

# Distance and Accountability in Schools

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## 1 Introduction

### 1.1 To ensure accountability monitoring matters.

In a centralised setup, monitoring becomes difficult as the distance from the district HQ increases.

Therefore, maybe distance from the district HQ can be used as a proxy for monitoring in government institutions.

At the same time, distance should not matter in private institutions.

### 1.2 Concerns

Endogeneity - People become poorer as distance increases.

## **2 Creating an Index for Wealth**

### **2.1 The following variables were used to create an index for wealth**

#### **2.1.1 Categorisation of the village based on population**

Variable Type: Categorical

Variable Name: PopCat

PopCat == 1 , if Less than 1000

PopCat == 2 , if Population between 1001 and 5000

PopCat == 3 , if Population greater than 5000.

#### **2.1.2 Do any people come to this village from outside to work during the year?**

Variable Type: Categorical

Variable Name: OutsidePeople

OutsidePeople == 0, if none

OutsidePeople == 1, if less than 20

OutsidePeople == 2, if more than 20

#### **2.1.3 Number of people who leave for seasonal work**

Variable Type: Categorical

Variable Name: PeopleLeaveWork

PeopleLeaveWork = 0 if Number == 0

PeopleLeaveWork = 1 if  $0 < \text{Number} \leq 500$

PeopleLeaveWork = 2 if  $500 < \text{Number} \leq 2000$

PeopleLeaveWork = 3 if  $\text{Number} > 2000$

#### **2.1.4 Does the village have access to Landline?**

Variable Type: Dummy

Variable Name: LandlineAccess

#### **2.1.5 Does the village have access to Mobile?**

Variable Type: Dummy

Variable Name: MobileAccess

#### **2.1.6 Access to a bank**

Variable Name: Bank

Variable Description: Distance (in 10s of kilometers) of the nearest bank branch

### 2.1.7 Percentage households in a village which have electricity

Variable Name: PercHouseElec

### 2.1.8 SC/ST population Dummy

Variable Name: ScPopDummy

Variable Description: 1 if the village has population of scheduled castes and scheduled tribes greater than 50%.

### 2.1.9 Piped water

Variable Name: PipeWater

Variable Description: 1 if the most common source of drinking water is piped water.

## 2.2 Distribution of Wealth Index and Distance

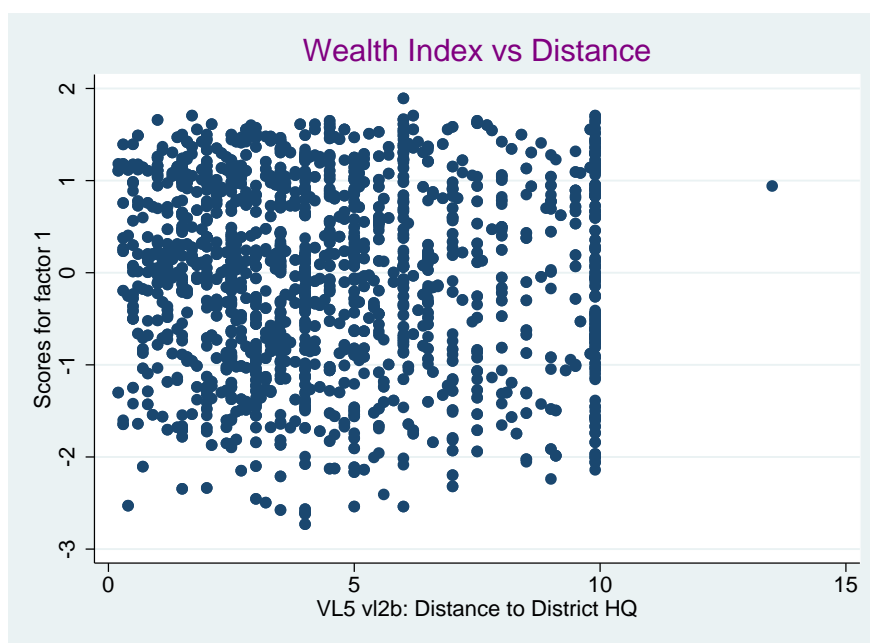


Figure 1: Wealth Index vs Distance

### 3 School level outcome variables and results

All regressions are fixed effects at the district level.

#### 3.1 Vacancy Ratio

##### 3.1.1 Vacancy Ratio when we do not consider part time teachers

VacancyRatio = UnfilledPositions/FullTimeTeachers

Column 4 is fixed effect with standard errors clustered at the district level.

When we cluster at the district level for the case of private schools then standard errors decrease instead of increasing.

- Government Schools

VARIABLES	(1) VacancyRatio	(2) VacancyRatio	(3) VacancyRatio	(4) VacancyRatio
Distance	0.0321*** (0.00774)	0.0311*** (0.00783)	0.0327*** (0.00785)	0.0327*** (0.00816)
WealthIndex		-0.0353 (0.0300)	0.0513 (0.0492)	0.0513 (0.0458)
Interaction			-0.0169** (0.00758)	-0.0169** (0.00653)
Constant	0.246*** (0.0385)	0.248*** (0.0388)	0.240*** (0.0389)	0.240*** (0.0364)
Observations	1,344	1,328	1,328	1,328
R-squared	0.015	0.018	0.022	0.022
Number of Group	249	248	248	248

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

- Private Schools

VARIABLES	(1) VacancyRatio	(2) VacancyRatio	(3) VacancyRatio	(4) VacancyRatio
Distance	0.00268 (0.00317)	0.00237 (0.00321)	0.00155 (0.00323)	0.00155 (0.00240)
WealthIndex		-0.0200 (0.0126)	-0.0502** (0.0203)	-0.0502*** (0.0191)
Interaction			0.00606* (0.00318)	0.00606* (0.00310)
Constant	0.0484*** (0.0151)	0.0498*** (0.0153)	0.0537*** (0.0154)	0.0537*** (0.0104)
Observations	1,059	1,047	1,047	1,047
R-squared	0.001	0.004	0.009	0.009
Number of Group	236	235	235	235

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.1.2 Vacancy Ratio when we do consider part time teachers

$VacancyRatio2 = UnfilledPositions / (FullTimeTeachers + PartTimeTeachers)$

Column 4 is fixed effect with standard errors clustered at the district level.

- Government Schools

VARIABLES	(1) VacancyRatio2	(2) VacancyRatio2	(3) VacancyRatio2	(4) VacancyRatio2
Distance	0.0297*** (0.00599)	0.0282*** (0.00604)	0.0294*** (0.00606)	0.0294*** (0.00700)
WealthIndex		-0.0365 (0.0232)	0.0325 (0.0379)	0.0325 (0.0392)
Interaction			-0.0134** (0.00585)	-0.0134** (0.00583)
Constant	0.182*** (0.0298)	0.186*** (0.0299)	0.180*** (0.0300)	0.180*** (0.0313)
Observations	1,344	1,328	1,328	1,328
R-squared	0.022	0.025	0.030	0.030
Number of Group	249	248	248	248

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

- Private Schools

VARIABLES	(1) VacancyRatio2	(2) VacancyRatio2	(3) VacancyRatio2	(4) VacancyRatio2
Distance	0.00228 (0.00311)	0.00199 (0.00314)	0.00124 (0.00317)	0.00124 (0.00230)
WealthIndex		-0.0194 (0.0124)	-0.0474** (0.0199)	-0.0474** (0.0185)
Interaction			0.00560* (0.00311)	0.00560* (0.00302)
Constant	0.0483*** (0.0148)	0.0495*** (0.0150)	0.0531*** (0.0151)	0.0531*** (0.0100)
Observations	1,059	1,047	1,047	1,047
R-squared	0.001	0.004	0.008	0.008
Number of Group	236	235	235	235

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.2 Attendance Ratio

#### 3.2.1 Overall Attendance Ratio

AttendanceRatio = Attendance/Enrollment

Column 2 is fixed effect with standard errors clustered at the district level.

- Government Schools

VARIABLES	(1) AttendanceRatio	(2) AttendanceRatio
Distance	0.00144 (0.00136)	0.00144 (0.00150)
WealthIndex	-0.000819 (0.00853)	-0.000819 (0.00815)
Interaction	0.000586 (0.00132)	0.000586 (0.00150)
Constant	0.860*** (0.00675)	0.860*** (0.00673)
Observations	1,322	1,322
R-squared	0.001	0.001
Number of Group	248	248

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

- Private Schools

VARIABLES	(1) AttendanceRatio	(2) AttendanceRatio
Distance	-0.00283 (0.00465)	-0.00283 (0.00262)
WealthIndex	0.0272 (0.0293)	0.0272 (0.0312)
Interaction	-0.00340 (0.00458)	-0.00340 (0.00423)
Constant	0.938*** (0.0222)	0.938*** (0.0108)
Observations	1,043	1,043
R-squared	0.002	0.002
Number of Group	234	234

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.2.2 Attendance Ratio for Girls

AttendanceRatioGirls= GirlsAttendance/Enrollment

Column 2 is fixed effect with standard errors clustered at the district level.

The coefficient in the case of private schools is negative and significant. This is the only case when the coefficient is significant when the outcome variable is any type of attendance ratio.

- Government Schools

VARIABLES	(1) AttendanceRatioGirls	(2) AttendanceRatioGirls
Distance	-0.000578 (0.00165)	-0.000578 (0.00163)
WealthIndex	0.00625 (0.0104)	0.00625 (0.00970)
Interaction	6.84e-05 (0.00160)	6.84e-05 (0.00139)
Constant	0.435*** (0.00818)	0.435*** (0.00726)
Observations	1,315	1,315
R-squared	0.001	0.001
Number of Group	248	248

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

- Private Schools

VARIABLES	(1) AttendanceRatioGirls	(2) AttendanceRatioGirls
Distance	-0.00330 (0.00228)	-0.00330** (0.00167)
WealthIndex	0.0175 (0.0143)	0.0175 (0.0138)
Interaction	-0.00132 (0.00224)	-0.00132 (0.00196)
Constant	0.416*** (0.0109)	0.416*** (0.00713)
Observations	1,037	1,037
R-squared	0.006	0.006
Number of Group	234	234

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 3.3 Other Outcomes

We are still waiting for data on the main outcome variable i.e Percentage of teachers actually present on the day. We also ran the regression on other indicators of quality. The results indicated are for government schools only.

#### 3.3.1 Pupil teacher ratio

#### 3.3.2 Quality of cooked meals provided in school (QualityMDM)

QualityMDM: 0 => No free food  
QualityMDM: 1 => Grain  
QualityMDM: 2 => Dalia  
QualityMDM: 3 => Variety of meals

#### 3.3.3 Frequency of Cooked Meals (FrequencyMDM)

FrequencyMDM: 0 => Not at all  
FrequencyMDM: 1 => A few days  
FrequencyMDM: 2 => most days  
FrequencyMDM: 3 => everyday



### 3.3.4 Does the school have a kitchen - Dummy (Kitchen)

### 3.3.5 Does the school have a cook - Dummy (Cook)

### 3.3.6 Results

VARIABLES	(1) PTR	(2) QualityMDM	(3) FrequencyMDM	(4) Kitchen	(5) Cook
Distance	1.161** (0.550)	0.000428 (0.00873)	0.000903 (0.0106)	-0.00942* (0.00569)	-0.00766 (0.00537)
WealthIndex	5.013 (3.440)	0.101* (0.0547)	0.0624 (0.0661)	0.0133 (0.0356)	-0.00607 (0.0336)
Interaction	-0.841 (0.531)	-0.00239 (0.00843)	-0.00309 (0.0102)	0.00213 (0.00549)	-0.00116 (0.00518)
Constant	52.01*** (2.720)	2.483*** (0.0432)	3.287*** (0.0523)	0.708*** (0.0282)	0.450*** (0.0266)
Observations	1,328	1,329	1,329	1,329	1,329
R-squared	0.006	0.007	0.001	0.004	0.002
Number of Group	248	248	248	248	248

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1