Showmanship

Healthcare Provider Generosity and Effort

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Introduction

- How to incentivize healthcare providers to exert higher effort with patients?

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- How do healthcare providers who exhibit large levels of generosity treat patients when they do or do not know that they are being observed?

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- How to incentivize healthcare providers to exert higher effort with patients?
- How do healthcare providers who exhibit large levels of generosity treat patients when they do or do not know that they are being observed?
- Reputation plays a role in provision of healthcare in rural Bihar
- Contribute to growing literature using "lab-in-field" experiments to understand healthcare provider behavior

Preview of Results

- Large donation correlated with more effort, when providers *know* they are being observed

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- Large donation not correlated with more effort, when providers *do not know* they are being observed

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- Large donation correlated with more effort, when providers *know* they are being observed
- Large donation not correlated with more effort, when providers *do not know* they are being observed
- Quality premium in prices - providers are able to charge more for observable qualifications and effort

Context

- Ample access to healthcare in developing country contexts (Das et al, 2008; Banerjee et al 2004)

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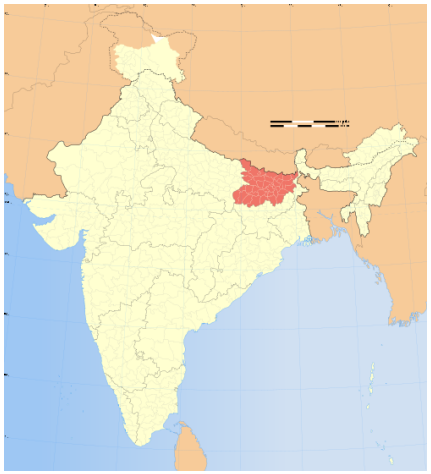
- Quality of healthcare is low
  - only 4% of our sample has an MBBS (comparable to Das et al 2016)
  - interactions are less than 2 min in our SP data (comparable to Das et al 2008)
  - inaccurate diagnoses and overprescription of treatments (Das and Hammer 2004a, Das and Hammer 2004b)

Data: Bihar



- rural Bihar
- 377 providers
- 11 districts

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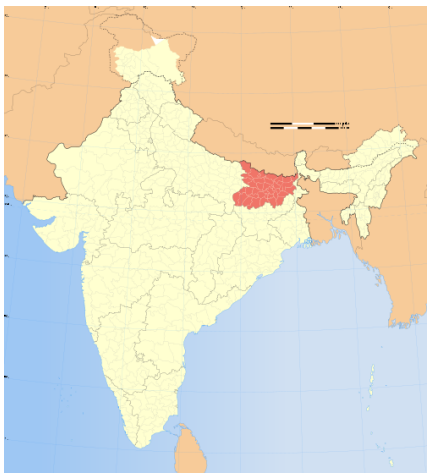

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- Less than 5% have MBBS
- almost 100% are private
- 98% male

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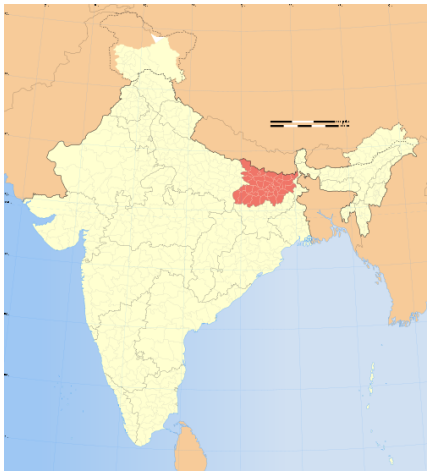

- rural Bihar
- 377 providers
- 11 districts
- Less than 5% have MBBS
- almost 100% are private
- 98% male
- 14 patients a day, on average (self report)
- 17 years of experience, on average
- 74 INR consulting fee, on average
- 512 INR income/day, on average

Data

Generosity Game

- Provider is given 100 INR in 10 INR notes

Data

Generosity Game

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- Provider is reminded of SmileTrain

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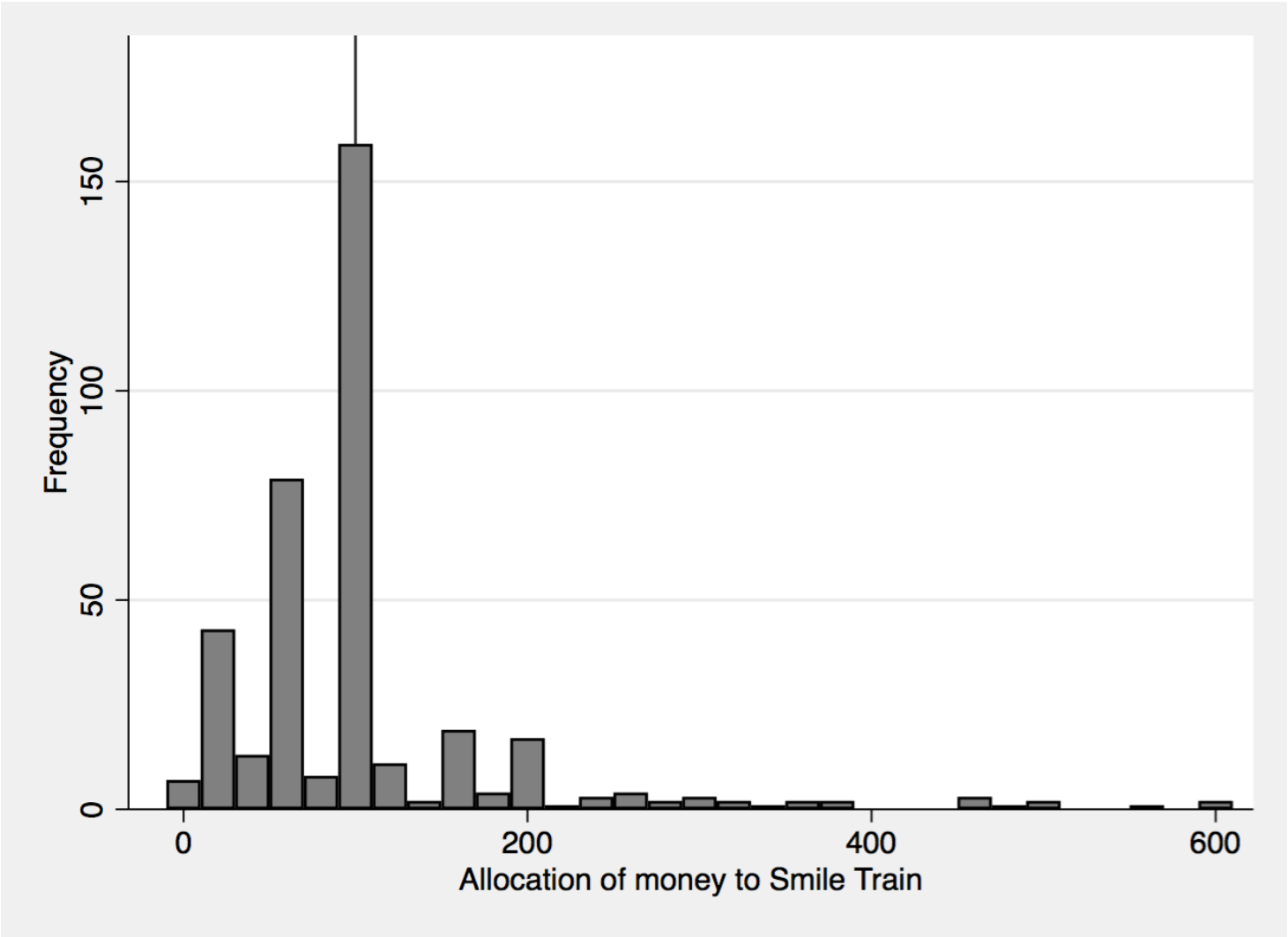
Generosity Game

- Provider is given 100 INR in 10 INR notes
- Provider is reminded of SmileTrain
- Provider is given an envelope, and asked if he is interested in donating to SmileTrain

Histogram of Donations to SmileTrain



Data

Provider Observation Data

Measures provider performance, when provider *does* know they are being observed

- Unannounced visit
- Enumerator observes the practice for a full day
- Measures patient demographics, caseload, and provider-patient interactions
- Outcomes: physical examination, gave immediate treatment, number of medicines, etc

Data

Standardized Patient Data

Measures provider performance, when provider *does not* know they are being observed

- 5 SPs
- SP presents one of two cases:
  1. Father with child presenting symptoms of pneumonia
  2. Father with child presenting symptoms of diarrhea
- Outcomes: diagnosis questions, treatment accuracy, explanations, length of time, etc

Provider Observation Regressions

$$y_{ijd} = \beta_0 + \beta_1 donation\_over100_{id} + \beta_2 patients_{id} + \Gamma X_{id} + \Lambda K_{ijd} + \delta_d + \varepsilon_{ijd} \quad (1)$$

- Providers know that they are being observed
- unit of observation: provider/patient interaction
- SE clustered at provider level
- X_{id}: age, age squared, years of experience, MBBS, BAMS, other educ, allopathy, Ayurveda/natural, average caseload, public provider, sells medicines, average fee, infrastructure index
- K_{ijd}: age, gender of patient

Provider Observation Regressions

VARIABLES	(1) Physical examination	(2) Written documents	(3) Gave instructions	(4) Immediate treatment	(5) Minutes	(6) Number of medicines	(7) Number of history questions
donation_over100	0.00592	0.0733*	0.0109	0.0271	0.559	0.188**	0.231*
	(0.0323)	(0.0413)	(0.0396)	(0.0359)	(0.352)	(0.0919)	(0.122)
patients	0.00230	-0.000505	0.00248	-0.000758	-0.0964*	-0.00244	-0.00809
	(0.00464)	(0.00354)	(0.00313)	(0.00505)	(0.0545)	(0.00974)	(0.0143)
Constant	0.221	-0.127	0.635**	1.242***	15.08***	3.359***	3.899***
	(0.251)	(0.303)	(0.287)	(0.271)	(3.109)	(0.709)	(0.863)
Observations	2,673	2,673	2,673	2,673	2,673	2,673	2,673
R^2	0.128	0.336	0.059	0.129	0.047	0.071	0.080
District FE	YES	YES	YES	YES	YES	YES	YES
SP FE	NO	NO	NO	NO	NO	NO	NO
Covariates	YES	YES	YES	YES	YES	YES	YES
Mean	.566	.337	.68	.288	7.648	3.582	3.011

Standardized Patient Regressions

$$y_{ikd} = \beta_0 + \beta_1 donation\_over100_{id} + \beta_2 sp\_diarrhea_{ikd} + \Gamma X_{id} + \delta_d + \rho_k + \varepsilon_{ikd} \quad (2)$$

- Providers do not know that they are being observed
- unit of observation: provider/SP interaction
- bootstrapped SE
- X_{id}: age, age squared, years of experience, MBBS, BAMS, other educ, allopathy, Ayurveda/natural, average caseload, public provider, sells medicines, average fee, infrastructure index

SP - Diagnosis

VARIABLES	(1) Correct diag	(2) Asked to see child	(3) Num history Qs	(4) Num cause Qs	(5) Num severity Qs	(6) Num essential Qs
donation_over100	0.0181	-0.0111	0.103	-0.0287	0.0540	0.0253
	(0.0338)	(0.0677)	(0.236)	(0.138)	(0.0875)	(0.147)
sp_diarrhea	-0.0455	-0.243	-0.640	0.0307	0.554***	0.585
	(0.0630)	(0.149)	(0.515)	(0.214)	(0.191)	(0.425)
Constant	-0.0469	0.707*	4.360**	1.207	0.943**	2.149*
	(0.272)	(0.427)	(1.984)	(1.081)	(0.373)	(1.298)
Observations	318	318	318	318	318	318
R^2	0.152	0.214	0.270	0.225	0.220	0.185
District FE	YES	YES	YES	YES	YES	YES
SP FE	YES	YES	YES	YES	YES	YES
Covariates	YES	YES	YES	YES	YES	YES
Mean	.069	.261	3.16	1.305	.248	1.553

SP - Treatment

VARIABLES	(1) Correct treat	(2) ORS	(3) Counselling about food	(4) Explanation
donation_over100	0.0465	0.0534	0.0169	0.00939
	(0.0374)	(0.0754)	(0.0233)	(0.0305)
sp_diarrhea	-0.150***		0.0709	-0.0673*
	(0.0548)		(0.0513)	(0.0357)
Constant	0.175	-0.240	-0.0491	1.247***
	(0.210)	(0.533)	(0.101)	(0.144)
Observations	318	160	316	318
R^2	0.226	0.148	0.127	0.270
District FE	YES	YES	YES	YES
SP FE	YES	YES	YES	YES
Covariates	YES	YES	YES	YES
Mean	.079	.138	.022	.940

SP - Overall

VARIABLES	(1) Global Assessment Scale	(2) Minutes
donation_over100	0.0710**	0.0220
	(0.0358)	(0.0983)
sp_diarrhea	-0.222***	0.236
	(0.0837)	(0.204)
Constant	2.119***	2.000**
	(0.347)	(0.851)
Observations	316	318
R^2	0.234	0.291
District FE	YES	YES
SP FE	YES	YES
Covariates	YES	YES
Mean	1.874	1.754

Price Regressions

$$total\_charge_{ijd} = \gamma_0 + \Gamma X_{id} + \Lambda W_{ijd} + \delta_d + \varepsilon_{ijd} \tag{3}$$

- unit of observation: provider/patient interaction
- bootstrapped SE
- X_{id}: provider/facility characteristics
- W_{ijd}: provider-patient interaction characteristics

Price - Provider Observations

VARIABLES	(1) total_charge	(2) total_charge
donation_over100		1.974
		(3.539)
mbbs	56.10***	43.66***
	(6.597)	(7.213)
age	0.0580	0.127
	(0.117)	(0.107)
minutes	1.975***	2.091***
	(0.432)	(0.481)
Injection given	4.794	5.432
	(5.309)	(6.170)
IV given	38.29**	39.75**
	(17.56)	(18.18)
Written documents	-20.82***	-22.89***
	(3.832)	(3.925)
Instructions given	9.046***	8.627***
	(3.148)	(2.980)
Physical examination	8.355***	8.250***
	(2.800)	(3.003)
Immediate treatment	6.258	7.807*
	(3.993)	(4.658)
Number of medicines	20.31***	20.73***
	(2.139)	(1.857)
night facility	7.197***	9.685***
	(2.657)	(3.125)
child	-4.550	-7.019**
	(3.474)	(2.903)
female	3.657	3.956
	(3.295)	(3.455)
Constant	-17.93	-23.57***
	(11.32)	(7.862)
Observations	2,905	2,673
R^2	0.212	0.213
District FE	YES	YES
SP FE	NO	NO
Mean	73.334	73.334

Price - SP

VARIABLES	(1) fee_total	(2) fee_total	(3) fee_total
donation_over100		-3.496	-3.496
		(6.506)	(5.966)
mbbs	35.11*	16.46	16.46
	(19.64)	(13.16)	(19.92)
age	-0.196	-0.0900	-0.0900
	(0.202)	(0.258)	(0.212)
minutes	9.866***	10.23***	10.23***
	(2.816)	(3.625)	(3.622)
medicines dispensed	-5.690	0.498	0.498
	(8.380)	(11.05)	(12.87)
any treatment	21.78	23.06	23.06
	(18.01)	(19.38)	(20.13)
explanation	55.05***	46.32**	46.32**
	(18.98)	(18.29)	(18.80)
night facility	-11.51**	-10.54*	-10.54
	(4.696)	(5.504)	(6.724)
correct treatment	-23.13**	-23.05***	-23.05**
	(10.11)	(7.338)	(9.762)
pneumonia			34.09**
			(14.63)
Constant	19.65	18.92	-15.17
	(15.08)	(16.71)	(17.62)
Observations	379	345	345
R^2	0.396	0.384	0.384
District FE	YES	YES	YES
SP FE	YES	YES	YES
Mean	67.977	67.977	67.977

Conclusions

- Providers who donate out of pocket during lab-in-field games exert more effort with patients when they know that they are being observed.
- Can't discern differences between these providers and their peers when they don't know they are being observed
- Reputation seems to matter for rural healthcare providers