

# Institutions, State Capabilities, and Development

## The State of Science



Center for Effective Global Action

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ECONOMIC  
& DEVELOPMENT  
INSTITUTIONS



# Objectives

- Review recent research to highlight what is possible when marrying rigorous academic research with reforms in actual state services
- Illustrate advances in both state practice and research methodology

# A simple conceptual frame

- ▶ Market supporting institutions and services ( $S$ ) are provided by the state to private producers
- ▶ A production function approach:

$$Y^{private} = A(S) \cdot F(K^p, L^p)$$

$$S = T \cdot G(K^s, L^s)$$

# A simple conceptual frame

- ▶ But ultimately state resources  $K^s$  (from taxes) depend on *effective units* of state labor  $L^s$
- ▶ State production function is,

$$S = T.G(K^s(L^s), L^s)$$

- ▶ Critical to raise  $L^s$ ; happens in two ways,
  - ▶ Qualitatively (better people - SELECTION)
  - ▶ Quantitatively (more people, or people who work harder - INCENTIVES)

# Personnel Selection for Development

Source: Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Services (Dal Bó, E., Finan, F., and M. Rossi, QJE 2013)

# An example of reform with state of the art impact evaluation



*Improving Civil Service in Mexico*

# Improving Civil Service in Mexico

- In 2011 the Mexican government approached us in connection with a development program they were launching
- As part of the program, the government needed to hire 350 public employees
- They had concrete questions on how to unfold the program

# Biggest concern: How do we attract qualified individuals to apply for this public job?

- What are the dimensions of quality and can they even be measured?
- What wage should we offer?
  - Wages too low may attract bad candidates and encourage corruption
  - Wages too high may attract people who only care about money and the program wanted individuals who would care about the mission
- Do we hire people locally?
  - Better knowledge but also more prone to capture
  - Can we recruit people to work in distant and potentially violent areas?



# Our approach

- Addressing these questions required three things:
  - Measurement
  - Experimentation
  - Political will

# Mexico's Regional Development Program

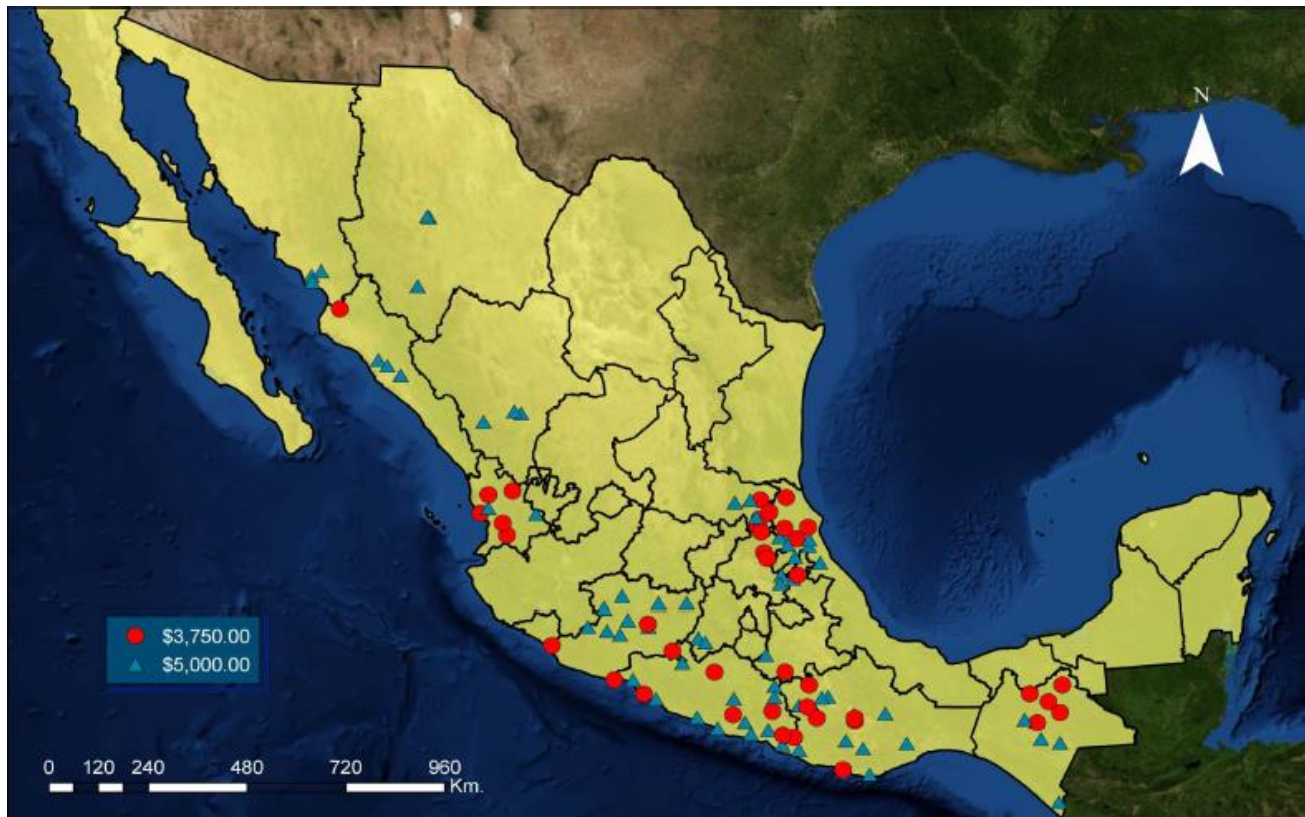
- ▶ Began in 2011, with the objective to increase state presence in some of its poorest and most problematic municipalities
- ▶ The program created a large network of public agents, including 350 community development agents
  - ▶ Gather the demands of the community
  - ▶ Provide their own assessment of need
  - ▶ Report these needs to the federal government who is to channel resources to meet these demands

# Recruitment

- ▶ During July and August of 2011
- ▶ Recruitment sites in communities with a small community college
  - ▶ To attract a younger and more educated applicant pool
- ▶ Job postings were sent to 106 communities
- ▶ Interested applicants would call in to ask how to apply for the job and for the wage
  
- ▶ How did we determine the wage?

# Experimentation

## Random assignment of wages



# Recruitment

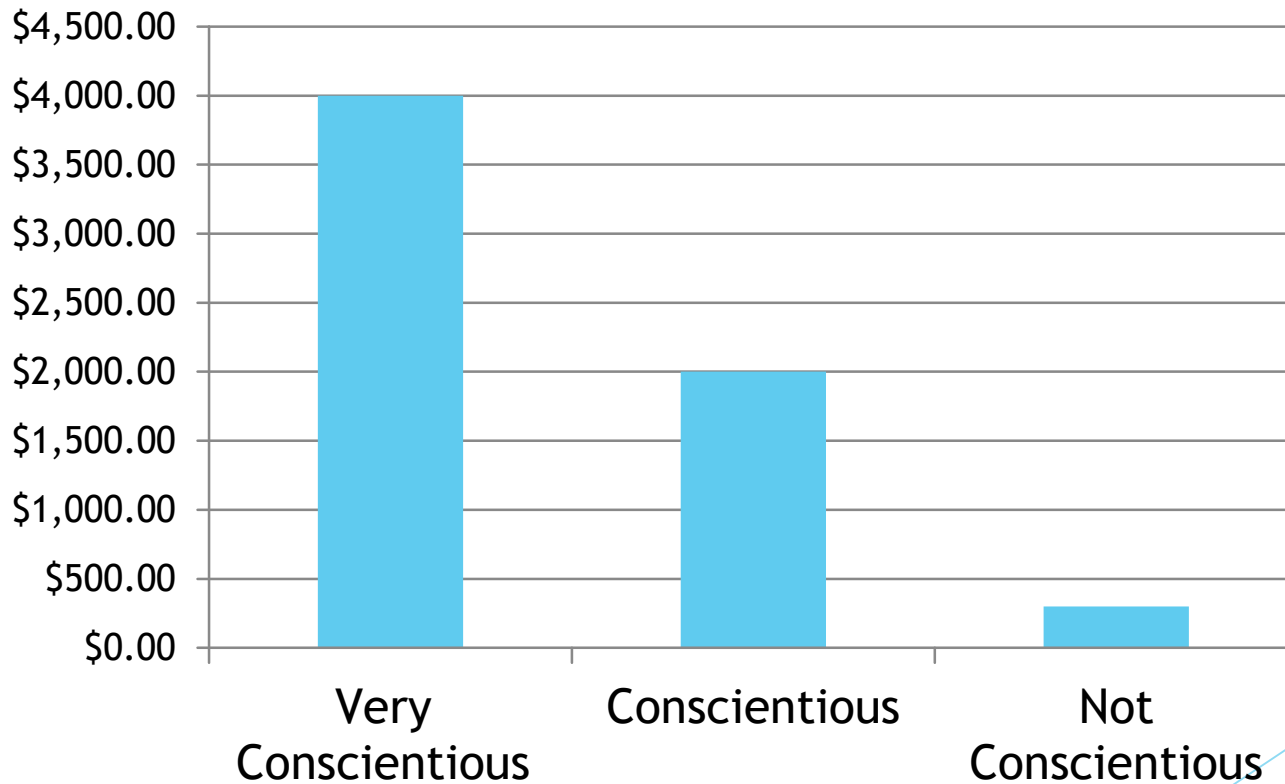
2<sup>nd</sup> crucial element of the design

- ▶ Implemented exam to measure candidate *quality*:
  - ▶ Experience, previous earnings (“market value”)
  - ▶ IQ
  - ▶ Personality traits (e.g., emotional stability, conscientiousness)
  - ▶ Public Service Motivation
  - ▶ Integrity

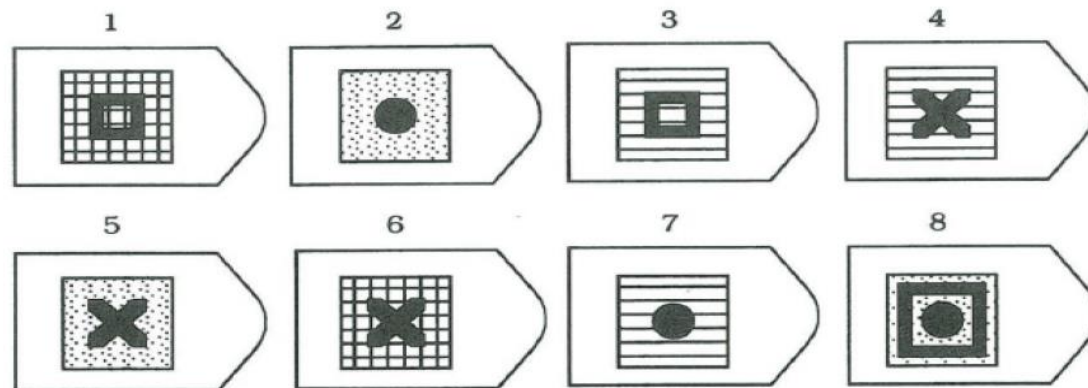
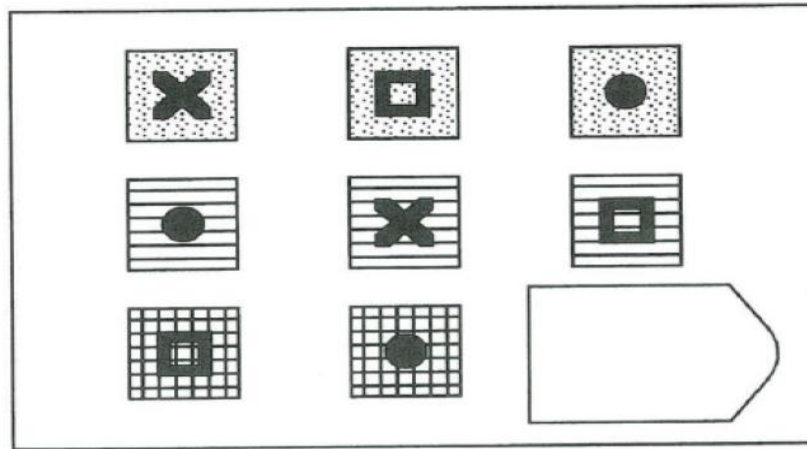
# Personality measures - non cognitive traits



# Importance of personality for wages



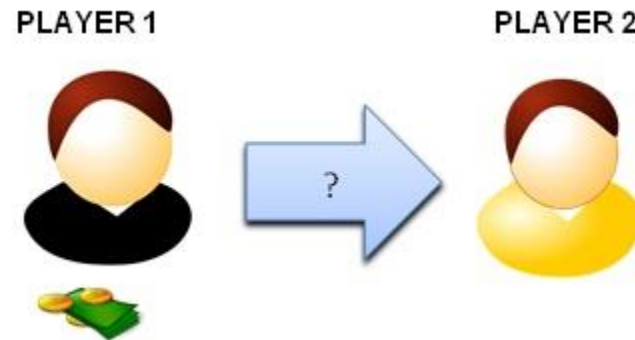
# Cognitive traits - Raven IQ Test





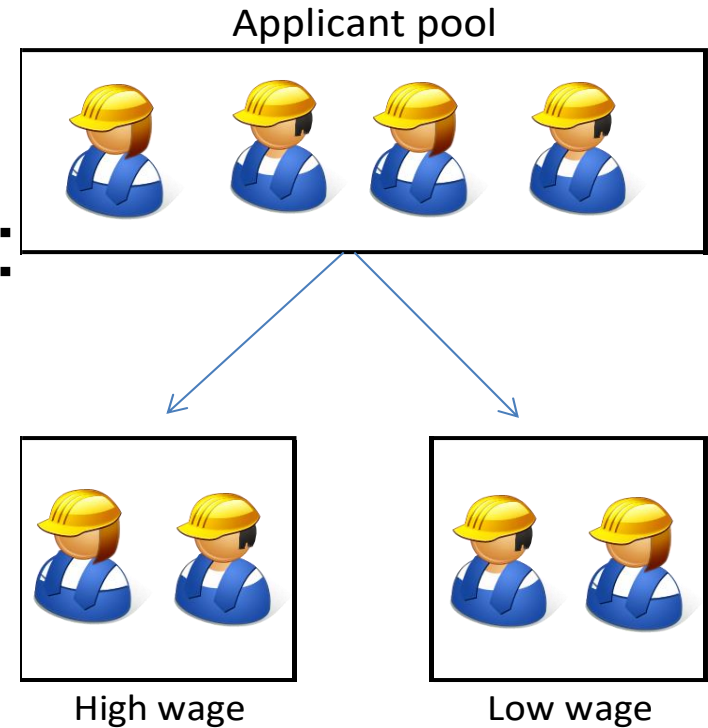
# Intrinsic Motivation

- ▶ Public service motivation index
- ▶ Pro-social behavior

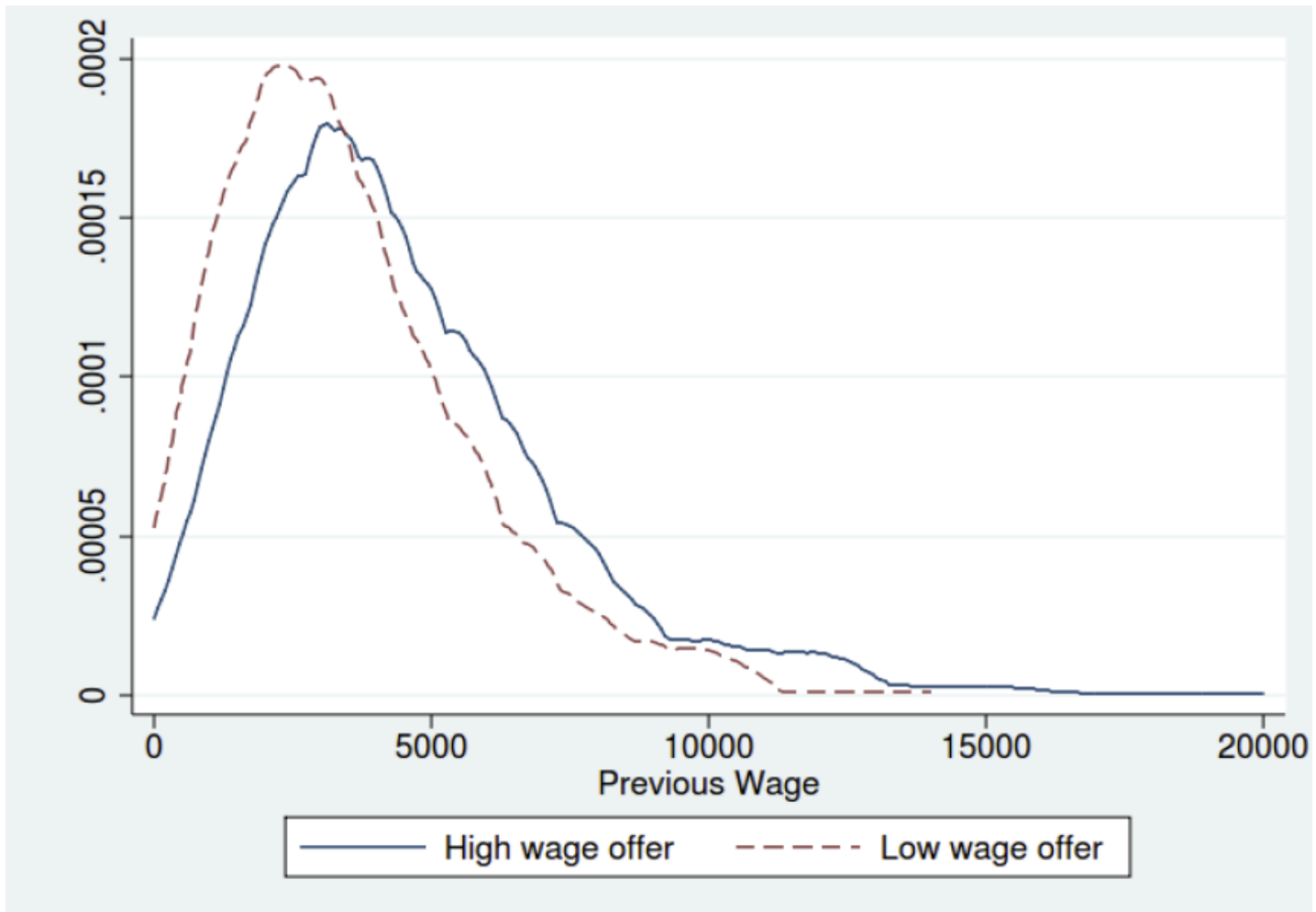


# Testing our hypotheses

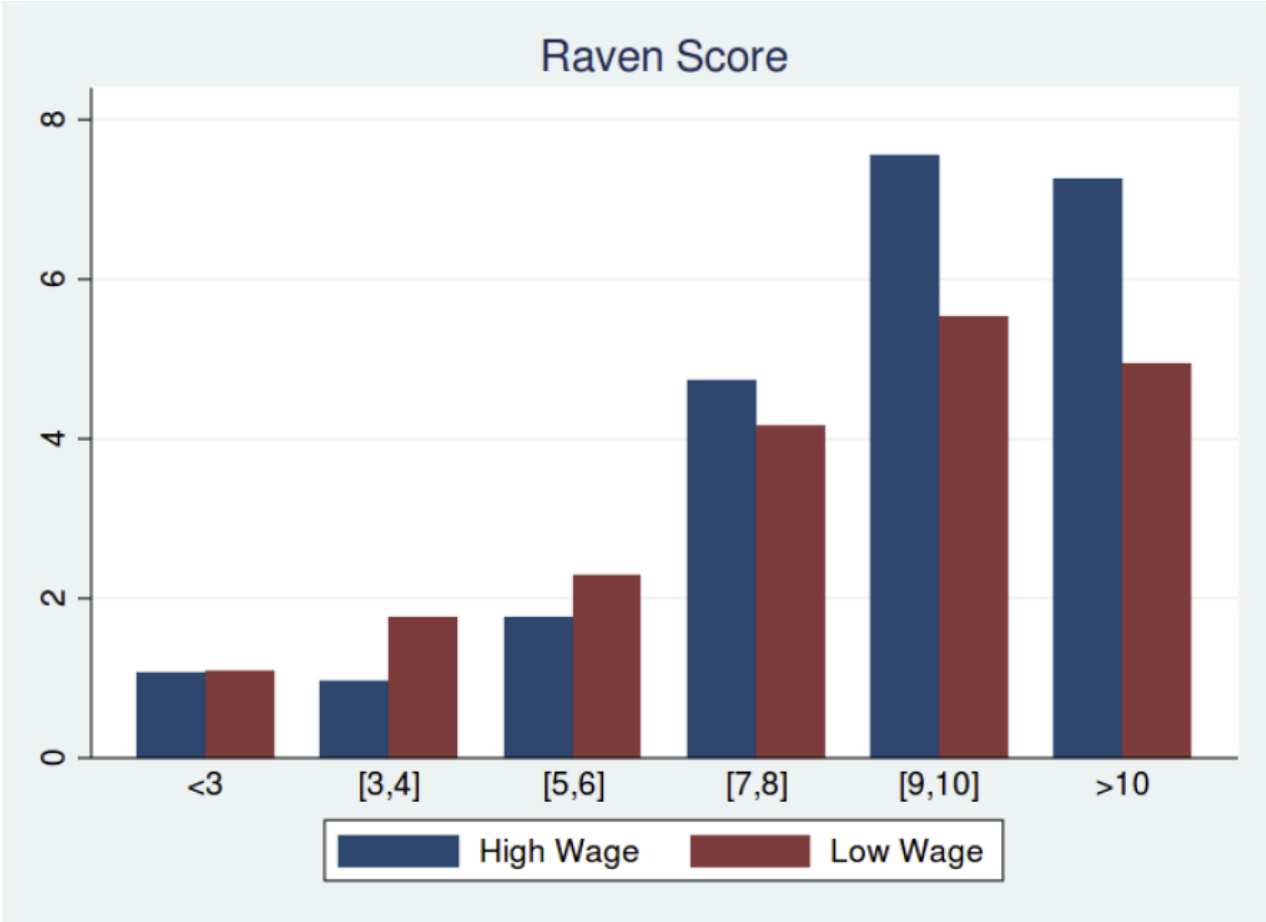
- Given the random assignment, the evaluation is very simple: similar to a clinical trial
1. Do higher wages attract individuals of higher quality?
  2. Do higher wages crowd out publicly-motivated individuals?



# Effects of Wages on Quality



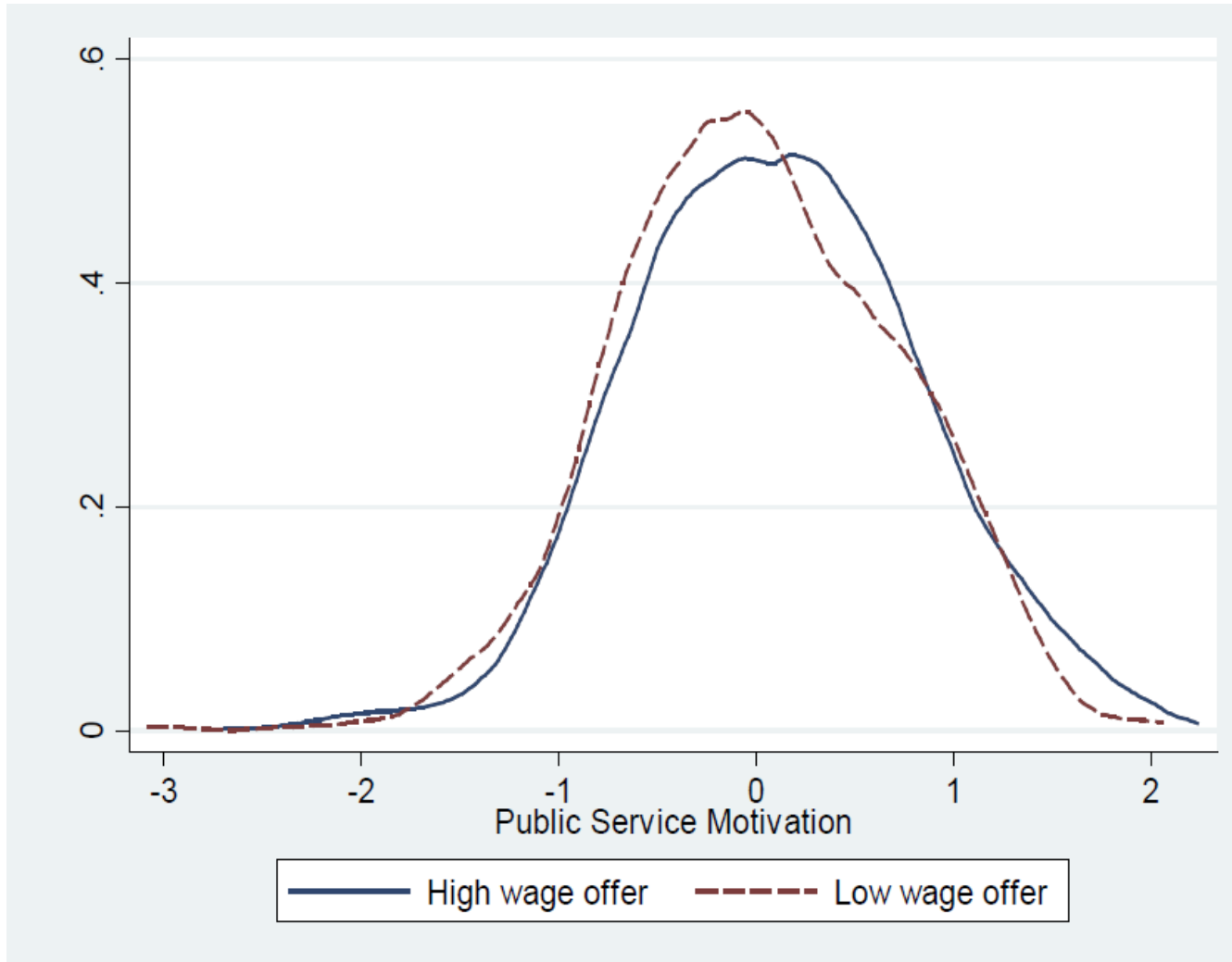
# Effects of Wages on Quality



# Effects of Wages on Quality

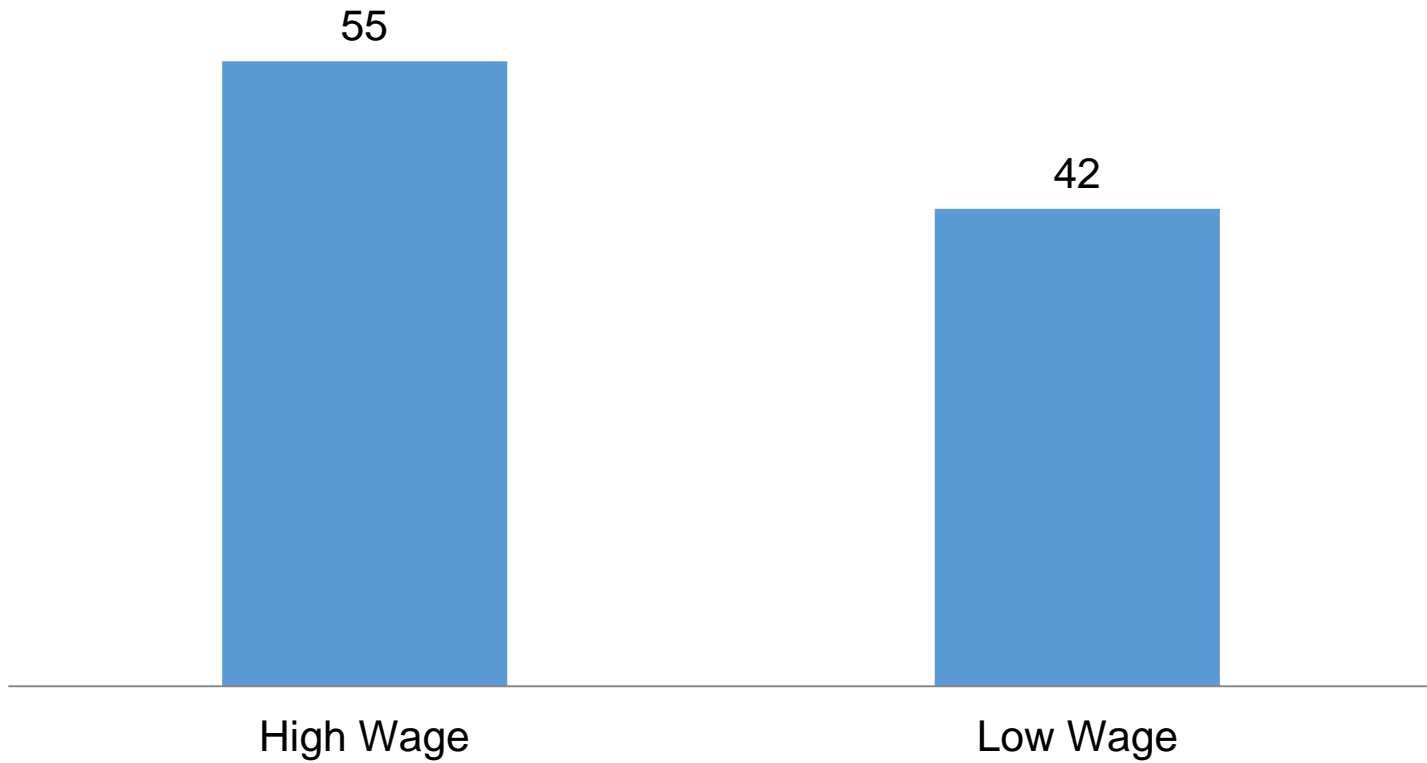
- Higher wages also attracted more people with:
  - work experience
  - white collar jobs
  - conscientious
  - emotional stability

# Effects of Wages on Motivation

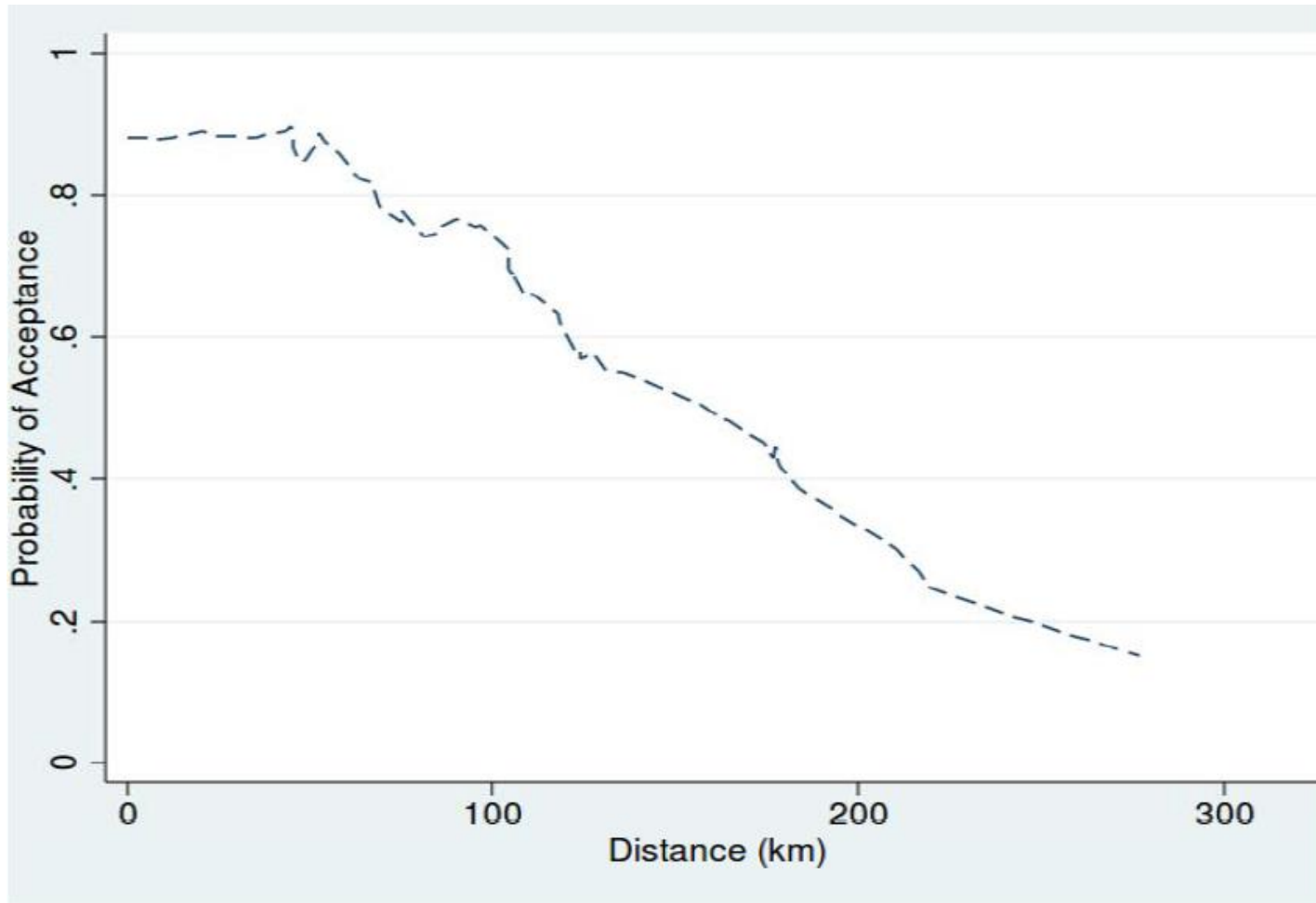


# Show me the money!

## Acceptance Rates

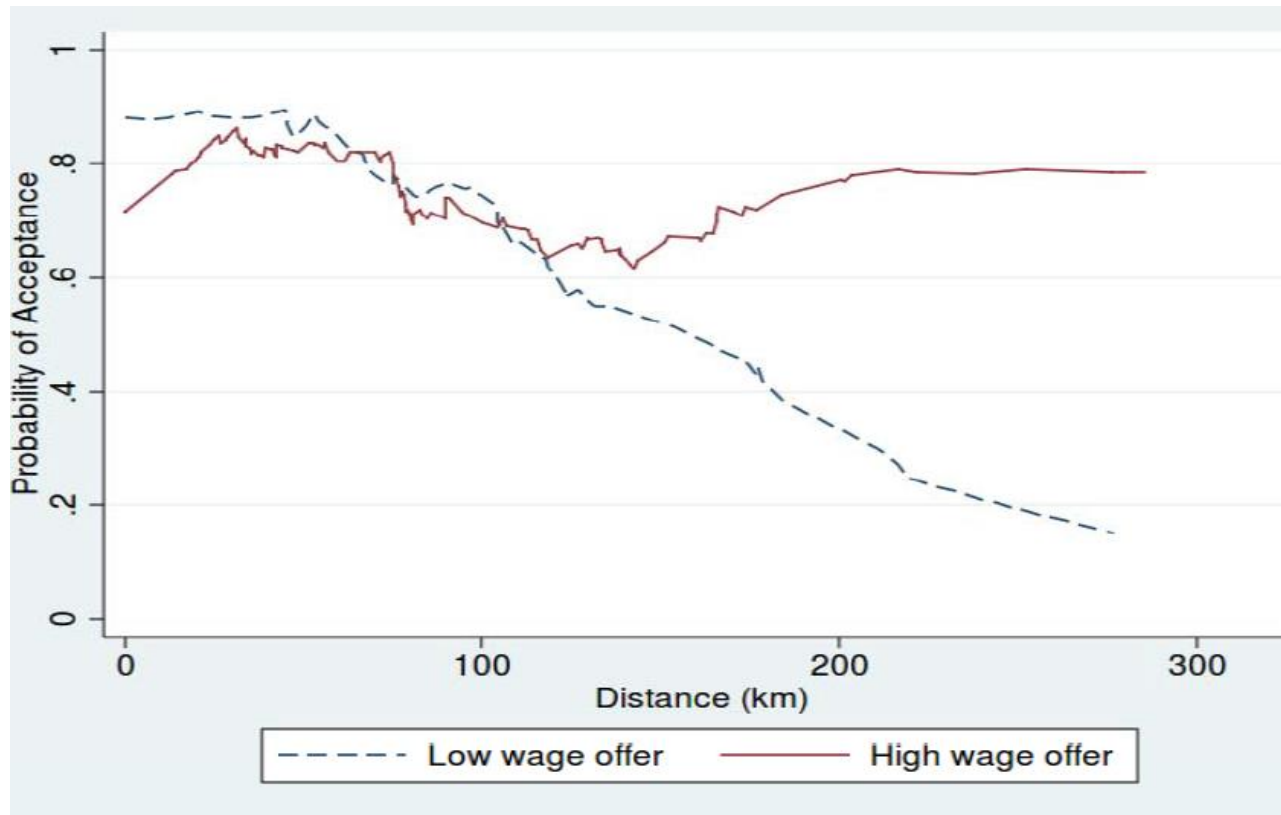


# The role of distance

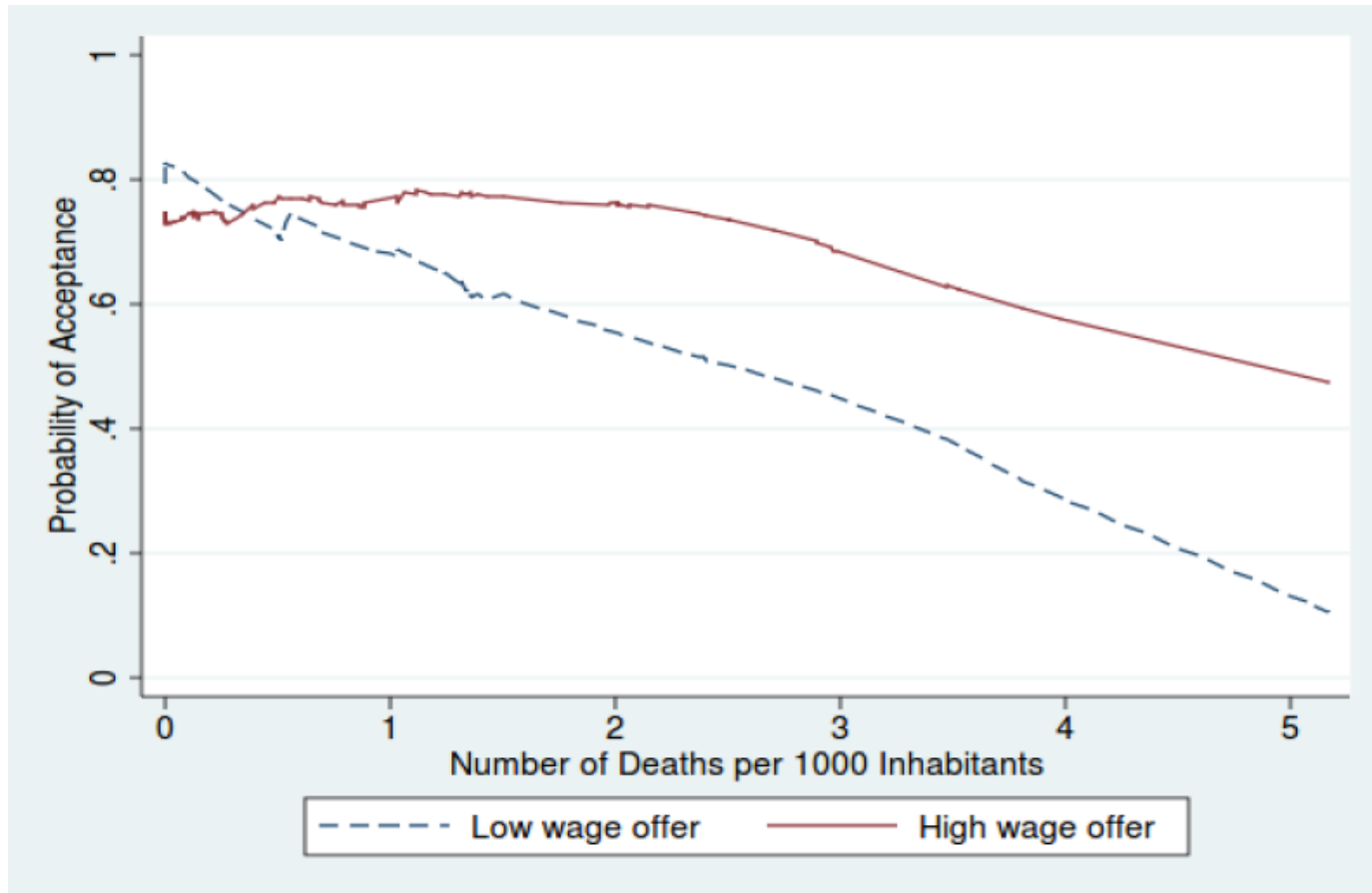




# The role of distance



# The role of drug violence



# Lessons from Mexico experience

- ▶ Financial incentives can be a useful tool for attracting the right people, and especially for difficult jobs!
- ▶ No real tension between smarts and vocation
- ▶ Tremendous value in measurement and learning
  - ▶ Beneficial for this and future programs
  - ▶ Common trend in both the private and public sector
  - ▶ Requires a thoughtful approach and political courage

# Personnel Incentives for Development

Source: Government Decentralization Under Changing  
State Capacity: Experimental Evidence from Paraguay  
(Dal Bó, E., Finan, F., N. Li, and L. Schechter, 2018)

# Personnel Incentives

- ▶ Carrots - Better compensation, perks, rewards
- ▶ Sticks - Threat of punishment

# Research Question

- ▶ Can monitoring technologies induce higher employee effort in the public sector? - Pay for performance is often impractical.
- ▶ How much discretion should government grant to managers in the allocation of resources to agents?
  - ▶ These managers may have valuable information, but they may also have private objectives.
  - ▶ The value of this information may also depend on the scale of the project

# Setting

- ▶ Agricultural extension services are seen as a key component in the fight against poverty in Paraguay.
  - ▶ Agricultural extension agents (AEAs) travel (at their own expense) to visit widely dispersed farmers (about 80 farmers).
  - ▶ Each ALAT has a supervisor who, in addition to working with his own farmers, must also monitor any other AEA working in the ALAT.
- ▶ Despite the supervisors, the Ministry was concerned that the AEAs were not visiting their farmers

# Intervention

- ▶ Ministries of Planning and Agriculture introduced smart phone with GPS technology.
  - ▶ Phone has an app which AEAs turn on while working and stores their GPS coordinates every 15 minutes.
  - ▶ AEAs should also register reports when they visit farmers.
- ▶ Staggered roll-out design.



# Research Design

	Control	Treatment
Selected	<b>A</b>	<b>B</b>
Non-Selected	<b>C</b>	<b>D</b>

# Research Design

- **Q: Does monitoring increase performance?**
- Answer:  $(B+D) - (A+C)$
- **Q: Do Supervisors have valuable information?**
- Answer:  $(B-A) - (D-C)$

	Control	Treatment
Selected	<b>A</b>	<b>B</b>
Non-Selected	<b>C</b>	<b>D</b>

# Data

- ▶ **AEA survey:** Each AEA and supervisor filled out answers on his own. Survey includes AEA demographics, work history, and measures of personality. Focus on 182 AEAs.
- ▶ **Farmer survey:** Two rounds of farmer phone surveys. We called farmers who were beneficiaries of the AEAs and asked questions about their interactions with the AEAs such as how often they saw the AEA and how satisfied they were with his work. Over 2600 phone calls in each round.

# Findings I

	Control	Treatment
Selected	<b>27%</b>	<b>34%</b>
Non-Selected		

Farmers who had a treated AEA were 7 pp. more likely to receive a visit in the last week

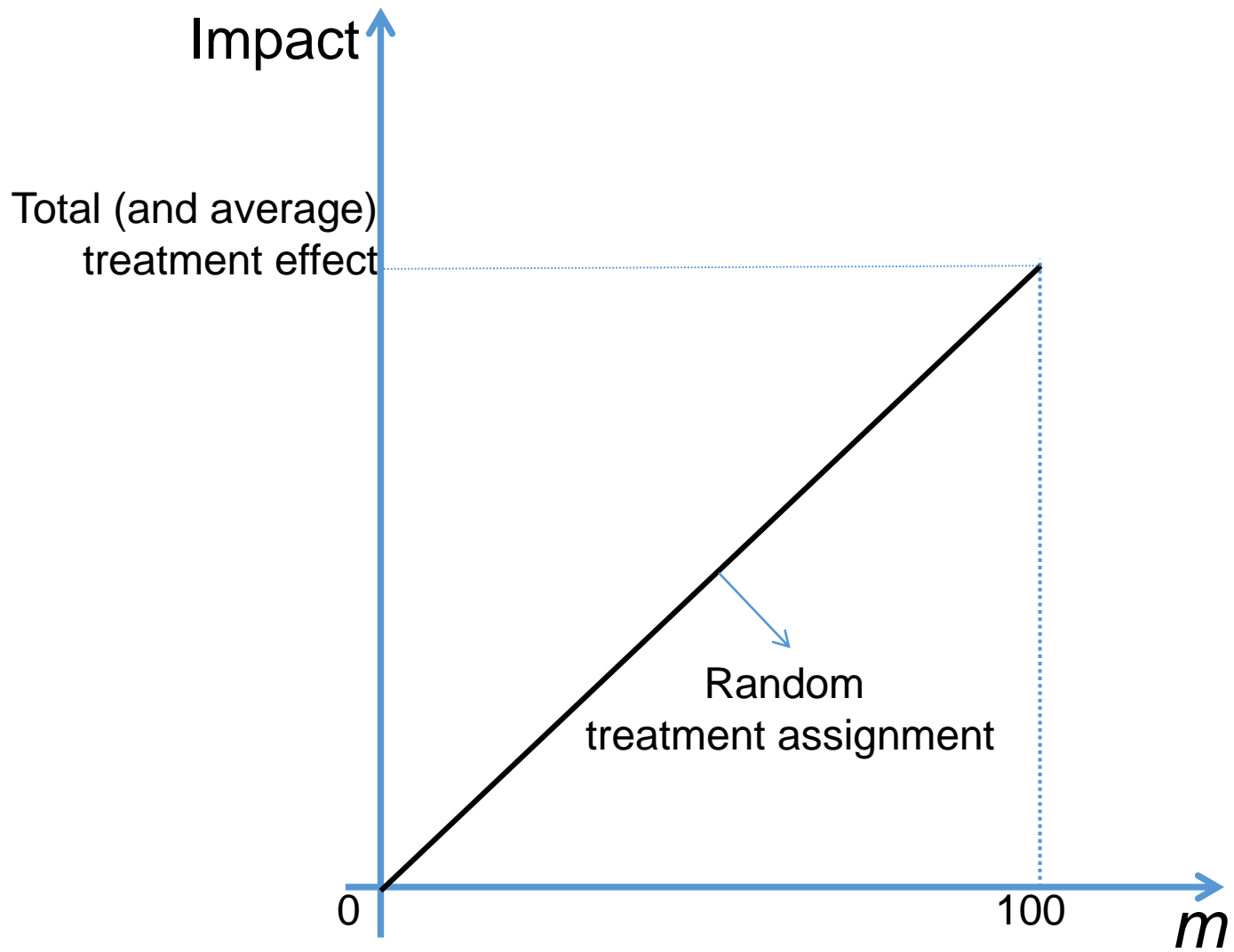
# Findings II

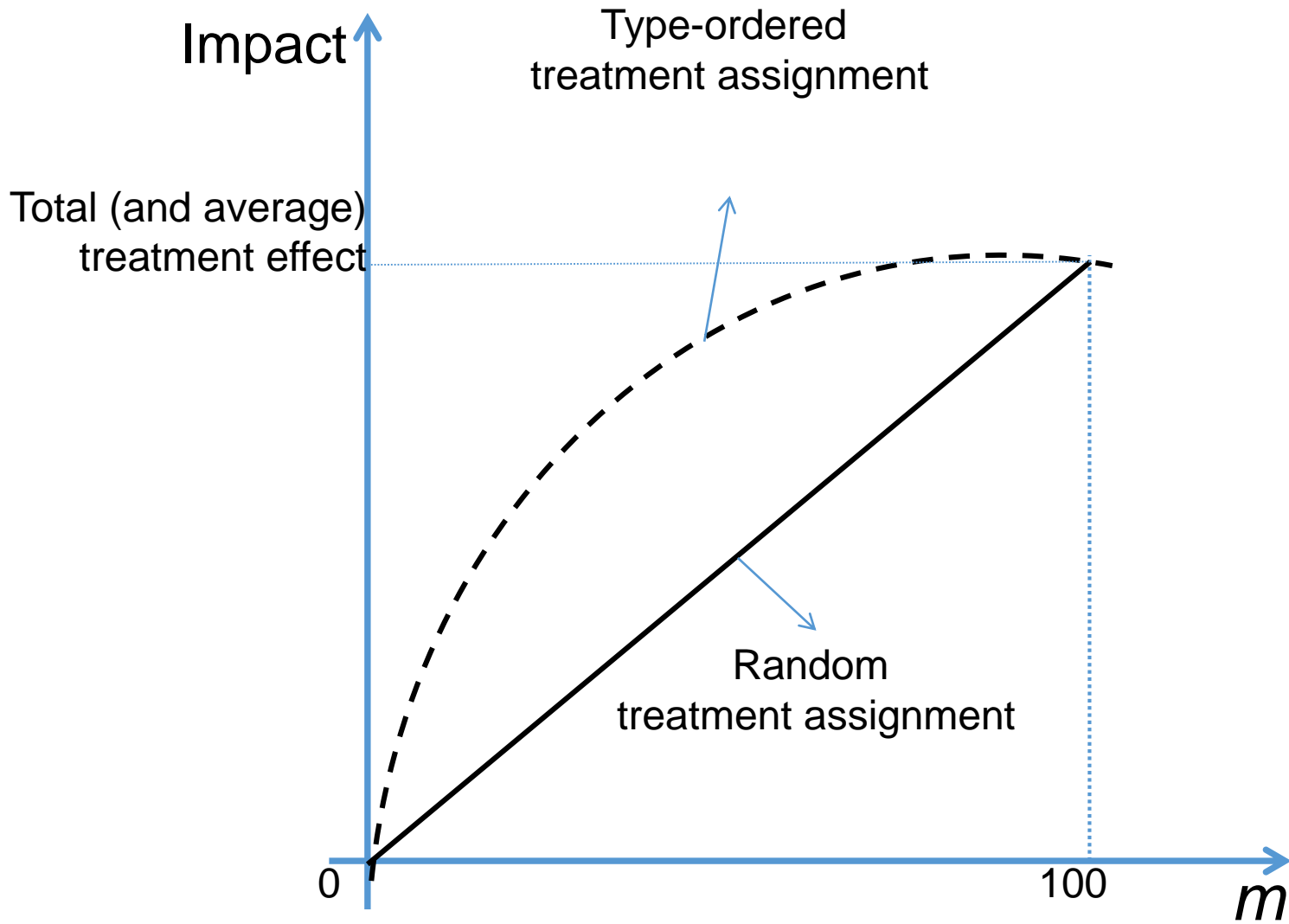
	Control	Treatment
Selected	<b>27%</b>	<b>36%</b>
Non-Selected	<b>29%</b>	<b>28%</b>

**Supervisors have valuable information:** The effects of the treatment are all coming from the selected AEAs

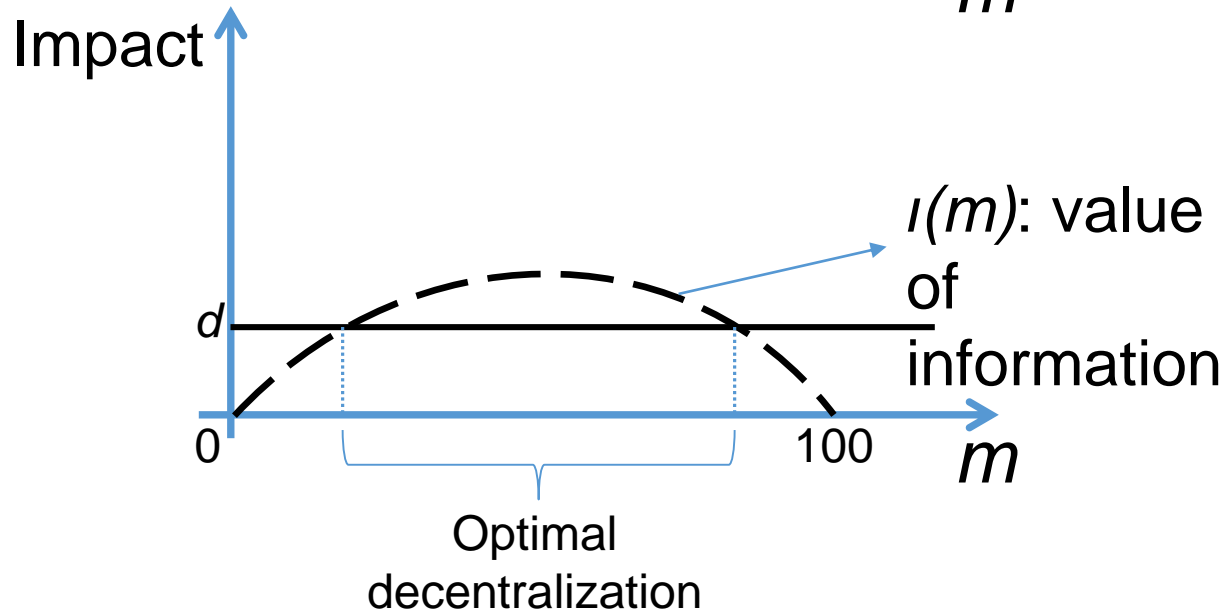
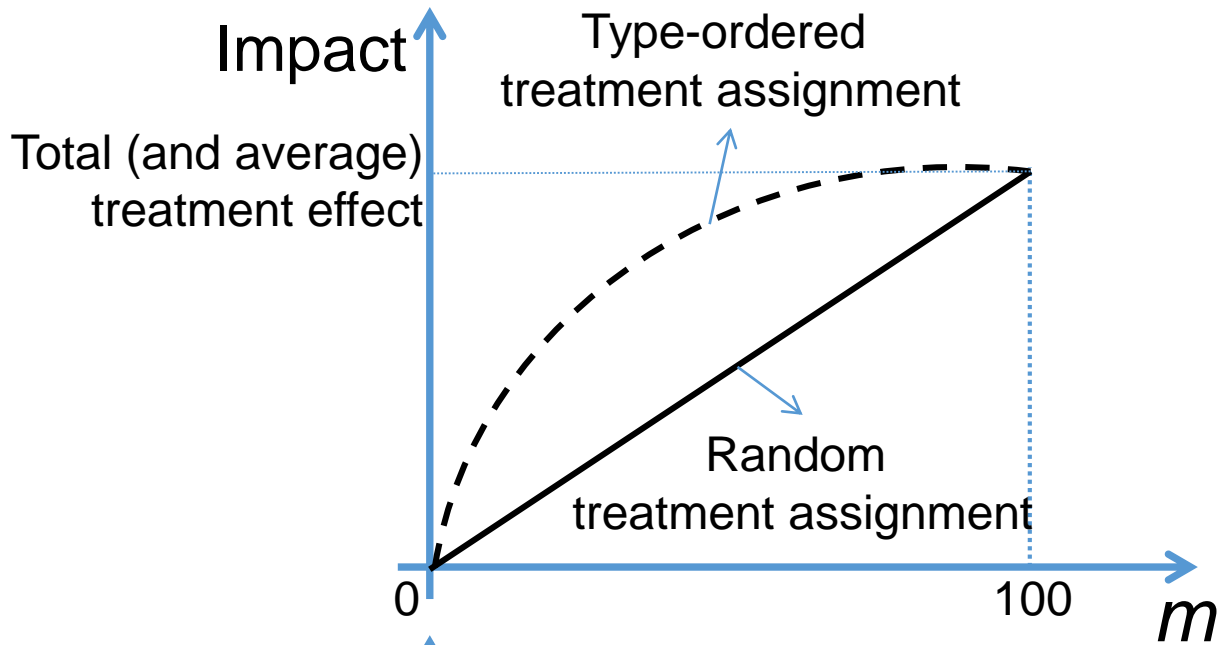
# Scale of Rollout

- ▶ We asked the supervisors to selected 50% of their AEAs to receive the cell phone
  - ▶ So we know what the impact was if they had only selected those AEAs
- ▶ What would have the impact been had we asked them to select 25% or 75% (or any other percentage) of their AEAs?
- ▶ Would it have been worth the cost of delegating this decision? May be the central authority should have allocated the phone at random (might be administratively cheaper).



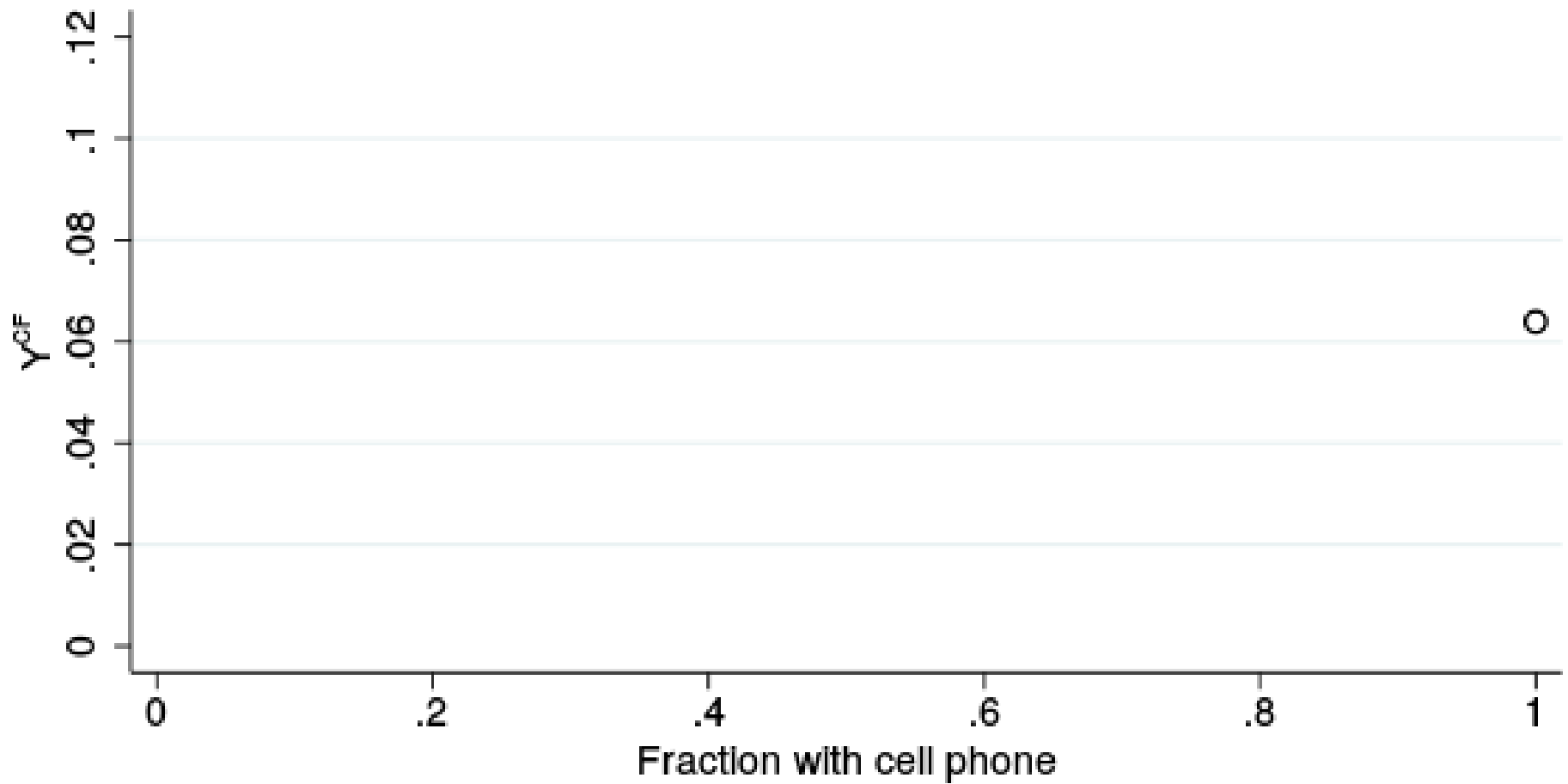


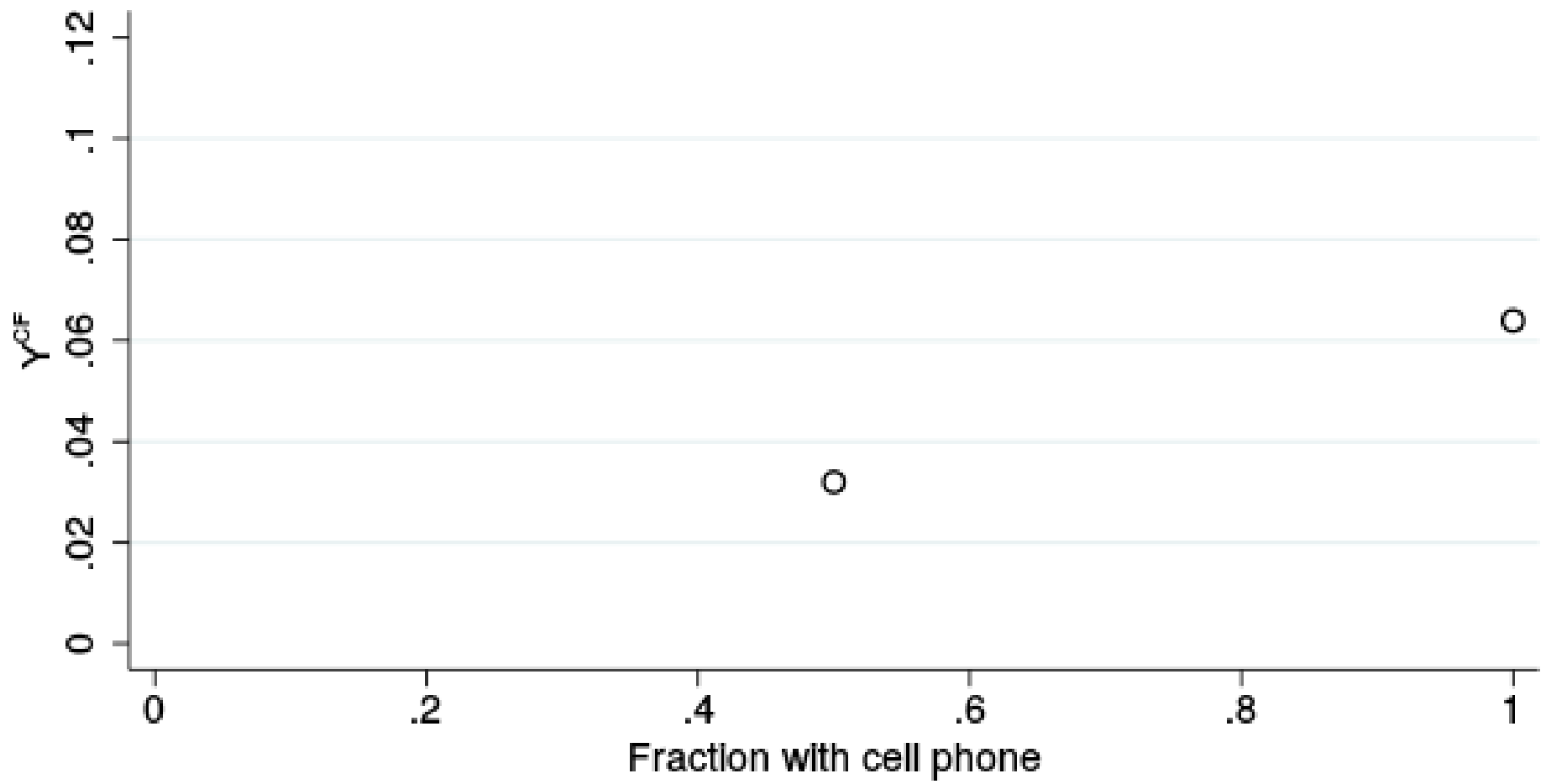


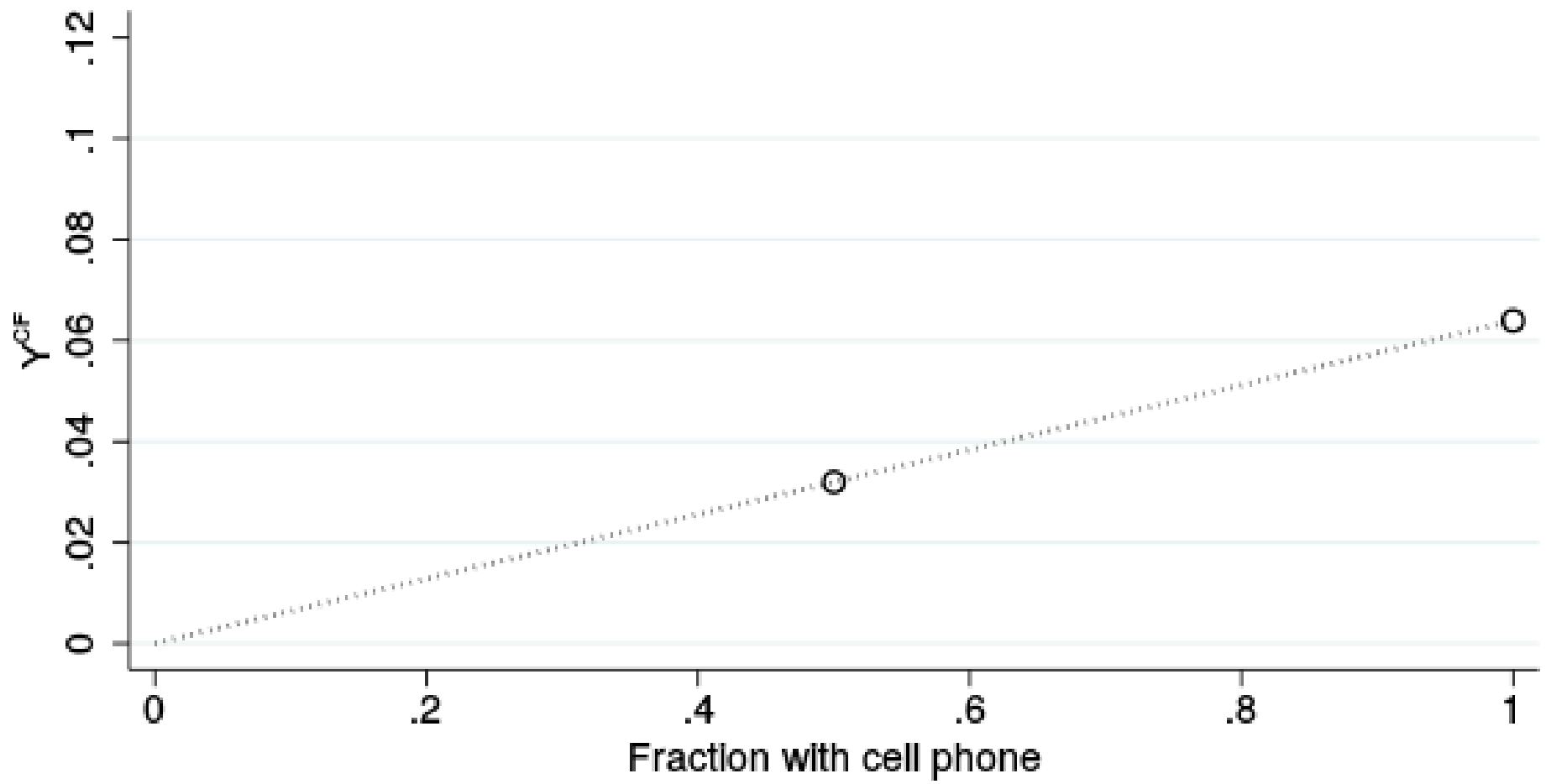


# Scale of Rollout

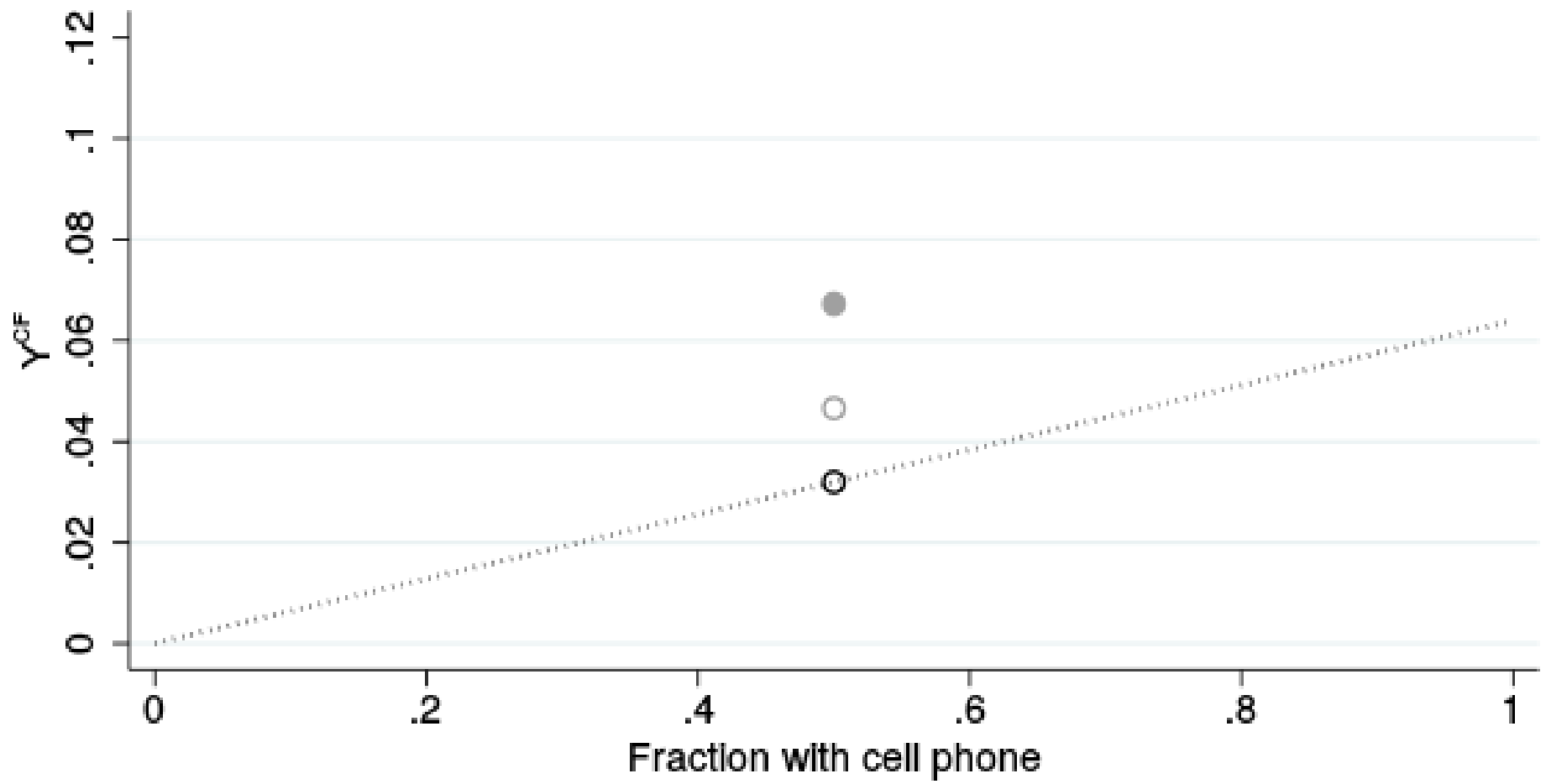
- ▶ We know who the supervisors selected and we know something about the AEsAs
- ▶ We can estimate the likelihood that an AEA was selected based on his observable traits
- ▶ We can compute the treatment of additional monitoring for everyone based on their observable traits but also unobservable traits



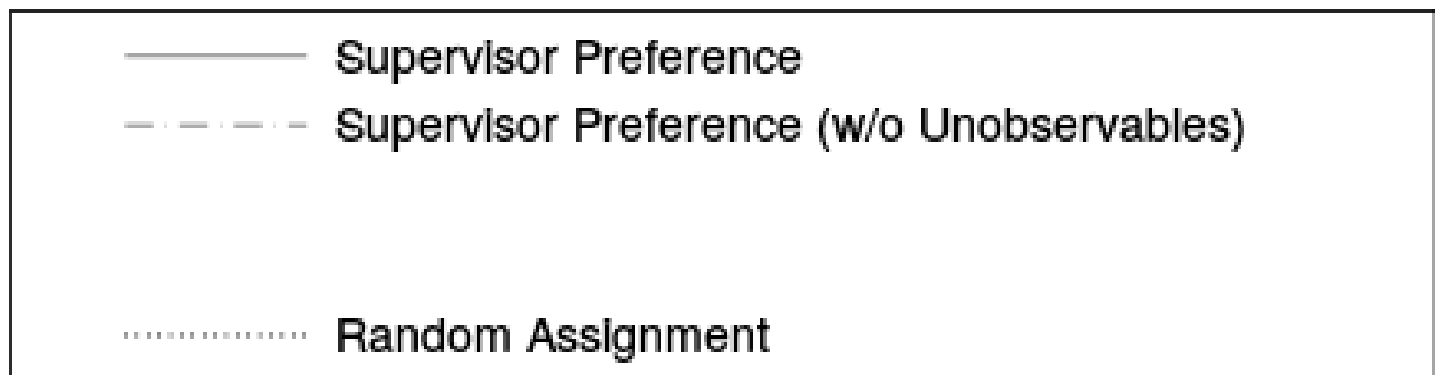
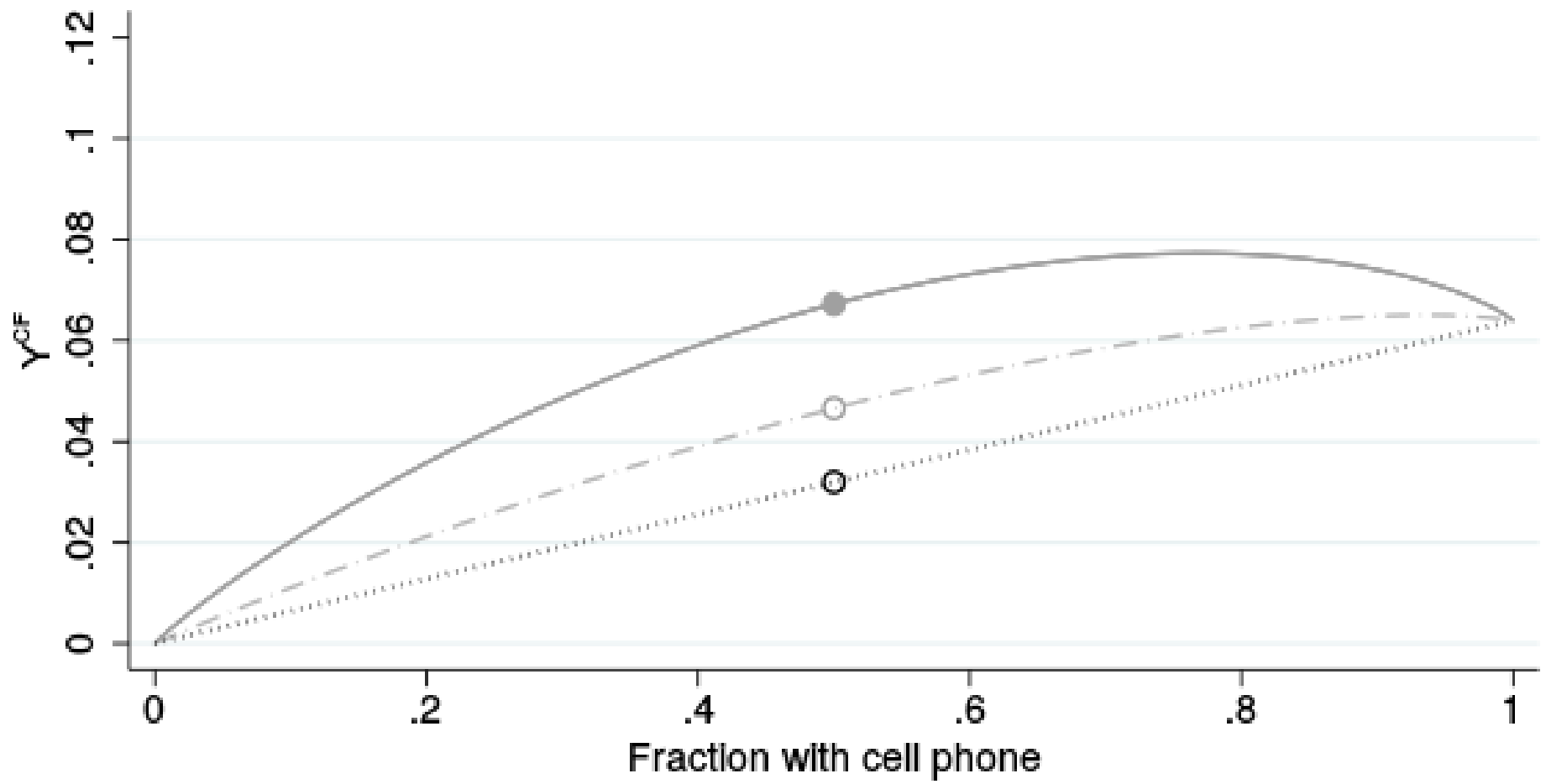




..... Random Assignment



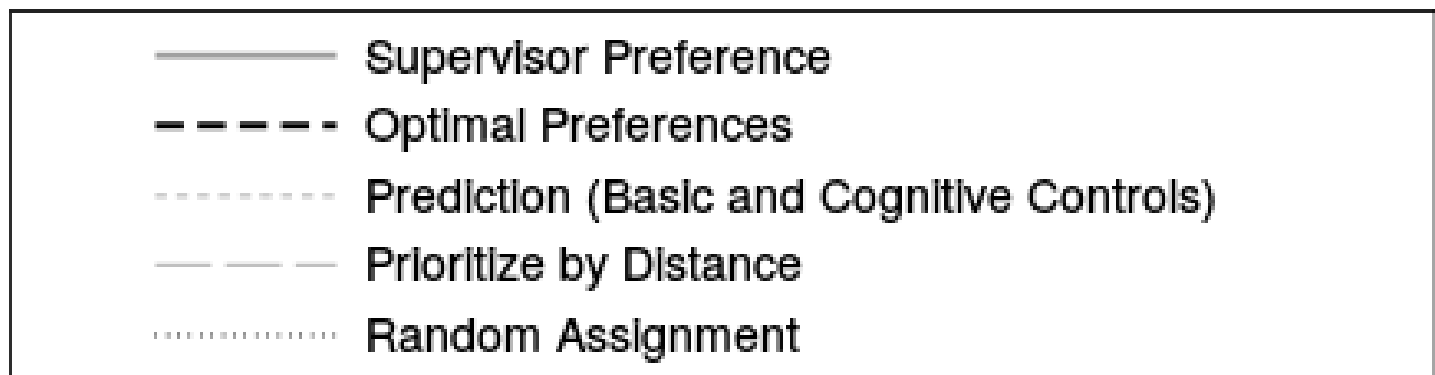
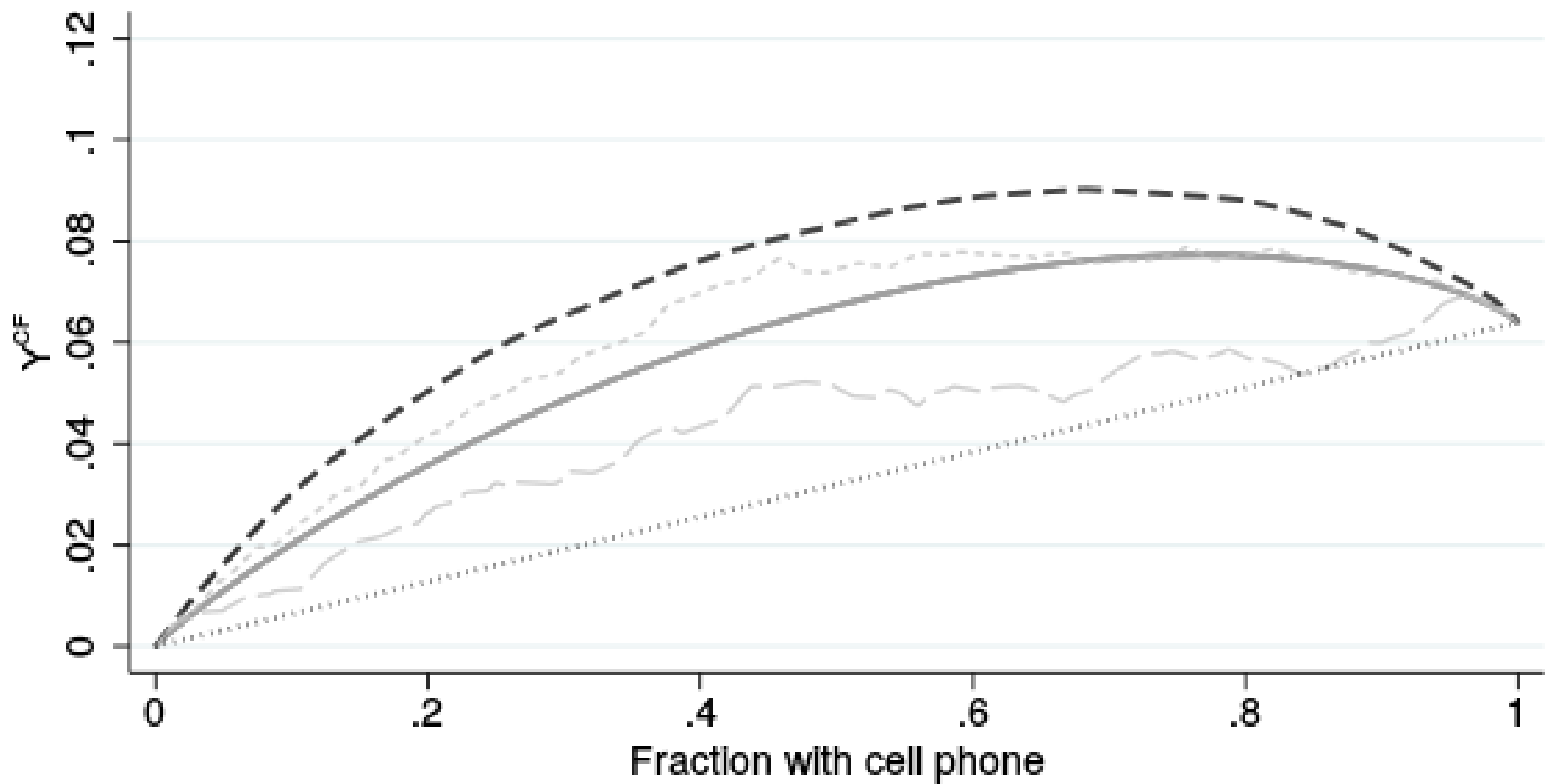
..... Random Assignment



# What about other allocation rules?

- ▶ Prioritizing based on distance
- ▶ Using a productivity prediction model
- ▶ Pilot





# Lessons

- ▶ Even without improving compensation, an increase in monitoring can increase effort by government employees.
- ▶ Low-level supervisors have a lot of information regarding who would most benefit from the phones. Benefits of decentralization.
- ▶ But the benefits of decentralization depend on the scale of the roll out and the sophistication of the central authority.