



# Measurement

Nathan Fiala

University of Connecticut

# Overview

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- 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

# Example



Encouraging apprenticeship among youth

# Log frame

|                                                 | Objectives Hierarchy                                       | Indicators                                              | Sources of Verification               | Assumptions / Threats                                                 |
|-------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------|
| <b>Impact<br/>(Goal/<br/>Overall objective)</b> | 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 |
| <b>Outcome<br/>(Project Objective)</b>          | Youth manage to enter (and to stay) in apprenticeship      | Apprenticeship entry, dropout                           | Administrative data, dedicated survey | Counseling is efficient                                               |
| <b>Outputs</b>                                  | Youth meet the counselors, counselors track youth progress | Information about meetings and contacts?                | Administrative data, survey (?)       | Treatment is implemented in a satisfactory way                        |
| <b>Inputs<br/>(Activities)</b>                  | Counselors are trained and made available                  | Hours dedicated to the program                          | Agreement                             | Government believes apprenticeship should increased                   |

# Data used

| Sources of Measurement                                     | Indicators                                                                                                                                         |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Survey (youth)                                             | <ul style="list-style-type: none"><li>• Employment/Apprenticeship status</li><li>• Socio-demographics</li><li>• Intensity of the program</li></ul> |
| Administrative data from vocational centers and counselors | <ul style="list-style-type: none"><li>• Registration for vocational degree</li><li>• Meetings: numbers, frequency</li></ul>                        |
| Apprenticeship contracts                                   | <ul style="list-style-type: none"><li>• Employer characteristics</li></ul>                                                                         |
| Survey (vocational centers)                                | <ul style="list-style-type: none"><li>• Course attendance</li><li>• Youth experienced difficulties?</li></ul>                                      |
| Other (existing) surveys                                   | <ul style="list-style-type: none"><li>• Contextual variables</li><li>• Outcomes about youth in the same area</li></ul>                             |

# The Basics

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- 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...

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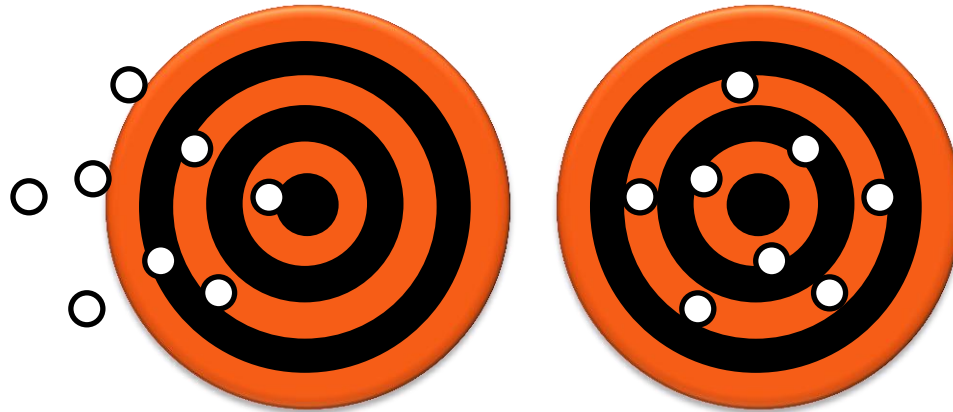
- Let's think about the people who eat from the same pot in the household where you usually stay. How many adults, adolescents, and children? Adults are age 18 and older, adolescents are ages 13 to 17, and children are ages 12 and younger.
  - So in total there are how many people in the household where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

# Validity, Reliability

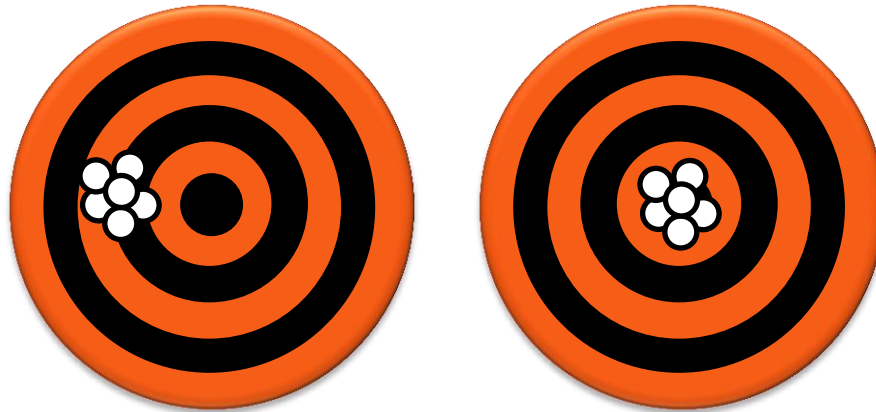


# The main challenge in measurement

- Accuracy



- Precision



# The main challenge in measurement

- Validity



- Reliability



# Validity

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- 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

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- In theory:
  - The measure is consistent, precise, but not necessarily valid
- In practice:
  - “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

# Measuring the immeasurable



If we can't measure it, we can't evaluate its importance

# 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

# 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

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**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!

## 4. Things that aren't directly observable

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**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

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- “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

## 5. Things that are best directly observed

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**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?

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- 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

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

# Modules

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

# Why collect your own data?

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- 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

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

# Some last points



- Ethics
  - Approval of participants
  - Do no harm
- Survey compliance
- Respondent (and interviewer) fatigue

GLOBAL PARTNERSHIP  
FOR YOUTH EMPLOYMENT



**Measuring Success of  
Youth Livelihood Interventions**

**A Practical Guide to Monitoring and Evaluation**

Kevin Hempel  
Nathan Fiala



# Thank you

[Nathan.Fiala@uconn.edu](mailto:Nathan.Fiala@uconn.edu)

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