How to encourage service delivery to the poor: Intrinsic motivation, extrinsic incentives, and effort

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What we do…

- Lab-in-the-field experiment to test the impact of financial incentives (bonuses) on the effort that health professionals allocate to the poor
  - "Poor bonus"
- (Non-random) Sample of real health professionals (doctors, nurses, and midwives)
  - Working in small health clinics in rural Burkina Faso
- Assigned to different pay schemes (4 treatments)
  - Flat pay; nonpoor bonus; equal bonus; poor bonus
- Lab-in-the-field experiments measure:
  - Measure I: Allocation of effort to poor
  - Measure II: Pro-poor motivation

Experiment details

- 1,029 health professionals from health facilities in five regions (Gourcy, Kaya, Koudougou, Nouna, and Ouahigouya) in Northern Burkina Faso
  - Nurses – 552
  - Midwives – 124
  - Doctors and other - 353
- Subjects participated in activity for 90 minutes on average, and were paid in cash towards the end of the activity
  - All activities were conducted in French
  - Average earnings: 6,000 CFA ($12)
- Average age: 36 years old
- Gender: 59% female
- Average salary: 139,332 CFA per month (Approx. $280)

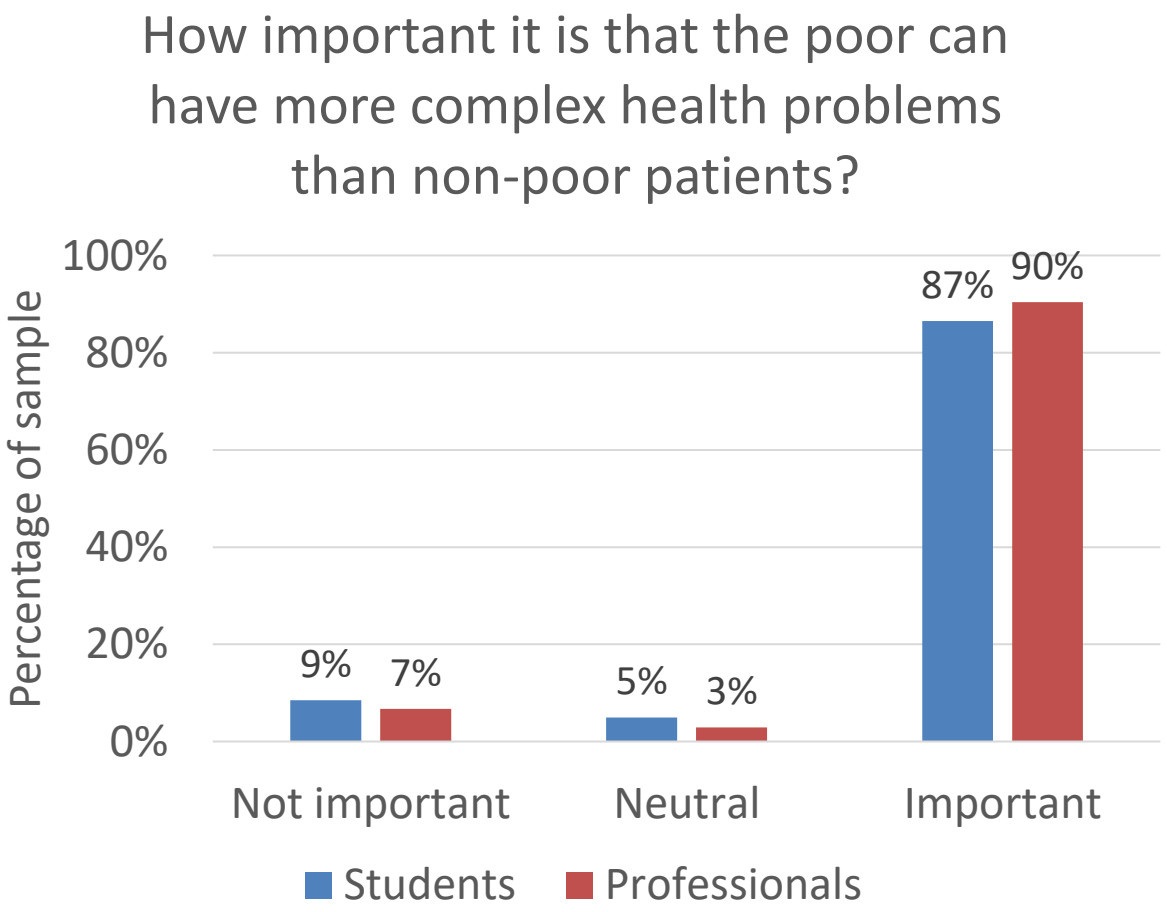
Lab-in-the field summary

- Medical real-effort task mimics a health facility
  - Health professionals have a limited amount of time (11 minutes = 1 day) to see as many patients as they can
  - Watch videos with maternal or child health cases
  - “Waiting room” has 16 patients, 8 non-poor, and 8 poor
  - Multiple choice questions about diagnostic, treatment and follow-up
  - Workers can see whichever patients they wish, in whichever sequence they choose
  - Correct responses generate donations to the charity (schools)
- Treatments vary incentive structure

Is serving the poor really different from serving the non-poor? - I

Complexity

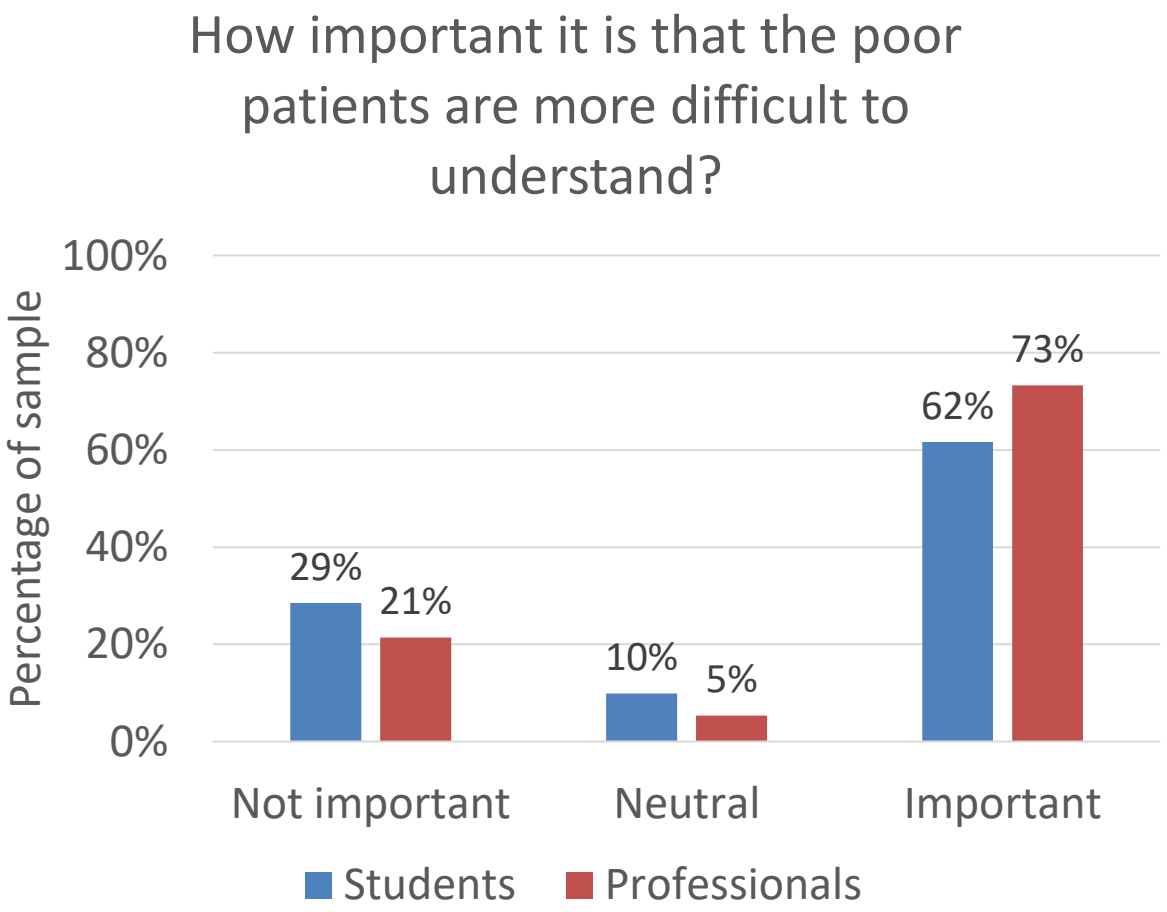
- Poor have more symptoms, making diagnosis harder (Wagstaff, Bredenkamp and Buisman, 2014; Peters et al., 2008; among others)



Is serving the poor really different from serving the non-poor? - II

Communication

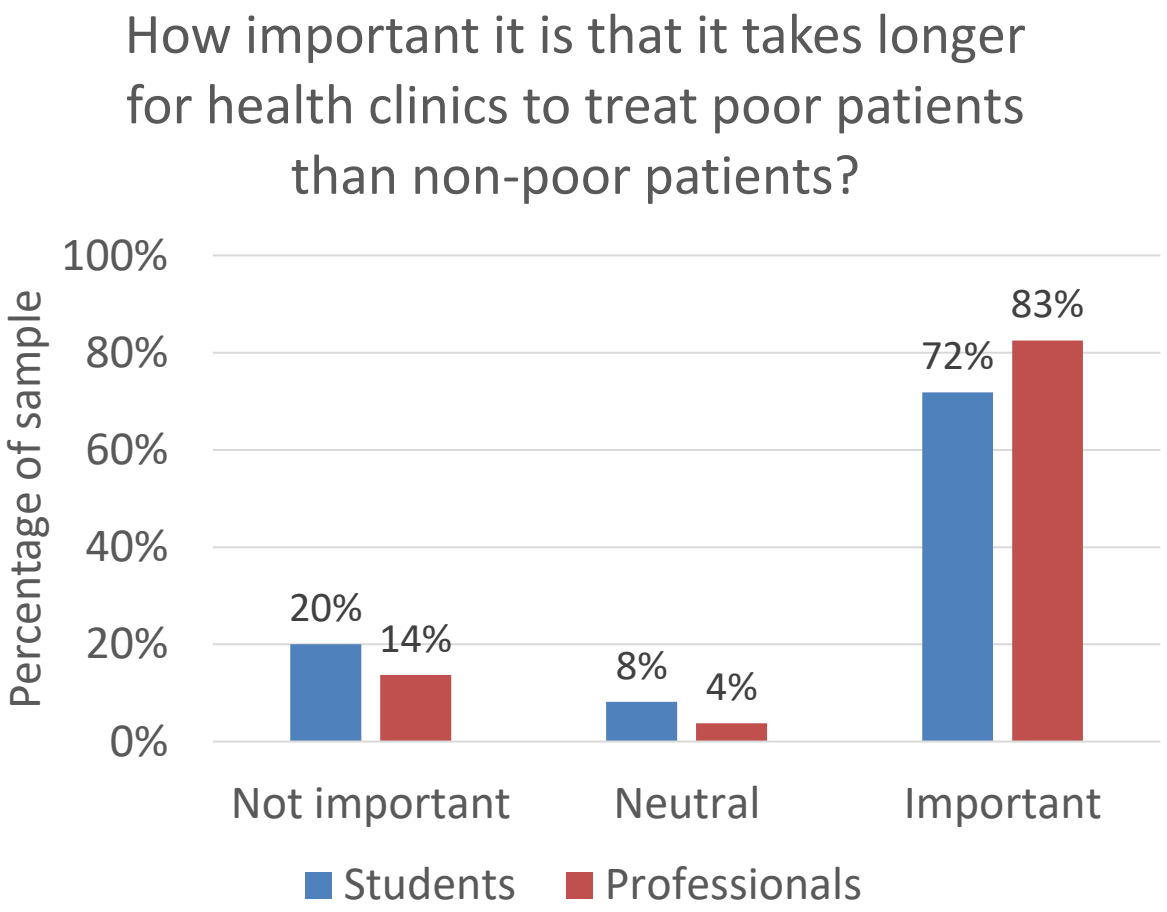
- Communication with poor is more difficult (Loignon et al. 2015; Willems et al. 2005; Street, 1992)



Is serving the poor really different from serving the non-poor? - III

Time

- Due to the difficulties with communication and complexity, require greater time needed to resolve poor cases (Loignon, 2015)



“Non-poor” vs. “Poor” patients

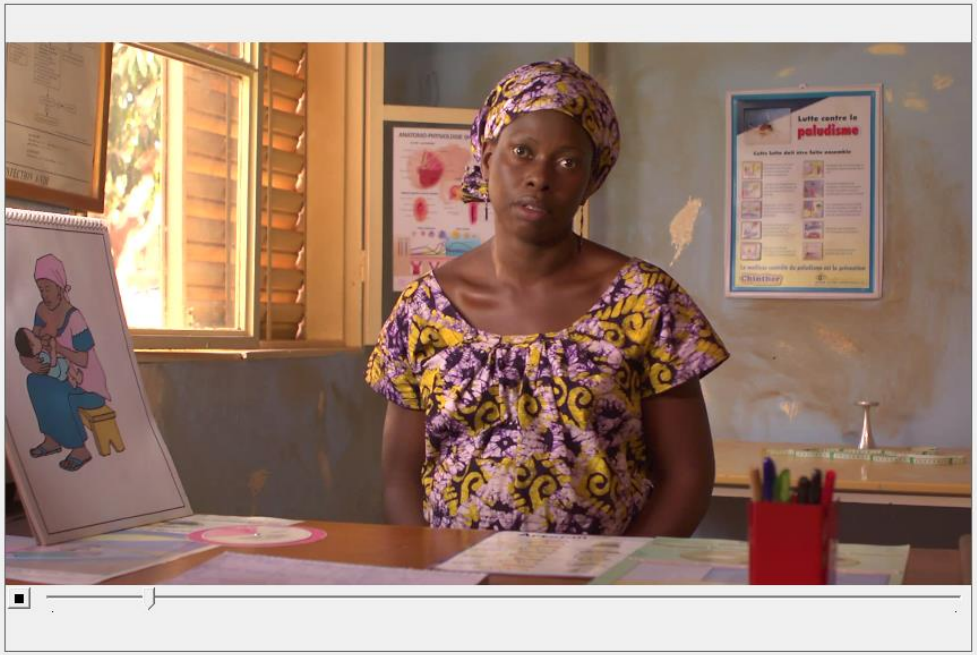
Non-poor patient

Poor patient

English transcript of (poor) case

"Hello Doctor. My husband and I come from a village far from here. It is beyond the hill, just after the area with the thorny bushes. We had to walk for more than two hours in order to get your help for our child. He is 6 months old, and does not feel well at all. He has been coughing for more than 5 days. He has a runny nose and his body is very hot. My poor child, we can feel that he is suffering a lot. When he coughs, we can hear from a distance whistling sounds. My child is very tired and he is not breastfeeding as usual. Last night I did not sleep at all, because his breathing was heavy and fast. But it didn't stop my husband from snoring as usual. *This morning, my baby seems a bit agitated; he cries incessantly, and his face is paler than usual. Help us Doctor. Save our child."*

Sample case screenshot



Signes vitaux:

- Température : 37°6 C
- Tension artérielle: 110/80 mmhg
- Conjonctive : coloration normale
- Rythme cardiaque foetal : 130 battements/mn
- Absence d'oedèmes des membres inférieurs

Signes additionnels:

- L'examen gynécologique révèle des pertes évidentes mélangées avec du sang et une dilatation du col de l'utérus à 1 cm.
- Pas de signes objectifs d'infection vaginale
- Femme primipare

1) Quel est le diagnostic le plus probable?

A) Rupture utérine	B) Rupture prématurée des membranes	C) Eclampsie	D) Accouchement prématuré	E) Candidose vaginale
Répondre (A)	Répondre (B)	Répondre (C)	Répondre (D)	Répondre (E)

Case questions

1) What is the most probable diagnosis?		
A	Ruptured uterus	Incorrect
B	Premature membranes ruptured	Almost
C	Eclampsia	Incorrect
D	Preterm labour	**Correct**
E	Vaginal candidiasis	Almost

2) What is the most appropriate treatment?		
A	Magnesium sulphate IV	Incorrect
B	Tocolysis with Salbutamol IV	**Correct**
C	Nystatine tablets	Almost
D	Amoxicillin tablets	Almost
E	Caesarean-section	Incorrect

3) When should you see the patient for a follow-up after the completion of the initial treatment?		
A	4 days	Incorrect
B	7 days	**Correct**
C	10 days	Incorrect
D	30 days	Incorrect
E	A follow-up visit is not necessary	Incorrect

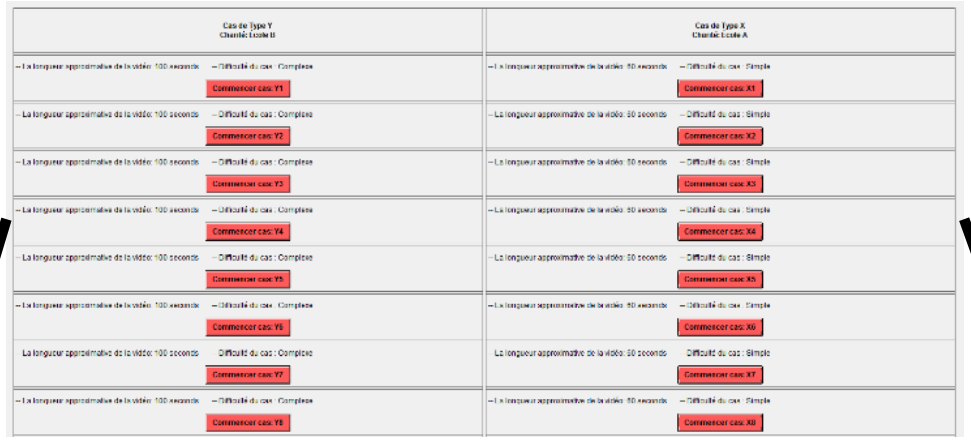
4) What is likely to be the best alternative treatment for the patient (for example, if the patient's condition does not improve)?		
A	Refer to emergency unit	Incorrect
B	Deliver the woman	**Correct**
C	Amphotericin B tablets	Almost
D	Blood transfusion	Incorrect
E	Close surveillance	Almost

Effort matters!

Correct answers yield donation to one of two schools

Non-poor School *(Le Creuset Plus)*

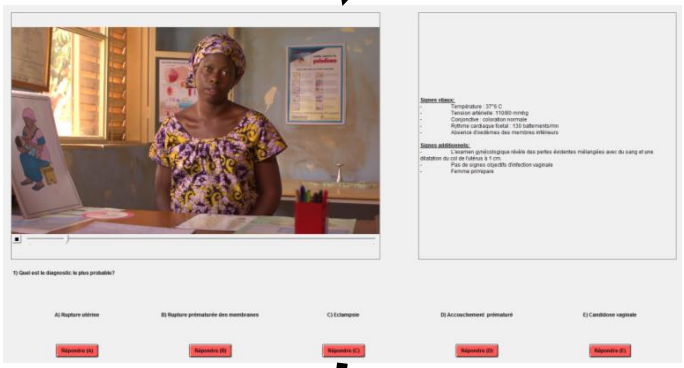
Poor School *(Gampela 3)*

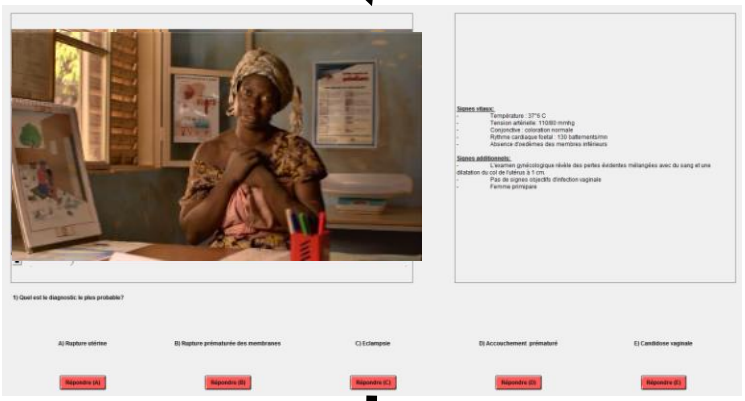


Choose non-poor case

Choose poor case

11 minutes total (1 “day”)





Effort generates benefits for non-poor

Poor cases are different:

- **Take longer 100 sec vs. 60** (time disincentive)
- **Have more symptoms** (complexity disincentive)
- **More difficult to understand** (communication disincentive)

- But: **Benefit poor populations** (larger prosocial incentive)

Effort generates benefits for poor

Measure II: Pro-poor motivation

- Problem: How do we measure motivation for serving the poor?
- Standard dictator game: measures pro-social motivation/preference
  - Subjects given a fixed sum and are asked whether they would like to donate some of the money to *an anonymous partner or charitable organization*
- Modified dictator game: measures preferences for serving the poor
  - Subjects given a fixed sum (2500 CFA: $5) and are asked whether they would like to donate some of the money to *a wealthy school* *and/or* *a poor school*
  - Since the only difference between the two schools is wealth levels of the students (next slide), preferences for serving the poor is defined as the proportion of total donation directed to the poor school

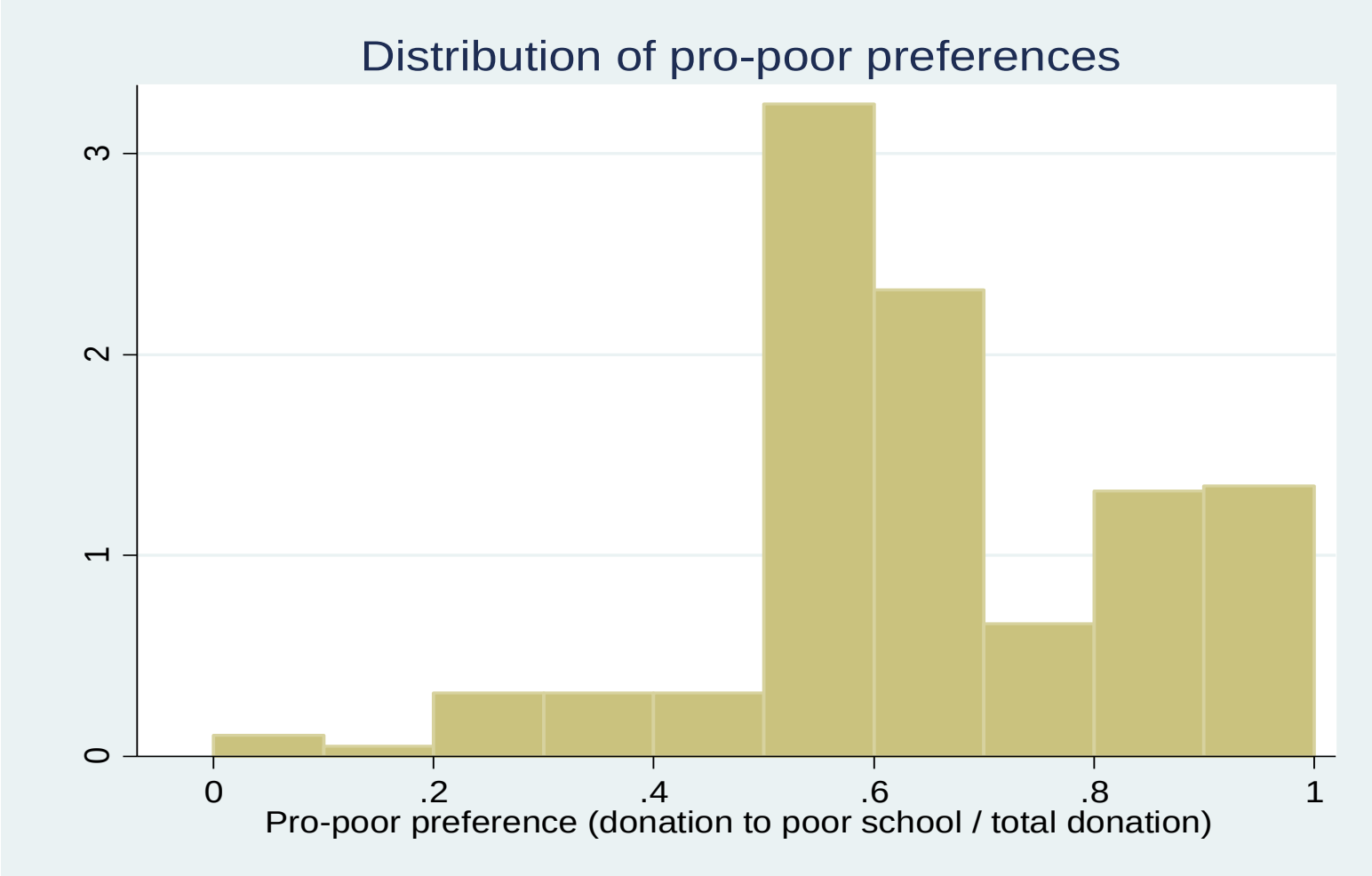
Measure II: Pro-poor motivation

Non-poor School *(Le Creuset Plus)*

Poor School *(Gampela 3)*

Measure II: Pro-poor motivation

Distribution of giving to poor school / total giving



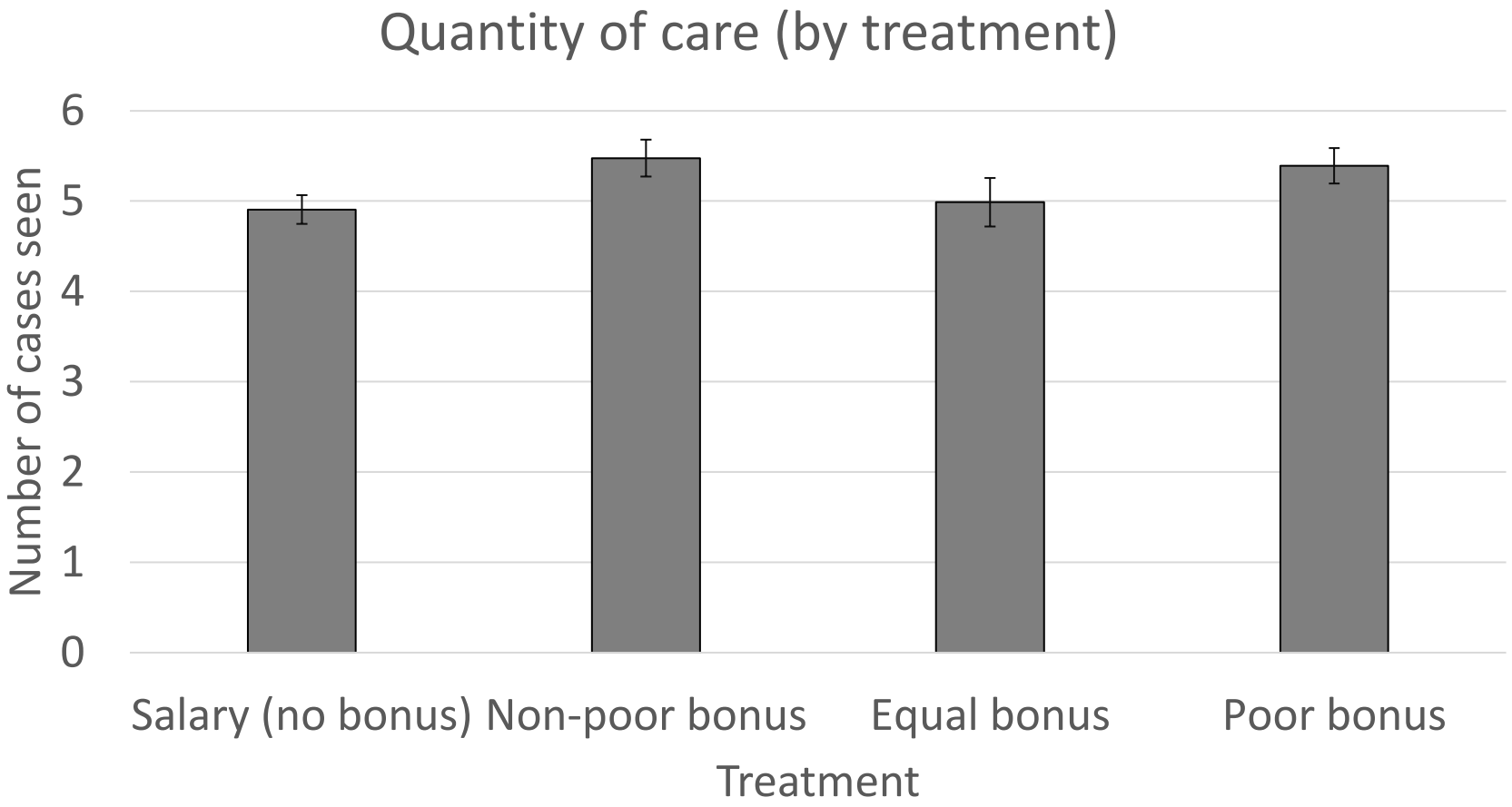
Treatments

		---Payment scheme---	
	Fixed component	Piece rate for nonpoor cases	Piece rate for poor cases
Salary	4,000 CFA	-	-
Non-poor bonus	4,000 CFA	100 CFA/case	-
Equal bonus	4,000 CFA	100 CFA/case	100 CFA/case
Poor bonus	4,000 CFA	100 CFA/case	**200** CFA/case

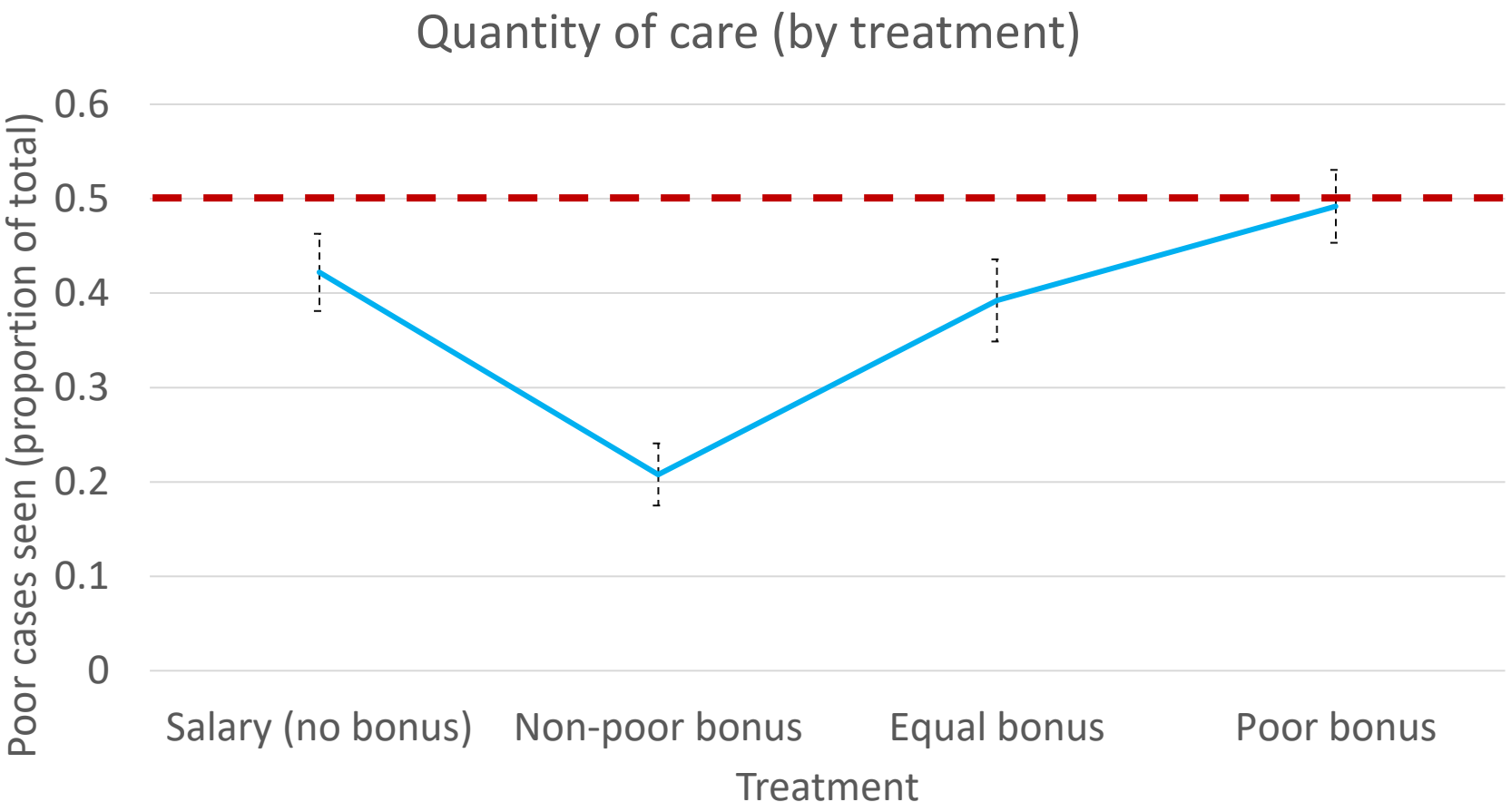
Quick summary

- Experiment to test the impact of financial incentives (bonuses) on the effort that health professionals allocate to the poor
  - “Poor bonus”
- Assigned to different pay schemes (4 treatments)
  - Flat pay (baseline)
  - Nonpoor bonus; equal bonus; poor bonus
- Measure:
  - Allocation of effort to poor
  - Pro-poor motivation

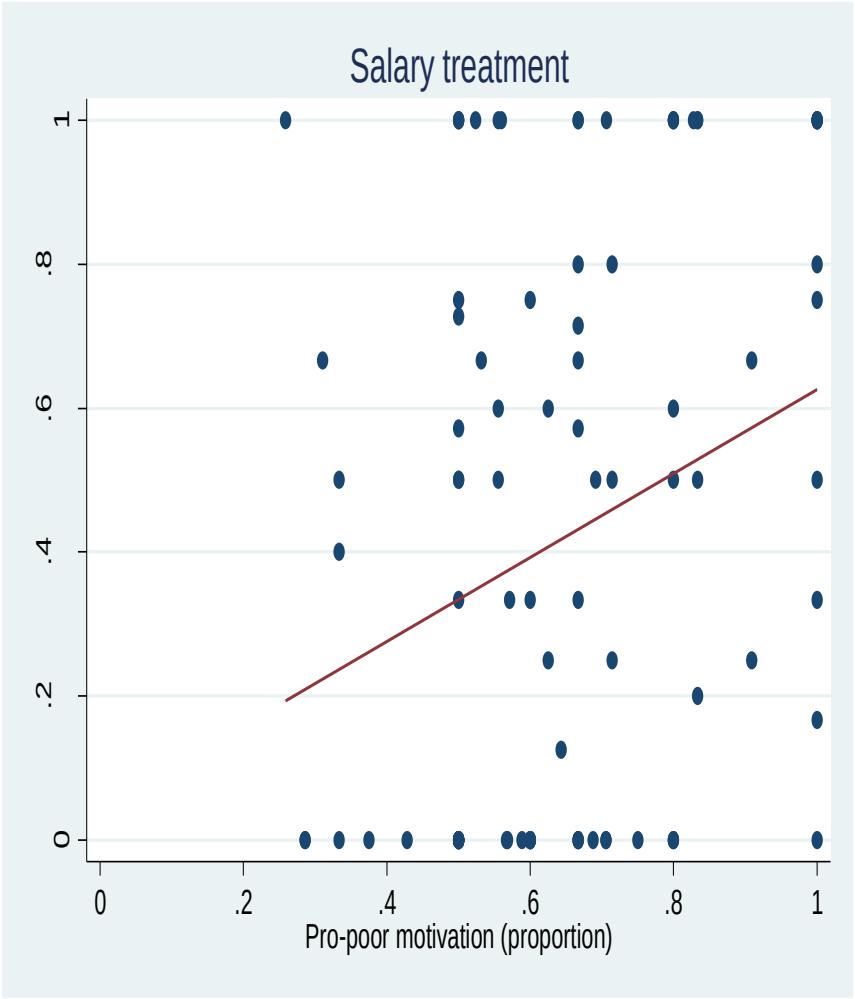
Results: Health worker response to incentives

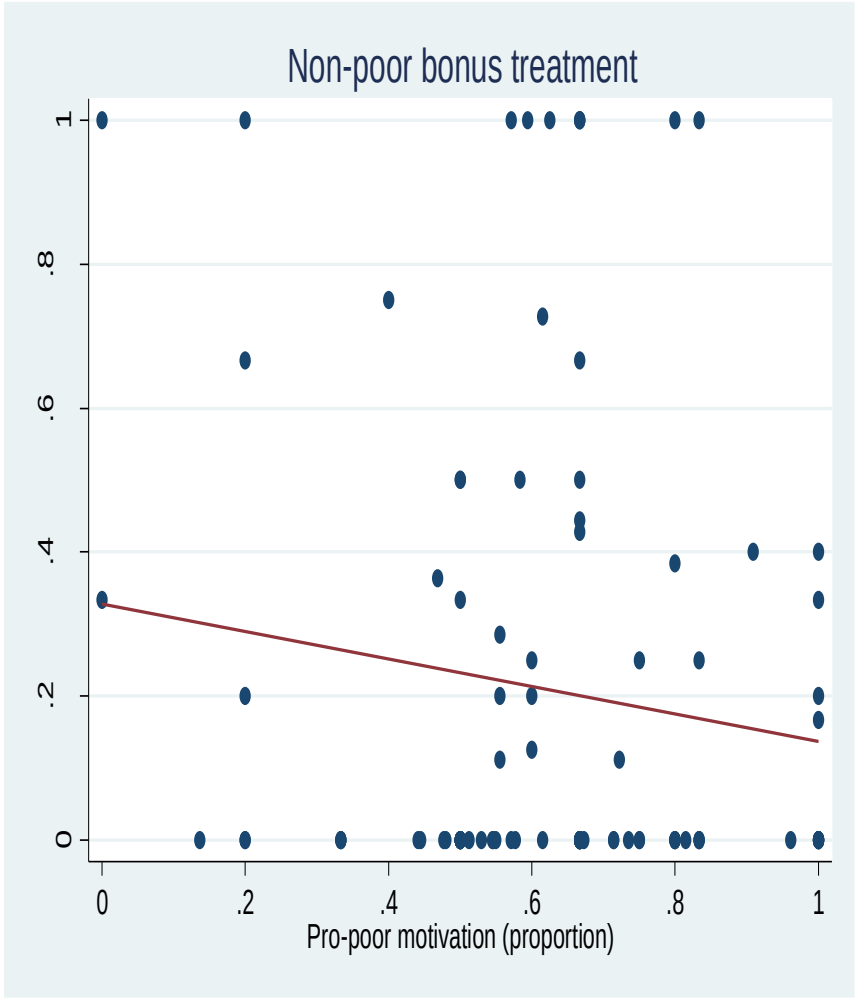


Results: Health worker response to incentives

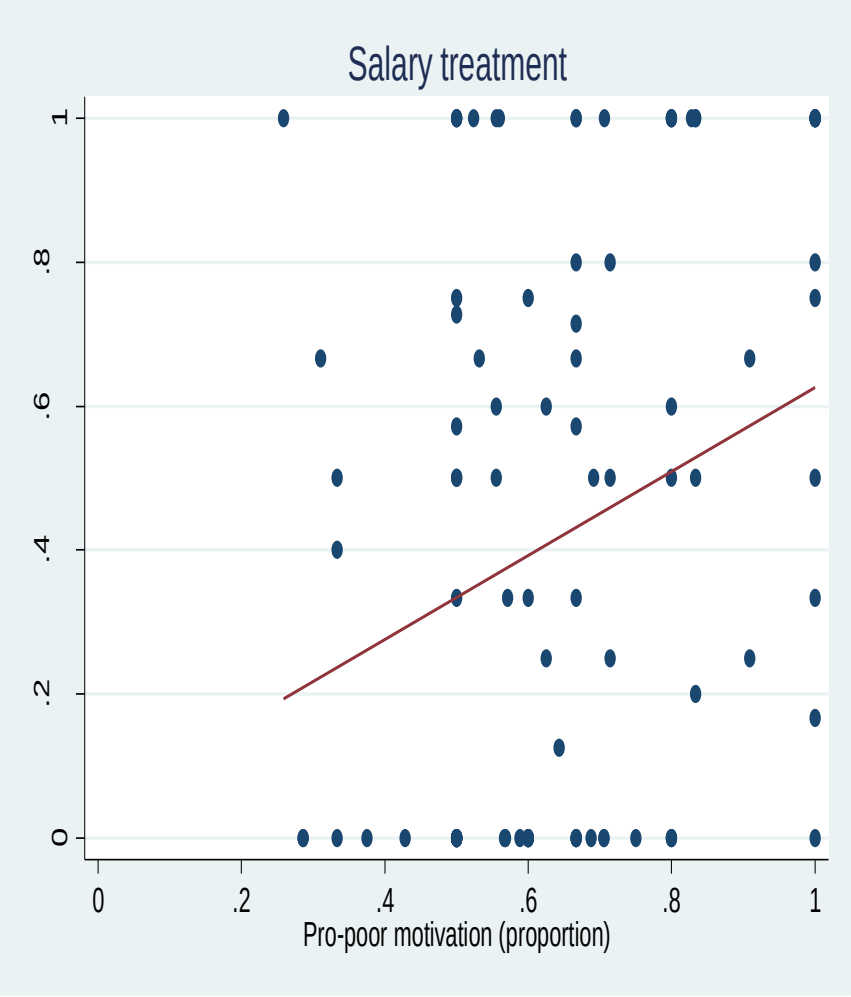


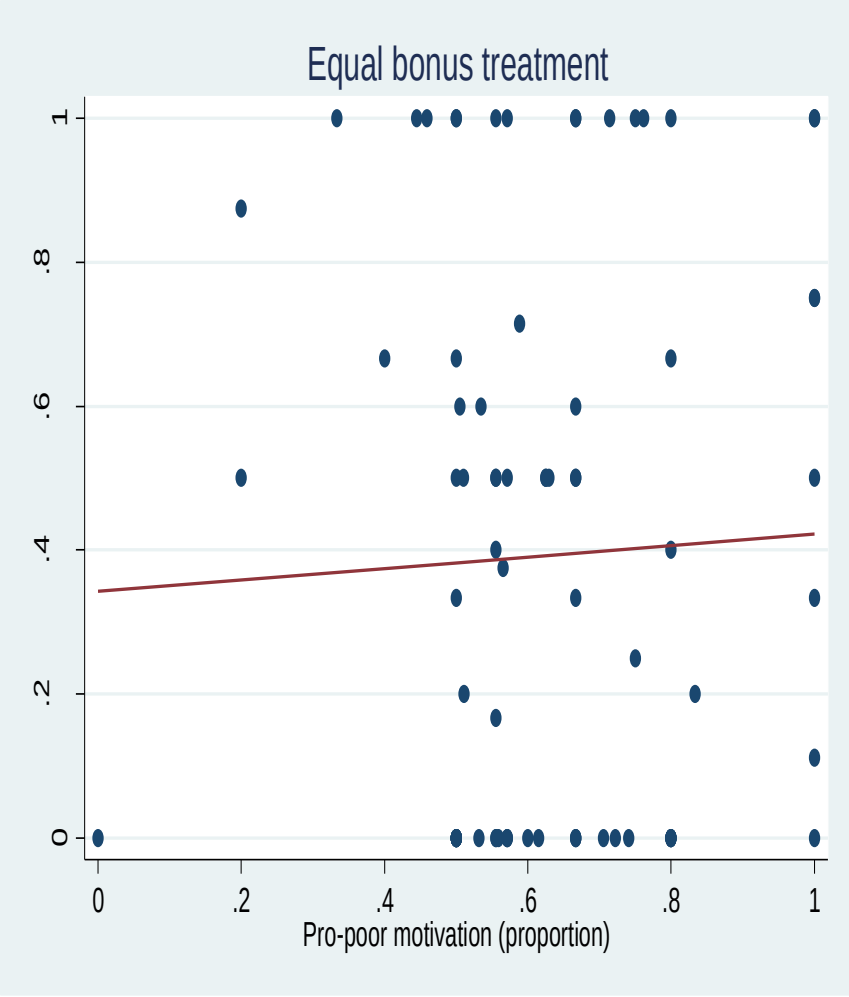
Results: Pro-poor health workers respond to the non-poor bonus by reducing their effort towards the poor



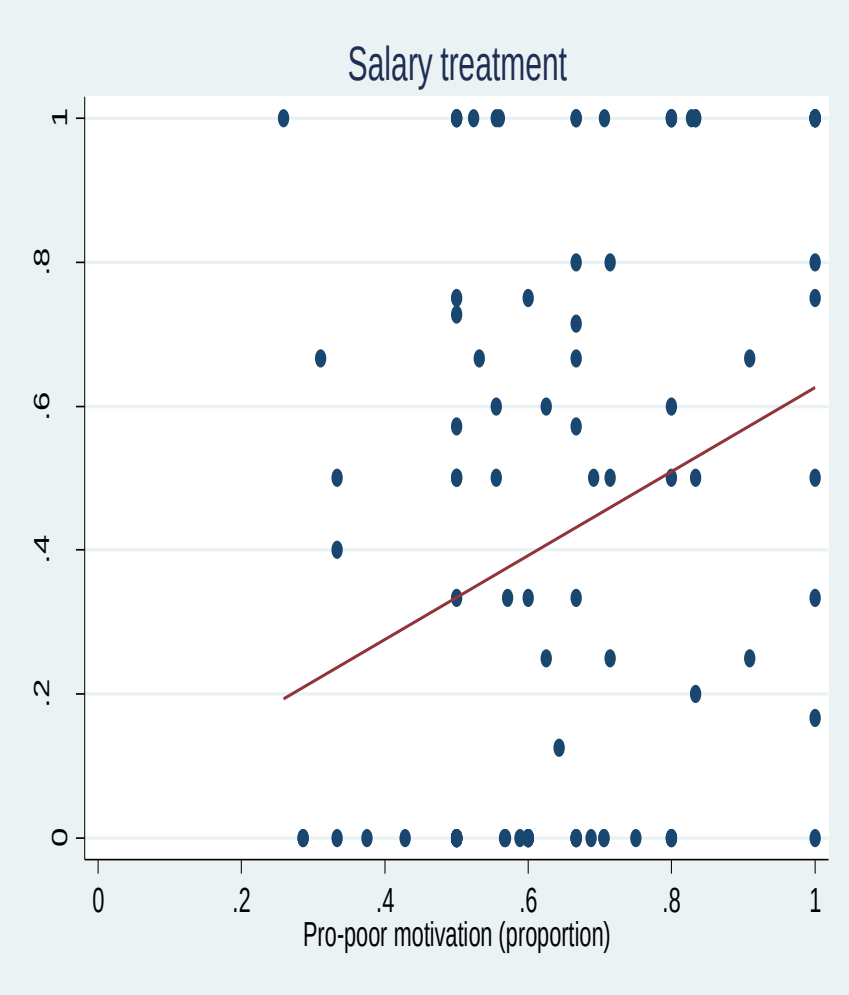


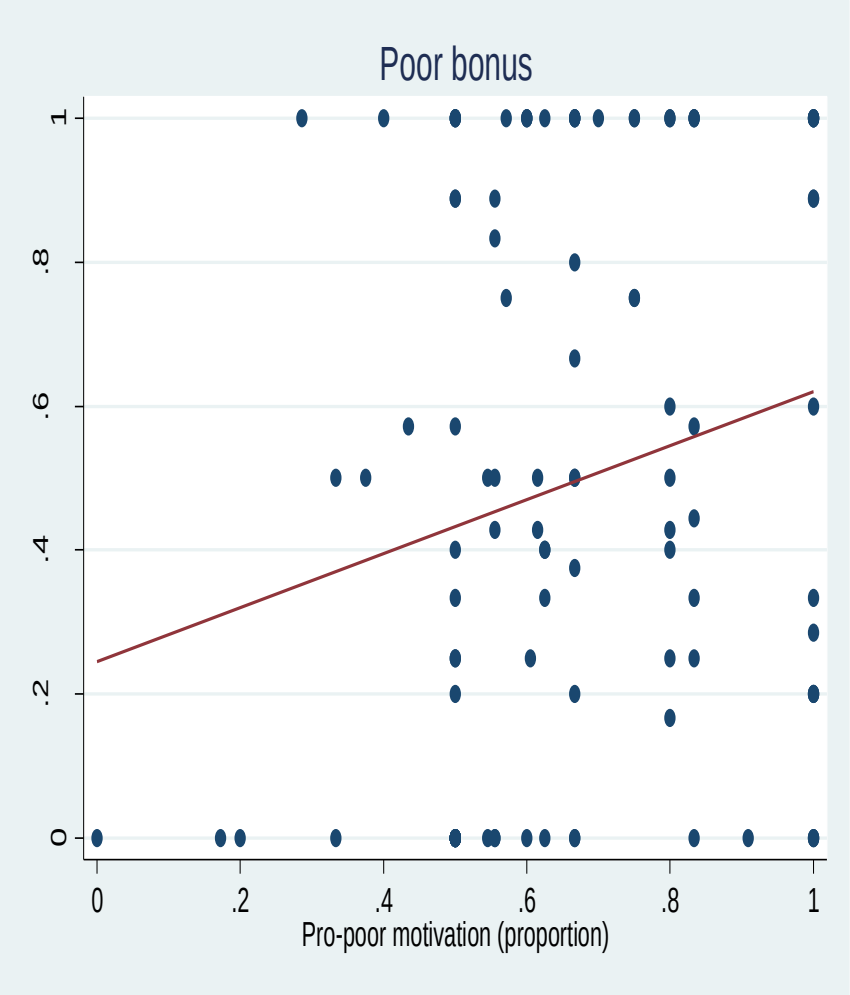
Results: Response of pro-poor health workers to the equal bonus





Results: Pro-poor health workers respond to the poor bonus by increasing their effort towards the poor (similar to salary)





Conclusion

- Can financial incentives help in improving service delivery to the poor? - Depends
  - We find that when the poor cannot afford services, they are underserved, as workers increase their efforts towards non-poor patients
  - Under unconditional pay, those that care more about the poor serve them…
    - When non-poor cases are incentivized, pro-poor motivated workers serve **less** poor
    - The "Poor bonus" is effective in yielding equity, precisely because it compensates workers for additional effort
- Important to think carefully about structuring pay for medical professionals
  - "equal" bonus systems reduce inequity but may not go far enough
  - Need to compensate workers for the disincentives involved in serving the poor.