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# *Using Impact Evaluation for Improving Development Policies and Programs: Examples from IFPRI*

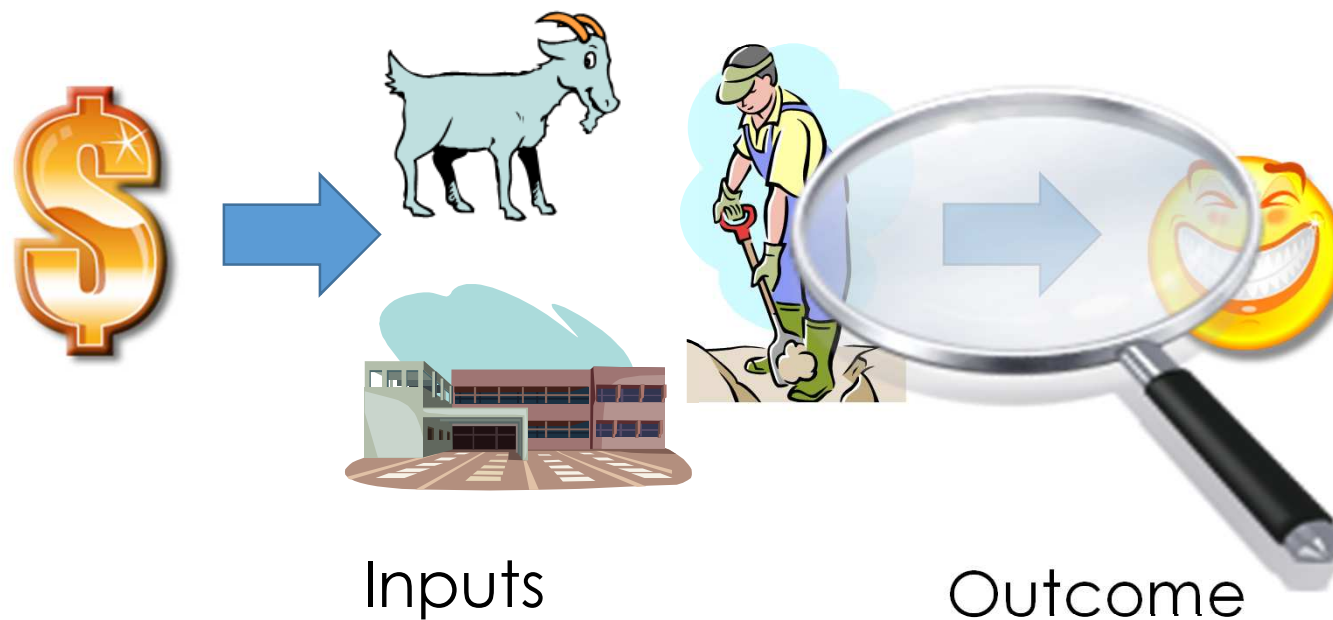
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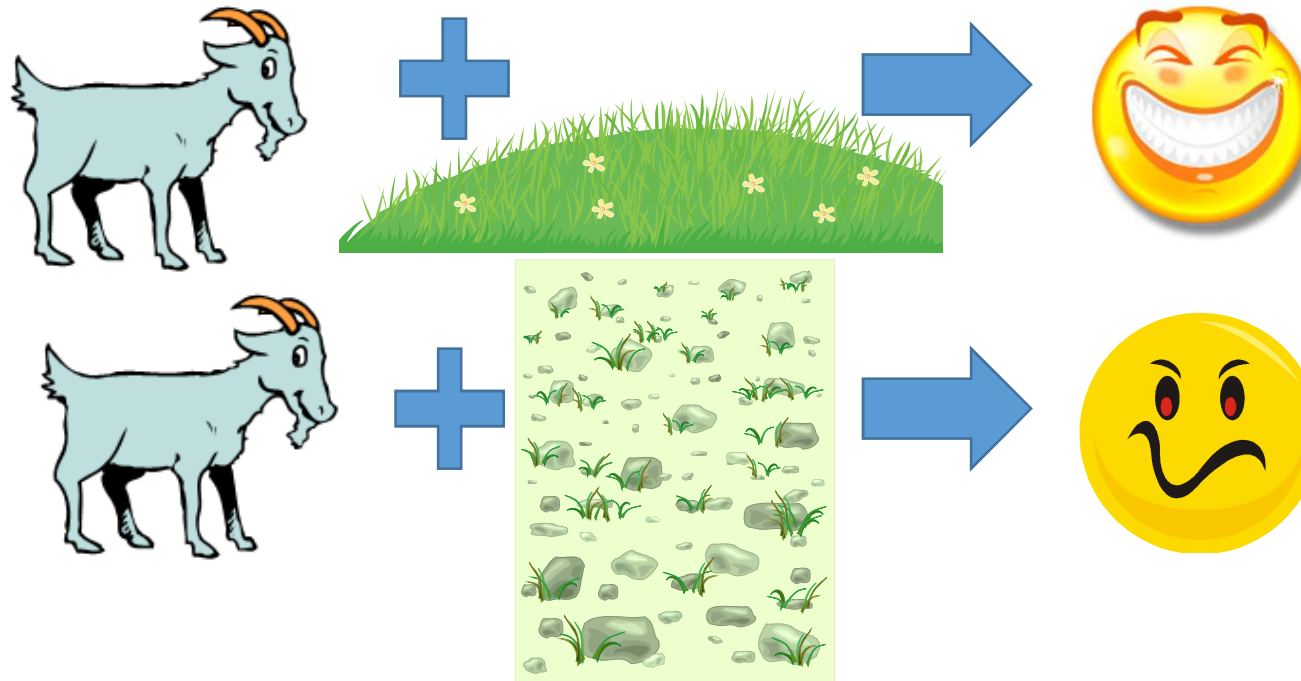
# Why Impact Evaluation?



# External Factors Influence Outcomes



# External Factors Influence Outcomes



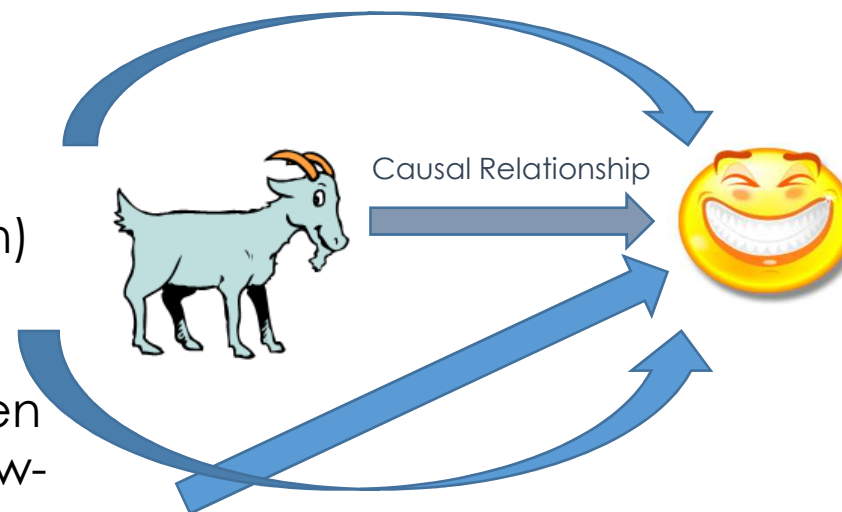
# Goal of Impact Evaluation



Differences in  
Participant vs. Non-  
Participant Baseline

Differences in  
Participant vs. Non-  
Participant Ability to  
Benefit (Self-Selection)

Time Trend Between  
Baseline and Follow-  
Up



**To Isolate  
the Causal  
Relationship  
from  
External  
Factors  
Influencing  
Outcomes**

# Methods of Impact Evaluation

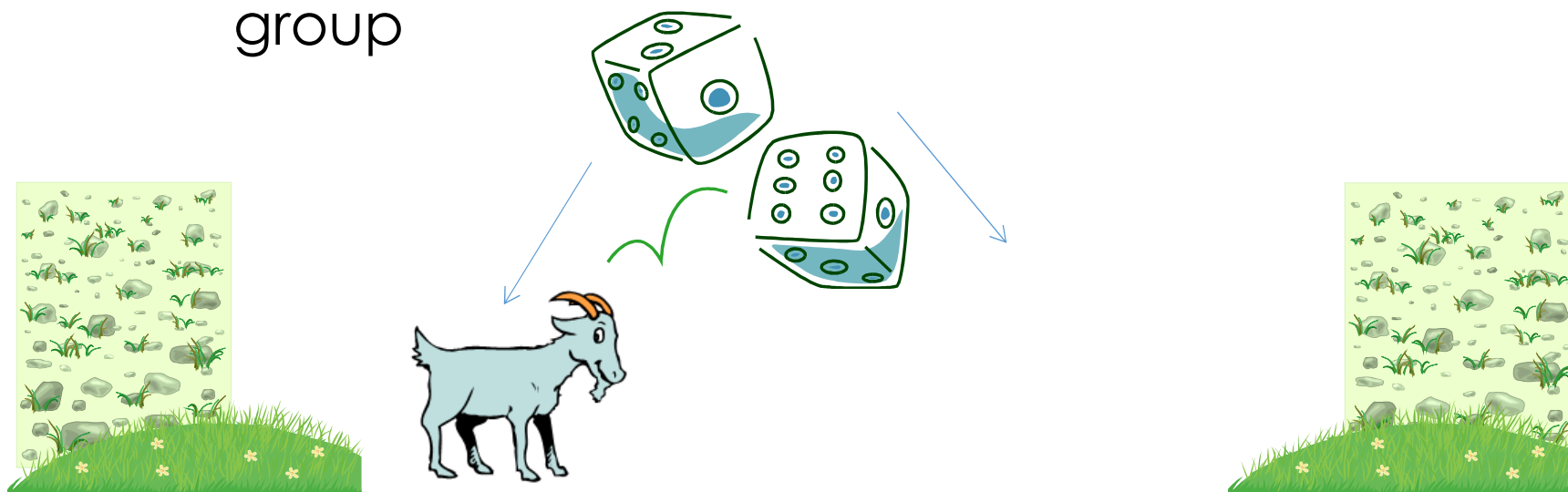


- Randomized Control Trial
- Regression Discontinuity
- Propensity Score Matching
- Other Methods
  - Differences in Differences
  - Instrumental Variables

# Randomized Control Trial



Randomly assign units (households or communities) to treatment or control group



# When to use Randomized Control Trial



- Advantages:
  - easy to design and explain (donors, policy makers/stakeholders, general public)
- Disadvantages:
  - not always possible or ethical to randomize who receives the program
  - difficult to coordinate with implementers to make sure that the randomization is respected

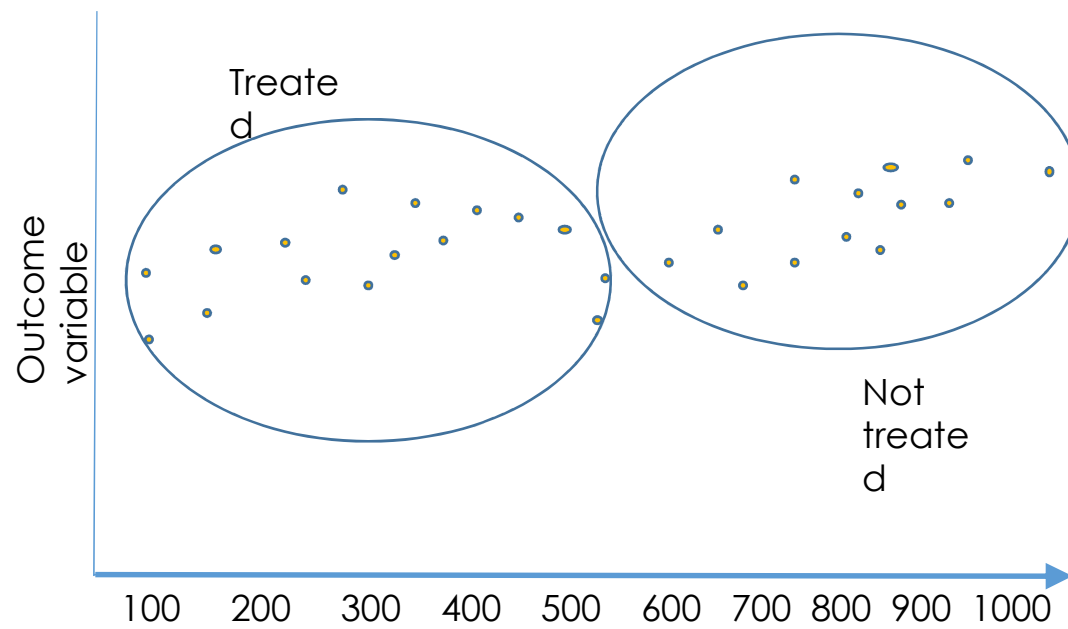


# Methods of Impact Evaluation

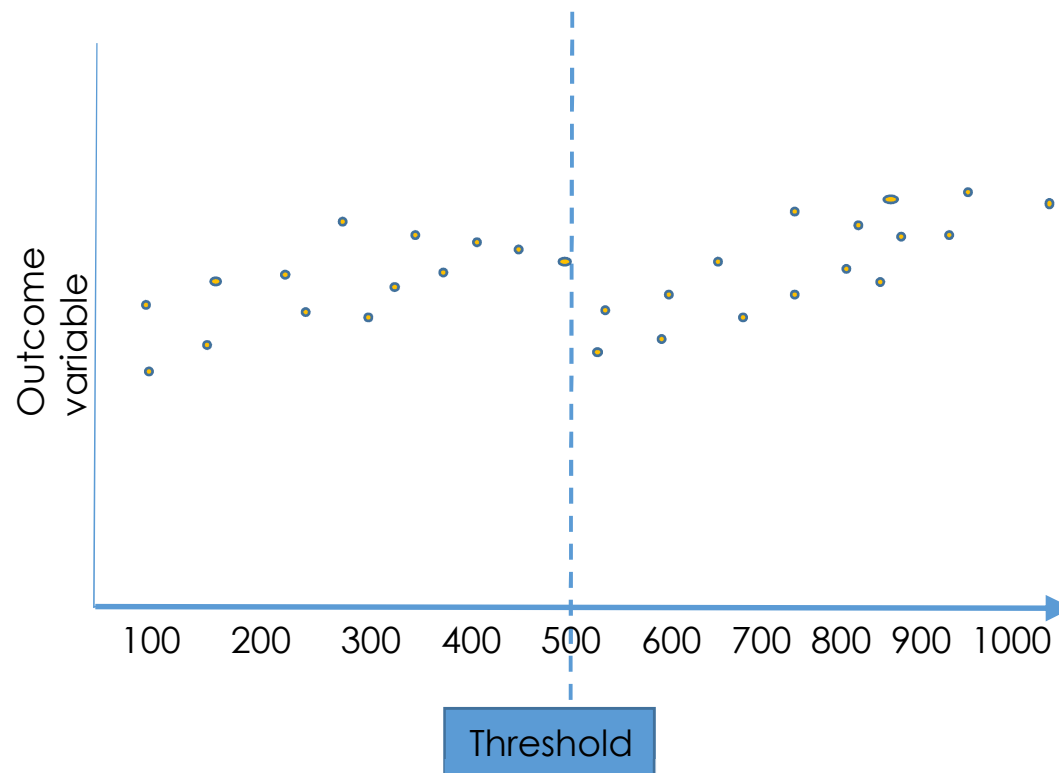


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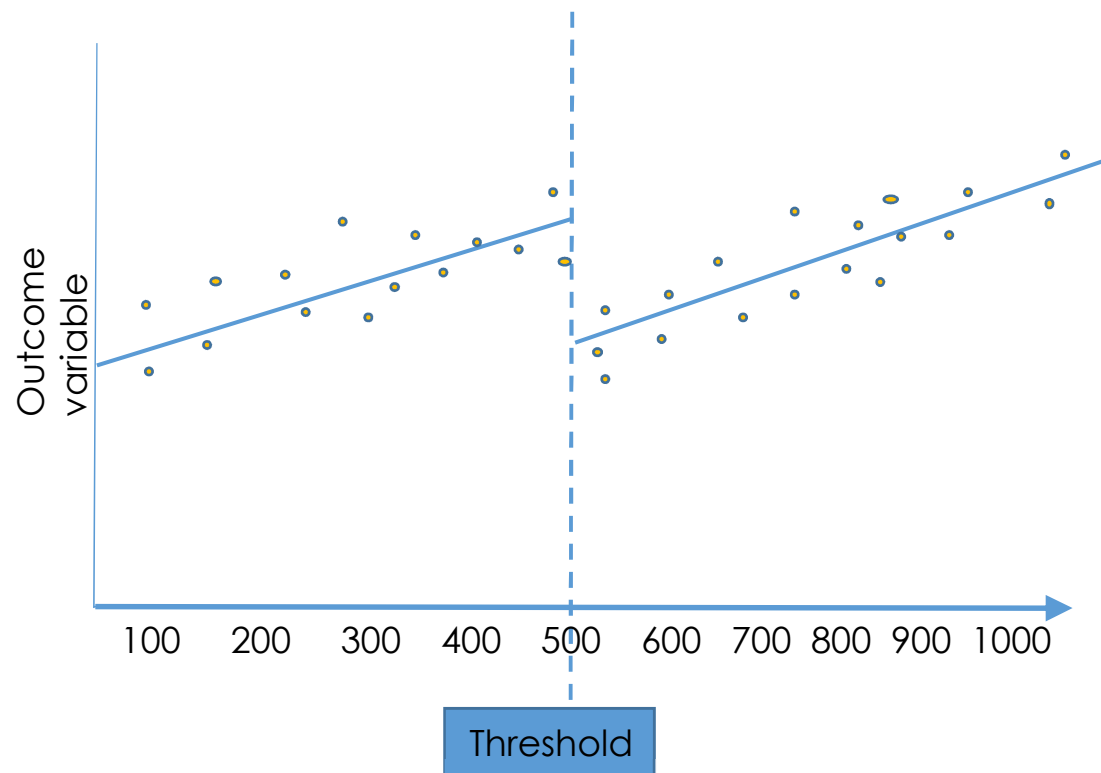
# Regression Discontinuity



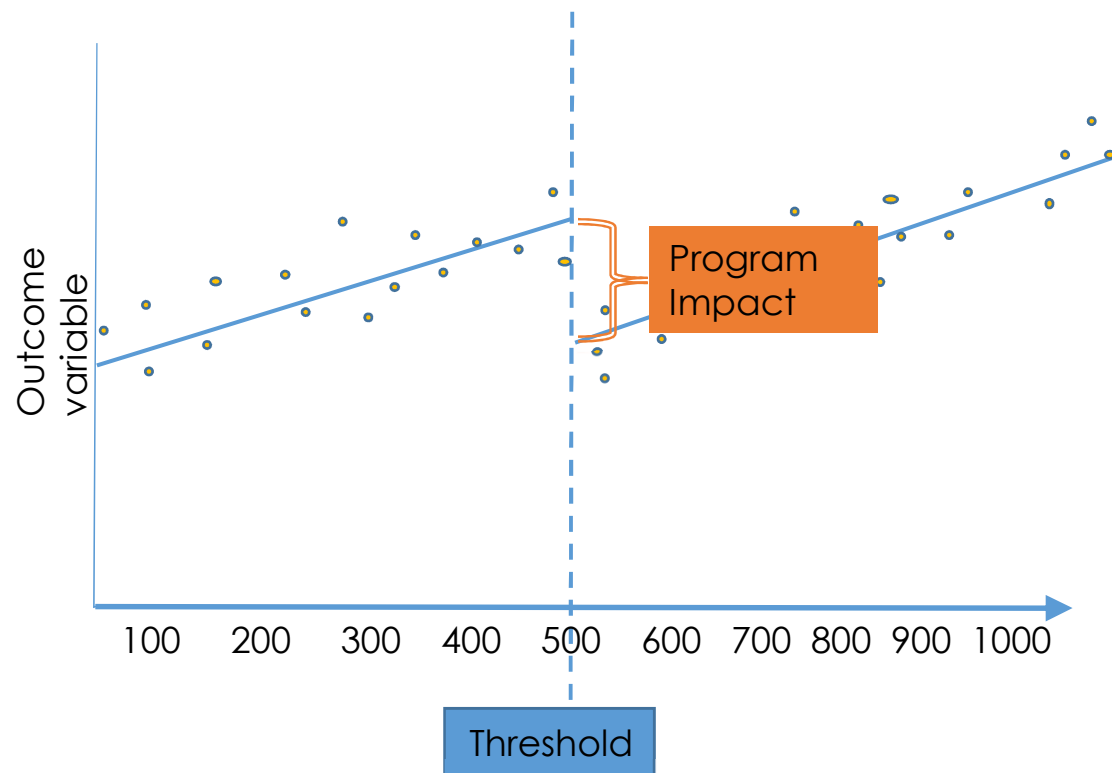
# Regression Discontinuity



# Regression Discontinuity



# Regression Discontinuity



# When to Use Regression Discontinuity



- Advantages:
  - does not require randomization
- Disadvantages:
  - requires a sharp cutoff in some continuous variable between treated and non-treated
  - only estimates Local Average Treatment Effect (LATE), the effect of treatment for units near the threshold

# Regression Discontinuity Example: Takaful Cash Transfer Program

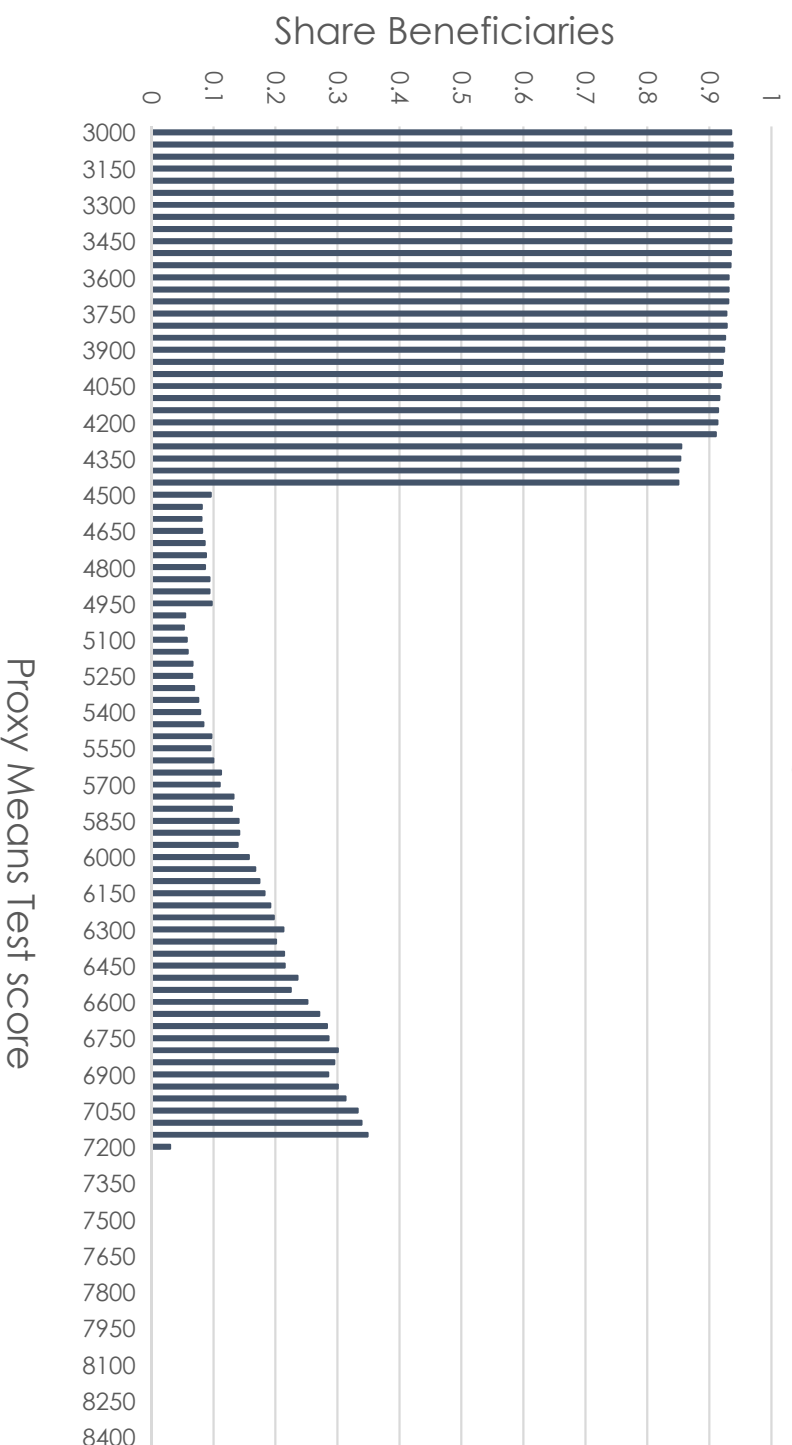


- Egypt began cash transfers in March 2015
  - 1.9 mn beneficiary households
  - Targeted to poor registrant households with children using a cutoff score on a Proxy Means Test (PMT)
- Goal to create a better targeted social safety net to help cushion poor against economic downturn and decreases in universal subsidies
- Monthly transfers using a smart card
  - EGP 350 + 60 to 140 per child (depending on age), for up to 3 children
  - avg transfer is EGP 667 (1 USD = 18 EGP)

# Regression Discontinuity

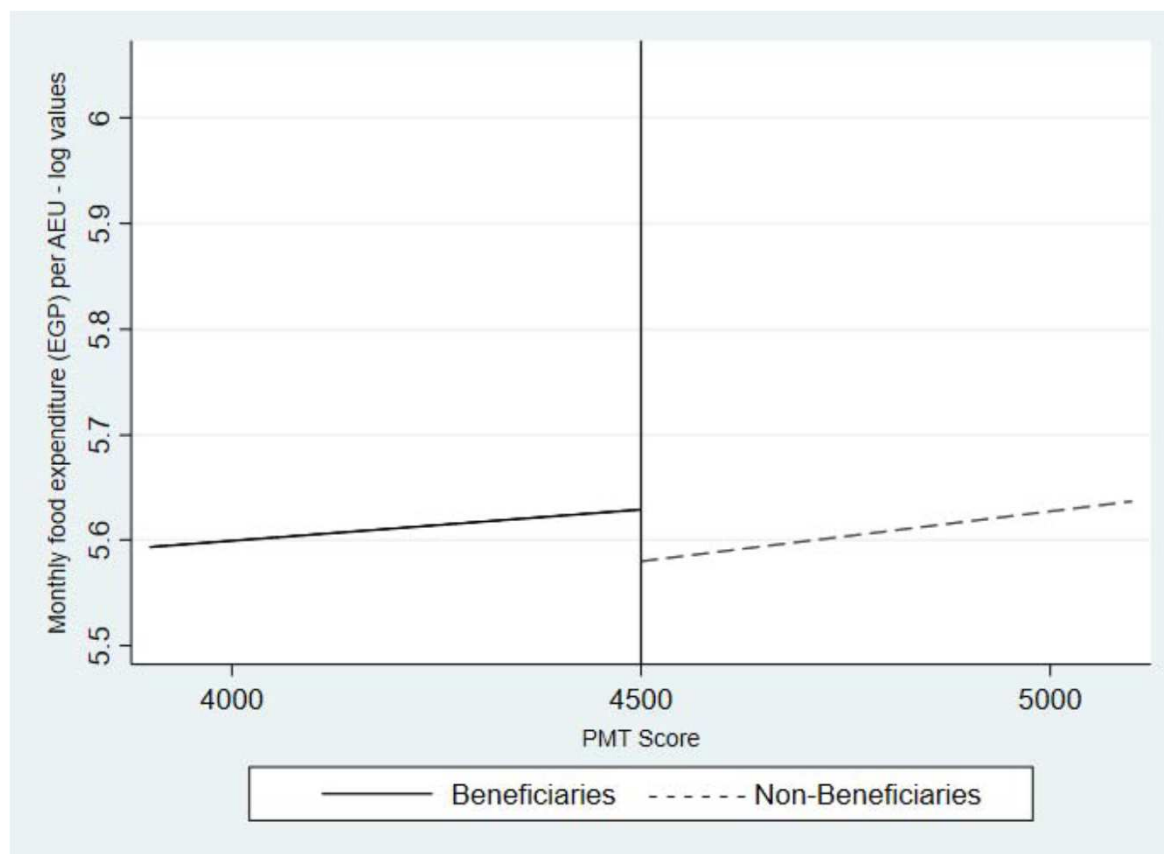


Takaful and Karama Registrants by PMT Score





# Regression Discontinuity Example: Takaful Cash Transfer Program



# Methods of Impact Evaluation



- Randomized Control Trial
- Regression Discontinuity
- Propensity Score Matching (various methods, here we describe inverse probability weighting)
- Other Methods
  - Differences in Differences
  - Instrumental Variables

# Propensity Score Matching



Survey a large group of participants



and a large group of non-participants

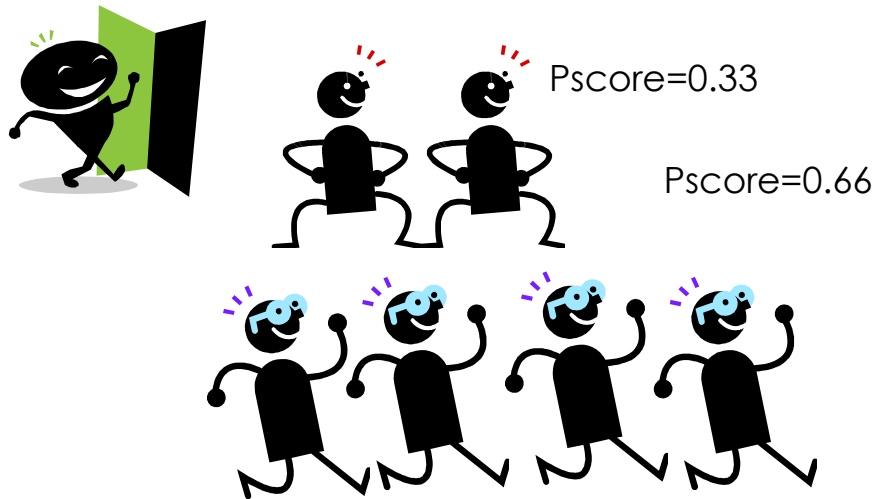


Find out as much as possible about their characteristics

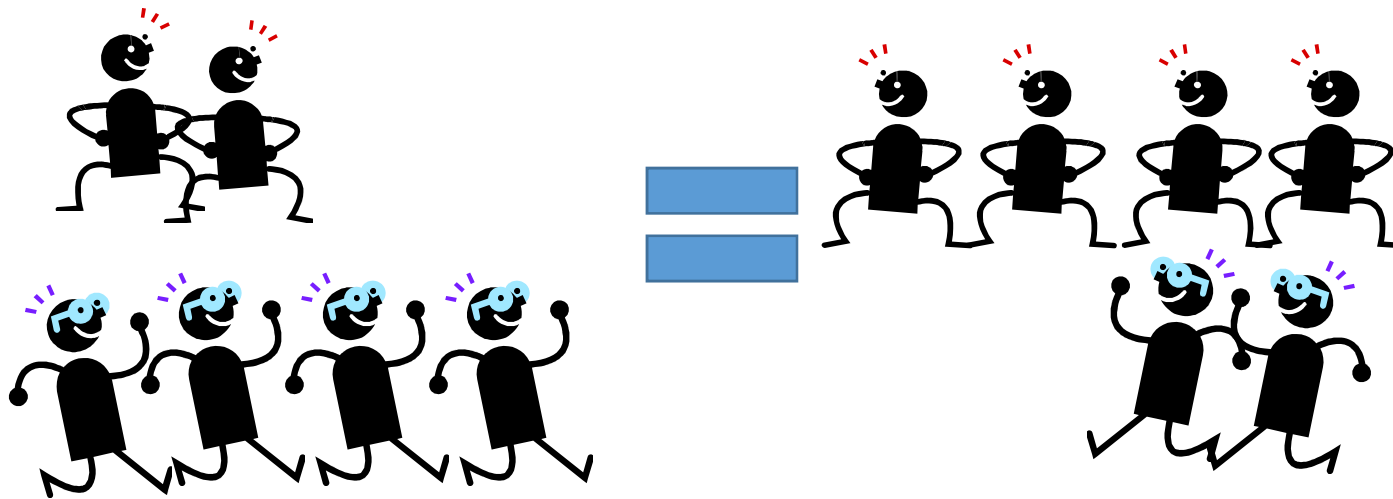
# Propensity Score Matching



Identify observable characteristics that differ between participants and non-participants and combine these into a single score expressing how likely they are to participate



# Propensity Score Matching



Using the propensity score, reweight observations so that the samples become comparable

# When to Use Propensity Score Matching



- Advantages:
  - does not require randomization
  - does not require threshold based assignment
- Disadvantages:
  - can only control for observable differences between participants and non-participants, and often unobservable factors differ

# Propensity Score Matching Example: USAID's funded FAS project



Feed the Future Egypt, Food-Security and Agribusiness Support Project (**FAS**)

## Goal

- Increase the incomes of 14,000 Upper Egypt smallholder farmers (<10 feddans)
- Enhance food security of farm households
- Improve the nutritional status of women and young children

## Components

1. Improved on-farm production
2. Improved marketing of agriculture crops and products

# Propensity Score Matching Example: USAID's funded FAS project



- Non-random allocation of households to treatment and comparison group
- No clear cut-off or threshold between participants and non-participants
- Only criteria for being eligible: owning 10 feddans or less, having experience in cultivating horticultural crops (or interest), be part of a participant association/cooperative.
- **Challenge: *Finding households that are similar to the households receiving the treatment on all relevant characteristics, except for receiving the treatment***



# Propensity Score Matching Example: USAID's funded FAS project



- **Steps to find comparable households:**

1. Collect information on a sufficiently large sample of participants (T=1) and non-participants (T=0) on **relevant** demographic, socioeconomic and locality characteristics ( $X_i$ )
2. Estimate for each household the probability of participation based on these characteristics
3. Match each household in the treatment sample with a weighted average of households from the control sample
4. The effect of the program is then:  
*Average effect = (average outcome for participants) – weighted average outcome for non – participants*

# In Summary:



- Randomization is the gold standard among impact evaluation approaches, but often difficult to implement
- Evaluators need to carefully think how the program is implemented and targeted to use the best method possible
- Impact evaluations need constant communication with implementers and stakeholders
- If possible, evaluation designs should be part of the program design
- If evaluators get involved when programs already operate, alternative methodologies like RDD or PSM can be used.



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Thank you