). Prosocial-preferences in a dictator game have been described as a 'moral-intuition' (Cornelissen, Dewitte, and Warlop 2010).

Research already demonstrates the external validity of the dictator game in measuring prosocial preferences of health workers (Brock, Lange, & Leonard, 2012). However, there has been no 'lab-in-the-field' implementation of this study, with school-teachers in the Indian context.

Despite the widely acknowledged role of teacher motivation, empirical literature on the determinants of teacher motivation in India is sparse and there are no studies that examine its relationship with experimentally measured intrinsic generosity. This is the gap that this study will aim to fill.

## **Methods**

### **Study Design and Sample**

The research was conducted in the city of Pune, Maharashtra (Western India) and its adjoining suburban and semi-urban areas. A total of 61<sup>1</sup> teachers were recruited for the study, from eight schools catering exclusively to low-income children from backward<sup>2</sup> communities. The schools were sampled through convenient and purposive sampling to select those schools which catered almost exclusively to low-income families and had similar infrastructure, facilities (eg. toilets), and salaries and which gave us the permission to conduct the experiment. This was done through data on student enrolment, location of the schools and consultations with government and

---

<sup>1</sup> 57 of 61 teachers completed the experiment

<sup>2</sup> Schools with >70% of students from Dalit, Muslim and OBC families. These social groups have lower economic and human development outcomes due to a legacy of social and economic exclusion.

through insights from partners at Teach for India (TFI<sup>3</sup>) Pune. A school's selection as a TFI school is based on most of its students coming from a low- income background, and having low overall learning outcomes. Partnering with Teach for India fellows, allowed us to gain access to school management and convince participants to take part in our study. The Fellows themselves were not a part of the experiment, given their distinct background and awareness of the experiment.

## **The Experiment**

Two modified versions of the dictator game were played with 57 of the 61 sampled teachers<sup>4</sup>. The first was a blinded (anonymous) game while the second was unblinded (non-anonymous game). The purpose of the game was to measure the intrinsic and peer-facing prosocial tendency (generosity) norms in the teacher. In the anonymous game the identity of the dictator would not be revealed to the beneficiary, whilst in the non-anonymous the dictator's identity would be revealed.

The research aimed to separate the two aspects of generous behaviour, one which is done to keep up the appearance of fairness in a social setting and the other where anonymity protected any loss or gain of reputation. The anonymity would also hide the identity of the beneficiary from the dictator, which would mean that the distribution of the endowment would be based on some intrinsic norm of generosity rather than one which emerges out of kindness or sympathy for a particular identified beneficiary.

Teachers were asked to sit randomly in a classroom and were then divided into two groups. The first group were to be the dictators and the second group were to be the beneficiaries. The Dictators were given an endowment of Rs.300, which they were free to divide as they pleased with a beneficiary who was to be randomly selected from among the beneficiaries after the division. The dictator had to discreetly write the amount of money he would be keeping with himself in an envelope provided. The identity of the dictator or the beneficiary would not be revealed to either party in this case.

---

<sup>3</sup> TFI is an education sector non-profit built on the Teach for America model that places talented college graduates in challenging classrooms with low-income students.

<sup>4</sup> The four other teachers refused to play the game.

In the unblinded (non-anonymous) game, each dictator was assigned a beneficiary randomly, and both parties were informed of each other's identities. The Dictator received an endowment of Rs.300 which he had to share with the (now revealed) beneficiary. The Dictator was again asked to write the money he would be keeping with himself in the envelope provided. It was informed to the dictator that the amount will be revealed to the beneficiary. At the end of the experiment the Dictators were given the amounts that they had decided to keep with themselves, and the Beneficiaries were not informed about the exact amounts that the dictators had shared. Instead, the amounts were averaged for all the beneficiaries. This was done to so that the relationships between the teachers would not be affected and to ensure that all the participants received a decent compensation for their participation.

The headmaster (HM) was consulted beforehand to keep teachers who shared an openly hostile or an overtly friendly relationship in the same group (Dictator or Beneficiary). The questionnaires were administered before the game was played. This ensured that any residual psychological effect from the game would not affect the evaluation. The self-evaluation questionnaires were given only to the dictators while the peer evaluation forms were given to both sets of teachers.

### **Data Collection & Processing**

Along with the experiment, two questionnaires were utilized for the purpose of data collection. The first one was a self-evaluation questionnaire, where the teacher evaluated their own motivation and performance and gave information about qualification, experience, socio-economic background, etc. The second questionnaire was designed for peer evaluation and supervisor evaluation of motivation and performance and was administered to the principal and the peer teacher.

### **Teacher Motivation Index**

In order to have a measure of a teacher's Motivation an index of teacher motivation called the Teacher Motivation Index (TMI) was created. It was calculated as a linear sum of the following variables (themselves a mean of the responses by the three evaluators): teacher attendance, punctuality, students' interest, students' attainment, engagement with extracurricular activities,

engagement in conducting substitution<sup>5</sup> or remedial classes, relationship with parents, initiatives for weak children, leadership roles, positive challenge mind set, and motivation. Cronbach's alpha was used to test the internal validity of composite TMI scores. Cronbach's alpha of .77 and an average interim correlation of .2055 indicated a very good reliability for the composite index<sup>6</sup>.

## **Empirical Strategy**

Socio-demographic characteristics have been described for the entire sample (results included in Supplementary table 1). Variable characteristics are described as mean  $\pm$  standard error or median, unless otherwise specified. Non-normal variables were examined for transformation using the Box-Cox method, and appropriate transformation was applied wherever applicable. One-way analysis of variance followed by Tukey's multiple comparisons was used for comparison of continuous variables among groups. Chi-square tests were used to compare qualitative variables (expressed in proportions) between two or more groups.

For comparing the results from the Dictator game, a t-test was used to investigate the between-group differences in the two types of games (blinded and unblinded). For variables following a non-normal distribution, Kruskal-Wallis tests were used, followed by multiple comparison tests and adjustment of alpha error. The correlation between the outcomes of the TMI and intrinsic generosity was also studied using Spearman's Rho, Kendal's Tau b and Pearson's correlation coefficient.

For studying the factors associated with performance of teachers in low-income schools, multivariable linear regression models were used, adjusting for potential confounding factors. The primary outcome variables were TMI, Teacher Attendance and Student Performance under the teacher concerned (evaluated by their peers, the school principal and Teach-for-India associate). The predictors were blinded generosity (as determined from the dictator's game), socio-economic status of the teacher, educational qualification, demotivation due to salary received, professional experience, relationship with peers, praise or appreciation in schools, job type (temporary or permanent), job preference and self-evaluation score. The models also included control variables for age, sex, caste, religion and type of school (government or private).

---

<sup>5</sup> Taking a class when the assigned teacher has been absent

<sup>6</sup> An analysis of the interim correlations shows us a lack of redundancy among variables.

For outcome variables such as TMI and Student Performances, the following equation will be estimated:

$$y_i = \alpha_1 + \beta_1 BG_i + \beta_2 PJ_i + \beta_3 SD_i + \beta_4 JP_i + \beta_5 SS_i + \beta_6 EQ_i + \gamma X_i + \varepsilon \quad (1)$$

The key explanatory variables are Blinded Generosity (BG), Permanent Job (PJ), Salary Demotivation (SD), Job Preference (JP), Self-evaluation score (SS, estimated from responses by the teachers used to rate themselves on their performance) and Educational Qualification (EQ). The variable  $X_i$  is a vector containing information about socio-economic status (estimated according to the modified SES scales for urban and peri-urban communities in India), professional experience, school-type (government or private) and other socio-demographic variables (age, sex, caste and religion). The aforementioned variables are all measured at the individual level.

For the dependent variable Teacher attendance, the following equation will be estimated:

$$y_i = \alpha_1 + \beta_1 BG_i + \beta_2 PJ_i + \beta_3 SD_i + \beta_4 JP_i + \beta_5 SS_i + \beta_6 EQ_i + \gamma X_i + \varepsilon_i \quad (2)$$

All analyses were conducted using Stata v.15.1.

## **Results:**

### **Results from the Dictator Game**

#### **4.1.1. Differences in Intrinsic Generosity**

The results from the dictator game demonstrated that the mean amount of money that the dictator kept for herself instead of distributing to others was significantly higher when the participants were blinded as compared to when they were non-blinded (Table 1). There was a decrease of Rs. 14.83 (95% CI: 2.16, 31.11; p-value: 0.04) in the amount when anonymity is taken away from the teacher. This implied that for the cohort of teachers in the study, the identity of the beneficiary increased the size of endowment.

**Table 1: Difference in amount of money kept with one-self during the Dictator Game**

Variables	Mean±SE	95% CI	p-value
Blinded (n=57)	177.46±8.52	160.38, 194.53	
Non-Blinded (n=57)	162.63±8.77	145.41, 180.55	0.036*
Difference	14.83±8.31	2.16, 31.11	

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Results from the two-sample t-test with Welch approximation indicated that there was a significant difference ( $p=0.034$ ) in the TMI (Table 2), between teachers who were categorized as generous<sup>7</sup> when compared to those who were not generous<sup>1</sup>. The generous teachers reported on an average a higher score of  $9.5\pm 0.81$ .

**Table 2: Difference in Teacher Motivation by Generosity**

Variables	Mean±SE	SD	p-value
Generous	51.34±1.37	4.30	
Non-Generous	46.85±0.90	6.20	0.034*

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

#### 4.1.2. Self-interested Behaviour in the Blinded Game

There was a small but significant negative correlation between the degree of self-interested behaviour as observed in the blinded game and indicators of teacher performance (punctuality ( $\rho=-0.40$ ;  $p\text{-value}=0.020$ ) and substitution ( $\rho=-0.29$ ;  $p\text{-value}=0.031$ )). The negative relationship is also observed for the consolidated performance measure, Teacher Motivation Index (TMI), which has a Pearson's correlation coefficient of  $-0.40$  ( $p=0.002$ ). This implied that non-generous teachers were less likely to perform better in the teacher performance indicators (like punctuality and efforts for substitution classes) considered in the study. Significant relationships, however, were not observed for variables which looked at parent engagement and peer relationships.

<sup>7</sup> Teachers who contributed more than half their endowment ( $\geq$  Rs. 151) were categorized as generous.

**Table 3: Correlation between blinded generosity and teacher performance indicators**

Variables	Spearman's Rho		Kendal's Tau b		Pearson Correlation	
	Coef	p-value	Coef	p-value	Coef	p-value
Punctuality	<b>-0.40*</b>	0.020	<b>-0.33*</b>	0.002		
Attendance	-	-	-	-	<b>0.32*</b>	0.0119
Student Attainment	-0.24	0.070	--0.19	0.071	-	-
Student Interest	-0.24	0.069	-0.20	0.0580	-	-
Substitution	<b>-0.29*</b>	0.031	<b>-0.22*</b>	0.0286	-	-
Combined Index (TMI)	-	-	-	-	<b>-0.40*</b>	0.002

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

#### 4.1.3. Self-interested Behaviour in the Non-Blinded Game

For the non-blinded dictator neither the consolidated measure (TMI) nor attendance, punctuality or student attainment and interest was significantly correlated with generosity. Extent of substitution was the only indicator which had a significant negative coefficient, but this was insufficient to conclude any general trend for the non-anonymous game.

**Table 4: Correlation between non-blinded generosity and teacher performance indicators**

Variables	Spearman's Rho		Kendal's Tau b	
	Coef	p-value	Coef	p-value
Challenge	-	-	-0.23	0.020
Mindset	-	-	-0.20	0.060
Enthusiastic & Energetic	-	-	-0.20	0.060
Leadership Role	0.20	0.100	-0.16	0.100
Outcome (TMI)	NS	<0.100	NS	<0.100
Substitution	<b>-0.29*</b>	0.0310	<b>-0.22*</b>	0.029
Combined Index (TMI)	-	-	-	-

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

NS- Not Significant

## 4.2. Differences between Schools

In the eight schools that were studied, there was a significant difference in TMI between groups as determined by one-way ANOVA ( $F(7,53) = 3.39, p = .005$ ) as shown in Table 5. Post-hoc analysis with Tukey's test demonstrated that the inter-school variation in TMI scores was high.

**Table 5: Variation of Teacher Motivation Index across schools (ANOVA)**

Source	SS	Df	MS	F	Prob > F
Between Group	653.42	7	93.35	3.39	0.0049
Within Group	1414.98	53	27.83		
Total	2128.40	60	35.47		

SS- Total sum of squares, Df- Degrees of freedom, MS- Mean sum of squares, F- test statistic

This leads to a further investigation of factors in a school that are associated with high teacher performance outcomes.

Variation of intrinsic generosity across schools was also tested using one-way ANOVA (Table 6). There was no significant difference observed in the self-interested behaviour of teachers, as measured through the blinded dictator game ( $F(7,49) = 0.84, p = .55$ ). This implies that prosocial preferences as determined by the current experimental study are independent of the local context (type of school).

**Table 6: ANOVA table For Blinded Dictator Game by School Categories**

Source	SS	Df	MS	F	Prob > F
Between Group	24227.63	7	3461.09	0.84	0.55
Within Group	201023.25	49	4102.52		
Total	225250.88	56	35.47		

SS- Total sum of squares, Df- Degrees of freedom, MS- Mean sum of squares, F- test statistic

Furthermore, in the case of the measure of self-interested behaviour as determined from the nonblinded dictator game, results from the eight schools, that were surveyed, showed that there was a statistically significant difference between groups (Table 7) by one-way ANOVA ( $F(9,47) = 2.17, P=0.042$ ). This implies that the self-interested behaviour shown in an unblinded dictator game is not independent of school context in our study, giving credibility that the experiment may be capturing peer facing and socially driven aspects of generosity.

**Table 7: ANOVA table For Non-Blinded Dictator and TMI**

Source	SS	Df	MS	F	Prob > F
Between Group	84.51	9	9.39	2.17	0.0419
Within Group	203.00	47	4.33		
Total	288.21	56	5.15		

SS- Total sum of squares, Df- Degrees of freedom, MS- Mean sum of squares, F- test statistic

The intrinsic motivation as measured by the blinded dictator game does not show a significant difference across the schools, augmenting our proposition that the blinded dictator game is able to measure some intrinsic aspect of generosity which is not a result of school based contextual factors. Its effect on school performance can therefore be regarded as separate from that of the school. This does not preclude other non-school differences between the teachers, which may have differences on the performance of teachers.

#### **4.3. Factors Associated with High Teacher Motivation and Effort**

We find that, generosity in the blinded dictator game shows a small but significant positive association with all three outcomes, i.e. **Teacher Motivation Index, Teacher Attendance and Student Performance**. For the teacher motivation index, we additionally find a negative association with a perceived lack of praise and appreciation. For Teacher Attendance, we found a negative association with whether or not teaching was the candidate's preference of occupation(Job Preference) and if their job was on a temporary contract. For student performance we found additional associations with job preference as well as teacher qualifications ( $p < 0.05$ , Table 8). It also had a strong positive association with the job being permanent.

The results are summarized in table 8.

**Table 8: Predictors of Teacher Motivation Index in Low-Income Schools**

	Teacher Motivation Index	Teacher Attendance	Student Performance
Explanatory Variables	$\beta$ (95% CI)	$\beta$ (95% CI)	$\beta$ (95% CI)
Blinded Generosity	<b>0.17** (0.05,0.29)</b>	<b>0.214* (0.01,0.41)</b>	<b>0.020** (-0.00,0.04)</b>
Socio-economic status <sup>#</sup>	2.04 (-1.01,5.09)	- 1.01 (-4.69,6.71)	0.296 (-0.11,0.70)
Permanent job	0.89 (-3.31,5.09)	<b>8.19* (0.72,15.66)</b>	-0.058 (-0.48,0.60)
Educational Qualification			
Higher Secondary <sup>®</sup>	Reference		Reference
Graduate	-2.15 (-2.21,6.51)		<b>-0.554* (0.01,1.10)</b>
Post-graduate	-4.48 (-0.12,9.08)		-0.431 (0.15,1.01)
Post-graduate with professional training	-1.832 (-1.90,5.57)		-0.292 (-0.21,0.79)
Salary Demotivation	-0.312 (-1.11,1.74)	- 0.716 (-1.69,3.13)	
Experience	0.055 (-0.18,0.30)	0.083 (-2.33,2.49)	0.02 (-0.00,0.04)
Lacking Praise/Appreciation	<b>-1.25* (0.04,2.45)</b>	-0.409 (-1.84,2.66)	0.02 (-0.00,0.04)
Peer Relationships	1.255 (-0.69,3.20)	1.502 (-1.99,4.99)	0.113 (-0.13,0.35)
Job Preference	-0.483 (-0.76,1.73)	<b>-2.26* (0.03,4.49)</b>	<b>-0.113* (-0.05,0.27)</b>

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001 (reported only in case of significance)

The model presented is additionally adjusted for age, sex, caste, religion and type of school (government of private)

<sup>#</sup> Socio-economic status was included as a binary variable indicating whether the teacher belonged to the same socio-economic status as the majority of the students in the school. Considering the fact that the study only included low-income schools, socio-economic status was designated as 1 if the teacher also belonged to a lower-middle to low SES group (calculated as per the modified SES scales for urban and peri-urban communities in India (Singh et al., 2017; Shilpa et al., 2015; Kumar et al., 2013), 0 otherwise.

<sup>®</sup> Reference category

## Discussion and Implication

In the current study, intrinsic generosity is a small but significant predictor for teacher outcomes. Along with a perceived lack of praise and appreciation it is the only variable consistently associated with the combined teacher motivation index. Some associations like the relationship of attendance with the permanent job is a reaffirmation of conventional studies. We also find that a graduate degree is connected to student performance, but a postgraduate education is not. A result we shall not examine here.

Both the and the need for praise and appreciation, and generosity in our experiment are not preferences that are driven by economic rationality. Therefore, as Bernabou and Tirole suggest, incentives and sanctions may not be the most effective path towards stronger performance. Yet,

Most of the literature on improving public services continues to exert that the best way to improve performance is through an application of incentives and sanctions which preclude such rationality.

A committed teacher in a low-income school, like the ones we observed in Pune, has a very difficult job. Their students are undisciplined and violent. They often have behavioural issues stemming from factors at home which can range from neglect to physical abuse. Academically, most of the children are behind their grade level. More troublingly, a single class can have students of three different grade levels studying together. To sustain high levels of motivation in such a scenario needs tremendous patience and sacrifice.

In our experiment, teachers as a group display far greater amounts of generosity than other population groups, with the mean endowment being 40% of the whole amount— a full 20% higher than the amount that emerges out of large replicable studies on randomized groups of the population (Engel, 2011).

Even in more ordinary cases, the idea that motivated teachers are altruistic individuals is something most would have an intuitive agreement with. However, the empirical validation of the fact can lead to finding a more critical understanding of the motivation processes of teachers.

In the status quo, there is almost no incentive structure that exists which can reward such performance. It can be even argued that it is difficult, if not impossible, to build an incentive structure at all because the constituents of roles are dynamic. More worryingly, if it is indeed made into a system of rewards, there is evidence to believe that the many of the individuals who are not performers will find ways to access the reward without any fundamental change in the performance norm.

This will be achieved through a state of collusive manipulation and innovative strategies to “game” the reward system (Banerjee, Duflo, & Glennerster, 2008). The whole effort would entail crowding out activities from the moral domain into the domain of strategy and economic rationality, as suggested by Samuel Bowles (Bowles, 2016).

If non-economic rationality is indeed explaining a part of the difference in performance of teachers, we must strive to make this behaviour more salient, while recognizing and rewarding it in an appropriate manner. An approach based solely on economic rewards or punishments is ill-equipped to address it.

It is important to note that the economic factors involved in performance are not being underestimated in their importance. If the economic conditions are drastically different it can often override any moral prerogative (Bowles, 2016). Indeed, a deplorably meagre salary or an abnormally high reward can have significant impacts on performance. However, in the equilibrium scenario, where it is only possible to provide marginal rewards or hand out moderate sanctions, it would be unwise to ignore the prosocial tendencies as we seek to understand and improve the performance of frontline public workers.

## Bibliography

- Anderson, S. (2002). *Improving schools through teacher development: : Case studies of the Aga Khan Foundation* . Routledge.
- Baeza, C. a. (n.d.). *Guatemala Basic Education Strengthening Project Evaluation Report for USAID*.
- Benabou, R., & Tirole, J. (2003). Intrinsic and Extrinsic Motivation. *Review of Economic Studies*, 489-520.
- Bennell, P. a. (2007). Teacher Motivation in Sub-Saharan Africa and South Asia. *Researching the Issues*, 7179.
- Bernabou, R., & Tirole, J. (2006). Incentives and Prosocial Behaviour. *The American Economic Review*, 16521678.
- Bowles, S. (2016). *The Moral Economy: Why Good Incentives are no substitute for good citizens*.
- Cornelissen, Gert, Siegfried Dewitte, and Luk Warlop. 2010. "Social Value Orientation as a Moral Intuition: Decision-Making in the Dictator Game." SSRN Scholarly Paper ID 978469. Rochester, NY:Social Science Research Network.
- Camerer, C. (2003). *Behavioral game theory: Experiments in Strategic Interaction*. Princeton, New Jersey: Princeton: Princeton University Press.
- Chapman, D. W. (1993). Teacher Incentives in the Third World. *Teaching and Teacher Education*, 301-316.
- Duflo, E., Hanna, R., & Ryan, S. P. (2012). Incentives Work: Getting Teachers to Come to School. *American Economic Review*, 1241-1278.
- Engel, C. (2011). Dictator games: a meta study. *Experimental Economics*, 583–610.
- Gneezy, U., & Rustichini, A. (2000, January). A Fine is a Price. *Journal of Legal Studies:University of Chicago*, pp. 1-18.
- Haidt, Jonathan. 2012. *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. Vintage.
- Herzberg, F. I. (1966). *Work and the nature of man*. Oxford: Oxford University Press.
- Kahneman, Daniel, J. L., & Thaler., R. H. (1986). "Fairness as a Constraint on Profit Seeking: Entitlements in the Market." *American Economic Review*, 728–41.
- Kremer, Michael, & Chen, D. (2001). Interim Report on a Teacher Attendance Incentive Program in Kenya.
- Kumar, B. R., Dudala, S. R., & Rao, A. R. (2013). Kuppaswamy's socio-economic status scale—a revision of economic parameter for 2012. *Int J Res Dev Health*, 1(1), 2-4.
- List, J. A. (2007). On the Interpretation of Giving in Dictator. *Journal of Political Economy*.

- Leaver, Clare, Renata Lemos, and Daniela Scur. 2019. *Measuring and Explaining Management in Schools: New Approaches Using Public Data*. Policy Research Working Papers. The World Bank. <https://doi.org/10.1596/1813-9450-9053>.
- Matthey-Prakash, Florian. 2016. "School Management Committees as a Means for Bottom-Up Implementation of the Right to Education in India." *Verfassung Und Recht in Übersee/LAW AND POLITICS IN AFRICA | ASIA | LATIN AMERICA*, 193–215.
- Michaelowa, K. (2002). *Teacher Job Satisfaction, Student Achievement, and the Cost of Primary Education in FrancoPhone Africa*. Hamburg Institute of International Economics.
- Shilpa, S., & Maheshwaran, R. (2015). Revised socio-economic status scale for urban and rural India—Revision for 2015.
- Ramachandran, V., & Pal, M. (2005). *Teacher Motivation in India*. DFID and Knowledge and Skills for Development.
- Singh, T., Sharma, S., & Nagesh, S. (2017). Socio-economic status scales updated for 2017. *Int J Res Med Sci*, 5(7), 3264-7.