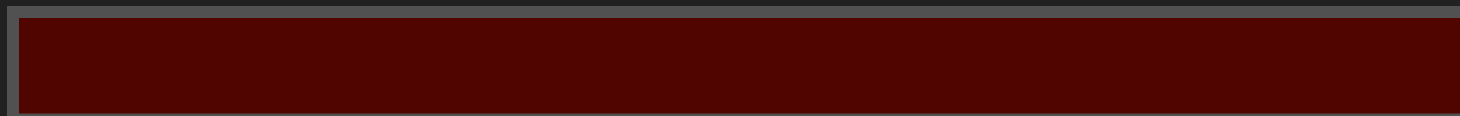


Measurement

Roland Rathelot

J-PAL



Course Overview

1. What is Evaluation?
2. **Outcomes, Impact, and Indicators**
3. Why Randomize and Common Critiques
4. How to Randomize
5. Sampling and Sample Size
6. Threats and Analysis
7. Project from Start to Finish
8. Cost-Effectiveness Analysis and Scaling Up

Lecture Overview

- What to Measure
 - Case study (Theory of Change)
- How to measure it (well)
 - Validity, Reliability
 - How to measure the immeasurable
 - Sources of data
 - Data collection
 - Other considerations

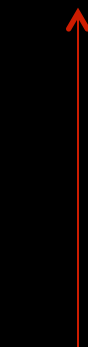
Case study

- Encouraging apprenticeship among the youth

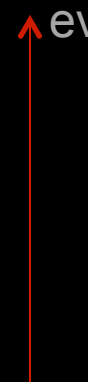
Log frame

	Objectives Hierarchy	Indicators	Sources of Verification	Assumptions / Threats
Impact (Goal/ Overall objective)	Better labor-market situation for the youth	Apprenticeship rate, employment rate and qualifications	Administrative data, national surveys	Improving matching and supply side policies lead to equilibrium shift
Outcome (Project Objective)	Youth manage to enter (and to stay) in apprenticeship	Apprenticeship entry, dropout	Administrative data, dedicated survey	Counseling is efficient
Outputs	Youth meet the counselors, counselors track youth progress	Information about meetings and contacts?	Administrative data, survey (?)	Treatment is implemented in a satisfactory way
Inputs (Activities)	Counselors are trained and made available	Hours dedicated to the program	Agreement	Government believes apprenticeship should increased

Needs assessment



Impact evaluation



Process evaluation

Data used

Sources of Measurement	Indicators
Survey (youth)	• Employment/Apprenticeship status • Socio-demographics • Intensity of the program
Administrative data from vocational centers and counselors	• Registration for vocational degree • Meetings: numbers, frequency
Apprenticeship contracts	• Employer characteristics
Survey (vocational centers)	• Course attendance • Youth experienced difficulties?
Other (existing) surveys	• Contextual variables • Outcomes about youth in the same area

Results

Outcome	Group		Impact
	Control	Treated	
Entered apprenticeship	51%	57%	0.06**
Dropout from apprenticeship	21%	25%	0.04**

HOW TO MEASURE IT (WELL)

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- The basics



CENSUS EXAMPLE

The Basics

- Data that should be easy?
 - E.g. Age, # of rooms in house, # in hh
- What is the survey question identifying?
 - E.g. Are hh members people who are related to the household head? People who eat in the household? People who sleep in the household? **Bobcats?**

When the obvious is not so obvious...

- Let's think about the people who eat from the same pot in the household where you usually stay. How many adults, adolescents, and children? Adults are age 18 and older, adolescents are ages 13 to 17, and children are ages 12 and younger.
 - So in total there are how many people in the household where you usually stay? **DON'T ADD TOTAL FOR RESPONDENT.**

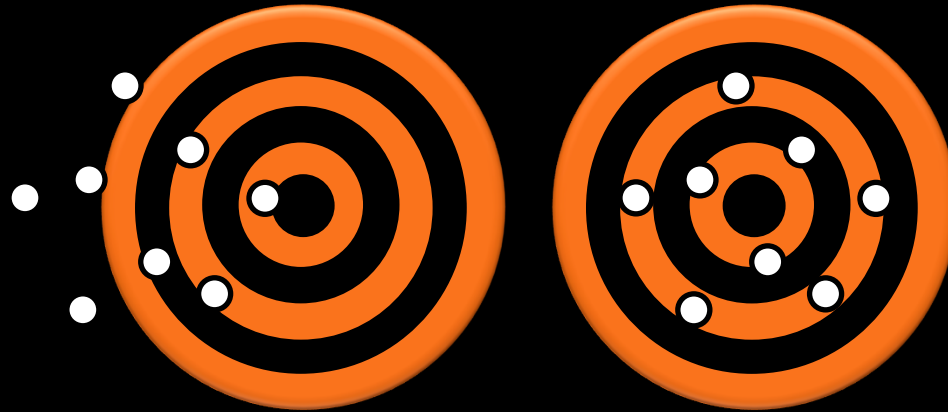
Validity, Reliability

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- How to measure it (well)

The main challenge in measurement

- Accuracy



- Precision



The main challenge in measurement

- Validity



- Reliability



Validity

- In theory:
 - How well does the indicator map to the outcome? (e.g. intelligence → IQ tests)
- In practice:
 - Are your survey questions unbiased?
 - Potential biases:
 - Social desirability bias
 - Demand bias (response bias)
 - Framing effect
 - Recall bias
 - Anchoring bias

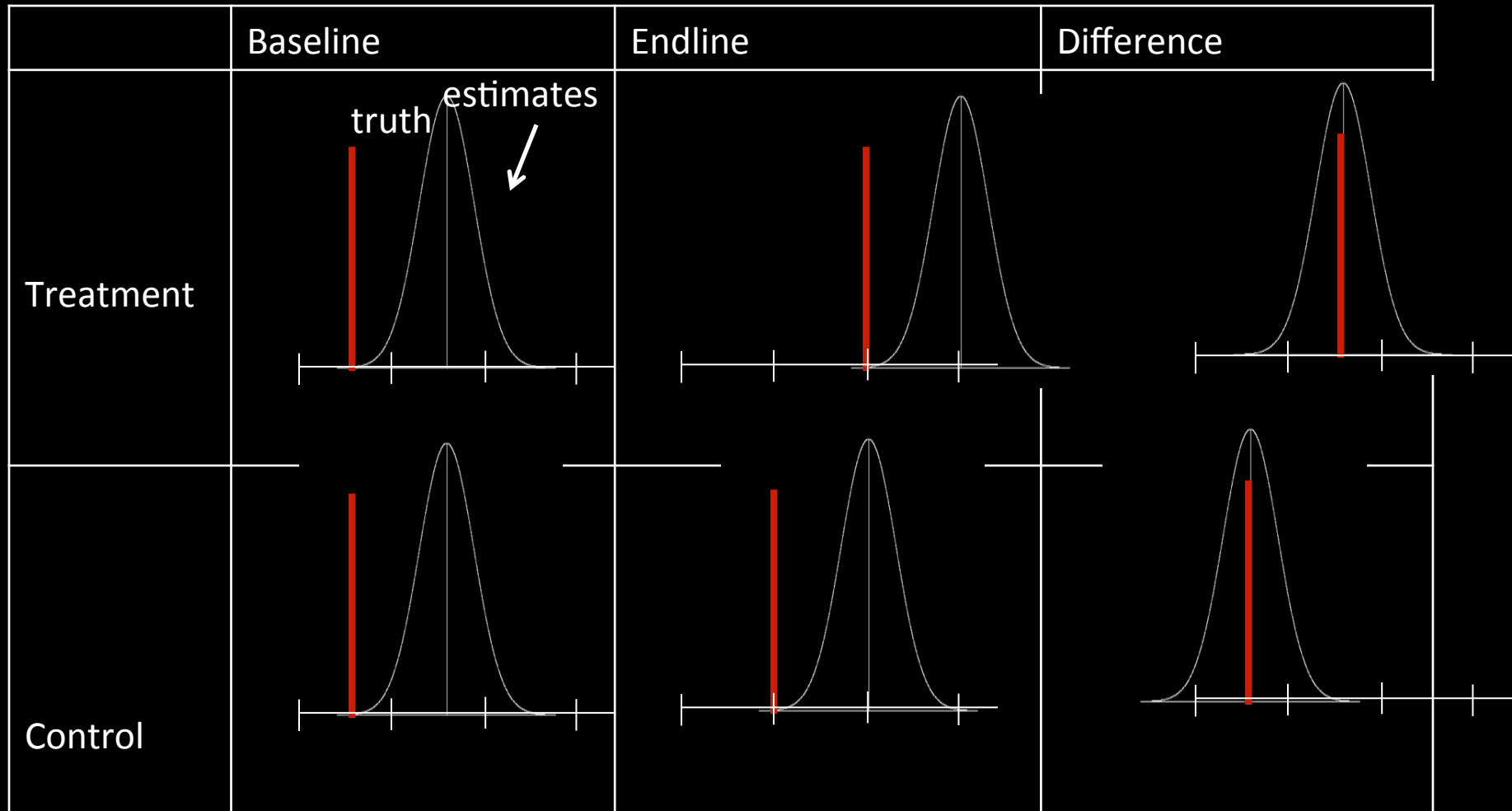
Reliability

- In theory:
 - The measure is consistent, precise, but not necessarily valid
- In practice:
 - Length, fatigue
 - “How much did you spend on broccoli yesterday?” (as a measure of annual broccoli spending)
 - Ambiguous wording (definitions, relationships, recall period)
 - Answer choice (open/closed, Likert, ranked)

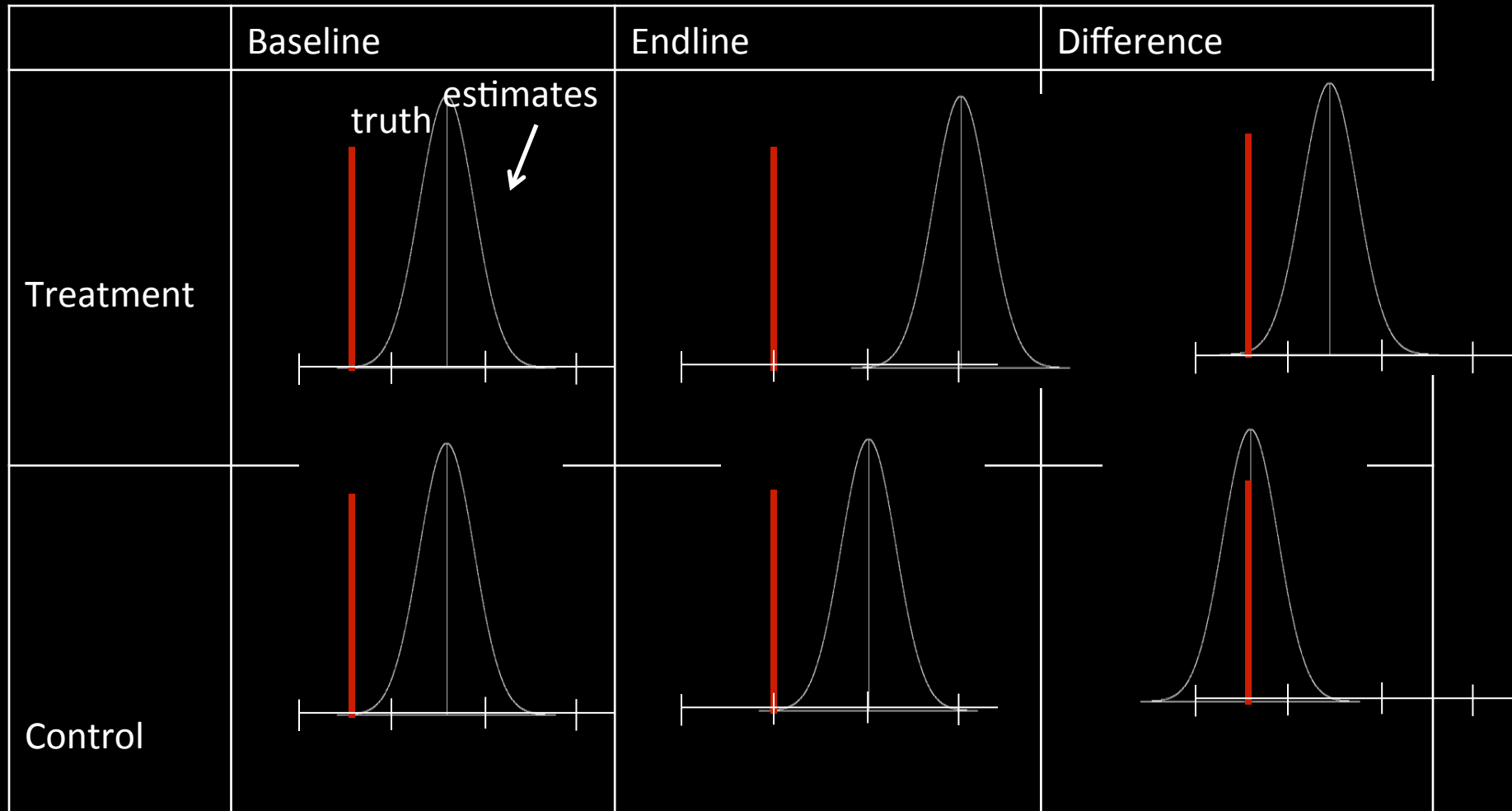
General noise

- Surveyor training/quality
- Data entry
- Poor translation

“Consistently Biased”



Bias is correlated with treatment



Measuring the immeasurable

- How to measure it (well)

What is hard to measure?

- (1) Things people do not know very well
- (2) Things people do not want to talk about
- (3) Abstract concepts
- (4) Things that are not (always) directly observable
- (5) Things that are best directly observed

Why the Hard to Measure?

- Missing key characteristics that:
 - interact with policies to change their impact
 - help us tailor policies and programs to better reach stated objectives
- If we can't measure it, we can't evaluate its importance

1. Things people do not know very well

What: Anything to estimate, particularly across time.

Prone to recall error and poor estimation

- **Examples:** distance to health center, profit, consumption, income, plot size

Strategies:

- Consistency checks – How much did you spend in the last week on x? How much did you spend in the last 4 weeks on x?
- Multiple measurements of same indicator – How many minutes does it take to walk to the health center? How many kilometers away is the health center?

2. Things people don't want to talk about

What: Anything socially “risky” or something painful

Examples: sexual activity, alcohol and drug use, domestic violence, conduct during wartime, mental health

Strategies:

- Don't start with the hard stuff!
- Consider asking question in third person
- Always ensure comfort and privacy of respondent

3. Abstract concepts

What: Potentially the most challenging and interesting type of difficult-to-measure indicators

- **Examples:** empowerment, bargaining power, social cohesion, risk aversion

– **Strategies:**

- Three key steps when measuring “abstract concepts”
 - Define what you mean by your abstract concept
 - Choose the outcome that you want to serve as the measurement of your concept
 - Design a good question to measure that outcome
- Often choice between choosing a self-reported measure and a behavioral measure – both can add value!

Choosing Fruit vs. Chocolate

Read and van Leeuwen (1998)

Choosing Today

Eating Next Week

Time

If you were
deciding **today**,
would you choose
fruit or chocolate
for **next week**?



Patient Choices for the Future

Choosing Today

Eating Next Week

Time

Today, 74% of subjects choose fruit for next week.



Impatient Choices for Today

Choosing & Eating Simultaneously



If you were
deciding *today*,
would you choose
fruit or chocolate
for today?



Time Inconsistent Preferences

Choosing & Eating Simultaneously

Time →

Today, 70% of subjects
choose *chocolate* for
today.





“...but you must bind me hard and fast, so that I cannot stir from the spot where you will stand me... and if I beg you to release me, you must tighten and add to my bonds.”

- The Odyssey



SEED SAVINGS

Certificate



I, _____, commit to save for _____.

I have opened a SEED savings account with a

Goal Date / Goal Amount of _____.

I will try everything in my power to accomplish my SEED Savings Goal by

saving _____ Pesos a day / a week.

*If I achieve this goal, I will be able to enjoy my savings to _____
by _____.*

Name

Date

Things that aren't directly observable

What: You may want to measure outcomes that you can't ask directly about or directly observe

- **Examples:** corruption, fraud, discrimination

Strategies:

- Sometimes you just have to be clever...
- Don't worry – there have already been lots of clever people before you – so do literature reviews!

Perceptions and Attitudes

- “How effective is your leader?” (ineffective, somewhat effective, effective, very...)
 - Survey response: explicit distaste for female leaders (Feeling Thermometer)
- Listen to a Vignette (Male v. Female)
 - Bias large and significant for male listeners
- Revealed preference – voting behavior
- Implicit Association tests
 - Increased likelihood of associating women with leadership activities

Implicit Association Test



Taking a real IAT

Implicit Association Test

<https://implicit.harvard.edu/implicit/Study?id=3>

European American
or
Good

African American
or
Bad

Happy



If the keys do not work, click the mouse inside the white box and try again.

If the red ■ appears, press the other key to make the red ■ go away.



Things that are best directly observed

What: Behavioral preferences, anything that is more believable when done than said

Strategies:

- Develop detailed protocols
- Ensure data collection of behavioral measures done under the same circumstances for all individuals

Sources of data



Where can we get data?

- Administrative Data
 - State government census data
 - School data
 - Cell phone usage
- Other Secondary Data
 - National surveys, geographic data...
- Primary Data
 - Your own survey

Primary Data Collection

- Self-reported Surveys
 - Phone, face-to-face, internet, cell phone?
- Exams, tests, etc
- Games
- Diaries
- ...

Modules

- Income, consumption, expenditure
- Perceptions, expectations, aspirations
- Bargaining power
- Patience, risk
- Behavior (time use)
- Anthropometric
- Cognitive, Learning
- Yields

Why collect your own data?

- The standard RCT design is

- Baseline
- During the intervention
- Endline
- Scale-up, intervention

- Pros vs. cons of collecting your own data

- Scale, cost
- Focus of questions

Data Collection Considerations

- Quality Control
- Surveyor training
- Surveyor (gender) composition
- Human subjects
- Data Security
- Electronic v paper
- Costs

OTHER CONSIDERATIONS

- How to measure it (well)

Don't forget

- Ethics
- Might affect compliance
- Respondent (and interviewer) fatigue

Thank you



How Do Intra-Household Dynamics Influence Fertility? Ashraf, Field & Lee (2012)

- Despite advent of modern contraception, more than 50% of births are reported as unwanted
- Contraceptive methods often stocked out, rationed by wait times
- Official policy that husband consent is not required to obtain contraceptives; not in rural areas. Many husbands unaware of birth control use (21%)

THE BABY GAVE YOU NINE MONTHS' NOTICE.
WHERE'RE THE NAPKINS, SHAWLS
AND EVERYTHING?

THERE'S NOTHING AT ALL, SISTER.
IN FACT WE'VE PROBLEMS IN FEEDING
AND DRESSING THE OTHER TEN
CHILDREN AT HOME.



TAKE OFF YOUR SHIRT SO THAT WE CAN
WRAP IN THE
BABY

OKAY SISTER



YOU MEN'RE TO BLAME
BECAUSE YOU ALWAYS
DISCOURAGE YOUR
WIVES TO USE ANY
OF THE MANY FAMILY
PLANNING METHODES!

NEVER AGAIN
DARLING
FAMILY PLANNING
MAKES SENSE!



Free, Instant Access to Depo Provera or Jadelle



Name

NRC#

Date



sponsored by

see inside for details

If you bring this voucher with your NRC card to Nurse Grace Daka at Chipata Clinic between xx and xx hours Monday through Saturday, we guarantee that you will receive:

- very quick, first-class personalized family planning services from Grace Daka, your own dedicated family planning nurse only for the lucky women in this study
- one implant of Jadelle or one years' worth of Depo Provera if the nurse deems it medically appropriate
- a wait time of no more than 30 minutes; we will give you a free gift if you wait longer than 30 minutes
- a free, surprise gift for you, the woman of the house, if you are one of the first 50 women to see Grace Daka with this voucher

Control

Free, Instant Access to Depo Provera or Jadelle

If you bring this voucher with your NRC card to Nurse Grace Daka at Chipata Clinic between xx and xx hours Monday through Saturday, we guarantee that you will receive:

- very quick, first-class personalized family planning services from Grace Daka, your own dedicated family planning nurse only for the lucky women in this study
- one implant of Jadelle or one years' worth of Depo Provera if the nurse deems it medically appropriate
- a wait time of no more than 30 minutes; we will give you a free gift if you wait longer than 30 minutes
- a free, surprise gift for you, the woman of the house, if you are one of the first 50 women to see Grace Daka with this voucher

Name _____
NRC# _____
Date _____

sponsored by 

see inside for details

Individual

Couples

Results

Women who received the voucher alone:

- 23% more likely to visit a family planning nurse
- 38% more likely to take up a concealable form of contraception
- 57% reduction in unwanted births

...than when they were given the voucher with their husband.

Only when women have greater autonomy to adopt contraception does it lead to a decrease in unwanted births.

...but is that the whole story?