

RANDOM CONTROL TRIALS (RCT)

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2019

THE SVERIGES RIKSBANK PRIZE
IN ECONOMIC SCIENCES IN MEMORY
OF ALFRED NOBEL 2019



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“for their experimental approach to alleviating global poverty”

THE ROYAL SWEDISH ACADEMY OF SCIENCES

9 million children under age 5 die every year



The devastation of Haiti's quake every 8 days

TED

Well, here is a thought experiment for you.

Figure 1: Number of Published RCTs

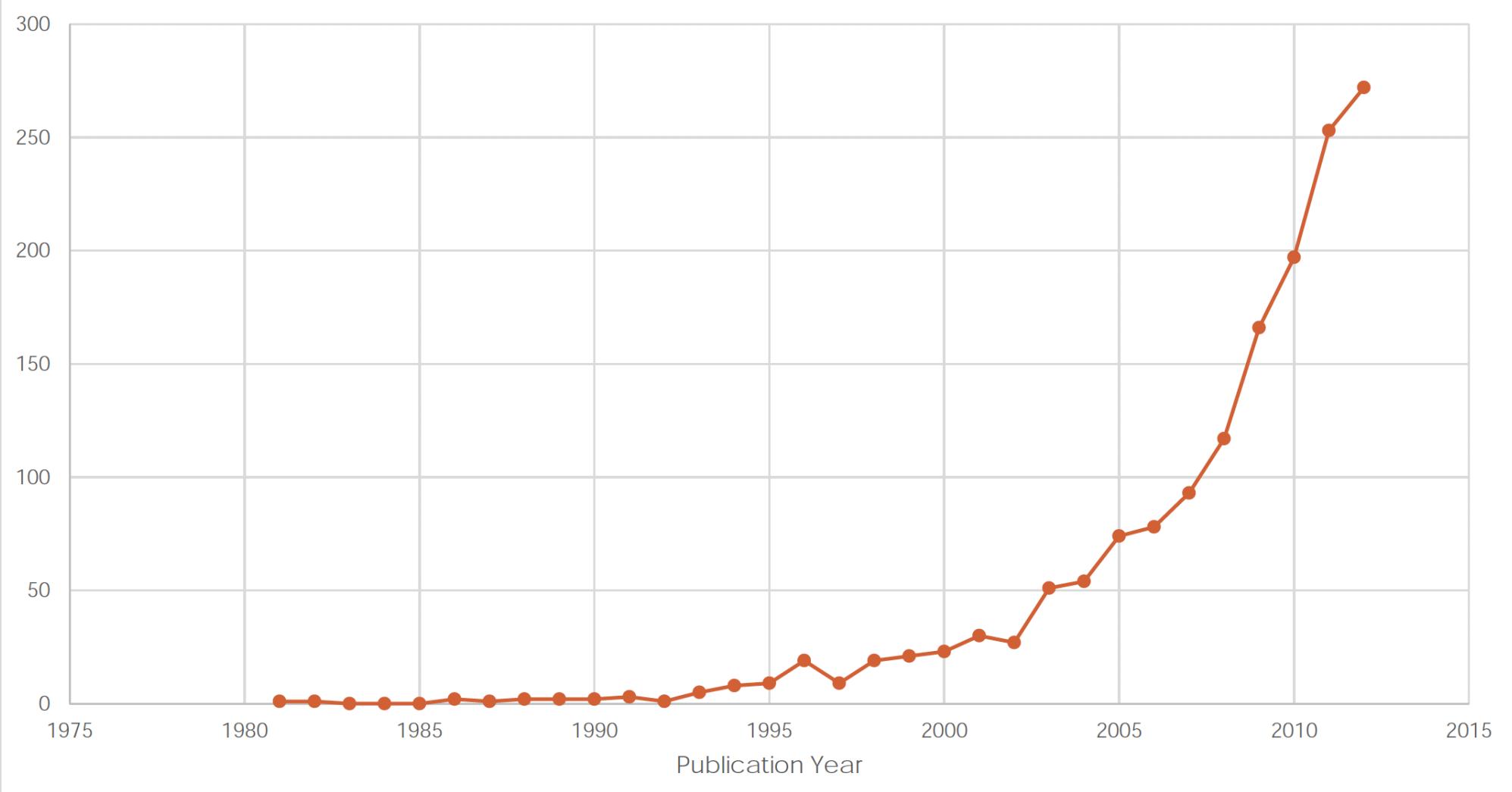
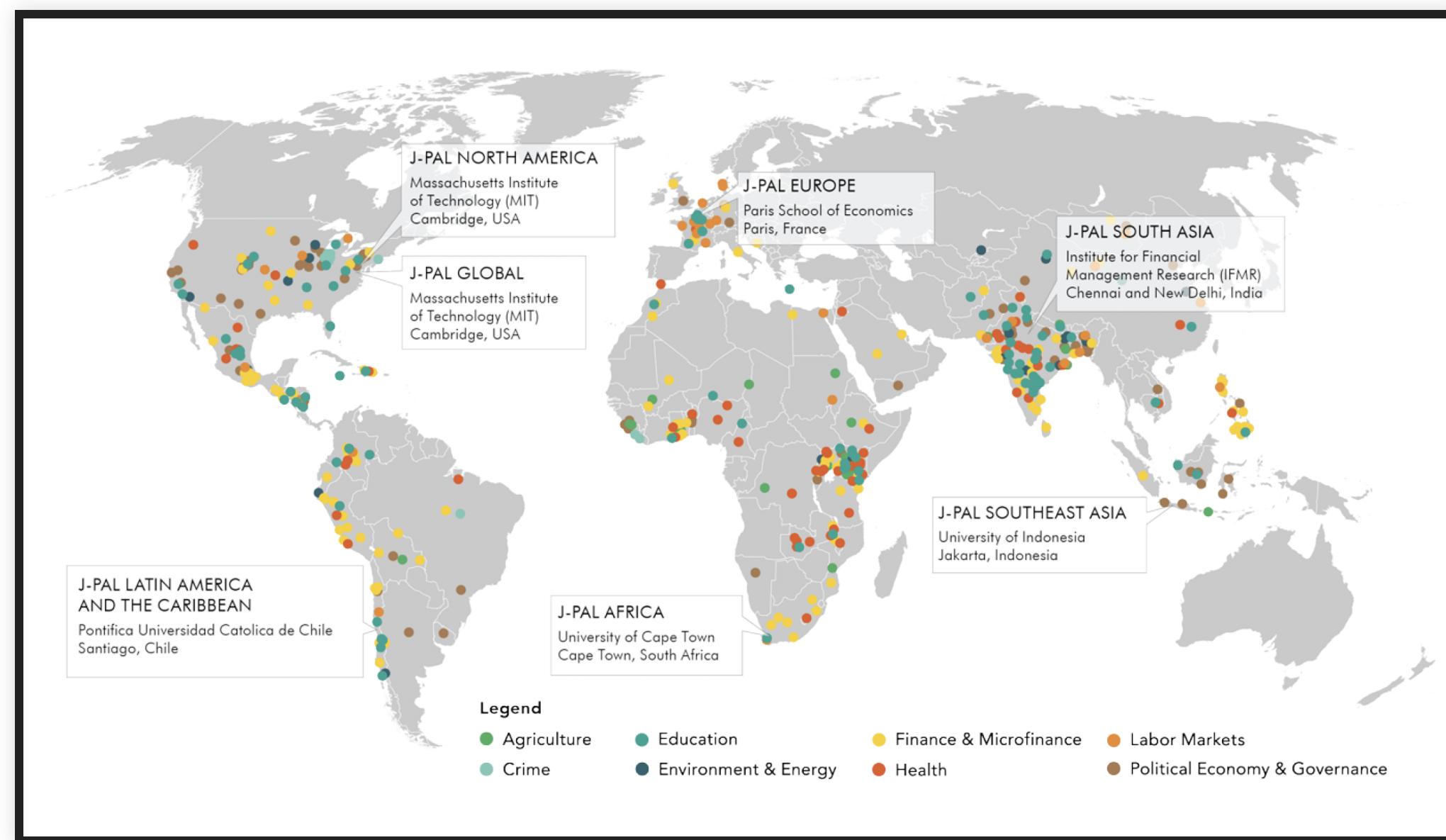


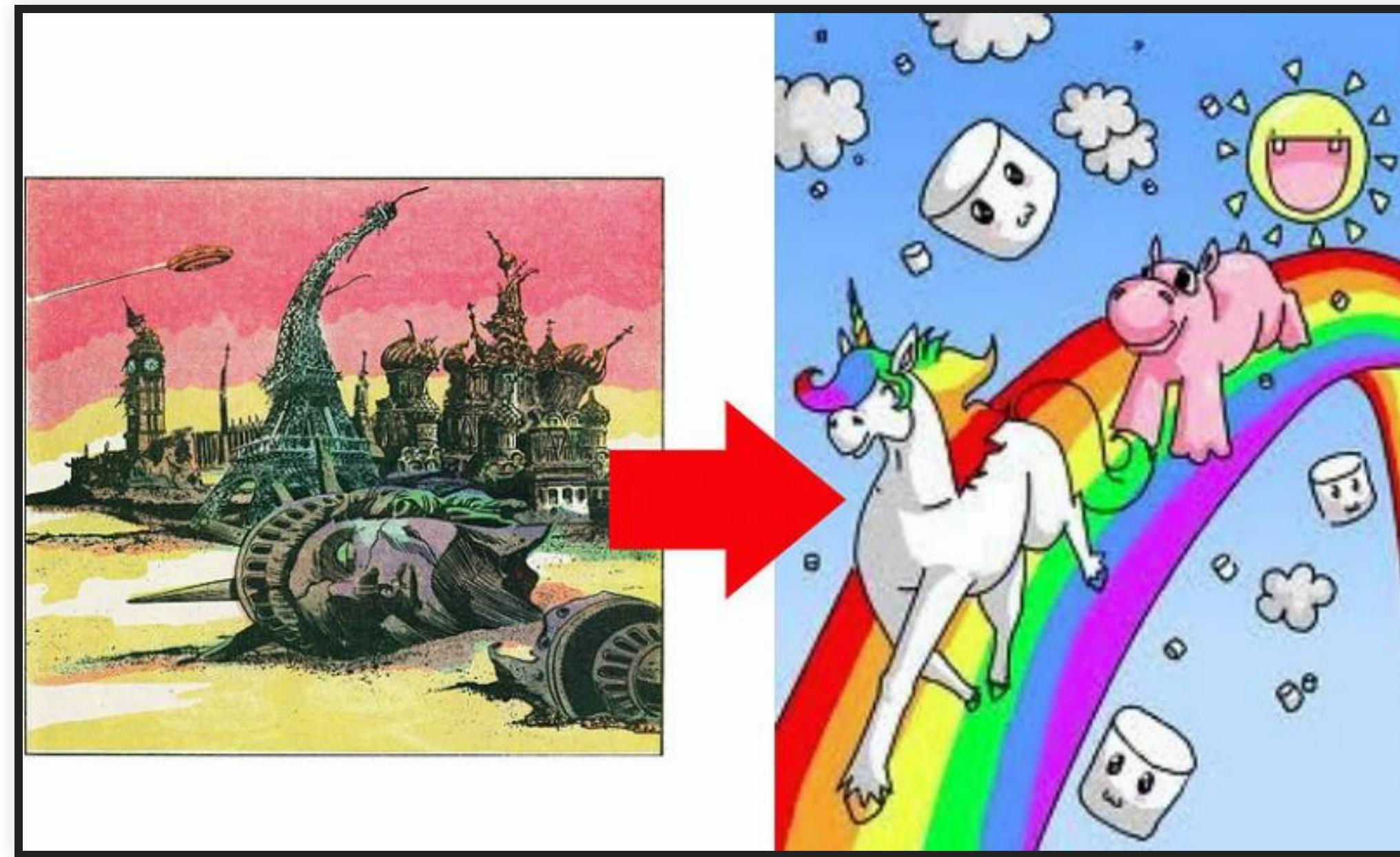
Table 2: Papers in Top 5 Journals

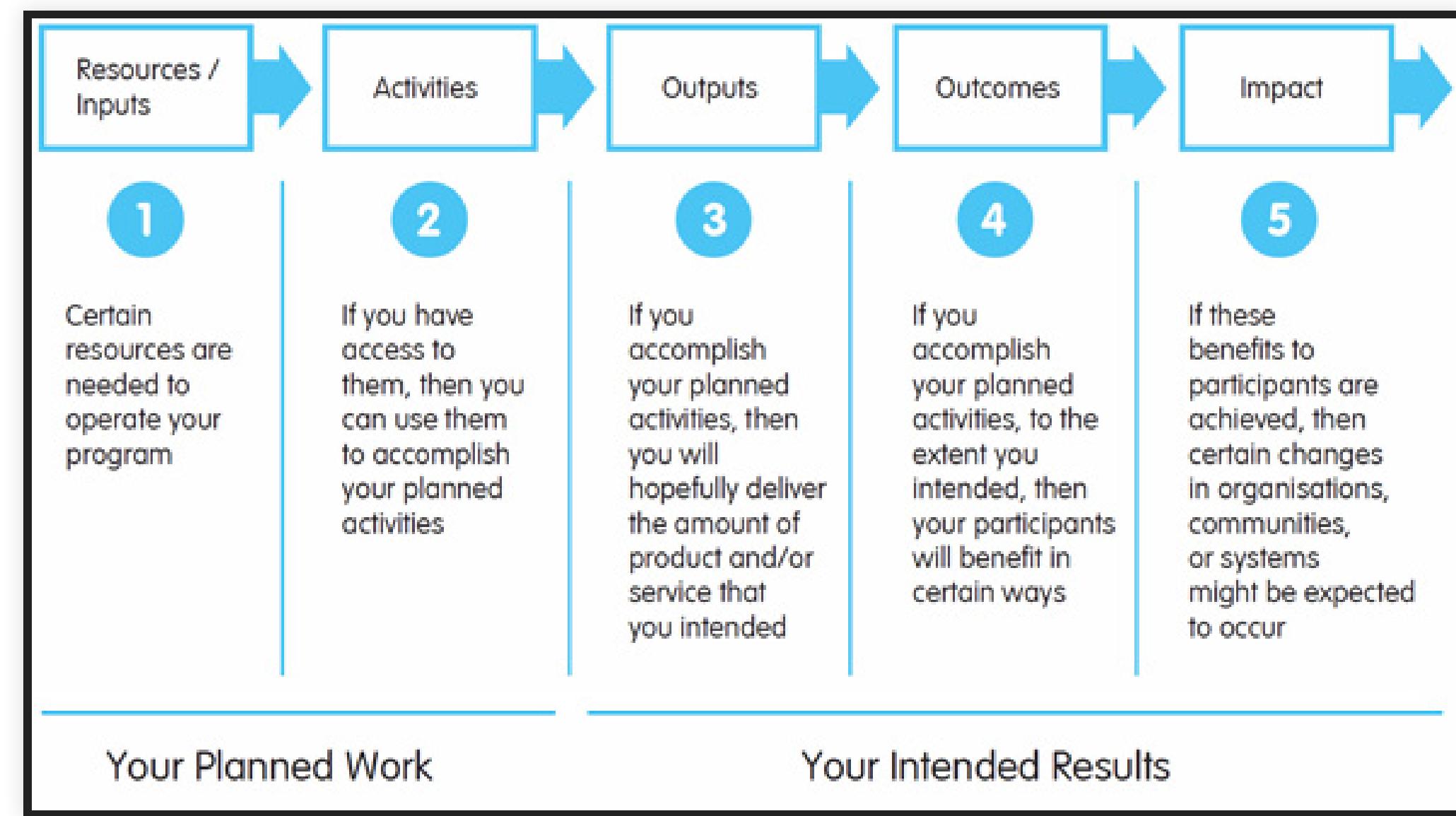
Year	Total # of Papers	# of Development Papers	# of which are RCTs
2015	271	32	10
2000	215	21	0
1990	278	17	0



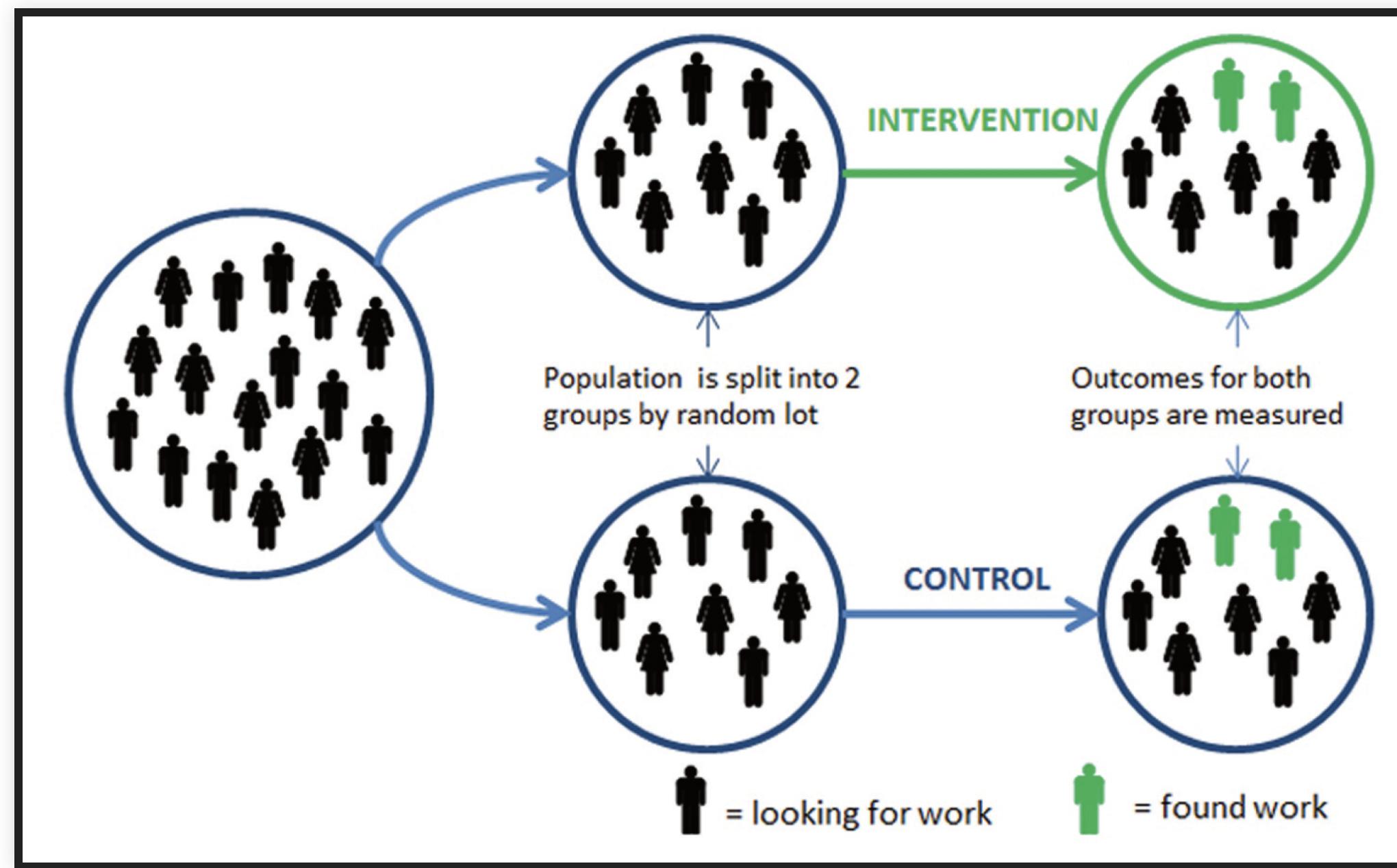
WHAT HOW DOES RCT WORK?

THEORY OF CHANGE IN DEVELOPMENT





Yet, how we can measure this change happen?



Some potential problems?

- Allocation
- External Validity
- Observing Unobservables
- Data Collection
- Interactive Experimentation
- Mixed Methods

Behavihoural economics!

THE MECHANISMS OF IDENTIFYING RCT

$$E[Y_i(1)|D_i = 1] = E[Y_i(1)]$$

MEASURING THE IMPACT OF D_i

$$E[Y_i(1)|D_i = 1] - E[Y_i(0)|D_i = 0]$$

AVERAGE TREATMENT EFFECT

$$E[Y_i(1) - Y_i(0)|D_i = 1] + E[Y_i(0)|D_i = 1] - E[Y_i(0)|D_i = 0]$$

MAIN ASSUMPTION

- Excludability
- Non-Interference

SOME EXAMPLES

DEMONSTRATING THE IMPACT OF TEXT MESSAGING ON FINE REPAYMENTS

The Courts Service and the Behavioural Insights Team wanted to test whether or not sending text messages to people who had failed to pay their court fines would encourage them to pay prior to a bailiff being sent to their homes.

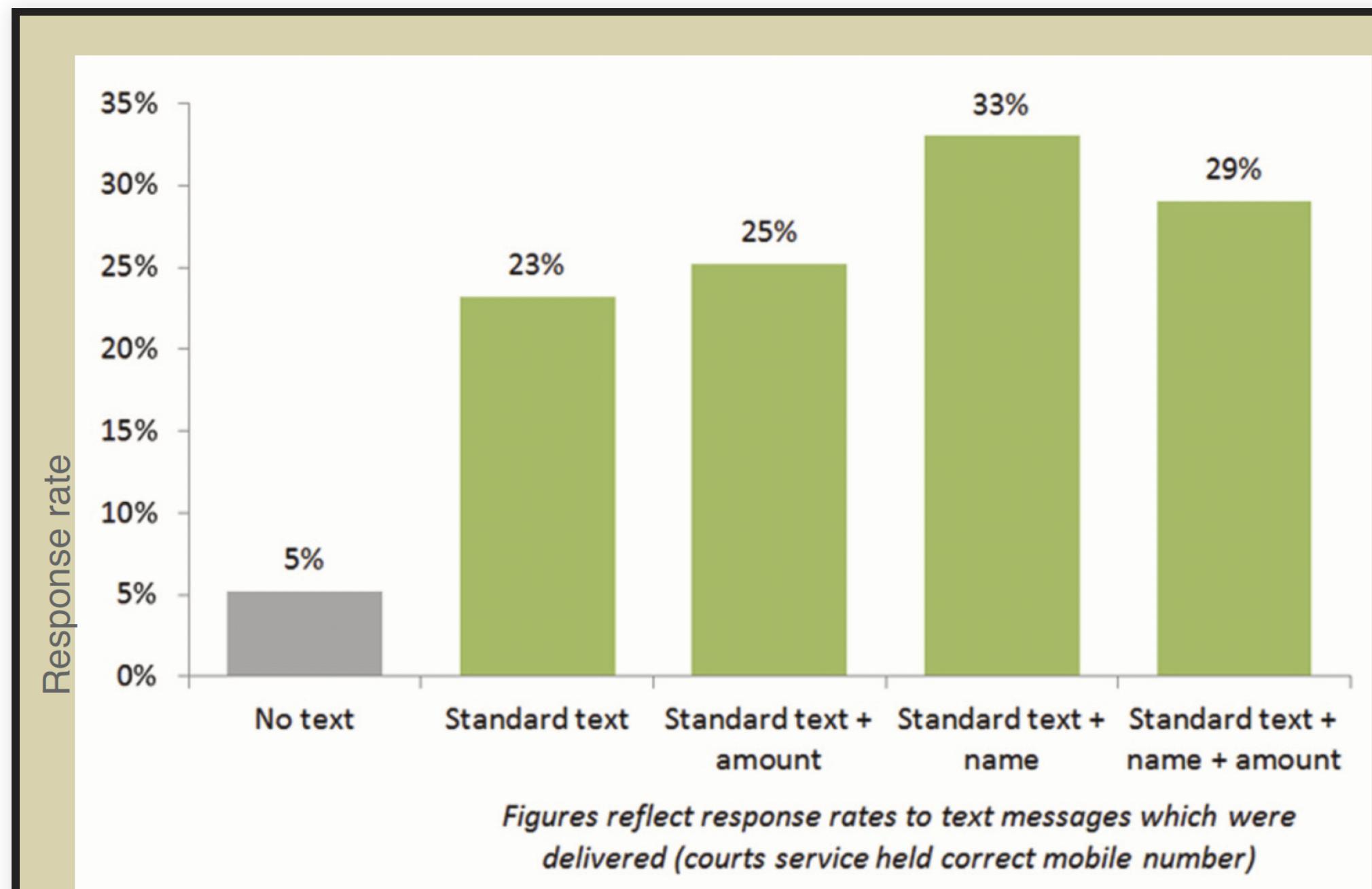


Figure 5. Initial trial: repayment rates by individuals (N=1,054)

MENSTRUATION AS A BARRIER TO EDUCATION?

Girls in Nepal missed only half a day of school per year due to menstruation, and modern sanitary products did little to address this very small attendance gap.

INTERVENTION

Receive menstrual cup and training



Each treatment group girl and her mother or female guardian received a MoonCup brand reusable menstrual cup. The product is a small, silicone, bell-shaped cup which is inserted in the vagina to collect menstrual blood. With proper care, the cup is reusable for up to a decade.

A nurse gave detailed instructions on the use of the cup.

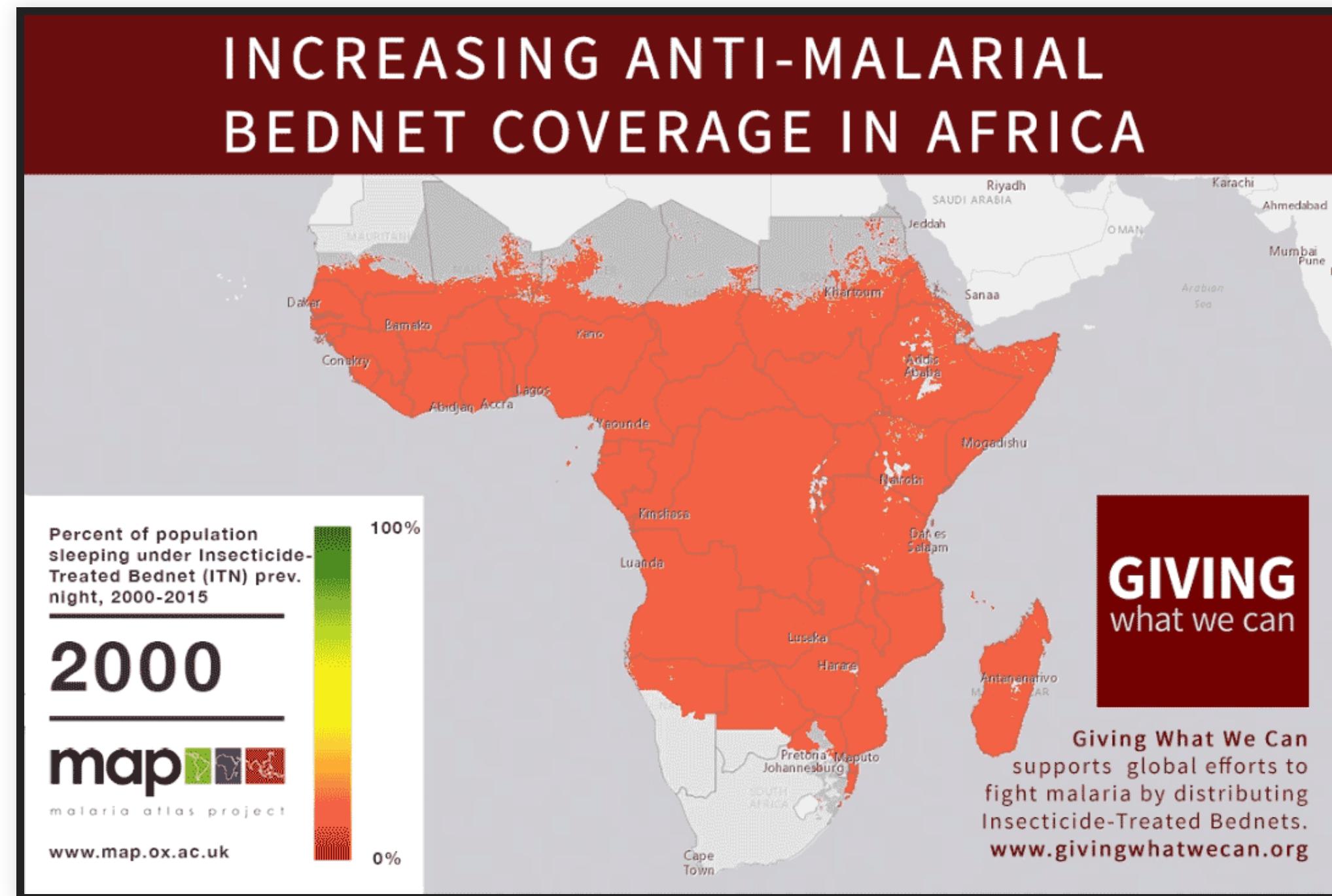


FIGURE 1: ATTENDANCE RATES, PERIOD & NON-PERIOD DAYS



FREE BEDNETS TO FIGHT MALARIA

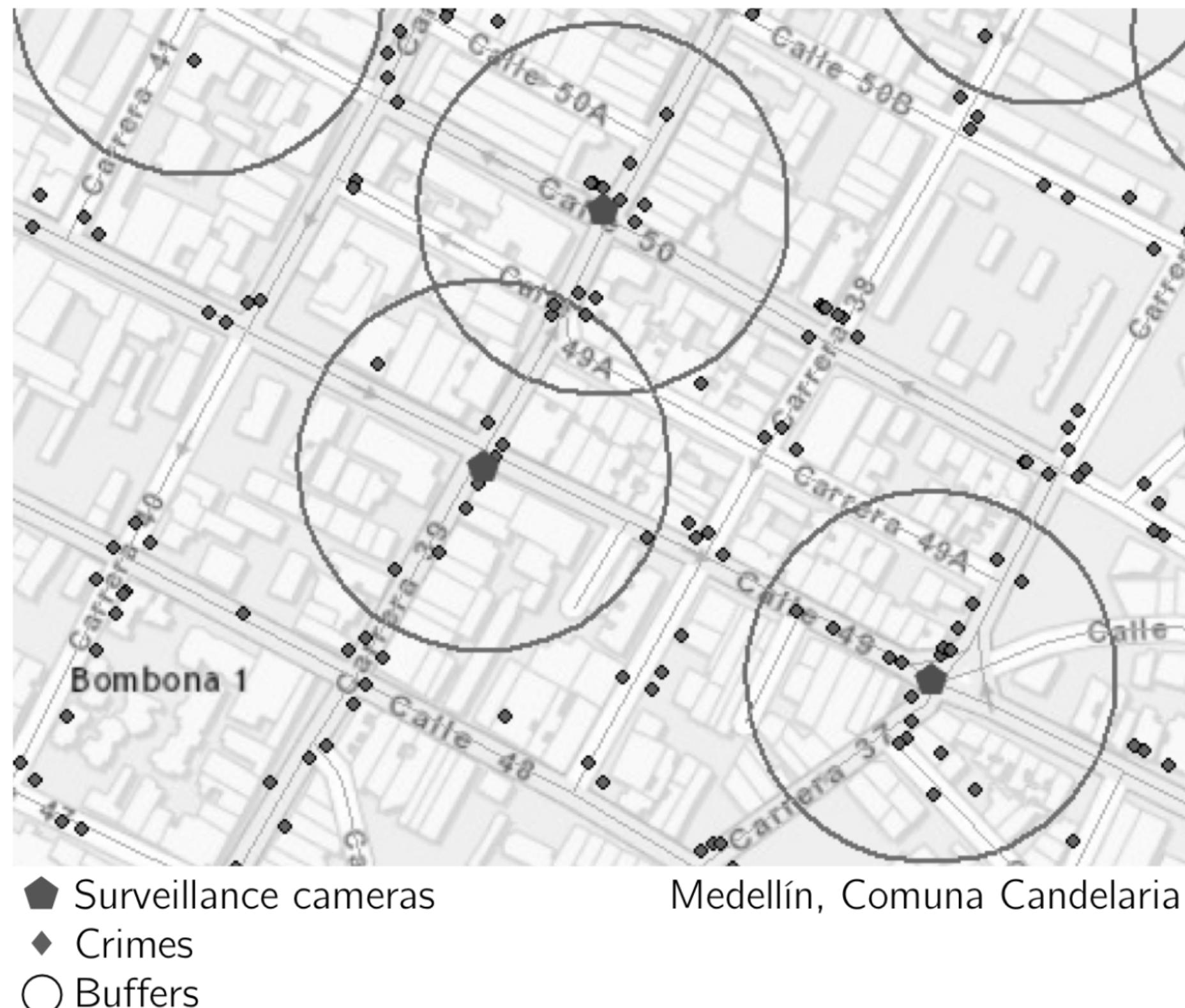
The Problem: Despite a large reduction in the global malaria burden over the past two decades, malaria still claims hundreds of thousands of lives each year.



THE DETERRENT EFFECT OF SURVEILLANCE

Cameras on Crime

Figure 1: Units of analysis. Buffers around camera installation sites



Notes: The figure depicts buffers around the location of public surveillance cameras. Data is from the government of Medellín and the National Police of Colombia.

Table 4: Baseline results. Effects of public surveillance cameras on reported crimes and arrests

	Reported crime			Arrests		
	Total crime	Property crime	Violent crime	Total crime	Property crime	Violent crime
	(1)	(2)	(3)	(4)	(5)	(6)
Camera installation	-0.091** [0.036]	-0.087** [0.036]	-0.038 [0.038]	-0.073** [0.032]	-0.057* [0.032]	-0.056 [0.036]
Change from baseline	-23.5%	-26.8%	-12.2%	-31.5%	-28.5%	-40.8%
Buffer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,088	14,088	14,088	14,088	14,088	14,088
Groups	587	587	587	587	587	587
Adjusted R^2	0.024	0.021	0.005	0.005	0.004	0.002

Notes: The dependent variables are standardized reported crimes or arrests. The treatment variable takes the value 1 if a camera is installed in the corresponding place and month. Changes from baseline are measures of the magnitude of the coefficient relative to the one year average of the outcome variable in the pre-installation period. The sample includes data from May 2013 through April 2015. Data is for 587 camera installation sites. Reported crime levels and arrests are from the National Police. Geolocation of camera installation sites is from the office of the Information System for Citizen Security of the Department of Security of Medellin. Violent crime includes reported homicides and assaults. Property crime includes all kinds of theft. All specifications include a non reported constant. * significant at the 10 percent, ** significant at the 5 percent, *** significant at the 1 percent.

Country Debate - Questions

Referee report

- Each country has to propose one topic on development economics.
 - Each country has to split in two groups: those who defend the paper, those who attack the paper.
 - Write a 4 pages referee report
 - 2 pages to defend paper
 - 2 pages to attack the paper
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- Presentation
 - Each team will have 20 minutes
 - 5 minutes to present the paper
 - 15 minutes to present good things and bad things